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# Assessment Report on the

### **CONFEDERATION LAKE PROJECT**

Northwestern, Ontario Red Lake Mining Division NTS 52K14/15

## **Prepared for**

### **Infinite Ore Corp**

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#### 1.0 SUMMARY

Infinite Ore Corps' Confederation Lake Project ('the Property') is located in the Red Lake Mining Division of northwestern Ontario. The Confederation Lake Project is located in the Red Lake Mining Division of northwestern Ontario within Fredart Lake, Gerry Lake, Bluffy Lake, Karras Lake, and South Otter Lake Townships. The property consists of 22 Multi Cell Mining Claims and 270 Single Cell Claims that covers 13727 ha. The Property is 52 km southeast of the town of Red Lake, ON and 23 km north of Ear Falls, ON on South Bay Road (Figure 1). The Property is approximately 305 km east-northeast of Winnipeg, Manitoba, and 389 km northwest of Thunder Bay, Ontario.

The Confederation Lake Project is located within the Birch-Uchi greenstone belt of the Uchi subprovince within the Archean Superior Province. The Birch-Uchi Greenstone Belt includes a volcanogenic massive sulphide ('VMS') camp, host to the past-producing South Bay Mine (Cu, Zn) (past producer 1971 to 1981) of 1.45 million tons of ore grading 2.3% copper, 14.7% zinc and 120 g/t silver (Atkinson *et al.*, 1990) (Figure 7). The discovery of South Bay led to a period of very active exploration by junior and major mining companies. During the 1970's and 1990's, the Confederation Lake volcanic assemblage was deemed favorable for base metal sulphide mineralization.

The Red Lake/Birch-Uchi greenstone belt is comprised of 3 major volcanic assemblages: the Balmer, Woman, and Confederation. The Confederation assemblage, the most extensive volcanic sequence in the Uchi Subprovince, dominates the stratigraphy of the Birch-Uchi belt. The three volcanic sequences of the Confederation assemblage within the Birch-Uchi belt are the Knott, Agnew, and Earngey sequences. The Agnew sequence consists of mainly tholeitic basaltic and the rhyolitic rocks of the South Bay VMS mine. The Earngey sequence is dominated by calc-alkaline intermediate to felsic volcanic rocks and the Knott sequence has an arc-like composition ranging from island arc tholeite-like at the base to calc-alkaline mafic volcanic rocks towards the top. (Sanborn-Barrie *et al.*, 2004).

Within the Confederation Lake Project, The Litte Bear Lake Pluton has been mapped by Sanborn-Barrie et al. (2004) in the northernmost part of the property, described as weakly foliated equigranular to porphyritic biotite granodiorite-quartz monzonite (Figure 8). South of the Little Bear Pluton, a suite of pillowed basalts and breccias of tholeiitic affinity thought to be part of the Agnew sequence (2744 Ma) have been recognized (Boily & Long, 2020a) along with a unit of basaltic rocks of unknown stratigraphic position containing basaltic rocks formed at a transitional continental margin (Sanborn-Barrie et al., 2004). A large intrusive body of weakly foliated to massive biotite-tonalite to trondhjemite ± diorite associated with or intrusive to the Confederation assemblage rocks has been mapped at the centre of the property and extends across the southern portion of the eastern half of the property (Sanborn-Barrie et al., 2004) (Figure 8). To the south of this intrusive body, fine to medium-grained felsic and intermediate tuffaceous rocks which have been metamorphosed to amphibolite facies have been mapped as part of the Confederation Assemblage. Units of VMS mineralization hosted in felsic and intermediate flows and tuffs are thought to be part of the Agnew Lake sequence (Boily & Long, 2020b) or of the McNeely sequence of the Confederation assemblage; which is part of the Red Lake greenstone belt (Sanborn-Barrie et al., 2004). The largely pyroclastic sequences of

the southern portion of the property are intruded by a variety of felsic to mafic rocks ranging in composition from granite to gabbro, including granodiorite, monzonite, and diorite (Boily & Long, 2020b).

Several deposits have been recognized and explored on the property: Dixie 3, Dixie South, Ben Lake Stringer Zone, and Dixie 17, 18 and 19. The style and tenor of mineralization is comparable to that of the Mattabi-type deposits. Mineralized metavolcanics typically exhibited chlorite-biotite-garnet anthophyllite footwall alteration. Alteration including Mg-enrichment, Na-depletion, and base metal enrichment are typical of the volcanogenic massive sulphide (VMS) systems (Boily & Long, 2020a)

In October 2020, a Spatiotemporal Geochemical Hydrocarbon ("SGH") geochemical survey with 50m sample spacing and 200m line spacing was carried out by Clark Exploration personnel. In total 443 soil samples were collected and shipped to Activation Laboratories Ltd. ("ActLabs") for preparation and analysis. The SGH Pathfinder Class maps plot of the sums of the particular hydrocarbon class in parts-per-trillion (ppt) concentration. These Pathfinder Class maps can be used for targeting various chemical classes of hydrocarbon flux signatures related to Redox conditions and gold, silver, and copper type targets. Three separate SGH Pathfinder Class maps were created to show anomalies from the most reliable SGH Pathfinder Classes in predicting the presence of gold, copper, and silver mineralization. Anomalous zones of gold, copper, and silver mineralization are shown as vertical projections beneath these anomalies. Two potential zones of gold mineralization were identified and given a signature rating relative to gold of 4.5/6.0. Two potential zones of copper mineralization were given a signature rating of 4.0/6.0, and two zones of potential silver mineralization were given a signature rating of 3.0/6.0. A rating of 4.0 or more is an indication that this SGH Nano-Geochemistry predicts that the zone(s) described may warrant more work or more consideration (Brown, 2021).

During November 26<sup>th</sup> 2020 to January 23<sup>rd</sup> 2021, Geotech Ltd. was contracted to conduct a heliborne Versatile Time Domain Electromagnetic (VTEM Plus) and Horizontal Magnetic Gradiometer survey over two blocks on the Property (North Block and South Block) for a total area coverage of 155 km² and the total survey line coverage of 827 line-kilometres. The survey was conducted with 200m survey line spacing at N160E orientation and tie lines flown perpendicular to the survey lines with 2000m line spacing. Based on the geophysical results obtained, a number of geophysical anomalies have been identified across the Property.

Novatem Inc. was contracted by Infinite Ore Corp to conduct a NOVATEM G2 very high resolution heliborne magnetic survey over part of the Confederation Lake Property. The survey was carried out on April 19, 2021 and totalled 450 line-kilometres. Flight lines were oriented N0 with 25m spacing and control lines oriented N90 with 250m spacing. Interpretation of these surveys allowed for the identification of several first order and second order structures.

#### 2.0 INTRODUCTION

Infinite Ore Corp's Confederation Lake Project ("the Property") is located in the Red Lake Mining Division of northwestern Ontario within Fredart Lake, Gerry Lake, Bluffy Lake, Karras Lake, and South Otter Lake Townships. This Report is based on published literature, Ministry of Energy Northern Development and Mines (MENDM) assessment files, and work carried out by Infinite Ore Corp.

The Property is 52 km southeast of the town of Red Lake, ON and 23 km north of Ear Falls, ON on South Bay Road (Figure 1). The property consists of 22 Multi Cell Mining Claims and 270 Single Cell Mining Claims that covers 13,727 ha. The Property is approximately 305 km east-northeast of Winnipeg, Manitoba, and 389 km northwest of Thunder Bay, Ontario.

The Confederation Lake Project is located within the Birch-Uchi greenstone belt of the Uchi subprovince within the Archean Superior Province. The Birch-Uchi Greenstone Belt includes a volcanogenic massive sulphide ("VMS") camp, host to the past-producing South Bay Mine (Cu, Zn) (past producer 1971 to 1981) of 1.45 million tons of ore grading 2.3% copper, 14.7% zinc and 120 g/t silver (Atkinson *et al.*, 1990) (Figure 7). The discovery of South Bay led to a period of very active exploration by junior and major mining companies. During the 1970's and 1990's, the Confederation Lake volcanic assemblage was deemed favorable for base metal sulphide mineralization. Several occurrences were then investigated the most significant being the Copperlode "A" or Fredart "A" deposit and the Garnet or Arrow Zone which occur northeast of the Property.

The volcanic and sedimentary rocks of the Red Lake and Birch-Uchi greenstone belts form a continuous 200 km long arcuate belt surrounding the Trout Lake batholith (Sanborn-Barrie *et al.*, 2004). The Red Lake greenstone belt (3.0-2.7 Ga) lies to the west and the Birch-Uchi belt (2.73 Ga) lies to the east of the Trout Lake batholith (Figure 7). The English River subprovince lies at the fault-bounded southern contact of the Red Lake and Uchi-Birch belts (Sanborn-Barrie *et al.*, 2004). The Berens River Batholith complex intrudes the belts to the north and includes the tonalite and granite-granodiorite units of the Trout Lake Batholith, Cat Island Pluton, and Little Bear Lake Pluton (Sanborn-Barrie *et al.*, 2004).

The Red Lake/Birch-Uchi greenstone belt is comprised of 3 major volcanic assemblages: the Balmer, Woman, and Confederation assemblage. The Confederation assemblage, the most extensive volcanic sequence in the Uchi Subprovince, dominates the stratigraphy of the Birch-Uchi belt. The three volcanic sequences of the Confederation assemblage within the Birch-Uchi belt are the Knott, Agnew, and Earngey sequences. The Agnew sequence consists of mainly tholeitic basaltic and the rhyolitic rocks of the South Bay VMS mine. The Earngey sequence is dominated by calc-alkaline intermediate to felsic volcanic rocks and the Knott sequence has an arc-like composition ranging from island arc tholeite-like at the base to calc-alkaline mafic volcanic rocks towards the top. (Sanborn-Barrie *et al.*, 2004).

Within the Confederation Lake Project Property, The Little Bear Lake Pluton has been mapped by Sanborn-Barrie et al., 2004 in the northernmost part of the property, described as weakly foliated equigranular to porphyritic biotite granodiorite-quartz monzonite (Figure 8). South of the Little Bear Pluton, a suite of pillowed basalts and breccias of tholeiitic affinity thought to be part of the Agnew sequence (2744 Ma) have been recognized (Boily & Long. 2020a) along with a unit of basaltic rocks of unknown stratigraphic position containing basaltic rocks formed at a transitional continental margin (Sanborn-Barrie et al., 2004). A large intrusive body of weakly foliated to massive biotitetonalite to trondhjemite ± diorite associated with or intrusive to the Confederation assemblage rocks has been mapped at the centre of the property and extends across the southern portion of the eastern half of the property (Sanborn-Barrie et al., 2004) (Figure 8). To the south of this intrusive body, fine to medium-grained felsic and intermediate tuffaceous rocks which have been metamorphosed to amphibolite facies have been mapped as part of the Confederation Assemblage (Boily & Long, 2020b). Units of VMS mineralization hosted in felsic and intermediate flows and tuffs are thought to be part of the Agnew Lake sequence (Boily & Long, 2020b) or of the McNeely sequence of the Confederation assemblage, which is part of the Red Lake greenstone belt (Sanborn-Barrie et al., 2004). The largely pyroclastic sequences of the southern portion of the property are intruded by a variety of felsic to mafic rocks ranging in composition from granite to gabbro, including granodiorite, monzonite, and diorite. (Boily & Long, 2020b).

#### 3.0 PROPERTY DESCRIPTION AND LOCATION

Infinite Ore Corp's Confederation Lake Project is located in the Red Lake Mining Division of northwestern Ontario. The Property is situated 52 km southeast of the town of Red Lake, ON and 23 km north of Ear Falls, ON on South Bay Road (Figure 1). The Property is approximately 305 km east-northeast of Winnipeg, Manitoba, and 389 km northwest of Thunder Bay, Ontario.

The Confederation Lake Property lies within Fredart Lake, Gerry Lake, Bluffy Lake, Karras Lake, and South Otter Lake Townships within NTS map sheets 52K14/15. The property consists of 22 Multi Cell Mining Claims and 270 Single Cell Mining Claims that covers 13,727 ha in the Red Lake Mining Division (Figure 2-3 and Appendix I). The centre of the Property is approximately located at UTM NAD83 Zone 15, 492,000 m E and 5,638,000 m N. The total annual work requirement for the property amounts to \$269,400.

On April 10, 2018, Ontario converted their manual system of ground and paper staking and maintaining unpatented mining claims to an online system. All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. Mining claims are now legally defined by their cell position on the grid and coordinate location in the Mining Land Administration System ("MLAS") map viewer.

The mining claims comprising the Property have not been legally surveyed. All mining claims are currently in good standing. The Government of Ontario requires expenditures of \$400 per year per single cell mining claim prior to expiry, to keep the claims in good standing for the following year.

There are no known environmental liabilities associated with the Property. The proposed exploration program in this report is subject to the guidelines, policies and legislation of the Ontario Ministry of Energy, Northern Development and Mines, Ontario Ministry of Natural Resources and Forestry, and Federal Department of Fisheries and Oceans regarding surface exploration, stream crossings, and work being carried out near rivers and bodies of water, drilling and sludge disposal, drill casings, capping of holes, storage of core, trenching, road construction, waste and garbage disposal.

The Ontario Mining Act requires Exploration Permits or Plans for exploration on Crown Lands for any activity outside of prospecting or mapping and sampling. The permit and plans are obtained from the Ministry of Northern Development and Mines. Processing periods are 50 days for a permit and 30 days for a plan while the documents are reviewed by the Ministry and presented to the Aboriginal communities whose traditional lands are located where the work is to be executed.

Figure 1: Location of the Confederation Lake Project

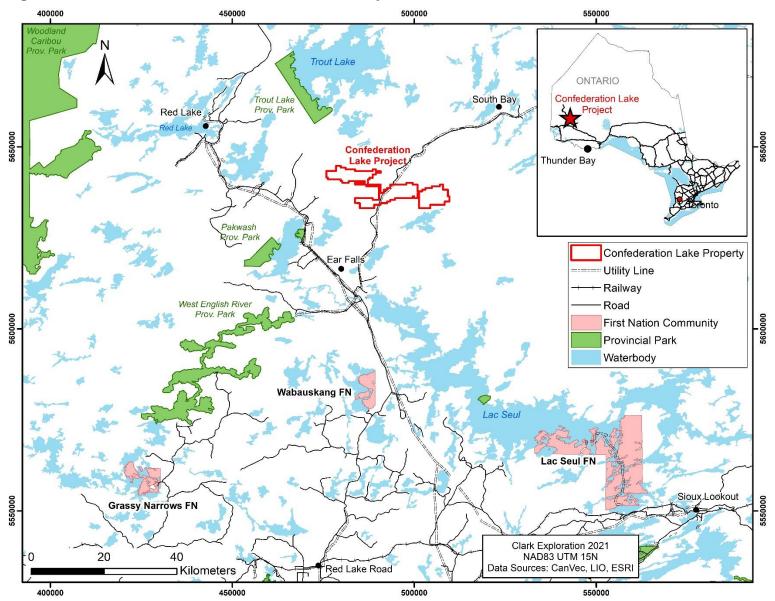


Figure 2: Confederation Lake Project Claims (West)

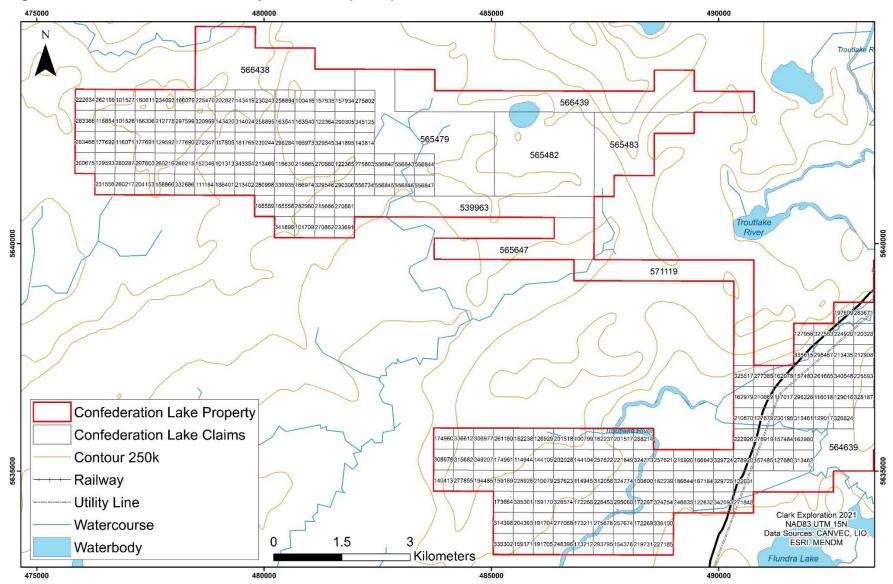
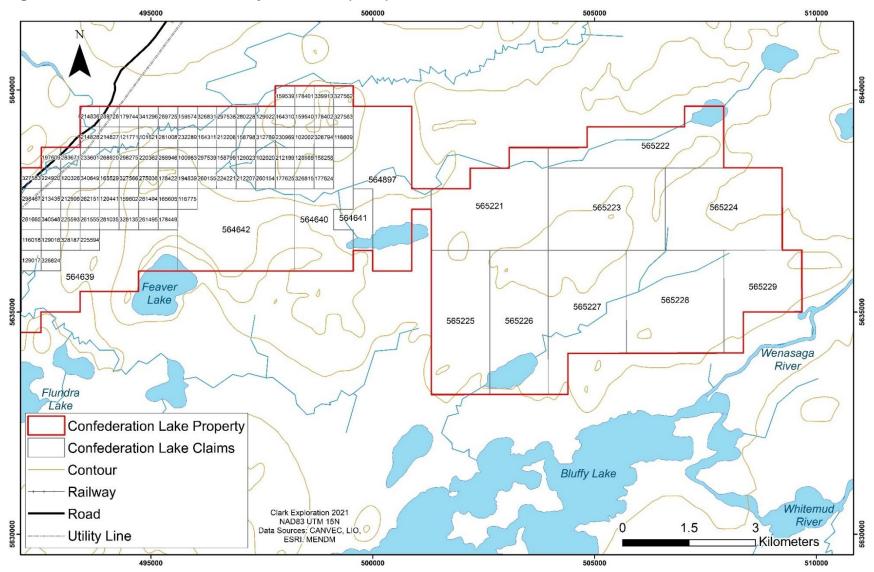


Figure 3: Confederation Lake Project Claims (East)



The proposed exploration program recommended in this report is subject to the guidelines, policies and legislation of the Ontario Ministry of Energy, Northern Development and Mines ("MENDM"), Ontario Ministry of Natural Resources and Federal Department of Fisheries and Oceans regarding surface exploration, stream crossings, and work being carried out near rivers and bodies of water, drilling and sludge disposal, drill casings, capping of holes, storage of core, trenching, road construction, waste and garbage disposal.

No mineral resources, reserves or mines existing prior to the mineralization described in this report are known by the Author to occur on the Property. The Authors know of no environmental liabilities associated with the Property, and there are no other known factors or risks that may affect access, title, or the right or ability to perform work on the Property. The mining claims do not give the claim holder title to or interest in the surface rights on those claims, and as the land is crown land, legal access to the claims is available by public roads which cross the Property.

# 4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Property can be accessed by traveling 70 km southeast from the town of Red Lake along Highway 105 to the Highway 567/South Bay Road turn off near Ear Falls, ON (population 995). Travelling for approximately 34 km northeastward by truck on an all-weather gravel road (the South Bay Road) leads to the intersection with the Ben Lake Road. Ben Lake Road provides direct access to the central portion of the property and connects to several logging/drill road s and trails leading southward and southeastward.

The Municipality of Red Lake is accessed by the all-weather paved Highway 105 that extends north for 175 km from the Trans-Canada Highway 17 at Vermilion Bay, Ontario to Red Lake. The Red Lake airport is serviced by commercial scheduled air services from Thunder Bay, Ontario and Winnipeg, Manitoba.

Red Lake is a municipality with a population of 4,107 (2016 Census) and includes the smaller communities of Red Lake, Balmertown, Cochenour, Madsen, McKenzie Island and Starratt-Olsen, all of which are built around operating or former gold mines. Evolution Mining Limited currently operates the Red Lake Mine that comprises the former Dickenson, Campbell and Cochenour mines. Since production commenced in 1949, the combined Red Lake Operation has produced more than 25 M oz of gold at an average grade in excess of 20g/t gold (<a href="https://evolutionmining.com.au/red-lake/">https://evolutionmining.com.au/red-lake/</a> accessed November 10, 2020). Highway 105 connected Red Lake to the Trans-Canada Highway in 1946, opening up the area to logging and to hunting and fishing tourism as well as mining activity.

Gold mining is the area's primary economic activity. The Municipality of Red Lake offers a full range of services and supplies for mineral exploration and mining, including both skilled and unskilled labour, bulk fuels, freight, heavy equipment, groceries, hardware and mining supplies. Hydro One maintains a 115 kV transmission line extending 240 km from Ear Falls to Pickle Lake. The powerline follows the South Bay Road and crosses the northwest end of the Ben Lake property. 43 km pipeline extends from a historic mine site along Highway 105 into the Red Lake region.

The city of Winnipeg, Manitoba (population 750,000) is located 305 km southwest from the Property and provides access to rail, national highway, port and international airport services. Equipment and industry support relevant to the mining industry are available in Winnipeg. Similarly, the City of Thunder Bay, ON 389 km southeast from the Property, has a population of 110,000 and provides support services, equipment and skilled labour for both the minerals exploration and mining industries. Rail, national highway, port and international airport services are also available out of Thunder Bay, ON.

The Property can be accessed by travelling 345 km from Thunder Bay heading northwest on Highway 11/17 to the Highway 105 turnoff. The property can then be accessed by travelling 90 km north-northeast along Highway 105, turning onto the Highway 567/South Bay Road turn off near Ear Falls and travelling for approximately 34 km northeastward on South Bay Road.

The area surrounding Confederation Lake Project is situated within the English River climatic region and characterized by a continental climate with typically hot, dry summers and cold, clear winters. The climate is controlled by three major continental air masses: the very cold arctic air mass located over the ice cap regions, the cold polar air mass located over the territories, and the dry Prairie air mass originating in the foothills of the Canadian Rocky Mountains. Winters in the Red Lake area are generally cold and clear. Average minimum and maximum temperatures during a typical winter are -25°C and -14°C in January, respectively. Winter persists from October through May with average snow precipitations of 186 cm. Summers are short and last from late May to early October. Average minimum and maximum temperatures for July are 12.3°C and 23.2°C, respectively. Rain precipitations during the summer months (April to October) average 458 mm.

The physiography of the terrain is typical of the Canadian Shield. Relief is dominated by NE/SW-oriented ridges and valleys that follow the trend of the bedrock geology as well as the ice direction of the last glacial period. The land surface was heavily carved by successive glaciation occurring for the last 2.5 Ma. Lacustrine deposits of sand, silt and clay, wave-cut beach terraces and large tracts of bare bedrock cleared of debris by lake action are common because of the influence of the glacial Lake Agassiz. Other glacial remnants are in the form of till, and numerous small kames, cross-valley moraine, and ground. There are several post-glacial muskegs and swamps and the outcrops are erratically distributed. Relief on the property varies from 350 to 400 m (ASL), with local elevations of 15 to 20 m.

The elevation of Red Lake is 357 m asl and is in the Arctic watershed. Red Lake drains into the Chukuni River which flows initially south east into the English River, then west to the Winnipeg River, and north to the Nelson River before discharging into Hudson Bay.

Vegetation consists of thick second growth boreal forest composed of black spruce, jack pine, poplar, and birch.

#### 5.0 HISTORY

The Municipality of Red Lake was founded on gold discoveries made in 1925 by Ray and Lorne Howey and George McNeely. The discoveries led to a gold rush peaking in 1926 with a subsequent mining boom in the 1930s and 1940s that resulted in 12 producing gold mines. The Birch-Uchi Greenstone Belt, located southeast of the Red Lake Greenstone Belt, constitutes a volcanogenic massive sulphide (VMS) camp, host to the past-producing South Bay Mine (Cu, Zn) (past producer 1971 to 1981) of 1.45 million tons of ore grading 2.3% copper, 14.7% zinc and 120 g/t silver (Atkinson *et al.*, 1990) (Figure 7). The discovery of South Bay led to a period of very active exploration by junior and major mining companies. During the 1970's and 1990's, the Confederation Lake volcanic assemblage was deemed favorable for base metal sulphide mineralization. Several occurrences were then investigated the most significant being the Copperlode "A" or Fredart "A" deposit and the Garnet or Arrow Zone.

A review of the MENDM assessment files available online indicates the first recorded exploration on the Property commenced in 1973. It must be noted that there was no governmental requirement of supplying assay data for diamond drill holes until 1990.

Figure 4-6 show the locations of drill holes and known mineral deposits on the property.

Figure 4: Overview of drill hole and known mineral occurrences on the Confederation Lake Project

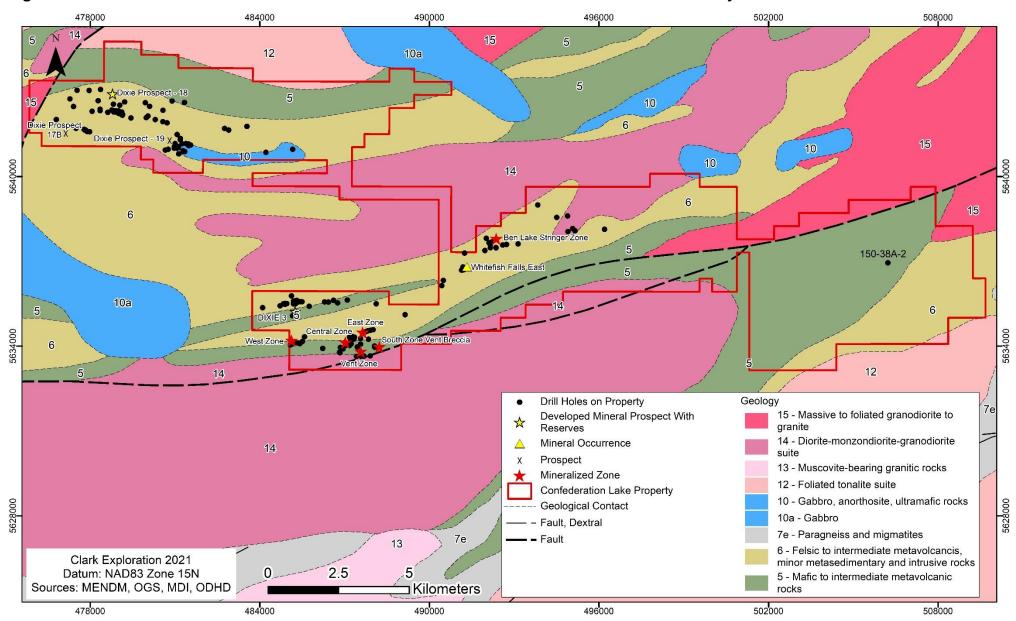


Figure 5: Location of drill holes and known deposits on the Confederation Lake Project (West)

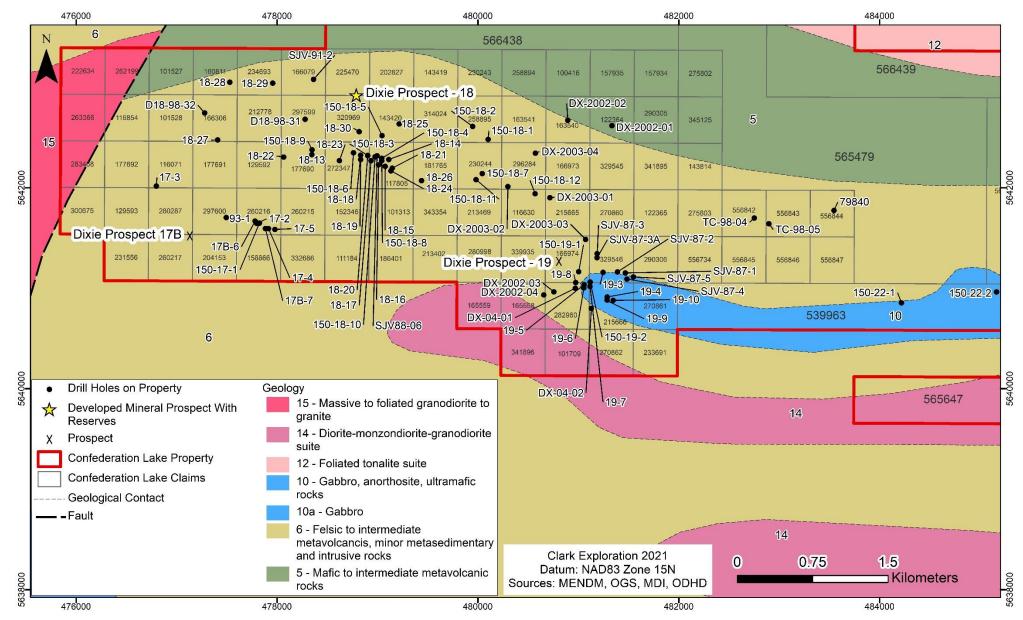
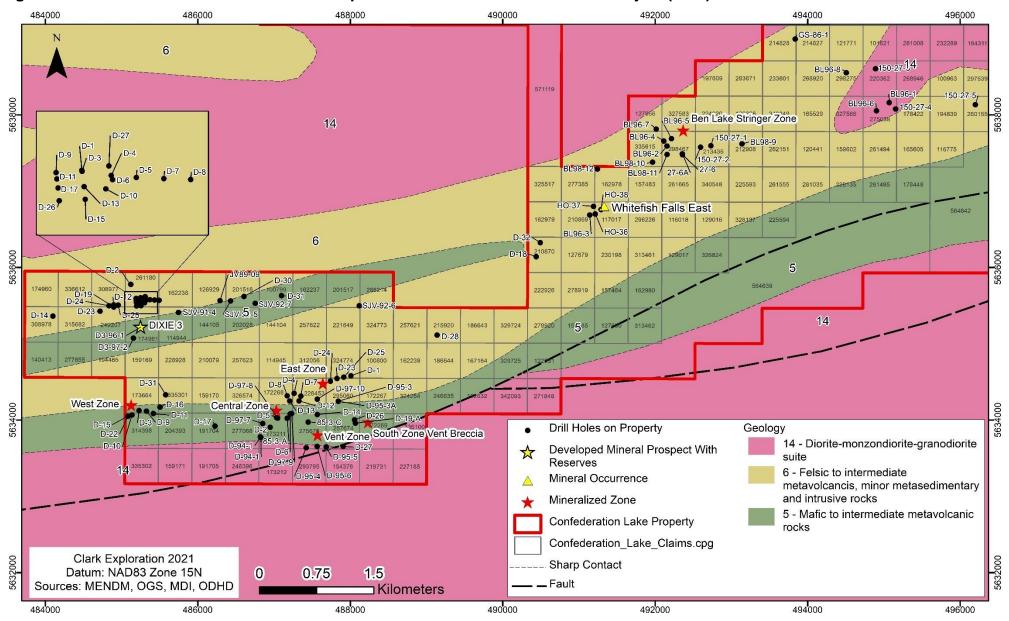


Figure 6: Location of drill holes and known deposits on the Confederation Lake Project (East)



- 1973- MacTavish (1975d). A ground-based electromagnetic survey was conducted by Hudson Bay Exploration over the northern Ben Lake group of claims to detect electrically conductive zones. Four separate anomalies were located. All anomalies showed medium amplitude on the in-phase profile and high ratios of in-phase to out-of- phase. Assessment report 52K14SE0034
- 1973- Moore (1973b). Drill logs for 8 DDHs (896 m) collared in the Ben Lake-Dixie Lake group of claims by Hudson Bay Exploration. Assessment report 52K14SE0027.
- 1975- MacTavish (1975a). A ground-based electromagnetic survey was performed on part of the Ben Lake claims on behalf of Hudson Bay Exploration. No definite conductors were located. Assessment report 52K14SE0032.
- 1975- MacTavish (1975b). A Turam ground electromagnetic survey was conducted over the Dixie and Ben Lake claims in the Red Lake area on behalf of Hudson Bay Exploration to detect electrically conductive zones. Twenty strong conductors and nine independent weak conductors were located. Assessment report 52K14NE0039.
- 1975- MacTavish (1975c). Hudson Bay Exploration and Development Company Limited previously performed a magnetometer survey and a Turam electromagnetic survey on the northeastern Ben Lake group of claims. The erratic out-of-phase readings obtained across the entire claim group are attributed to overburden effects which to some degree hampered the previous Turam survey. Assessment report 52K14NE0043.
- 1976- Chastko (1976a) Selco Mining Corporation Limited, logs of 13 DDHs totaling 1857 m. Assessment report 52K14SE0015.
- 1976- Chastko (1976b). Selco Mining Ltd, drill log for 1 DDH (109 m), Dixie Lake. Assessment report 52K14SE0020.
- 1976- Chastko (1976c). DDH logs for 3 DDHs totaling 348 m drilled by Selco mining Ltd. on the Dixie lake group of claims. Assessment report 52K14SE0026.
- 1976- Selco Mining Corporation Limited (1976a). DDH log for one hole (109 m) performed on the Dixie property. Assessment report 52K14SE0022.
- 1976- Selco Exploration (1976b). Drill log for 1 DDH (76 m); Dixie Lake project. Assessment report 52K14SE0023.
- 1976- Walford (1976). Seven drill hole logs for 742 m of core drilled by Hudson Bay Exploration on the Dixie property. Assessment report 52K14SE0025.
- 1976- Hudson Bay Exploration (1976). Log of one hole (69 m) drilled on the Ben Lake group of claims. Assessment report 52K14SE9188.
- 1976- Thorsen (1976). An exploration program conducted by Selco Mining Corp. included line cutting, electromagnetic and magnetic surveys on the western part of the Dixie North property. Several out of phase zones were noted probably representing either overburden or shear zone conductivity. Assessment report 52K14NW0041.

- 1977- Chastko (1977a). DDH log for one hole (109 m) performed by Selco Mining Limited on the Dixie property. Assessment report 52K14SE0020.
- 1977- Chastko (1977b). Selco Mining Corporation Limited. 2 DDH logs (185 m) implanted on the Dixie North property. Assessment report 52K14NW0044.
- 1977- Chiasson (1977). Drill logs for two DDHs (154 m) implanted in the northeastern section of the Ben Lake claims by Selco Mining Corporation. Assessment report 52K14NE0200.
- 1977- Lockwood (1977a). Drill Log completed by Hudson Bay Exploration Limited for 6 DDHs totaling 799 m, Dixie Lake property. Assessment report 52K14SE0018.
- 1977- Lockwood (1977b). Drill log for one DDH (130 m) collared on the Dixie claims by Hudson Bay Exploration. Assessment report 52K14NE0201.
- 1977- Selco Mining Corp. (1977a). Log of one DDH (91 m) collared on the Dixie property. Assessment report 52K14SE0017.
- 1977- Selco Mining Corp. (1977b). Drill log for one DDH (84 m) collared in the on the Dixie claims by Selco Mining Corp. Assessment report 52K14NE0202.
- 1977- Thorsen (1977a). Selco Mining Exploration Corp. lead an exploration program of line cutting and electromagnetic and magnetic surveys on a portion of the Dixie North property. Some weak in-phase readings were recorded but none of them are thought to indicate bedrock conductive sources. The magnetic survey gave generally flat results. Assessment report 52K14NW0500.
- 1977- Thorsen (1977b). Exploration program completed for Selco mining Corp. including line cutting and electromagnetic and magnetic surveys conducted on the Dixie North property. Assessment report 52K14NW0036.
- 1977- Thorsen (1977c). Log of 4 DDHs (376 m) collared on the Dixie North property. Assessment report 52K14NW0040.
- 1977- Thorsen (1977d). An exploration program including line cutting and electromagnetic/magnetic surveys was completed in the northeast section of the Ben lake group of claims. Several good conductors were noted. Assessment report SEK14NE0034.
- 1977- Thorsen (1977e). An exploration program including line cutting and electromagnetic and magnetic surveys was conducted on a group of claims within the Ben Lake property for the beneficiary of Selco Mining Corp. Assessment report 52K14NE8950.

- 1977- Thorsen and Chastko (1977). Selco Mining Corp. Ltd. performed 3 DDHs on the Dixie North property that yielded 959 m of core material. Assessment report 52K14NW0039.
- 1977- Hutton (1977). Selco Mining Corp. drilled 7 holes, totaling 615 m of core material, on the Dixie North property specifically on the Dixie 18 and 19 mineralized bodies#. The best intersection encountered was 0.43% Cu,15.44% Zn and 21 ppm Ag on 3.35 m. Assessment report 52K14NW0038.
- 1978- Chiasson (1978). DDH log of one hole drilled by Selco Mining Corp. (74 m) in the northeast area of the Ben Lake property. Assessment report 52K14NE8951.
- 1978- Moore (1978). DDH logs of five holes drilled on the Dixie property (600 m). Assessment report 52K14SE0021.
- 1978- Hutton (1978). A diamond drilling program was conducted by Selco Mining Corp. and consisted of twelve holes totaling 1,524 m of core material#. These holes were drilled to explore extensions of small copper-zinc sulphide mineralized bodies named Dixie 17 and 18. The best drill intersection was obtained on Dixie 17 which yielded 6.1 m @ 1.44 % Cu, 7.34 % Zn and 32 g/t Ag. Assessment report 52K14NW0029.
- 1978- Reed (1978a). A program of magnetic and electromagnetic surveying was carried out on the Dixie North property. The electromagnetic response on the three grids is subdued. There is extensive conductive overburden. A few weak possibly bedrock conductor responses are evident. Assessment report 52K14NW0025.
- 1978- Reed (1978b). Selco mining Corp. conducted a program of magnetic and electromagnetic surveying on the Dixie North property. The survey revealed a strong magnetic high presumed to be related to a large gabbroic intrusive. Two questionable conductors were also detected, both associated to relative magnetic lows. Assessment report 52K14NE0021.
- 1978- Selco Mining Corp. (1978a). DDH logs for two holes collared on the Dixie North property and yielding 170 m of core material. Assessment report 52K14NW0028.
- 1978- Selco Mining Corporation Ltd. (1978b). One log related to a DDH implanted on the Dixie North property yielding 77 m of core material. Assessment report 52K14NW0037.
- 1978- Selco Mining Corporation Limited (1978c). DDH logs for two holes totaling 167 m on the Dixie North property. Assessment report 52K14NE0204.
- 1978- Selco Mining Corporation Limited (1978d). DDH log for one hole totaling 84 m on the Dixie North property#. Assessment report 52K14NE0202.
- 1978- Selco Mining Corporation Limited (1978e). DDH logs for ten holes totaling 1070 m of core material on the Dixie North property. Assessment report 52K14NW0027.

- 1978- Selco Mining Corp. (1978f). Drill log for one DDH (110 m) collared on the Dixie claims by Selco Mining Corp. Assessment report 52K14NE0205.
- 1979- Pryslak and Hutton (1979). Selco Mining Corp. A program of magnetic and electromagnetic surveying was carried out on the Dixie North and Gerry Lake properties. A complex series of high positive magnetic responses extend across the grid. The source of the positive magnetic anomalies has not been observed. However, it is assumed that they are caused by gabbroic intrusions containing minor disseminated magnetite. A single bedrock conductor was identified by the survey. Assessment report 52K14NW0021.
- 1979- Rankin (1979). Selco Mining Corporation Limited. DDH logs for nine holes totaling 998 m of core material on the Dixie North property#. Assessment report 52K14NW0022.
- 1979- Selco Mining Corporation Limited (1979a). Logs for three DDHs (242 m) collared on the Ben Lake group of claims. Assessment report 52K14NE0022.
- 1979- Selco Mining Corporation Limited (1979b) Drill log for HO-36 totalling 98.154 m. Assessment report 52K14NE0024.
- 1979- Thorsen and Chastko (1979). Drill logs for 4 holes adding up to 484 m of core, Dixie prospect. Assessment report 52K14SE0014.
- 1980- Pryslak (1980). A diamond drilling program was conducted on the Dixie North property and consisted of thirteen holes and one extension hole for a total of 2485 m#. The drilling was carried out to test for extensions of known small Cu-Zn sulphide deposits which were discovered in 1977 and to test an IP anomaly and several DEEPEN anomalies. Best drill intersection was obtained near the Dixie 19 mineralized site yielded 0.49 % Cu, 3.84 % Zn and 8 g/t Ag on 5.2 m. Assessment report 52K14NW0026.
- 1980- Selco Mining Corporation (1980). Drill logs for 2 DDHs totaling 210 m, Dixie property. Assessment report 52K14SE0013.
- 1981- Selco Mining Corporation Ltd (1981). Logs of 8 DDHs on the Dixie North property producing 1525 m of core material. Assessment report 5214NW0020.
- 1984- Pryskak (1984). Drill log for HO-37 totalling 280.4 m. Assessment report 52K14NE0017
- 1985- Campbell (1985). BP Resources Canada (Selco Division) drilled 1 DDH for 163 m. Assessment report 52K14SE0009.
- 1985- Gingerich (1985). Noranda exploration Company ran a VLF-EM survey on the northwestern part of the Dixie property. The survey has provided no targets of interest. Assessment report 52K14SE0007.
- 1985- Gubins (1985). Pulse electromagnetic surveys were undertaken on selected portions of the Dixie project held by BP Resources Canada in the hope of verifying weak airborne INPUT responses as being due to deep bedrock sources. The pulse-EM surveys

revealed some targets that have not previously been identified. Assessment report 52K14NW0017.†

1985- Hooton (1984). B.P. Resources. Drilling log for one hole spanning 276 m on the Dixie North property#. Assessment report 5214NW0014.

1985- Pryslak (1985a). BP Resources presented the results of a magnetometer survey on the southern Dixie property. The positive magnetic signatures are attributed to the presence of gabbroic intrusions. Assessment report 52K14SE0010.

1985- Pryslak (1985b). VLF-EM and magnetometer surveys were initiated on the Ben Lake group of claims to provide an interpretation of stratigraphy and structural trends in an area extensively covered by overburden. A simple bedrock conductor was identified. This conductor is associated with the high mag anomaly. Assessment report 52K14NE0051.

1986- Campbell (1986a). BP Resources Canada Ltd. Log of one 138 m DDH collared on the Dixie North property#. Assessment report 5214NW0010.

1986- Campbell (1986b). One DDH log for B.P. Resources Canada, Ben Lake property, 119 m in depth. Assessment report 52K14NE0011

1986- Campbell (1986c). Drill log for HO-38 totalling 116.13 m. Assessment report 52K14NE0012.

1987- Campbell (1987). DDH log for one 183 m hole implanted by BP Resources Limited - Selco Division on the Dixie North property#. Assessment Report 5214NW0006.

1988- Degagné (1988). Drill log for 6 holes drilled by Noranda Exploration Co, Ltd. on the Dixie North property#. The holes yielded 1582 m of core. Assessment report 5214NW0016.

1988- Perry (1988). Noranda Exploration Co. Ltd. Log of one drillhole collared on the Dixie North property yielding 481 m of core material#. Assessment report 5214NW0005.

1989- MacGowan and Hyde (1989). A UTEM 3 survey was carried out by Lamontagne Geophysics in Snake Falls on behalf of Noranda Exploration Ltd. A total of 44.6 kilometers were surveyed from two grids, 20.9 kilometers from Dixie 19 with two loops, and 23.7 kilometers from Dixie 3 with four loops. Two conductors should be investigated by drilling. Assessment report 52K14SE0005.

1989- Gingerich (1989). A Pulse EM and Magnetometer surveys were carried out on some of the Gerry South claims on behalf of Noranda Exploration to locate and define any anomalous electromagnetic and/or magnetic responses. Assessment report 52K14NE0003.

1989- Walmsley (1989). 2,012.5 km of VLF-EM and 10 km of gravity surveying was performed by Noranda Exploration on portions of the Selco J.V. (Dixie) property to assist

geologic mapping. The purpose of the gravity survey was to evaluate the tonnage potential of several UTEM conductors on the property. The gravity survey returned several anomalies that could possibly reflect the existence of economic ore. However, gravity modelling has proven that many of these anomalies could also be created by gabbroic bodies which are known to exist through the property. Assessment report 52K14SE0006.

1991- Gingerich (1991a). Noranda Exploration performed a ground-based geophysical MAG survey on the Ten Mile Creek target within the Dixie property. There are possible two conductors which define sulphide sources. Assessment report 52K14SE0001.

1992- MacDougall (1992). A two-phase, seven-hole diamond drill program totaling 2589 m was completed by Noranda Exploration on the Dixie property. The program was designed to test various geological and geophysical (Downhole PEM) targets proximal to known significant massive sulphide mineralization along a stratigraphic time break exhibiting a well-developed VMS lithogeochemical alteration signature (i.e. Na2O depletion, MgO enrichment). The results of the drill program failed to return any economically significant base metal intersections or identify any new targets. Assessment report 52K14SE0002.

1994- MacDougall (1994). A single diamond drill hole totaling 303.9 m was drilled to test the Dixie 17 Cu-Zn prospect at the 200-250 m vertical level#. The results of this program confirmed the presence of favorable footwall volcanic rocks, but no significant mineralization was intersected. Assessment report 52K14NW0024.

1994- MacDougall (1994a). Noranda Exploration performed a program consisting of two DDHs (totalling 1313 m) drilling, lithogeochemistry and follow-up bore hole PEM (BHPEM) geophysical surveying on the Dixie South-Snake Falls project. The program confirmed significant Zn-rich mineralization at depth, localized along a favourable volcanic lithologic "time break." Lithogeochemistry has confirmed the presence of associated hydrothermal alteration typical of a VMS mineralizing environment and may have identified a semi conformable Zn-rich alteration pipe. Assessment Report 52K14SE0031.

1994- MacDougall (1994b). A program consisting of line cutting (32.5 km) and ground-based geophysics (Mag and HLEM: 29.5 km) was completed on the Gerry South-Snake Falls Property on behalf of Noranda Exploration. The objective of the program was to define near surface conductive targets along the eastern strike extension of the Dixie 3 mineralization and Hudson Bay base metal stringer zones. No significant near surface targets were generated. Assessment report S2K14NE0037.

1995- Clark (1995). Inco Ltd. carried out gridding, magnetometer, and horizontal loop electromagnetic (HLEM) surveys, and diamond drilling of two boreholes totaling 381 m#. The drillholes intersected a series of strongly chloritic and biotite-rich gneissic units (ash tuffs) and intercalated felsic intrusives. Best interval yielded 2.88% Cu over 0.85 m. Assessment report 52K14NE0001.

1995- MacDougall (1995). A program consisting of line cutting (43.7 km) and ground-based geophysical surveys (Mag: 40.0 km; HLEM: 34.6 km and IP: 9.1 km) was

completed on the Dixie South - Snake Falls property by Noranda Exploration. The objective of the program was to define near surface conductive targets corresponding to base metal mineralization outlined with shallow drill holes by Hudson Bay Exploration. Magnetometer surveying partially defined two strongly magnetic zones. The HLEM survey revealed several short strike lengths (200-600m) shallow depth conductors corresponding to the known mineralization. Assessment report 52K14SE0016.

1996- Barr (1996). Noranda Mining Corp conducted a three-phase, seven-hole diamond drill program (totalling 2746 m) with follow-up borehole PEM (BHPEM) geophysical surveying on the Snake Falls property. One objective was to evaluate near surface Znrich stringer to massive sulphide mineralization and the host felsic volcanic stratigraphy of Dixie South horizon at vertical depths ranging from 400-500m. Drilling resulted in the discovery of a new mineralized zone referred to as the Vent Zone. Another drill phase was initiated to test the Dixie Ten Mile mineralized horizon. The drill program along the Dixie South trend (Central Zone) confirmed significant Zn-rich mineralization at depth, localized along a favourable volcanic lithologic "time break." Lithogeochemistry has identified the presence of VMS-style alteration. Assessment report 52K14SE0011.

1996- Harper (1996). Work program consisting of geological mapping and lithogeochemical sampling was completed on the Ben Lake property. A ground-based geophysical survey, including line cutting, MAG, HLEM was carried out. The objective of the program was to evaluate the felsic volcanic stratigraphy for VMS style hydrothermal alteration and define near surface conductive targets corresponding to base metal sulphide mineralization. The program successfully outlined widespread hydrothermal alteration within a felsic package on strike with the Copperlode project 15 km to the northeast. Assessment report 52K15NW2003.

1997- Barr (1997). Noranda Mining and Exploration completed an eight-hole diamond drill program (totaling 3,030 m) on the Ben Lake property. The drill program confirmed much wider packages of Zn-rich mineralization than previously recorded in historical shallow drill holes. The lithogeochemical survey confirmed the presence of intense hydrothermal alteration associated with Cu-Zn volcanogenic massive sulphide deposition. Assessment report 52K14NE0046.

1998- Boyd (1998). Tri Origin Exploration Ltd implemented a program on Dixie North consisting of line cutting plus ground magnetometer and Max-Min surveys followed by 800 m of diamond drilling distributed in 5 holes. The first three holes intersected mostly disseminated sulphides associated with altered volcanic rocks favorable for hosting VMS. Best assay value obtained was 0.74 % Cu and 12.3 g/t Ag over 0.98 m. Assessment report 52K14NE2001.

1998- King (1998). A program consisting of line cutting and geophysical surveys (Mag, HLEM) was completed by Noranda mining and Exploration on the Dixie North property. The Mag data defined a strong high along the southern flank of the Dixie 18 mineralized body which trends along strike, onto the central portion of the Dixie 19 body. This Mag high is associated with a unit previously mapped as mafic intrusive rocks. Weaker and slightly discontinuous Mag highs are also associated with the trend of the Dixie 18 and Dixie 19 zones. The results of the HLEM survey on the Dixie 18 grid indicate three discrete

conductive horizons along parallel magnetic trends within the eastern portion of the gridded area. Historical resources of 110,000 t @ 0.55 % Cu, 12.5 % Zn and 20 g/t Ag\* are quoted. Assessment report 52K14NW2001.

1999- King (1999a). Noranda conducted a five-hole diamond drill program (totalling 2,169.7m) on the Dixie 3 and Dixie south horizons with follow-up borehole PEM (BHPEM) geophysical surveying. Assessment report 52K14SE2001.

1999- King (1999b). A four-hole diamond drill program (totaling 1659 m) was completed on the Ben Lake property followed by borehole pulse electro-magnetic (BHPEM) surveying. Results from the diamond drill program have confirmed favorable felsic stratigraphy hosting significant Zn-rich sulphide mineralization at moderate depths of 200-300m along strike of the Ben Lake Stringer Zone. Lithogeochemistry indicates the alteration is typical of hydrothermal environments associated with the deposition and formation of VMS base metal deposits. Assessment report 52K14NE2007.

2002- Davison (2002). Tribute Minerals Corp. completed line cutting and a Quantec Titan-24 geophysical surveys over the eastern portion the Dixie North property. The survey identified a major low resistivity and high chargeability anomaly coincident with the northern mineralized horizon located east of the known Dixie 18 and Dixie Gap mineralization. The anomaly occurred along an 800 m EW strike (Dixie 20 zone). The second Titan-24 chargeability anomaly coincided with the known Dixie 19 Zone. The blind anomaly covered an 800 meter east-west strike length. Discontinuities in the Titan-24 anomaly are consistent with several NNE oblique fault structures identified in drilling by Noranda on the Dixie property. Assessment report 52K14NE2011.

2003- Davison (2003a). Line cutting and a Quantec Titan-24 geophysical surveys were completed on the Ben Lake property for Tribute Minerals. The Titan-24 data successfully outlined the location and size of the blind mineralized stringer zone consistent with the data reported by the Noranda drilling programs. Assessment reports 52K14NE2012 and 52K14NE2013.

2003- Davison (2003b). Line cutting and Quantec Titan-24 geophysical surveys were carried out over the central and northern portion of the Dixie property. The information gathered from the Titan surveys clearly indicates the extent of the significant conductive unit existing within more resistive units. The depth to the top of the major feature has been confirmed at approximately 1 km around the previous survey. A strike length of the deeper conductive zone is indicated at 1.8 km. Assessment report 52K14NE2014

2003- Davison (2003c). Tribute Minerals Corp. completed a 4 DDHs program totaling 1970 m of core followed by a downhole geophysical surveys carried out in the eastern portion of the Dixie North property#. The southern targets were designed to test geophysical anomalies below shallow drilling completed by Noranda and Selco in the Dixie 19 zone, whereas the northern targets were based on geophysical anomalies downstrike from known sulphide mineralization in the Dixie 18 zone. High grade zinc analyses to 9.65% and copper analyses to 1.95% Cu were reported, however the strongly mineralized sections did not exceed 2-3 m in thickness. Assessment report 52K14NW2008.

2004- Davison (2004). A program of line cutting, and Quantec Titan-24 geophysical surveys was carried out by Tribute Minerals over the central and northern portion of the Dixie North property. The DCIP survey indicated the northern horizon had the most prominent expressions of both chargeability and resistivity. Several other satellite anomalous zones in the DCIP data were detected within the region but appear to be isolated, shallow, and related to the east west-trending stratigraphy. Assessment report 52K14NE2014.

2005- Davison (2005). Tribute Minerals completed a four-hole diamond drilling program in the eastern portion of the Dixie North property for a total 3994 m followed by a subsequent borehole electro-magnetic (BHTEM) surveys completed by Quantec Geoscience Inc#. It is probable that a significant off-hole anomaly in the first DDH is due to the presence of a large sulphide bearing body. The extent and intensity of the alteration and sulphide mineralization observed in the other drillholes and their similarities to mineralized zones associated with known volcanogenic base metal deposits was deemed encouraging. Assessment reports 20001547 and 20001548.

2006- Boyd (2006). Tribute Minerals performed a follow-up two-hole diamond drilling program carried out in the southeastern portion of the Dixie North property. Borehole geophysical surveys have been completed on two DDHs. The mineralization intersected in one hole is comparable to the best results generated from the earlier Selco / Noranda drilling, and suggests the Dixie 19 Zone remains open at depth and to the east. Assessment report 20002240.

2012- Boyd (2012). Aurcrest Gold completed a line cutting and a Quantec Titan-24 DCIP geophysical survey carried out only over the Snake Falls property. The Titan-24 data clearly identified a major low resistivity and high chargeability anomaly coincident with the Dixie 3 mineralized deposit. The document cites an historic resource of 91 kt @ 1.0 % Cu, 10.0% Zn\*. Assessment Report 20010112.

2017- Hewitt and Wade (2017). Pistol Bay Mining Ltd. contracted GEOTECH Airborne Geophysical Surveys to carry out a heliborne versatile time domain electromagnetic (VTEM+) and horizontal magnetic gradiometer geophysical survey. The 2,100 line-kilometer survey covers the eastern two-thirds (40 km in length) of Pistol Bay properties in the Confederation Lake greenstone belt. Initial interpretation of the resulting data indicates conductive responses at all historic showings, zones, and mineralized drill intersections. Furthermore, there are conductive extensions of several known zones, beyond sections that have been drilled in the past and numerous IP effect anomalies have been identified. Figures 5, 6 and 7 display the Total Magnetic Intensity (TMI), TAU values (dB/dT) and interpretation contour maps for the eastern part of the Confederation South project. The conductance, TMI and low resistivity anomalies are related to mineralized VMS bodies and the exposure of iron formations.

2020- In early 2020, Infinite Ore Corp. optioned the Dixie North property, Dixie Lake 3, Dixie 3, Ben Lake-Dixie properties from Pistol Bay Mining and 1544230 Ontario Inc.

#### 6.0 GEOLOGICAL SETTING AND MINERALIZATION

#### 6.1 REGIONAL GEOLOGY

The Confederation Lake Project lies within the Uchi Subprovince of the Archean Superior Province of the Canadian Shield (Figure 7). The Uchi Subprovince is characterized by an eastward-trending region of metavolcanic and lesser metasedimentary rocks forming a semi continuous supracrustal network composed of generally submarine calc-alkaline, island-arc volcanic rocks around granitoid batholiths and plutons (Stott *et al.*, 1991). The coherent greenstone belts, Red Lake and Uchi-Birch, comprise the Uchi Subprovince, Red and are interpreted to have evolved by eruption and deposition of volcanic sedimentary sequences on the active continental margin (the North Caribou Terrane, 3.0 to 2.7 Ga), followed by subduction related arc volcanism. Continental collision with Winnipeg River terrain at 2.71-2.7 Ga led to subsequent crust thickening and metamorphism (Stott & Corfu, 1991; Sanborn-Barrie *et al.*, 2000, 2001).

The volcanic and sedimentary rocks of the Red Lake and Birch-Uchi greenstone belts form a continuous 200 km long arcuate belt surrounding the Trout Lake batholith (Sanborn-Barrie *et al.*, 2004). The Red Lake greenstone belt (3.0-2.7 Ga) lies to the west and the Birch-Uchi belt (2.73 Ga) lies to the east of the Trout Lake batholith. The English River subprovince lies at the fault-bounded south contact of the Red Lake and Uchi-Birch belts (Sanborn-Barrie *et al.*, 2004). The English River subprovince is characterized by metasedimentary units of a high metamorphic grade forming schist, migmatite, and derived diatexite (Percival *et al.*, 2006). The Berens River Batholith complex intrudes the belts to the north and includes the tonalite and granite-granodiorite units of the Trout Lake Batholith, Cat Island Pluton, and Little Bear Lake Pluton (Sanborn-Barrie *et al.*, 2004) (Figure 8).

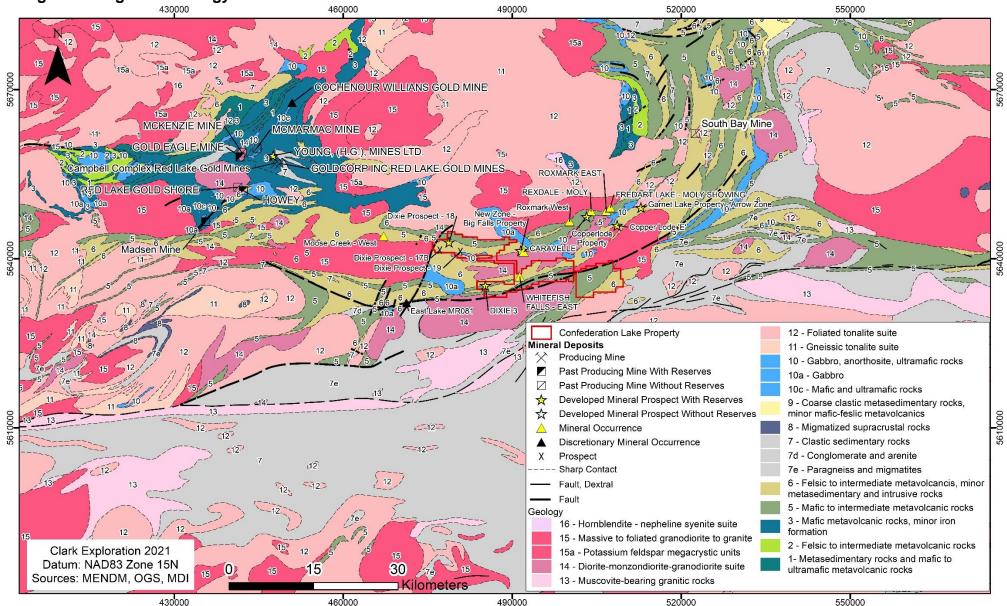
The Red Lake/Birch-Uchi greenstone belt is comprised of 3 major volcanic assemblages: the Balmer, Woman and Confederation. The Balmer Assemblage consists mainly of tholeiitic to komatiitic flows, sills and sub-volcanic intrusions, with lesser abundance of iron formation, rhyolitic flows and associated pyroclastic, and clastic sedimentary rock. The Woman assemblage forms a band of arc-like volcanic rocks of the Birch-Uchi belt (Sanborn-Barrie *et al.*, 2004). The Woman assemblage is composed of mafic to felsic volcanic sequences typically with chemical and tuffaceous metasedimentary rocks at the top. These cycles comprise lower units of tholeiitic basalts and minor basaltic andesites; and upper units of calc- alkalic pyroclastic deposits and local flows The Woman assemblage contains arc-like type tholeiitic and calc-alkaline mafic volcanic rocks with the eastern part of the dominated by sub- aerial to very shallow marine welded felsic tuff. Stromatolitic marble demarcates the top of the of the Woman assemblage (Thurston, 1985).

The Confederation assemblage, the most extensive volcanic sequence in the Uchi Subprovince, dominates the stratigraphy of the Birch-Uchi belt. The three volcanic sequences of the Confederation assemblage are the Knott, Agnew and Earngey sequences. The Agnew sequence consists of mainly tholeitic basaltic and the rhyolitic rocks of the South Bay VMS mine. The Earngey sequence is dominated by calc-alkaline

intermediate to felsic volcanic rocks and the Knott sequence has an arc-like composition ranging from island arc tholeite-like at the base to calc-alkaline mafic volcanic rocks towards the top. (Sanborn-Barrie *et al.*, 2004).

The supracrustals rocks of the Red Lake and Birch-Uchi belts are regionally metamorphized to greenschist and amphibolite-facies (Sanborn-Barrie *et al.*, 2004). These rocks have been intruded by a number of intrusive bodies including serpentinized peridotite, gabbro, diabase, and small felsic dykes and stocks, eg; Dome and Mackenzie stocks. The Birch-Uchi belt has undergone two penetrative regional deformation events, possibly an older non-penetrative event, and local strain events induced by plutonic activity within and marginal to the belt. Similarly, evidence of several episodes of deformation linked to hydrothermal activity and gold mineralization are evident in the Red Lake belt. In the Confederation Lake area, the volcanosedimentary and plutonic rocks have been affected by polyphase deformation, folding, faulting, and shearing as well as greenschist to locally amphibolite facies regional metamorphism during the Kenora orogeny at approximately 2.72 Ga (Stone, 1990).

Figure 7: Regional Geology



#### 6.2 PROPERTY GEOLOGY

The mafic to felsic metavolcanic rocks underlying the Confederation Lake Project are considered to be part of the Confederation assemblage (Figure 8). The Litte Bear Lake Pluton has been mapped by Sanborn-Barrie *et al.*, 2004 in the northernmost part of the property, described as weakly foliated equigranular to porphyritic biotite granodiorite-quartz monzonite. South of the Little Bear Pluton, a suite of pillowed basalts and breccias of tholeitic affinity thought to be part of the Agnew sequence (2744 Ma) have been recognized (Boily and Long, 2020a) along with a unit of basaltic rocks of unknown stratigraphic position containing basaltic rocks formed at a transitional continental margin (Sanborn-Barrie *et al.*, 2004).

The inferred stratigraphy of the northern portion of the property is comprised of southward-younging amphibolitized mafic flows, andesitic to dacitic flows and pyroclastic rocks, with an upper chemical metasedimentary sequence of marbles, iron formations and cherts (Boily and Long, 2020a). To the south, metasediments are probably overlain by a later cycle of mafic to felsic metavolcanics. The tonalite-trondhjemite  $\pm$  diorite plutonic lithologies described by Sanborn-Barrie *et al.* (2004) probably represent a mix of felsic flows and pyroclastic rocks intruded by tonalitic-trondhjemitic (?) syn-volcanic plutons (Boily and Long, 2020a). Mineralized horizons in the northern part of the property are identified within highly altered intermediate metavolcanics interbedded with chemical metasediments which have been intruded by syn-volcanic to younger gabbro, diorite to granodiorite. Mineralized metavolcanics typically exhibited chlorite-biotite-garnet anthophyllite footwall alteration. Alteration including Mg- enrichment, Na-depletion, and base metal enrichment is typical of volcanogenic massive sulphide (VMS) systems and appears to be consistent with the style of alteration on the property (Boily and Long, 2020a).

A large intrusive body of weakly foliated to massive biotite-tonalite to trondhjemite ± diorite associated with or intrusive to the Confederation assemblage rocks has been mapped at the centre of the property and extends across the southern portion of the eastern half of the property (Sanborn-Barrie et al. 2004) (Figure 8). Gabbroic intrusive rocks including fine-grained dykes and sills are also exposed in this area (Boily and Long, 2020b). To the south of this intrusive body, fine to medium-grained felsic and intermediate tuffaceous rocks which have been metamorphosed to amphibolite facies have been mapped as a of the Confederation Assemblage. Units of VMS mineralization hosted in felsic and intermediate flows and tuffs are thought to be part of the Agnew Lake sequence (2744 Ma) according to Boily and Long, 2020b whereas similar units are thought to be of the McNeely sequence of the Confederation assemblage (part of the Red Lake greenstone belt) according to Sanborn-Barrie et al., 2004. The geology of the southern portion of the property includes pillowed mafic flows with minor intercalated felsic air-fall tuff units 2-5 m thick. A local accumulation of felsic metavolcanics occurs north of Bruce Lake in which 2-5 m thick graded beds of felsic lapillistones and tuffs of air-fall deposition are overlain by a few hundred meters of upwards-fining felsic lapillistones and tuff-breccias (Thurston, 1981). This upwards-fining felsic unit is thought to be a debris flow deposit, based upon fine scale grading, lack of sorting, and presence of fine-grained interbedded units. Felsic

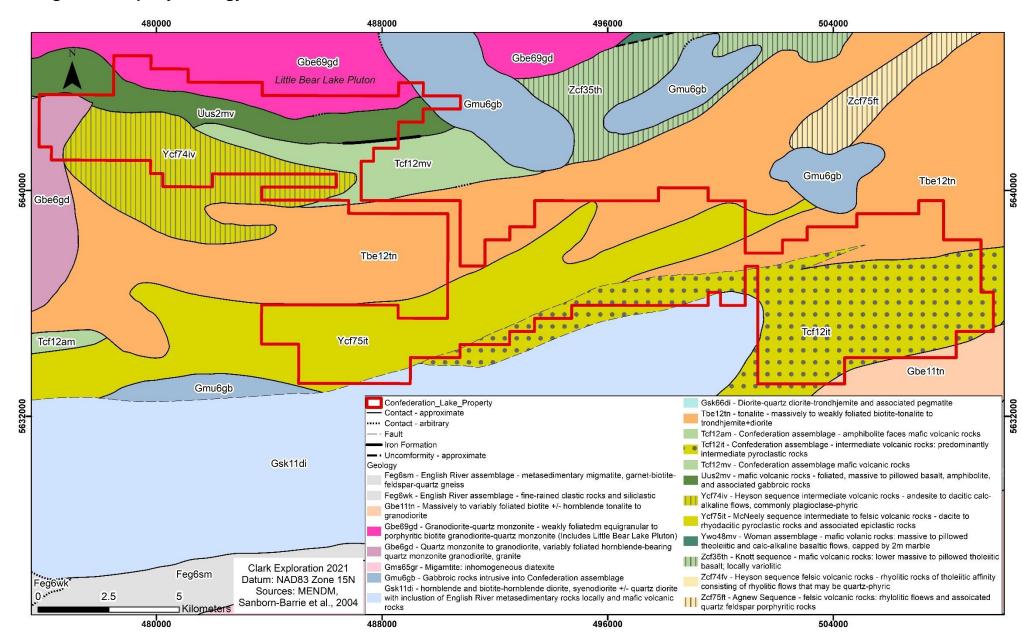
flow-breccia succeeded by felsic, fine-grained, graded, air-fall tuff and pillowed mafic flows overlie the debris flow unit. The area immediately north of Bluffy Lake is underlain by an area 16 km by 2.5 km of massive mafic flows. Massive, aphanitic felsic ash tuffs are mapped additionally with rare primary bedding features. These units strike generally 60° to 85° and dip steeply north (80-85°) to vertical with a southeast younging direction. This largely pyroclastic sequence is intruded by a variety of felsic to mafic rocks ranging in composition from granite to gabbro, including granodiorite, monzonite, and diorite. Granite and granodiorite units are typically exposed in ridges of outcrop, forming ellipsoidal-shaped intrusions parallel to the regional strike. These intrusions are very similar in composition to the felsic pyroclastic units and were probably emplaced as synvolcanic intrusions. Granitic, gabbroic and dioritic intrusive rocks commonly mark greenstone-granite boundaries.

In the Ben Lake-Sandy Pine area (eastern part of the current property) Harper (1996) recognized several exposed rock types:

- 1. Felsic tuff (including felsic crystal tuff quartz eye tuff): the felsic crystal tuffs are strongly altered, medium grained and contain subhedral quartz and feldspar crystals. The outcrops are generally massive to weakly foliated and show low-grade alteration in chlorite-biotite. A medium-grained, equigranular rock with rounded blue quartz eyes is recognized as quartz eye tuff. This unit is weakly foliated with minor chlorite, sericite and weak to strong biotite alteration.
- 2. Massive and schistose granodiorite: this unit is medium-grained, weakly foliated and variably magnetic. Plagioclase, amphibole, and biotite are recognized in this unit as well as fine grained disseminated pyrite.
- 3. Granite: this unit is exposed regionally and is coarse-grained, massive with local euhedral quartz phenocrysts.

Thurston (1981) indicated the southern volcanic belt incorporating the southern portion of the Confederation Lake Project forms the southern limb of a synclinorium in which the axial zone of the synclinorium is intruded by stocks of granitoid rocks.

**Figure 8: Property Geology** 



#### 6.3 MINERALIZATION

The style and tenor of mineralization is comparable to that of the Mattabi-type deposits. Mineralized metavolcanics typically exhibited chlorite-biotite-garnet anthophyllite footwall alteration. Alteration including Mg-enrichment, Na-depletion, and base metal enrichment are typical of the volcanogenic massive sulphide (VMS) systems (Boily & Long, 2020a). The known mineral prospects and zones on the property are outlined below and shown in Figures 4-6.

#### **Dixie Zones 17, 18 and 19**

The northwestern limb of the property hosts Dixie 17, 18 and 19. Mineralization of these prospects include a mineralized marker horizon containing significant copper and zinc concentrations attributed to chalcopyrite and iron-rich sphalerite mineralization. (Boily & Long, 2020a). Details on Dixie 17, 18 and 19 are as follows.

<u>Dixie 17 Zone</u>: Noranda Mining and exploration drill core sample intersections returned 6.33% Zn, 1.5% Cu over 3.35 m and 7.34% Zn and 1.44% Cu over 9.5 m (Boily & Long, 2020a).

<u>Dixie 18 Zone</u>: This zone is typified by mineralized metavolcanics with chlorite-biotite-garnet-anthophyllite footwall alteration. The mineralized body is presumed to be 46 m thick and 76 m long. The Best DDH intersections include: 2.74 m of sulphides, averaging 0.57% Cu, 2.79% Zn, and 17 g/t Ag; 4.27 m averaging 0.43% Cu, 15.44% Zn and 21 g/t Ag; 4.88 m of sulphides, averaging 0.68% Cu, 10.09% Zn, and 18 g/t Ag; 2.74 m of sulphides, averaging 0.48% Cu, 5.61% Zn and 8.84 g/t Ag; and 1.21 m of massive sulphides, averaging 1.53% Cu, 7.54% Zn and 29 g/t Ag (Boily & Long, 2020a).

<u>Dixie 19 Zone</u>: Diamond drill holes collared by several companies intersected weakly- to moderately-foliated gabbro and moderately- to well-foliated amphibolite equivalents transected by minor granodiorite, felsic dykes, and quartz veins. The gabbro units ranged in composition from gabbro to leucogabbro to anorthositic gabbro. Felsic to intermediate metavolcanics, commonly massive to weakly-foliated schists and gneisses, exhibited intense local alteration with secondary chlorite, biotite and anthophyllite and minor garnet associated with base metal mineralization. Massive sulphide mineralization is presumed to be 500 m in strike length to a depth of 225 m with a range in thickness from <1 m to >30 m. The best DDH intersections returned include: 1.61% Cu, 0.18% Zn, 83 g/t Ag and 0.68 g/t Au over 0.91 m; 1.61% Cu, 6.33% Zn and 83 g/t Ag over 2.74 m; 15.9% Zn, 0.035% Cu over 0.75 m; 1.18% Zn, 0.81% Cu and 26 g/t Ag over 1.3 m; and 6.33% Zn and 1.50% Cu over 3.35 m (Boily & Long, 2020a).

#### Dixie 3

The Dixie 3 mineralization style occurs in the southwestern limb of the property. Zn-rich mineralization is found along a break in volcanic stratigraphy (unconformity). This unconformity is represented by an altered felsic to intermediate pyroclastic contact defined by a chlorite-biotite-garnet-anthophyllite alteration assemblage in the footwall. Geochemical analysis of this altered volcanic unit indicates widespread Na-depletion and a southward younging direction is suggested by footwall alteration geometry. Mgenrichment, typical of VMS hydrothermal alteration, is also noted. The mineralization assemblage consists of massive pyrrhotite with lesser pyrite, sphalerite, chalcopyrite, and galena. The deposit averages 3m in width and has been traced by diamond drilling along strike for 150 m and to a depth of 100 m (Boily & Long, 2020b). A historic resource estimate of 91 kilotons @ 1.0% Cu, 10.0% Zn has been reported (Boyd, 2012).

# Dixie South (West Zone, Central Zone, East Zone, Vent Zone, South Zone Vent Breccia)

There are several Zn-rich mineralized zones that define a diffuse mineralized corridor along a 3.0 km strike length in the southwestern limb of the property, approximately 1.2-1.5 km south of Dixie 3. Dixie South mineralization is found stratigraphy above Dixie 3 mineralization and occurs at several stratigraphic levels. The mineralization occurs in felsic pyroclastics interbedded with spherulitic rhyolite flows. It consists of wide zones (up to 40 m) of disseminated to stringer sphalerite with minor chalcopyrite, and trace galena along the western portion of the corridor, to locally massive pyrrhotite-sphalerite with trace chalcopyrite-galena mineralization to the east. Typical drill intersections reported by Hudson Bay are: Central Zone: 0.95% over 18 m; Vent Zone: 0.08 % Cu and 1.1% Zn over 30.5 m; South Zone Vent Breccia: 0.1-10% Zn over 37.5 m (Boily & Long, 2020b).

#### **Ben Lake Stringer Zone**

The Ben Lake Stringer Zone is situated in the central area of the property between the South Bay Road and the Trout Lake River. Diamond drilling by Noranda Exploration (Barr 1996, 1997) revealed an assemblage of dominantly altered felsic tuffs of the Agnew Lake sequence with abundant stringers of pyrite-pyrrhotite-sphalerite- chalcopyrite-gahnite-magnetite mineralization, thought to be consistent with VMS deposition. The mafic volcanic units exhibit intense alteration of a chlorite-anthophyllite-cordierite-biotite-garnet assemblage, whereas the alteration assemblage in the felsic pyroclastic units consist of sericite-biotite-andalusite-staurolite-chlorite. The best drill core sample intersections provided by Noranda returned values of 0.11% Cu, 0.46% Zn, and 10 g/t Ag over 43.8m (Drill hole BL-96-2) and 0.14% Cu, 0.53% Zn, and 14.5 g/t Ag over 45.6 m (Drill Hole BL-96-4) (Boily and Long, 2020b; Barr, 1997).

#### **Whitefish Falls East**

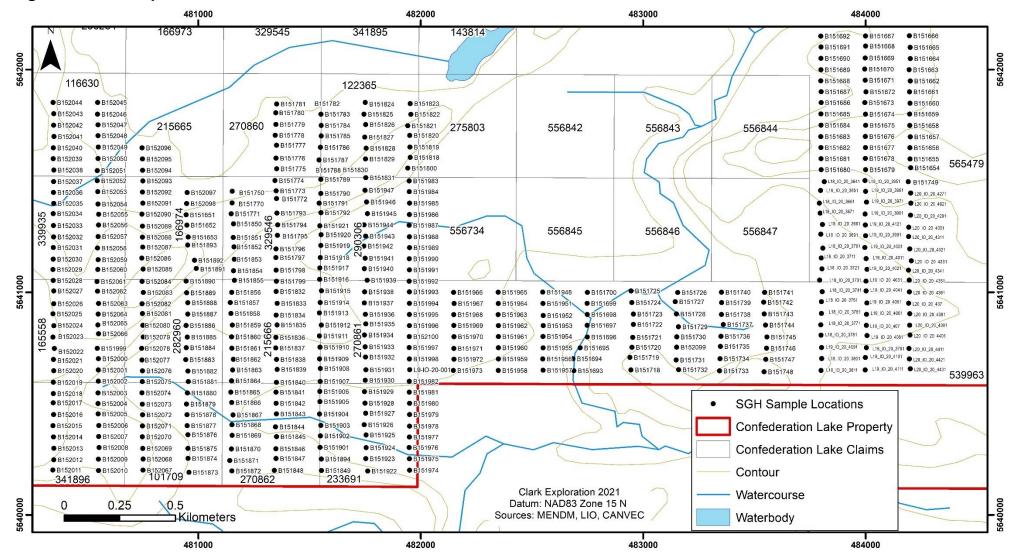
DDH BL96-3 drilled through an intensely altered felsic to intermediate volcanic followed by a mixture of quartz diorite, granodiorite, and narrow ash tuff horizons all of which contained fine disseminated magnetite. The alteration assemblage associated with the mineralization includes chlorite-biotite-sericite. The mineralization consisted of disseminated to weak stringers of pyrrhotite-pyrite with minor chalcopyrite from 284.2-292.8 m, between two unaltered mafic units. The most heavily mineralized interval returned an averaged assay of 0.32% Cu and 7.1 gpt Ag over 2.6 m. The best assays from this drillhole returned 15.6 ppm Ag, 565 ppb Au, 0.56% Cu, and 0.077% Zn (Barr, 1997). DDH HO-36 returned assays averaging 0.24% Cu over 4.85 m within altered rhyodacite tuff to lapilli tuff with 5-10% combined pyrite-pyrrhotite stringers locally and minor chalcopyrite (Selco Mining Corporation Limited, 1979b). A sampled interval within DDH HO-38 of quartz-chlorite-biotite-garnet schist with 2-5% sulphides, minor seams of sphalerite and patches of chalcopyrite and pyrrhotite returned 9579 ppm Zn over 1.34 m (Campbell, 1986)

#### 7.0 EXPLORATION

#### 7.1 SGH SAMPLING PROGRAM

During the time between October 11-13, 2020, a Spatiotemporal Geochemical Hydrocarbon ("SGH") geochemical survey with 50m sample spacing and 200m line spacing was carried out by Clark Exploration personnel. In total 443 soil samples were collected (Figure 9) and shipped to Activation Laboratories Ltd. ("ActLabs") for preparation and analysis. The SGH Pathfinder Class maps plot of the sums of the particular hydrocarbon class in parts-per-trillion (ppt) concentration. These Pathfinder Class maps can be used for targeting various chemical classes of hydrocarbon flux signatures related to Redox conditions and gold, silver, and copper type targets. Three separate SGH Pathfinder Class maps were created to show anomalies from the most reliable SGH Pathfinder Classes in predicting the presence of gold, copper, and silver mineralization. Anomalous zones of gold, copper, and silver mineralization are shown as vertical projections beneath these anomalies. Two potential zones of gold mineralization were identified and given a signature rating relative to gold of 4.5/6.0 (Figure 10). Two potential zones of copper mineralization were given a signature rating of 4.0/6.0 (Figure 11), and two zones of potential silver mineralization were given a signature rating of 3.0/6.0 (Figure 12). A rating of 4.0 or more is an indication that this SGH Nano-Geochemistry predicts that the zone(s) described may warrant more work or more consideration (Brown, 2021).

Figure 9: Soil sample locations



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Figure 10: SGH Gold Pathfinder Class Map with predicted gold mineralization (yellow outlines)

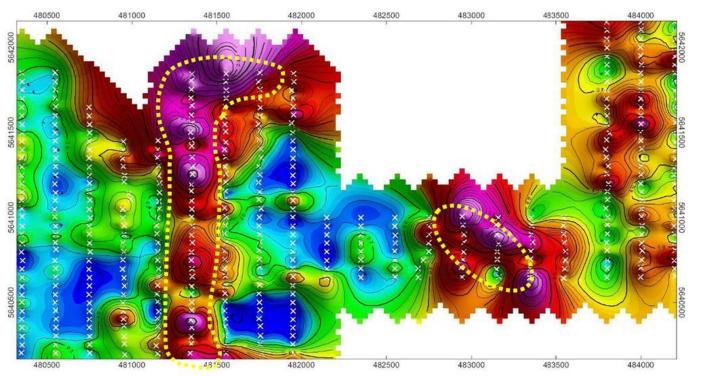


Figure 11: SGH Copper Pathfinder Class Map with predicted copper mineralization (yellow outlines)

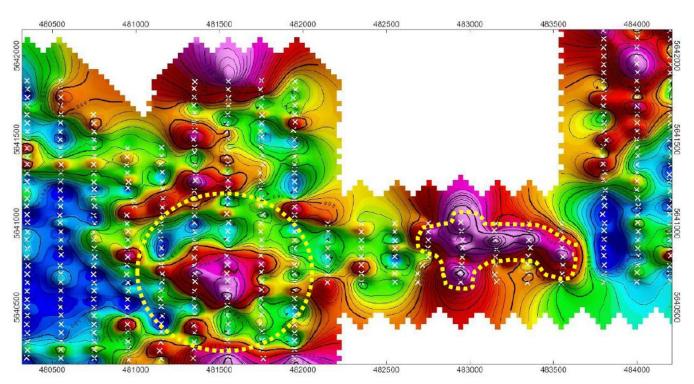
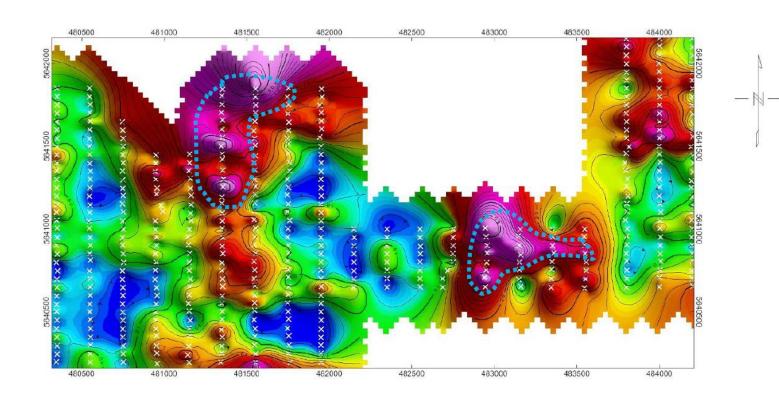




Figure 12: SGH Silver Pathfinder Class Map with predicted silver mineralization (blue outline)

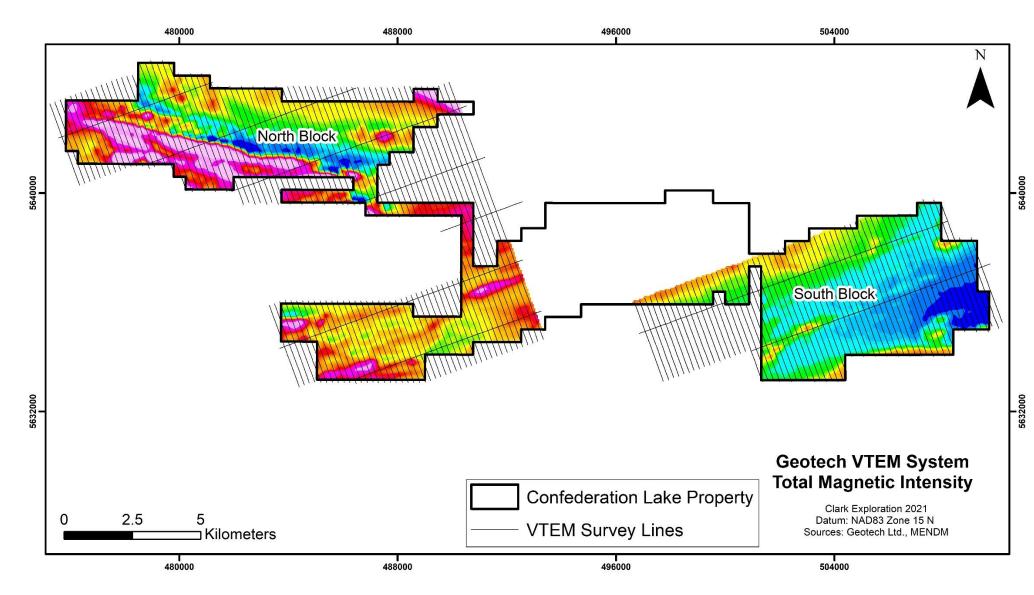


#### 7.2 VTEM SURVEY

During the period from November 26<sup>th</sup>, 2020 to January 23rd 2021, Geotech conducted a Versatile Time Domain Electromagnetic (VTEM plus) and Horizontal Magnetic Gradiometer survey over two blocks on the property (North Block and South Block) for a total coverage of over of 827 line km (Figure 13). Measurements consisted of Vertical (Z) and In-line Horizontal (X) component of the EM fields using an induction coil and a horizontal magnetic gradiometer using two caesium magnetometers. This survey was flown in a northwest to southeast (N 160° E azimuth) direction with traverse line spacings of 200 metres and tie lines were flown perpendicular to traverse lines at 2000m line spacings.

Based on the geophysical results obtained, several geophysical anomalies have been identified across the Property.

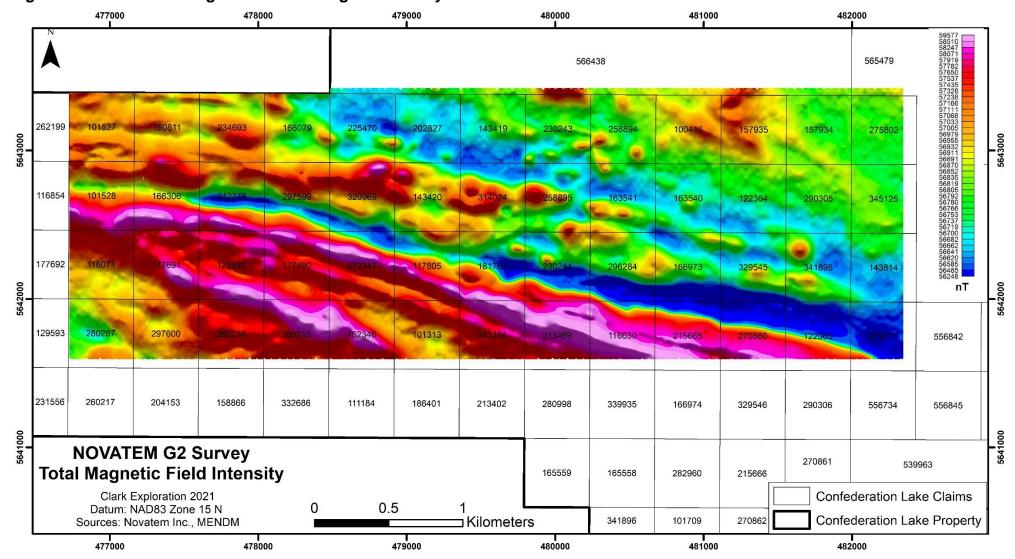
Figure 13: VTEM Survey Blocks



#### 7.3 HIGH RESOLUTION MAGNETIC SURVEY

Novatem Inc. was contracted by Infinite Ore Corp to conduct a NOVATEM G2 very high resolution heliborne magnetic survey over part of the Confederation Lake Property (Figure 15). The survey was carried out on April 19, 2021 and totalled 450 line-kilometres. Flight lines were oriented N0 with 25m spacing and control lines oriented N90 with 250m spacing. Interpretation of these surveys allowed for the identification of several first order and second order structures.

Figure 14: Novatem G2 High Resolution Magnetic Survey



#### 8.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The 443 soil samples were shipped to Activation Laboratories in Ancaster, Ontario, Canada were they were prepared for analysis. The samples are first air-dried at a relatively low temperature of 40°C. The samples are then sieved and the -80 mesh sieve fraction (<177 microns) is collected. The collected "pulp" is packaged in a Kraft paper envelope and transferred from our sample preparation department to our Organic Geochemical department at the same lab. Each sample is then extracted, compounds are separated by gas chromatography and detected by mass spectrometry at a Reporting Limit of one part-per-trillion (ppt)

To interpret the resulting data, Actlabs separates the 162 compound results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, Thiophenes, aromatic, and polyaromatic compounds. The concentrations of the individual hydrocarbons within a class are simply summed. Multiple SGH Classes are then compared. Multiple SGH Classes that have been associated with the presence of specific mineralization are called SGH Pathfinder Classes that together represent the forensic signature or fingerprint identification that is associated with a specific type of mineralization or petroleum play. The anomalies of each class are compared as to their geochromatographic dispersion and ability to vector to a common location that may be referenced as a potential drill target. The agreement and behaviour between SGH Pathfinder Classes for a type of target, as a template of Classes, is compared against SGH research and orientation studies. The quality of agreement is expressed as an SGH Rating of confidence that the SGH anomalies of the survey being interpreted are similar to the behaviour of these classes over known mineralization.

#### 9.0 INTERPRETATION AND CONCLUSIONS

#### SGH Survey

SGH Class maps were created to interpret the data obtained (Figure 10-12). The SGH Class maps plot of the sums of the particular hydrocarbon class in parts-per-trillion (ppt) concentration. The dark blue areas of these maps represent very low or non-detect values or areas where no samples were taken. For plotting purposes, the values at the Reporting Limit are plotted as one-half of this filtering, or one-half of 1.0 ppt. The hotter colours represent higher concentrations of the sum of the class with the highest values being purple in colour. The lowest concentrations that may be at 0.5 ppt, are shown in blue.

Three separate SGH Pathfinder Class maps were created to show anomalies from the most reliable SGH Pathfinder Classes in predicting the presence of gold, copper, and silver mineralization. Anomalous zones of gold, copper, and silver mineralization are shown as vertical projections beneath these anomalies. Two potential zones of gold mineralization were identified and given a signature rating relative to gold of 4.5/6.0 (Figure 10). Two potential zones of copper mineralization were given a signature rating of 4.0/6.0 (Figure 11), and two zones of potential silver mineralization were given a signature rating of 3.0/6.0 (Figure 12). A rating of 4.0 or more is an indication that this SGH Nano-Geochemistry predicts that the zone(s) described may warrant more work or more consideration (Brown, 2021).

#### **VTEM Survey Interpretations**

Based on the VTEM survey results, a number of geophysical anomalies have been identified in both the North and South Blocks (Figure 9) as discussed below:

North Block: Magnetically, the North block is the most active, with a prominent band of WNW-ESE trending, thin paralleling /alternating high and low magnetic units in the southern half of that block with a length of approximately 7-8 km, and more moderately magnetic rocks in the northern half. Two, more intrusive-like magnetic bodies appear to also be partially defined in the eastern and northeastern parts of the property. The EM results have defined a prominent, highly conductive, long strike-length, stratigraphic like conductive unit that extends through the middle of the block and in a region of low to moderate magnetism. And it is flanked to the north and south, mostly, by numerous short to moderate length conductive bodies.

South Block: The magnetic response of this block is described as a mixed package of thin high and moderately magnetic units with ENE-WSW strike; and a thicker band of weak to low magnetic units are mainly found throughout the east block of the property. The EM results at west block of Confederation South define a mix of short to moderate strike length but more highly conductive anomalies that are relatively isolated and distributed throughout the block. In the east portion of the block, the EM response consists of two major subparallel ENE-WSW oriented EM trends that extend through the center of the block: the southernmost is a more strike-continuous, stratigraphic-like conductor with moderate to high magnetic association; whereas the northern conductor is more

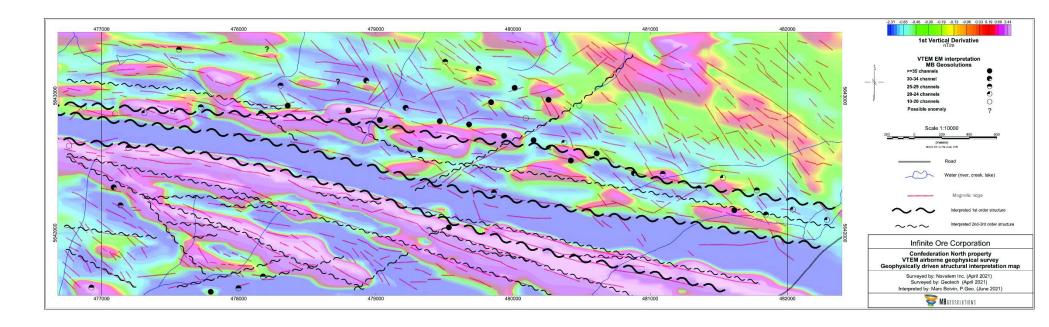
discontinuous along strike and is generally non-magnetic. Based on the EM profiles and RDI sections, the source of most of the EM anomalies are vertical, thin conductors, with top depths about 200 meters. Depths of investigation (DOI) vary between 150-700 m across the property.

#### <u>High-Resolution Magnetic Survey/VTEM Interpretation</u>

Structural interpretation of the high-resolution magnetic survey in conjunction with the VTEM survey data was completed by Marc Boivin of MB Geosolutions. The interpretation consisted of the following method:

NOVATEM high resolution magnetic data was processed to generate grey-shaded magnetic images to enhance subsurface features like geological contacts, structural lineaments or fractures. A grey-shaded fire vertical derivative image was used for this. Based on the grey-shaded image, magnetic ridges were extracted and used as the basis of a magnetic lineament study. A structural interpretation was achieved on the basis of spatial relationships between magnetic ridges such as truncation and/or displacement of magnetic units, change in the magnetic texture. The use of the VTEM MAG data was useful for discrimination of major interpreted structures (first order structure) and small/limited extent structures (second order structures). The use of colour TMI images was also a support for structure classification. Finally, a preliminary EM interpretation of the VTEM survey was added to the working layers. Extended EM axes can be directly or indirectly associated structures. The resulting interpretation is shown in Figure 16.

Figure 15: Structural Interpretation of high-resolution magnetic data in conjunction with VTEM data



#### 10.0 RECOMMENDATIONS

The SGH survey on the Confederation Lake Project was successful in outlining areas of potential gold, silver, and copper mineralization. These anomalous areas should be followed up with prospecting to ground truth lithologies prior to drilling if the company deems appropriate.

The VTEM and EM survey outlined several anomalous areas in the survey block which should be follow up by geochemical surveys to see if there are anomalies coincident with the geophysical anomalies outlined. This should then be followed up by further ground geophysical or drilling if the company deems appropriate.

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#### 12.0 CERTIFICATE OF QUALIFICATIONS

Brent Clark 941 Cobalt Crescent Thunder Bay, Ontario Canada, P7B 5Z4

Telephone: 807-622-3284, Fax: 807-622-4156

Email: brent@clarkexploration.com

#### CERTIFICATE OF QUALIFIED PERSON

- I, Brent Clark, P. Geo. (#3188), do hereby certify that:
  - 1. I am a consulting geologist with an office at 941 Cobalt Crescent, Thunder Bay, Ontario.
  - 2. I graduated with the degree of Honours Bachelor of Earth Science (Geology) from Carleton University, Ottawa, Ontario in 2014. I have worked on gold projects in Northwestern Ontario, and Australia.
  - 3. "Assessment Report" refers to the report titled "Assessment Report on the Confederation Project, Red Lake Mining Division, Northwestern Ontario", dated October 29, 2021.
  - 4. I am a registered Professional Geoscientist with the Association of Professional Geoscientists of Ontario (#3188).
  - 5. I have worked as a Geologist since my graduation from university.
  - 6. I am an author of this report and responsible for section 10 of the assessment report.
  - 7. As of the date of this certificate, and to the best of my knowledge, information and belief, the Assessment Report contains all scientific and technical information that is required to be disclosed to make the Assessment Report not misleading.

"Brent Clark"		

Dated this 29th day of October 2021.

Jolee Stewart 941 Cobalt Crescent Thunder Bay, Ontario Canada, P7B 5Z4

Telephone: 807-629-9761, Fax: 807-622-4156 Email: jolee@clarkexploration.com

#### CERTIFICATE OF QUALIFIED PERSON

- I, Jolee Stewart G.I.T. (10879) hereby certify that:
- 1. I am a consulting geologist-in-training with an office at 941 Cobalt Crescent, Thunder Bay, Ontario.
- 2. I graduated with the degree of Honours Specialization in Geology For Professional Registration from Western University, London, Ontario in 2019. I have worked on gold projects in Northwestern Ontario.
- 3. "Assessment Report" refers to the report titled "Assessment Report on the Confederation Project, Red Lake Mining Division, Northwestern Ontario" dated October 29, 2021.
- 4. I am a registered as a Geologist-In-Training (G.I.T) with the Association of Professional Geoscientists of Ontario (108790).
- 5. I am an author of this report and responsible for sections 1-9 and 11 of the assessment report.
- 6. As of the date of this certificate, and to the best of my knowledge, information and belief, the Assessment Report contains all scientific and technical information that is required to be disclosed to make the Assessment Report not misleading.

Dated this	29th	day	of	October	2021.
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"Jolee Stewart"		

### **APPENDICIES**

### **APPENDIX I**

Confederation Lake Project Claims List

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
341296	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
340649	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
335301	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
335302	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
339913	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
339935	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
340548	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
101621	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
101527	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
101528	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
100963	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
101709	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
100416	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
100799	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
100800	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
102002	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
101313	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
102020	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
564639	Multi-cell Mining Claim	2021-11-27	(100) EMX Properties (Canada) Inc.	23	\$9,200
111184	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
116071	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
114944	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
114945	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
116018	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
117805	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
116854	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
116609	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
116630	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
116775	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
120328	Single Cell Mining Claim		(100) EMX Properties (Canada) Inc.	1	\$400
117017	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
120441	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
122631	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
122632	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
121771	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
122364	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
122365	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
126929	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
127679	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
128989	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
127680	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
127956	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
129016	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
129017	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
129022	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
129023	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
129593	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
565479	Multi-cell Mining Claim	2021-12-02	(100) EMX Properties (Canada) Inc.	21	\$8,400
571119	Multi-cell Mining Claim	2022-01-24	(100) EMX Properties (Canada) Inc.	13	\$5,200
556734	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
140413	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
143420	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
143419	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
143814	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
144104	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
144105	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
152346	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
565482	Multi-cell Mining Claim	2021-12-02	(100) EMX Properties (Canada) Inc.	20	\$8,000
154376	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
157483	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
157484	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
157485	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
158798	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
158799	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
159539	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
159540	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
158258	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
159574	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
159602	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
158866	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
159169	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
159170	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
159171	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
157934	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
157935	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
164310	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
164311	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
162237	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
162238	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
162239	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
162978	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
162979	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
162980	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
163540	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
163541	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
160811	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
165605	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
166306	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
166079	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
165529	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
165558	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
165559	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
166974	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
167164	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
173664	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
172267	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
172268	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
172269	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
173211	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
173212	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
174960	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
174961	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
177624	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
177625	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
177690	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
177691	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
177692	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
179744	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
178449	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
178401	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
178402	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
178422	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
181765	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
564641	Multi-cell Mining Claim	2021-11-27	(100) EMX Properties (Canada) Inc.	4	\$1,600
186401	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
186643	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
186644	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
564642	Multi-cell Mining Claim	2021-11-27	(100) EMX Properties (Canada) Inc.	23	\$9,200
191704	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
191705	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
556842	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
194485	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
194839	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
556843	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
556844	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
556845	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
556846	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
556847	Single Cell Mining Claim	2022-09-04	(100) Infinite Ore Corp.	1	\$400
564640	Multi-cell Mining Claim	2021-11-27	(100) EMX Properties (Canada) Inc.	13	\$5,200
197609	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
201517	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
201518	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
202827	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
202028	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
204393	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
204153	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
210079	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
566439	Multi-cell Mining Claim	2021-12-13	(100) EMX Properties (Canada) Inc.	22	\$8,800

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
212206	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
212207	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
212778	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
210869	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
210870	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
214827	Single Cell Mining Claim	2020-08-11	(100) Sergio Cattalani	1	\$400
214828	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
214836	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
213402	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
566438	Multi-cell Mining Claim	2021-12-13	(100) EMX Properties (Canada) Inc.	17	\$6,800
213435	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
565224	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	24	\$9,600
213469	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
212908	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
215665	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
215666	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
564897	Multi-cell Mining Claim	2021-11-28	(100) EMX Properties (Canada) Inc.	21	\$8,400
215920	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
565223	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	24	\$9,600
565229	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	14	\$5,600
219731	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
565483	Multi-cell Mining Claim	2021-12-02	(100) EMX Properties (Canada) Inc.	12	\$4,800
224221	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
221649	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
220362	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
222926	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
222634	Single Cell Mining Claim	2021-12-10	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
565226	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	21	\$8,400
565227	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	22	\$8,800
224920	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
565221	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	24	\$9,600
565222	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	18	\$7,200
565228	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	25	\$10,000
225593	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
225594	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
225470	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
228453	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
227185	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
228928	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
232289	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
230243	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
230244	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
230198	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
230969	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
231556	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
565225	Multi-cell Mining Claim	2021-11-29	(50) PERRY VERN ENGLISH, (50) EMX Properties (Canada) Inc.	21	\$8,400

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
234693	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
233691	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
565647	Multi-cell Mining Claim	2021-12-03	(100) EMX Properties (Canada) Inc.	10	\$4,000
246635	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
248396	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
249207	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
257674	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
258894	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
258895	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
257621	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
257622	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
257623	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
261180	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
260154	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
260155	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
262199	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
263366	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
260215	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
260216	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
260217	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
261665	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
262151	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
261494	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
261495	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
261555	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
268920	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
268946	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
270860	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
270861	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
270862	Single Cell Mining Claim		(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
271848	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
272347	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
275038	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
277855	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
278919	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
278920	Single Cell Mining Claim	2022-09-15	(100) EMX Properties (Canada) Inc.	1	\$400
277068	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
275802	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
275803	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
275676	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
280228	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
277385	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
281035	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
282960	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
283671	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
280287	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
281008	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
283468	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
288214	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
289725	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
289726	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
290305	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
290306	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
295060	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
296226	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
293795	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
296284	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
297538	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
297539	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
297599	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
297600	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
298467	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
298275	Single Cell Mining Claim	2022-08-11	(100) EMX Properties (Canada) Inc.	1	\$400
300675	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
308977	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
308978	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
314024	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
313461	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
313462	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
312056	Single Cell Mining Claim	2022-09-27	(100) Infinite Ore Corp.	1	\$400
312789	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
314398	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
315682	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
320969	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
325517	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
326794	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
324773	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
324774	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
326815	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
326824	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
326831	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
327562	Boundary Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	0.5	\$200
327563	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
327566	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
324254	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
327583	Single Cell Mining Claim	2022-08-03	(100) EMX Properties (Canada) Inc.	1	\$400
329724	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
329725	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
328135	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
328187	Single Cell Mining Claim	2022-05-11	(100) EMX Properties (Canada) Inc.	1	\$400
326574	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
329545	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400

Claim Number	Claim Type	Anniversary	Holder	Number of Cells	Work Required
335615	Single Cell Mining Claim	2022-07-17	(100) EMX Properties (Canada) Inc.	1	\$400
336612	Single Cell Mining Claim	2022-05-11	(100) Infinite Ore Corp.	1	\$400
336100	Single Cell Mining Claim	2022-05-12	(100) Infinite Ore Corp.	1	\$400
345125	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
341895	Single Cell Mining Claim	2022-07-17	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
341896	Single Cell Mining Claim	2022-05-11	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
343354	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
342093	Single Cell Mining Claim	2022-09-15	(100) Infinite Ore Corp.	1	\$400
332686	Single Cell Mining Claim	2022-09-15	(25) EMX Properties (Canada) Inc., (75) Infinite Ore Corp.	1	\$400
539963	Multi-cell Mining Claim	2022-01-26	(100) EMX Properties (Canada) Inc.	12	\$4,800

## **APPENDIX II**

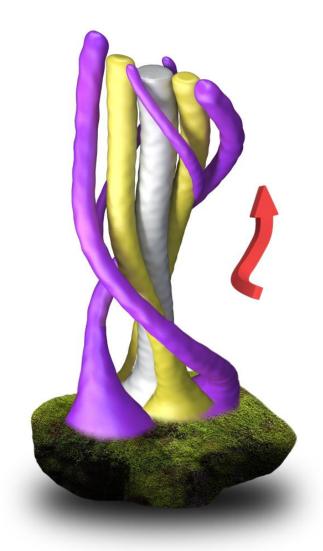
Actlabs SGH Reports



## **3D - SGH**

## "A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

## INFINITE ORE CORPORATION CONFEDERATION NORTH SGH PROJECT



January 6, 2021

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Quality Analysis ...



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## SGH – SOIL GAS HYDROCARBON Predictive Geochemistry

for

# INFINITE ORE COPRORATION CONFEDERATION NORTH SGH SOIL SURVEY

\* Jeff Brown,

Activation Laboratories Ltd

(\* - author)

\*\*Dale Sutherland (\*\* - originator)

### "SUPPLEMENTARY INTERPRETATION"

EVALUATION OF SAMPLE DATA — EXPLORATION FOR: COPPER and SILVER TARGETS

THE SGH COPPER and SILVER INTERPRETATION TEMPLATE IS
USED FOR THIS REPORT

*Workorder: A20-13453* 

January 6, 2021 Activation Laboratories Ltd. A20-13453

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### **Executive Summary**

It is important to read the Report Preface on the next page as an introduction to the report. For more detail the Overview section on page 8 could also be read.

As this is a Supplementary Interpretation as the second interpretation of the SGH data associated with the CONFEDERATION NORTH SGH survey, please refer to the report on this survey area as produced on December 10, 2020 that contains more background description and appendices of information regarding the Soil Gas Hydrocarbon (SGH) geochemistry.

The customized section for this CONFEDERATION NORTH Survey starts on page 10. In the author's opinion, SGH appeared to perform well in terms of response. The grid shape of this survey helped to identify the possible presence mineralization.

Note that some exploration companies submit this report intact to government assessors as proof of work on their claim. Be aware that the SGH data is not attached to this report; it is supplied separately as an Excel spreadsheet. Government assessors will also have to be supplied with this data.

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### **PREFACE**

#### THIS "STANDARD" SGH INTERPRETATION REPORT:

The purpose of this Soil Gas Hydrocarbon (SGH) interpretation "Standard Report" is to ensure that clients and other potential reviewers of the results have a good understanding of this organic, deep penetrating geochemistry. As SGH provides such a large data set and is not interpreted in the same way as an inorganic geochemical method, the provision of this interpretation and report enables the user to realize the results in a timely fashion and capitalizes on years of research and development since the inception of SGH in 1996 combined with the knowledge obtained by Activation Laboratories through the interpretation of SGH data from over 1,100 surveys for a wide variety of target types in various lithologies from many geographical locations. Although referenced today as a "nano-technology", the analysis of SGH has not changed since inception. The report is compulsory as it is the only known organic geochemistry that, in spite of the name, uses "non-gaseous" semi-volatile organic compounds interpreted using a forensic signature approach. Many different sample types can be used in the same survey. Interpretation is based solely on SGH data and does not include the consideration from any other geochemistry (inorganic), geology, or geophysics that may exist related to the survey area(s). This report can also provide evidence of project maintenance. To keep the price to a minimum and to provide as short a turnaround time as practically possible, usually only one SGH Pathfinder Class map is illustrated in a "Standard Report" with an applied interpretation although several other SGH Pathfinder Class maps are used and referenced. Definitions of certain terms or phrases used in this report can be found in Appendix A.

The interpretation in this report has used the results from some of the research with SGH in recent years which has focused on the potential that the SGH data is able to further dissect and understand the relationships between the chemical Redox conditions in the overburden the development of an electrochemical cell and its affect in shaping the upward migration of geochemical anomalies. This has resulted in the development by Activation Laboratories of a new enhanced model of the Electrochemical/ Redox Cell theory originated by Govett (1976) that was further developed to the model by Hamilton (2004, 2007). The new enhanced model developed by Sutherland (2011) takes the general anomalies expected by the Hamilton model to a higher level of detail and specificity. This has resulted in a more confident level of interpretation which has been referenced as 3D-SGH or **3D-"Spatiotemporal Geochemical Hydrocarbons (SGH)"**. This model was formally introduced at the International Applied Geochemistry Symposium (IAGS) organized by The Association of Applied Geochemists that took place in Rovaniemi, Finland, in August 2011. This new level of understanding of the expected anomaly types that can be observed with SGH provides a new level of quality control in the interpretation process as the symmetry of SGH anomalies can assure the interpreter which anomalies are as a result of a buried target. With the enhanced 3D-SGH interpretation that was introduced in 2012, we also mark the beginning of the ability to make some statements regarding the possible depth to mineralization for some projects as we dissect the Redox cell relative to the new Electrochemical Cell theory. The cover of this report is an artist's rendering of the pathways of different classes of Spatiotemporal Geochemical Hydrocarbons which migrate through the overburden. This model is used as the new 3D-SGH interpretation approach.

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### **DISCLAIMER**

This "SGH Interpretation Report" has been prepared to assist the user in understanding the development and capabilities of this Organic based Geochemistry. The interpretation of the Soil Gas Hydrocarbon (SGH) data is in reference to a template or group of SGH classes of compounds specific to a type of mineralization or target that is chosen by the client (i.e. the template for petroleum, gold, copper, VMS, uranium, etc.). The various templates of SGH Pathfinder Classes that together define the forensic identification signature for a wide range of commodity target types; Gold, Nickel, VMS, SEDEX, Uranium, Cu-Ni-PGE, IOCG, Base Metal, Tungsten, Lithium, Polymetallic, and Copper, as well as for Kimberlites, Coal Seam, Wet Gas and Oil Play, have been developed through years of research and have been further refined from review of case studies and orientation studies has proven to be able to also address a wide range of lithologies. Even with 20+ years of development and experience with SGH, Activation Laboratories Ltd. cannot guarantee that the templates used are applicable to every type of target in every type of environment. The interpretation in this report attempts to identify an anomaly that has the best SGH signature in the survey for the type of mineralization or target chosen by the client. However, this interpretation is not exhaustive and there may be additional SGH anomalies that may warrant interest. It should not be viewed due to the generation of this SGH report, that Activation Laboratories Ltd. has the expertise or is in the business of interpreting any other type of geochemical data as a general service. As the author was trained by the originator of the SGH geochemistry, who has researched and developed this exploration tool since 1996, and has produced similar interpretations using SGH data for over 1,000 surveys, he is the best qualified person to prepare this interpretation as assistance to clients wishing to use this SGH geochemistry. Activation Laboratories Ltd. can offer assistance in general suggestions for sampling protocols and in sample grid design; however we accept no responsibility to the appropriateness of the samples taken. Activation Laboratories Ltd. has made every attempt to ensure the accuracy and reliability of the information provided in this report. Activation Laboratories Ltd. or its employees do not accept any responsibility or liability for the accuracy, content, completeness, legality, or reliability of the information or description of processes contained in this report. The information is provided "as is" without a guarantee of any kind in the interpretation or use of the results of the SGH geochemistry. The client or user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using any information or material contained in this report or using data from the associated spreadsheet of results.

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### **Cautionary Note Regarding Assumptions and Forward Looking Statements**

The statements and target rating made in the Soil Gas Hydrocarbon (SGH) interpretive report or in other communications may contain or imply certain forward-looking information related to the quality of a target or SGH anomaly.

Statements related to the rating of a target are based on comparison of the SGH signatures derived by Activation Laboratories Ltd. through previous research on known case studies. The rating is not derived from any statistics or other formula. The rating is a subjective value on a scale of 0 to 6 relative to the similarity of the SGH signature reviewed compared to the results of previous scientific research and case studies based on the analysis of surficial samples over known ore bodies. No information on the results from other geochemical methods, geophysics, or geology is usually available as additional information for the interpretation and assignment of a rating value unless otherwise stated. References to the rating should be viewed as forward-looking statements to the extent that it involves a subjective comparison to known SGH case studies. As with other geochemical methods, an implied rating and the associated anticipated target characteristics may be different than that actually encountered if the target is drilled tested or the property developed. Activation Laboratories Ltd. may also make a scientifically based prediction in this interpretive report to an area that might be used as a drill target. Usually the nearest sample is identified as an approximation to a "possible drill target" location. This is based only on SGH results and is to be regarded as a guide based on the current state of this science.

Unless otherwise stated, Activation Laboratories Ltd. has not physically observed the exploration site and has no prior knowledge of any site description or details or previous test results. Actlabs makes general recommendations for sampling and shipping of samples. Unless stated, the laboratory does not witness sampling, does not take into consideration the specific sampling procedures used or factors such as; the season of sampling, sample handling, packaging, or shipping methods. The majority of the time, Activation Laboratories Ltd. has had no input into sampling survey design. Where specified Activation Laboratories Ltd. may not have conducted sample preparation procedures as it may have been conducted at the client's assigned laboratory external to Actlabs. Although Actlabs has attempted to identify important factors that could cause actual actions, events or results to differ scientifically which may impact the associated interpretation and target rating from those described in forward-looking statements, there may be other factors that cause actions, events or results that are not anticipated, estimated or intended. In general, any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions, future events or performance are not statements of historical fact. These "scientifically based educated theories" should be viewed as "forward-looking statements".

Readers of this interpretive report are cautioned not to place undue reliance on forward-looking information. Forward looking statements are made based on scientific beliefs, estimates and opinions on the date the statements are made and for the interpretive report issued. The Company undertakes no obligation to update forward-looking statements or otherwise revise previous reports if these beliefs, estimates and opinions, future scientific developments, other new information, or other circumstances should change that may affect the analytical results, rating, or interpretation. Actlabs nor its employees shall be liable for any claims or damages as a result of this report, any interpretation, omissions in preparation, or in the test conducted. This report is to be reproduced in full, unless approved in writing.

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### **SOIL GAS HYDROCARBON (SGH) GEOCHEMISTRY – OVERVIEW**

In the search for gas, oil, minerals and elements, geologists require tools to assess the location and potential quantity of minerals and ores. In the past people looked at the landscape to find the deposit. Similar landscapes indicate similar mineral and metal deposits. This is searching on a macro level, while geochemistry is searching on a micro level. Surficial materials requires many minerals and elements, so surficial materials can contain indications of the presence of minerals and elements.

SGH is a deep penetrating geochemistry that involves the analysis of surficial samples from over potential mineral or petroleum targets. The analysis involves the testing for 162 hydrocarbon compounds in the C5-C17 carbon series range applicable to a wide variety of sample types. These hydrocarbons have been shown to be residues from the decomposition of bacteria and microbes that feed on the target commodity as they require inorganic elements to catalyze the reactions necessary to develop hydrocarbons and grow cells in their life cycle. Specific classes of hydrocarbons (SGH) have been successful for delineating mineral targets found at over 950 metres in depth. Samples of various media have been successfully analyzed i.e., soil (any horizon), sand, till, drill core, rock, peat, humus, lake-bottom sediments and even snow. After preparation in the laboratory, the SGH analysis incorporates a very weak leach, essentially aqueous, that only extracts the surficial bound hydrocarbon compounds and those compounds in interstitial spaces around the sample particles. These are the hydrocarbons that have been mobilized from the target depth. SGH is unique and should not be confused with other hydrocarbon tests or traditional analyses that measure C1 (Methane) to C5 (Pentane) or other gases. Thus, in spite of the name, SGH does not analyze for any hydrocarbons that are actually gaseous at room temperature and SGH can also be used to analyze for hydrocarbons in sample types other than soil. SGH is also different from other soil hydrocarbon tests that thermally extracts or desorbs all of the hydrocarbons from the whole soil sample. This test is less specific as it does not separate the hydrocarbons and thus does not identify or measure the responses as precisely. These tests also do not use a forensic approach for identification. In SGH, the hydrocarbons in the sample extract are separated by high resolution capillary column gas chromatography and then detected by mass spectrometry to isolate, confirm, and measure the presence of only the individual hydrocarbons that have been found to be of interest from initial research and development and from performance testing especially from two Canadian Mining Industry Research Organization (CAMIRO) projects (97E04 and 01E02).

Over the past 20+ years of research, Activation Laboratories Ltd. has developed an in-depth understanding of the unique SGH signatures associated with different commodity targets. Using a forensic approach we have developed target signatures or templates for identification, and the understanding of the expected geochromatography that is exhibited by each class of SGH compounds. In 2004 we began to include an SGH interpretation report delivered with the data to enable our clients to realize the complete value and understanding of the SGH results in a short time frame and provide the benefits to them from past research sponsored by Actlabs, CAMIRO, OMET and other industrial sponsors. In 2011, a new model of Electrochemical/Redox Cell theory was proposed and the new 3D-SGH interpretation approach based on this theory was incorporated in 2012 on a routine basis for SGH interpretation reports.

SGH has attracted the attention of a large number of Exploration companies. In the above mentioned initial research projects the sponsors have included (in no order): Western Mining Corporation, BHP-Billiton, Inco, Noranda, Outokumpu, Xstrata, Cameco, Cominco, Rio Algom, Alberta Geological Survey, Ontario Geological Survey, Manitoba Geological Survey and OMET. Further, beyond

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this research, Activation Laboratories Ltd. has interpreted the SGH data for over 1,000 targets from clients since January of 2004. In both CAMIRO research projects over known mineralization, client orientation studies, and in exploration projects over unknown targets, SGH has performed exceptionally well. As an example, in the first CAMIRO research project that commenced in 1997 (Project 97E04), there were 10 study areas that were submitted blindly to Actlabs. These study sites were specifically selected since other inorganic geochemical methods were unsuccessful at illustrating anomalies related to the target. Although Actlabs was only provided with the samples and their coordinates, SGH was able to locate the blind mineralization with exceptional accuracy in 9 of the 10 surveys. In 2007, shortly after providing SGH interpretation reports, SGH was credited in helping locate previously unknown mineralization, e.g. Golden Band Resources drilled an SGH anomaly and discovered a significant vein containing "visible" gold. (<a href="www.goldenbandresources.com">www.goldenbandresources.com</a>) SGH has been very successful and mining companies have repeatedly used SGH on several reports. Of those clients that try this SGH Geochemistry, over 90+% have continued to use this technique as repeat clients. SGH has helped discover a large number of new deposits, however many clients have kept this to themselves as a competitive strategy.

**January 6, 2021** 

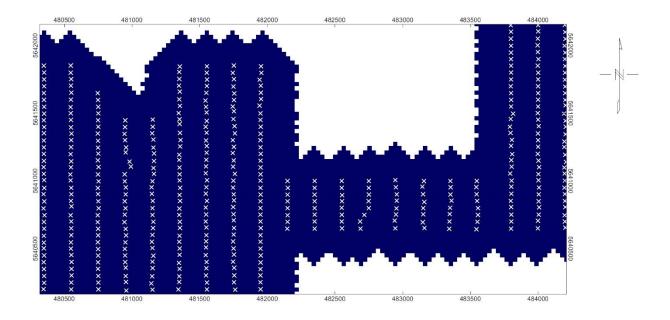
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# INTERPRETATION OF SGH RESULTS - A20-13453 INFINITE ORE - CONFEDERATION NORTH - SGH SOIL SURVEY

This report is based on the SGH results from the analysis of a total of 443 soil samples from the CONFEDERATION NORTH survey. The survey can be described as a grid with approximately 50m sample spacing and approximately 200m line spacing. The samples were shipped to Actlabs Global Headquarters, then prepared for analysis. Sample coordinates were provided for mapping of the SGH results for these samples in UTM format. A sample location map is shown below.



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# SGH INTERPRETATION - A20-13453 – INFINITE ORE QUALITY ASSURANCE – CONFEDERATION NORTH SGH SOIL SURVEY

Note that the associated SGH results are presented in a separate Excel spreadsheet. This data is semi-quantitative and is presented in units of pg/g or *parts-per-trillion* (ppt) as the concentration of specific hydrocarbons in the sample. The number of samples submitted for this survey is more than adequate to use SGH as an exploration tool. SGH has been proven to discriminate between false mobilized soil anomalies and is able to actually locate the source target deposition. SGH is a deeppenetrating geochemistry and has been proven to locate Copper, Gold, VMS, and other types of mineralization as well as for petroleum targets at several hundred metres below the surface irrespective of the type of overburden. Note that the SGH data is only reviewed for the particular target deposit type requested, in this case for the presence of Copper. It is assumed that there is only one potential target. If known, in surveys with several complex geophysical targets, to obtain the best interpretation the client should indicate that there are possibly multiple targets. The possibility of multiple geophysical targets should be known due to potential overlap and increased complexity of the resulting geochromatographic anomalies, which could alter the interpretation as to which targets are mineralized or not.

The overall precision of the SGH analysis for the samples at the CONFEDERATION NORTH SGH Soil Survey was good as demonstrated by 30 samples taken from this survey which were used for laboratory replicate analysis and were randomized within the analytical run list. The average Coefficient of Variation (%CV) of the replicate results for the samples in this survey was 14.6% which represents a good level of analytical performance especially at such low parts-per-trillion concentrations.

The location of **Field Duplicate samples was not identified from the CONFEDERATION NORTH SGH Soil Survey**. It is typically observed that the variability of field duplicates are 5% to 8% CV higher than for laboratory duplicates of random samples taken from the survey. Note that the SGH geochemistry does not detect all organic hydrocarbons present in the samples.

No other statistics were used on the data for this report for mapping or interpretation purposes aside from the use of a Kriging trending algorithm in the GeoSoft Oasis Montaj mapping software. This interpretation is based only on the analytical results provided by the SGH Nano-Geochemistry from this submission of samples for the CONFEDERATION NORTH survey samples. A template or group of SGH Pathfinder Classes that have been found to be associated with buried Copper and Silver targets was used as the basis for the interpretation of this area. The final interpretation is customized and conducted by the author. Although the term "template" or "signature" appears in this SGH Report, a computerized interpretation is not used.

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### **SGH INTERPRETATION - SGH TARGET PATHFINDER CLASS MAPS**

The maps shown in plan and in 3D views in this report are SGH "Pathfinder Class maps" for targeting various chemical classes of hydrocarbon flux signatures related to Redox conditions and Copper targets. This report may have been expanded by the author to include additional SGH information that may help understand the structure of the findings if present at the CONFEDERATION NORTH survey area. The maps shown represent the simple summation of several individual hydrocarbon compound concentrations that are grouped from within the same organic chemical class. SGH Pathfinder Class maps have been shown to be robust as they are each described using from 4 to 14 chemically related SGH compounds (unless otherwise stated) which are simply summed to create each chemical class map. Thus, each map has a higher level of confidence as it is not illustrating just one compound measurement.

The Copper and Silver templates of SGH Pathfinder Classes uses primarily low and medium molecular weight classes of hydrocarbon compounds. At least three Pathfinder Class maps, associated with the SGH signature developed must be present to begin to be considered for assignment of a good rating relative to the SGH performance in case studies over known copper mineralization (some of these maps might not be shown in this report). These SGH classes must also concur and support a consistent interpretation in relation to the expected geochromatographic characteristics of the Pathfinder Class. The *overall* SGH interpretation Rating has even a higher level of confidence as it further implies the consensus between at least three SGH pathfinder classes. A combination of these SGH Pathfinder Classes potentially defines the signature of a target at depth if present. Each of the SGH Pathfinder Class maps shown in this report is a specific *portion* of the SGH signature relative to the presence of Copper as described. Each pathfinder class map is still just one of the Pathfinder Class maps used in the interpretation template for Copper. Additional interpretation information which may contain additional SGH Pathfinder Class maps is available as a Supplementary Report at an additional price.

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### A20-13453 – INFINITE ORE CONFEDERATION NORTH - SGH SOIL SURVEY SGH INTERPRETATION - SGH TARGET PATHFINDER CLASS MAPS

Note that any concentration value in the accompanying Excel spreadsheet greater than the "Reporting Limit" of 1 ppt is important data and has been able to depict mineralization or petroleum plays at depth under cover in other projects. The majority of the variability or noise has already been eliminated; additional filtering will adversely affect any interpretation. Note again that a Kriging trending algorithm has been applied to the mapping routine in the Geosoft Oasis Montaj software in the development of the SGH Class maps. SGH concentrations are in some way probably related to the amount of mineralization or petroleum resource present, which probably defines the characteristics or quantity of the biofilm(s) in contact with the target, as well as being related to the depth to the target. SGH results have also been shown to correlate well with geophysical measurements such as magnetic anomalies and those of CSAMT.

The SGH Class maps are the plot of the sums of the particular hydrocarbon class in parts-pertrillion concentration. The dark blue areas of these maps represent very low or non-detect values or areas where no samples were taken. For plotting purposes the values at the Reporting Limit are plotted as one-half of this filtering, or one-half of 1.0 ppt. The hotter colours represent higher concentrations of the sum of the class with the highest values being purple in colour. The lowest concentrations that may be at 0.5 ppt, are shown in blue.

SGH is a "deep penetrating" geochemistry but also works well for deep targets as well as relatively shallow targets. <u>Targets shallower than about 3 to 5 metres</u> (or potentially outcrop) will have a reduced SGH signal due to interaction with atmospheric conditions and samples taken right at surface outcrops will have even weaker signals due to a higher degree of weathering from various environmental processes on these volatile and semi-volatile organic hydrocarbons.

In the interpretation of SGH data there are several goals. In order of importance they are:

- Review for the presence of Redox Cells
- Vector to the location of a mineral target
- Delineate the mineral target
- Identify the type of mineral target
- Describe the features of the possible mineral target
- See if there is information on the basement structure
- Predict a drill target
- Predict the possible depth to the mineral target

Not every goal is expected to be able to be achieved with each SGH data set or survey.

January 6, 2021

### A20-13453 – INFINITE ORE CONFEDERATION NORTH SGH SOIL SURVEY SGH INTERPRETATION RATING AND CLARIFICATION

Often a geochemistry such as SGH is used as an economical exploration investigation tool to provide more information on an exploration target as some geological body or help prioritize some geophysical target. Such occurrences are in general expected to change the chemistry of the immediate overburden which in turn is expected to result in a chemical anomaly as detected in surficial samples. The author believes that it is important to convey to the client the presence of an anomaly even if there is only part of the SGH signature present that may be related to the mineral signature or template requested. In other words, the anomaly illustrated in the report may not be representative of the mineralization sought as only a part of the SGH signature is present, but the anomaly may confirm the presence of some geological or geophysical target which may be valuable to the client for comparison with other data. In addition it would confirm the ability and sensitivity of SGH to show geological or geophysical occurrences. Example: A well defined rabbit-ear anomaly on an SGH Pathfinder Class map in a report, even though it may have a lower rating of 2.0 or 3.0, may illustrate to the exploration geologist that SGH does agree that there is some geological body at depth that is changing the chemistry and forming a Redox cell in the overburden. However the SGH forensic signature Rating indicates that there is a lower confidence that the "identification" of that body is likely to be say Gold (if the SGH Gold template is requested). This information would provide a confirmation that a target does exist, however if the SGH Rating indicates that the target has a lower level of confidence then the target does not have the forensic signature of the mineralization sought. SGH would thus provide a savings to the exploration program and divert focus to potentially other targets having a higher confidence in the SGH identification Rating for Gold in this example.

Thus, the SGH rating must always be considered in conjunction with the SGH Pathfinder Class map(s) shown in the report. It is this rating that provides an insight into the authors' complete interpretation and is a measure of the confidence and to what degree the complete SGH signature compares with the SGH results from over case studies of similar known deposits. Unfortunately, the interpretation of a visual, as the SGH map provided, is so ingrained in humans that the reader may erroneously disregard the author's subjective rating to a large degree. As of November 25, 2011, the author now highlights the rating directly on the page having the plan view of the SGH Pathfinder Class map chosen to be illustrated. Thus to the reader of the report, the authors Rating is actually **MORE IMPORTANT** than the readers instinctive interpretation of just the one map provided. Again, SGH should not be used in isolation from other site information, and that a Rating of 4.0 is when, in the authors' estimation, a signature only starts to have a good identification relative to that type of mineralization, and that the survey may warrant further study although it is not a specific recommendation to drill test the anomaly. As the SGH interpretation is represented by a signature, the SGH Pathfinder Class map(s) illustrated in reports is always only "PART" of the specific SGH signature or template that the client requests (i.e. for Gold, etc.). No one SGH map can represent the complete signature due to the different amounts of spatial dispersion of the anomalies that are expected for the variety of SGH chemical classes within each signature. Thus the author selects the one SGH Class Map relative to the mineralization requested that best represents an anomaly that estimates the overall signature found in the survey.

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### A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH SUPPLEMENTARY INTERPRETATION

As this is a Supplementary Interpretation as the second interpretation of the SGH data associated with the CONFEDERATION NORTH SGH survey, please refer to the report on this survey area as produced on December 10, 2020 that contains more background description and appendices of information regarding the Soil Gas Hydrocarbon (SGH) geochemistry.

As a general comment in regard to the SGH results at the CONFEDERATION NORTH SGH Soil Survey, the SGH data in general had good signal strength and the SGH Class maps in this report are fairly good in contrast. It's important to not think of contrast with SGH as Signal:Noise as by using a "Reporting Limit" the noise has already been completely or nearly completely removed.

One of the first steps in the interpretation of the spatial aspect of SGH data is to locate potential Redox conditions in the overburden. Redox conditions have been well known to be related to blind mineral or petroleum targets; however, Redox conditions can also be attributed to other geological bodies that are of no particular interest. SGH signatures have been shown to be able to differentiate between these targets. SGH has been described by the Ontario Geological Survey of Canada (OGS) as a "Redox Cell locator". Redox Cells can be related to the presence of bacteriological activity related to mineralization but also may be related to the presence of geological bodies such as Granite Gneiss, Dunite, etc. Recently SGH has been shown to be far more sensitive to depicting Redox conditions than even measurements using pH or ORP tests. It is important to understand that; not only is SGH a Redox cell locator, but due to the forensic signature of mineralization used in the interpretation process, SGH can discriminate mineral targets and other target types from geological bodies, other magnetically detected targets, mineralized versus non-mineralized conductors, cultural effects, etc. even in surveys over highly difficult or exotic terrain that often requires the collection of multiple sample types. In the interpretation it is not necessary to detect a Redox cell if mineralization is within approximately 30 metres of the surface as this would be insufficient depth to develop a dispersion halo anomaly. Many SGH surveys for Gold, Petroleum, and other mineral and petroleum based targets can result in multiple types of anomalies, depending on the class of SGH compounds, even over the same target and in the same set of samples. Thus "Apical", "Segmented-Nested-Halo", and "Rabbit-Ear" or "Segmented Halo" type anomalies are all typically observed within the SGH data set from the effect of Redox cells that have developed over mineralization and their interaction with Redox conditions and the electromotive forces produced by the subsequent Electrochemical Cell. Different types of anomalies have also been associated with the depth to the target. The types of anomalies developed have been recently explained by the use of the 3D-SGH model of interpretation. The highly symmetrical anomalies illustrated by SGH data closely follow the expected self-organizing patterns of neutral species within an electrochemical cell in recent experiments in physics laboratories. The highly symmetrical anomalies are also able to be observed as the Nano-sized dimensions of these organic hydrocarbons are much smaller than inorganic oxides and sulphides. Thus the SGH hydrocarbons can migrate through the Nano-sized fissures of even clay, basalt, and permafrost caps by means of Nano-capillary action. The simple fact that the SGH anomalies are geometrically symmetrical and not random further improves the confidence of SGH interpretations.

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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH SOIL SURVEY - SGH "COPPER and SILVER" INTERPRETATION

Remember that signals near the edges of the survey or at the ends of transects can appear to be higher due to the Kriging trending algorithm applied for mapping. For this reason, these anomalies may not be interpreted.

The SGH Class maps are only a portion of the SGH Copper and Silver signature used in each interpretation. There is not any one SGH Class map that can, as a single map, be reliably used to interpret the presence of Copper, Silver or any other type of mineralization. Again, as signals or anomalies due to any analytical, sample preparation, or sampling procedure "noise" have been removed through the use of the Reporting Limit filter, any SGH anomaly on this Pathfinder Class Map has a high probability of being real data. The SGH Pathfinder Class maps shown are highly sensitive in illustrating strong results for Copper based on previous research and case studies. Other SGH Classes at the CONFEDERATION NORTH survey also agree with the interpretation shown in the following pages.

This portion of the SGH hydrocarbon signatures is predicted to be associated with Copper and Silver targets as the detection of those hydrocarbon residues produced by the decomposition of microbes and bacteria from the life cycle death phase that have been feeding on Copper mineralization. These residues have subsequently migrated to the surface as a flux of different classes of hydrocarbons or decomposition products. During migration to the surface, dispersion away from the mineralization is expected. The distance of dispersion is dependent on the principle of geochromatography that is in generally related to the average molecular weight of the class. It has been found that the complexity of the overburden does not affect the geochromatographic dispersion of the SGH classes of this Nano-Geochemistry, unless a situation is encountered such as that of a "major" fault that may result in a very slight deflection of this path. This is the basis of the 3D-SGH interpretation as the relatively neutral hydrocarbons that SGH detects are spatially observed as very symmetrical anomalies (as presented by the creator at the IAGS conference in Finland in 2011 and further at the IAGS conference in New Zealand in November of 2013 and Tucson Arizona in 2015).

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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH COPPER INTREPRETATION

Page 18 of this report, and in 3D-view on page 19, shows the anomalies from one of the most reliable SGH Pathfinder Class in predicting the presence of Copper Mineralization. This map shows what appears to be a segmented nested-halo anomaly and an apical anomaly. We believe that mineralization might exist at these locations as a vertical projection beneath these anomalies. Other SGH Pathfinder Class Maps associated with the presence of Copper mineralization (not shown in this report) lend support to the interpretation of these anomalies at the CONFEDERATION NORTH SGH Project.

Again, the prediction of these anomalies for Copper mineralization is based only on SGH.

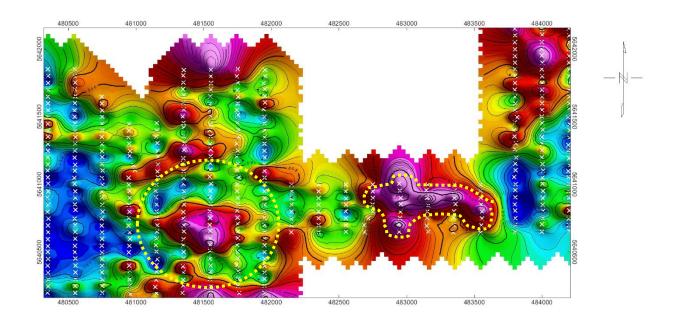
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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH "COPPER" PATHFINDER CLASS MAP



PREDICTED COPPER MINERLIZATION - YELLOW OUTLINES

#### **SGH SIGNATURE RATING RELATIVE TO "COPPER" = 4.0 OF 6.0**



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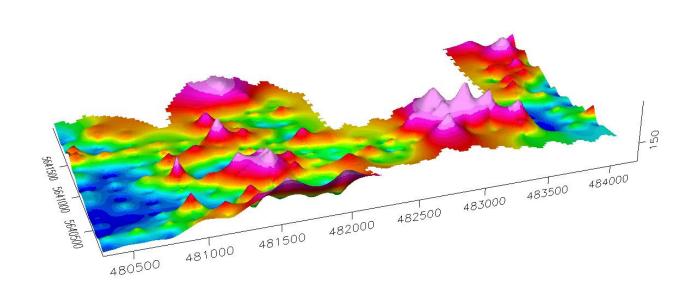
January 6, 2021

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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH "COPPER" PATHFINDER CLASS MAP





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### A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH SILVER INTREPRETATION

Page 21 of this report, and in 3D-view on page 22, shows the anomalies from one of the most reliable SGH Pathfinder Class in predicting the presence of Silver Mineralization. This map shows the apical anomalies outlined in blue. Two potential zones of silver mineralization are shown, coincident to that of the predicted gold mineralization. We believe that mineralization might exist at these locations as a vertical projection beneath these anomalies. Other SGH Pathfinder Class Maps associated with the presence of Silver mineralization (not shown in this report) lend support to the interpretation of these anomalies at the CONFEDERATION NORTH SGH Project.

Again, the prediction of these anomalies for Silver mineralization is based only on SGH.

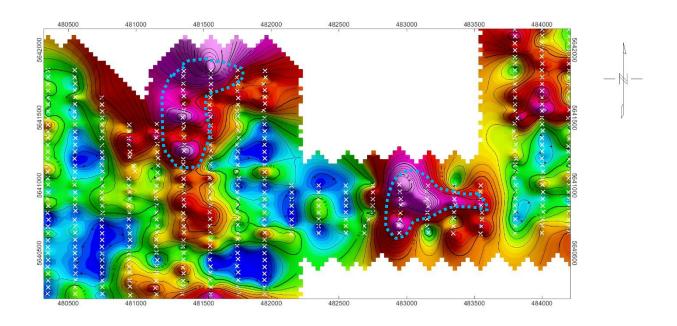
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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH "SILVER" PATHFINDER CLASS MAP



PREDICTED SILVER MINERLIZATION - BLUE OUTLINES

#### **SGH SIGNATURE RATING RELATIVE TO "SILVER" = 3.0 OF 6.0**



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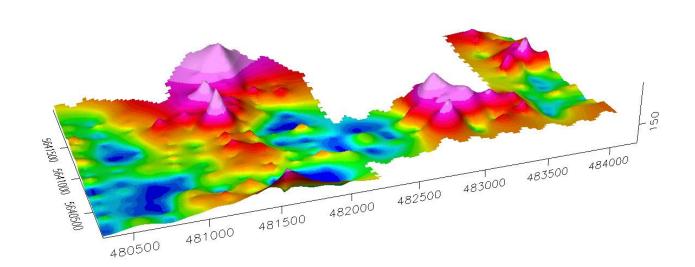
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# A20-13453 – INFINITE ORE – CONFEDERATION NORTH SGH "SILVER" PATHFINDER CLASS MAP





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# A20-13453 – INFINITE ORE CONFEDERATION NORTH SGH SOIL SURVEY - SGH INTERPRETATION FOR THE PRESENCE OF MINERALIZATION

The interpretation of the SGH data on page 18 and 21 relative to the presence of Copper and Silver mineralization at the Infinite Ore CONFEDERATION NORTH SGH survey may be based on the makeup of SGH signatures with the possible presence of mineralization.

In general, SGH is not a perfect confirmatory technique for inorganic chemistry's. Inorganic methods will show the highest anomalies for outcrops at surface whereas the SGH sensitivity is reduced at this point due to further degradation by environmental exposure to sun, rain, UV, etc. This reduction may not be seen on the maps provided due to normalization to the highest response in the map overall. SGH predicts whether the mineralization is present at subcrop or deeper portions relative to the mineralized structure.

The subjective SGH confidence rating for the CONFEDERATION NORTH survey assigned to the anomalies in general on these maps where the anomalies coincide on their location is on average 3.5 on a scale of 6.0. The Rating for the CONFEDERATION NORTH survey means that, based only on SGH, that there is hope that mineralization may be present. Note, as the SGH Rating is one of confidence, in our judgment an assignment of a Rating of 0.0 cannot be given out. From client feedback in recent years, a few grass roots exploration surveys that have been interpreted with an SGH Confidence Rating of 4.0 ( $\pm$ 0.5) have been drill tested and have had successful mineralization intersections. However the frequency of success is much more prevalent for those targets that have associated SGH Rating Scores of  $\geq$ 5.0.

The SGH Ratings shown on page 18 and 21 in this and all SGH reports are based on a scale of 6.0, in 0.5 increments, with a value of 6.0 being the best. The SGH Ratings discussed in relation to mineralization represents the similarity of these SGH results with other SGH case studies and orientation studies over known mineralization. Theses SGH signatures or templates have been constantly refined and enhanced since inception and has been proven to be effective and reliable. The SGH templates are based on the interpretation from over 1,100 interpretations of surveys in many different geographical regions and from a wide variety of lithologies. The degree of confidence in the SGH Rating only starts to be "good" at a level of 4.0. A Rating of 4.0 or more is an indication that this SGH Nano-Geochemistry predicts that the zone(s) described may warrant more work or more consideration.

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### A20-13453 – INFINITE ORE CONFEDERATION NORTH SGH SOIL SURVEY - SGH INTERPRETATION FOR THE PRESENCE OF MINERALIZATION

Any identification of a drill target is not an explicit recommendation by Activation Laboratories Ltd. to drill test the associated location or SGH anomaly. A drill target is implied to ensure that the reader is aware of the location having the highest confidence of being the location of the vertical projection of mineralization, based only on SGH data. This is also not a recommendation for vertical drilling. Vertical drilling may not be the best approach to test the SGH anomaly in this area although SGH anomalies are very much a vertical projection of the target at depth regardless of the makeup of the overburden. Activation Laboratories Ltd. has no experience in actual exploration drilling techniques. Other geological, geochemical and/or geophysical information should also be considered.

It must be remembered that other SGH Class maps not shown in this report have also been reviewed to support the interpretation shown. To deduce the most scientifically sound interpretation of the SGH surveys, the client should use a combination of the SGH results shown in this report with additional geochemical, geophysical, and geological information to possibly obtain a more confident and precise target location. This is not a statement to convey some lower level of confidence in SGH results. This statement is made to recognize the proper use and interpretation of any scientific data. Whenever possible, multiple methods should always be employed so that any decisions do not rely on any one technique.

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### A20-13453 – INFINITE ORE CONFEDERATION NORTH SGH SOIL SURVEY - SGH SURVEY RECOMMENDATIONS

In general, the number of samples was more than adequate to show what the author believes to be valuable information at the CONFEDERATION NORTH survey. Our recommendation states to use a minimum of 50 sample locations to be taken with at least 2 or 3 samples taken within 1 metre of a location as field duplicates. Survey designs that use a regular grid are very powerful tools although a 4:1 ratio as spacing between transects: spacing of samples along transects has also had excellent results with SGH. At this time there is no recommendation for additional infill sampling on this survey. Additional infill samples should be able to be easily added to the current data set without data leveling 90+% of the time. As the interpretation is difficult for surveys having less than 50 sample locations and the corresponding confidence is significantly lower, surveys with less than 50 sample locations may not be accepted and may be returned to the client at their expensive. We believe a survey with less than 50 sample locations is not beneficial or cost effective to the client.

# GENERAL RECOMMENDATIONS FOR ADDITIONAL OR IN-FILL SAMPLING FOR SGH ANALYSIS

In general, if the client decides that in-fill sampling may be warranted, to obtain the best results from additional sampling for SGH it is usually recommended that <u>sample locations from the original survey within</u>, or bordering, the area of interest be re-sampled rather than just combining new sample results with the sample data from the initial survey. Although several SGH surveys have previously been easily and directly, combined without data leveling, it cannot be guaranteed that data leveling will not be required. It has been found that data leveling is more apt to be required should the new samples be collected under significantly different environmental conditions than during the initial sample survey, i.e. summer collection versus winter collection

The process of data leveling adds a minimum of 3 to 5 days of work to conduct the additional data evaluation, develop additional plots of the results, conduct new interpretations, and additional report descriptions. Results from data leveling is also always considered "an approximation", thus the confidence in a combined interpretation will be lower than the interpretation from samples collected during one excursion to the field and submitted as one survey. An additional cost will be invoiced should data leveling operations be required if the client requests that two SGH data sets be interpreted and reported together. Thus re-sampling a few of the original sample locations will provide a faster turnaround time for results and provide more accurate and confident surveys for evaluation and aid in deciding specific drill targets.

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Date Received at Actlabs (Ancaster): October 27, 2020

Date Analysis Complete: November 18, 2020

Interpretation Report for SGH Gold Signature: December 10, 2020

Interpretation Report for SGH Copper and Silver Signatures: January 6, 2021

### INFINITE ORE CORP.

1240-789 West Pender Street

Vancouver, BC, Canada

V6E 1H2

Attention: Mr. J.C. St-Amour

RE: Your Reference: CONFEDERATION NORTH SGH Survey

**Activation Laboratories Workorder: A20-13453** 

### **CERTIFICATE OF ANALYSIS**

This Certificate applies to the associated Excel Spreadsheet of Hydrocarbon results combined with the discussion and SGH Pathfinder Class maps of the data shown in this report.

443 Samples were analyzed for this submission.

Sample preparation –Actlabs Ancaster - S4: Drying at 40°C and Sieving with -80 mesh collected

A supplemental Interpretation relative to Copper and Silver targets was requested.

The following analytical package was requested and analyzed at Actlabs Ancaster Canada:

Analysis Code SGH – Soil Gas Hydrocarbon Geochemistry using High Resolution Gas Chromatography/Mass Spectrometry (HRGC/MS)

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#### REPORT/WORKORDER: A20-13453

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at the time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of the material submitted for analysis.

Notes: The SGH – Soil Gas Hydrocarbon Geochemistry is a semi-quantitative analytical procedure to detect and measure 162 hydrocarbon compounds as the <u>organic</u> signature in the sample material collected from a survey area. It is not an assay of Mineralization but is a predictive geochemical tool used for exploration. This certificate pertains only to the SGH data presented in the associated Microsoft Excel spreadsheet of results.

Mr. Dale Sutherland, is the creator of the SGH and OSG organic geochemical methods. He is a Chartered Chemist (C.Chem.) and Forensic Scientist specializing in organic chemistry. He is a member of the Association of the Chemical Profession of Ontario, the Association of Applied Geochemists, the International Association of GeoChemistry, the Ontario Prospectors Association, the Association for Mineral Exploration British Columbia, the Geochemical Society Association, the Ontario Petroleum institute, the Chemical Institute of Canada, and the Canadian Society for Chemistry, as well as having memberships in several national and international Forensic associations. He is not a professional geologist.

CERTIFIED BY:

Jeff Brown

Organics Supervisor

Activation Laboratories Ltd.

### **APPENDIX III**

Geotech VTEM Plus Report

# VTEM™ Plus REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM™ Plus) AND HORIZONTAL MAGNETIC GRADIOMETER GEOPHYSICAL SURVEY April 2021 PROJECT: CONFEDERATION NORTH AND SOUTH **PROJECT** EAR FALLS, ON LOCATION: INFINITE ORE CORP. FOR: **SURVEY FLOWN:** DECEMBER 2020 - JANUARY 2021 **PROJECT:** GL200199 Tel: +1 905 841 5004 Geotech Ltd. 270 Industrial Parkway South Web: www.geotech.ca Aurora, ON Canada L4G 3T9 Email: info@geotech.ca

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#### **EXECUTIVE SUMMARY**

### CONFEDERATION NORTH AND SOUTH PROJECT EAR FALLS, ON

Between November 26<sup>th</sup>, 2020 and January 23<sup>rd</sup>, 2021, Geotech Ltd. carried out a helicopter-borne geophysical survey over the Confederation North and South Project near Ear Falls, ON.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM™ Plus) system and a horizontal magnetic gradiometer with two caesium sensors. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 827 line-kilometres of geophysical data were acquired during the survey.

In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as the following maps:

- Electromagnetic stacked profiles of the B-field Z Component
- Electromagnetic stacked profiles of dB/dt Z Component
- B-Field Z Component Channel grid
- dB/dt Z Component Channel grid
- Fraser Filtered X Component Channel grid
- Total Magnetic Intensity (TMI)
- Magnetic Total Horizontal Gradient
- Magnetic Tilt-Angle Derivative
- Calculated Time Constant (Tau) with Calculated Vertical Derivative of TMI contours
- Resistivity Depth Images (RDI) sections, depth-slices, and voxel are presented.

Digital data include all electromagnetic and magnetic products, plus ancillary data including the waveform.

The survey report describes the procedures for data acquisition, equipment used, processing, final image presentation and the specifications for the digital data set.



#### 1. INTRODUCTION

#### 1.1 GENERAL CONSIDERATIONS

Geotech Ltd. performed a helicopter-borne geophysical survey over the Confederation North and South Project near Ear Falls, ON (Figure 1 & Figure 2).

JC St-Amour represented Infinite Ore Corp. during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM™) plus system with Full-Waveform processing. Measurements consisted of Vertical (Z) and In-line Horizontal (X) component of the EM fields using an induction coil and a horizontal magnetic gradiometer using two caesium magnetometers. A total of 827 line-km of geophysical data were acquired during the survey.

The crew was based out of Red Lake, ON (Figure 2) for the acquisition phase of the survey. Survey flying occurred between December 3<sup>rd</sup>, 2020 and January 22, 2021.

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final data processing followed immediately after the end of the survey. Final reporting, data presentation and archiving were completed in April 2021.



Figure 1: Survey location



#### 1.2 SURVEY AND SYSTEM SPECIFICATIONS

The survey area is located approximately 24 km north of Ear Falls, ON (Figure 2).



Figure 2: Survey area location map on Google Earth.

The Confederation North and South Project area was flown in a northwest to southeast (N  $160^{\circ}$  E azimuth) direction with traverse line spacings of 200 metres, as depicted in Figure 3. Tie lines were flown perpendicular to traverse lines at 2000m line spacings. For more detailed information on the flight spacings and directions, see Table 1.

### 1.3 TOPOGRAPHIC RELIEF AND CULTURAL FEATURES

Topographically, the survey area exhibits minimal relief with elevations ranging from 347 to 460 metres over an area of 100 square kilometres (Figure 3).

There are visible signs of culture such as roads and powerlines near/within the Confederation North and South Project area.

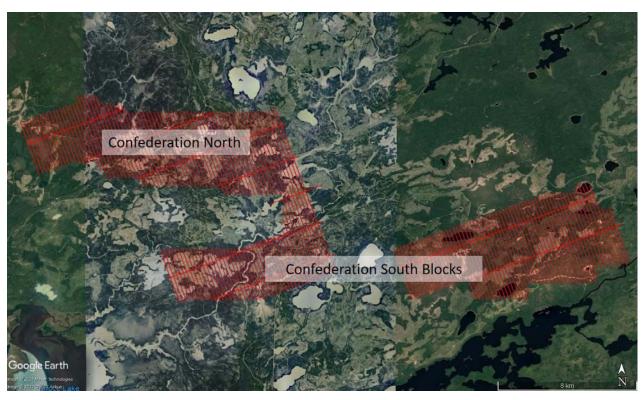


Figure 3: Confederation North and South Project flight paths over a Google Earth Image.

### 2. DATA ACQUISITION

### 2.1 SURVEY AREA

The survey area (see Figure 3 and Appendix A) and general flight specifications are as follows:

Table 1: Survey Specifications

Survey block	Line spacing (m)	Area (km²)	Planned <sup>1</sup> Line-km	Actual Line-km	Flight direction	Line numbers
Confederation North & South	Traverse: 200	155	155 803	827	N0°E / N180°E	L2290 – L3790
	Tie: 2000				N90°E / N270°E	T3980 – T4060
	Total	155	803	827		

Survey area boundaries co-ordinates are provided in Appendix B.

### 2.2 SURVEY OPERATIONS

Survey operations were based out of Red Lake, ON. The following table shows the timing of the flying for the entire survey.

Date	Comments
26-Nov	Crew arrived at project location
27-Nov	Commence system assembly
28-Nov	Continue system assembly
29-Nov	Continue system assembly
30-Nov	Complete system assembly; reconnaissance flight.
1-Dec	Test flights
2-Dec	Weather day
3-Dec	Complete testing. Production Flight - 46 km flown
4-Dec	Weather day
5-Dec	Production Flight - 121.2 km flown
6-Dec	Weather day
7-Dec	Weather day
8-Dec	Production Flight - 103.5 km flown
9-Dec	Production Flight - 31.3 km flown
10-Dec	Weather day
11-Dec	Weather day
12-Dec	Weather day
13-Dec	Weather day
14-Dec	Production Flight - failed internal QC
15-Dec	Troubleshooting and testing
16-Dec	Troubleshooting continued
17-Dec	Weather day
18-Dec	Weather day
19-Dec	Test flights

 $<sup>^{1}</sup>$  Note: Actual Line kilometres represent the total line kilometres in the final database. These line-km normally exceed the Planned Line-km, as indicated in the survey NAV files.



Date	Comments			
20-Dec	Test flights, demob			
6-Jan	Mobilization to project area			
7-Jan	Troubleshooting and test flight			
8-Jan	Troubleshooting			
9-Jan	Weather day			
10-Jan	Weather day			
11-Jan	Test flight			
12-Jan	Weather day			
13-Jan	Install new system components, continue troubleshooting			
14-Jan	Complete system tests			
15-Jan	Weather day			
16-Jan	Production Flight - 202.9 km flown			
17-Jan	Weather day			
18-Jan	Production Flight - 71.5 km flown			
19-Jan	Production Flight - 177 km flown			
20-Jan	Weather day			
21-Jan	Weather day			
22-Jan	Production Flight - 59.5 km flown			
23-Jan	Deliver preliminary products, receive demobilization authorization			
24-Jan	Demobilization			

#### 2.3 FLIGHT SPECIFICATIONS

During the survey, the helicopter was maintained at a mean altitude of 97 metres above the ground with an average survey speed of 77 km/hour. The survey height was increased by 15 metres, as per pilot's request, due to the presence of tall trees in the area. This allowed for an actual average Transmitter-receiver loop terrain clearance of 50 metres and a magnetic sensor clearance of 60 metres.

The on-board operator was responsible for monitoring the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic features.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by qualified personnel.

#### 2.4 AIRCRAFT AND EQUIPMENT

#### 2.4.1 SURVEY ATRCRAFT

The survey was flown using a Eurocopter Aerospatiale (A-Star) 350 B3 helicopter, registration C-GVMU. The helicopter is owned and operated by Geotech Aviation Ltd. Installation of the geophysical and ancillary equipment was carried out by a Geotech Ltd. crew.



#### 2.4.2 ELECTROMAGNETIC SYSTEM

The electromagnetic system was a Geotech Time Domain EM (VTEM™ Plus) full receiver-waveform streamed data recorded system. The "full waveform VTEM system" uses the streamed half-cycle recording of transmitter and receiver waveforms to obtain a complete system response calibration throughout the entire survey flight. VTEM with the serial number 18 had been used for the survey. The VTEM™ transmitter current waveform is shown diagrammatically in Figure 4.

The VTEM™ Receiver and transmitter coils were in concentric-coplanar and Z-direction oriented configuration. The receiver system for the project also included coincident-coaxial X-direction coil to measure the in-line dB/dt and calculate B-Field responses. The Transmitter-receiver loop was towed at a mean distance of 47 metres below the aircraft as shown in Figure 5.

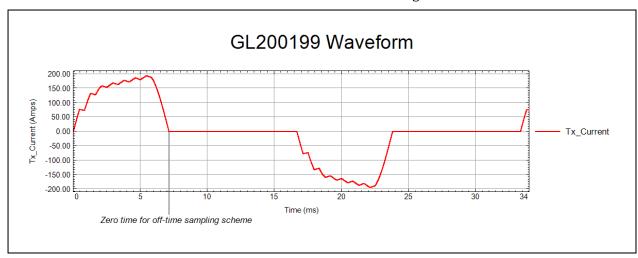


Figure 4: VTEM™ Transmitter Current Waveform

The VTEM™ decay sampling scheme is shown in Table 2 below. Forty-three time measurement gates were used for the final data processing in the range from 0.021 to 8.083 msec. Zero time for the off-time sampling scheme is equal to the current pulse width and is defined as the time near the end of the turn-off ramp where the dI/dt waveform falls to 1/2 of its peak value.

Table 2: Off-Time Decay Sampling Scheme

VTEM™ Decay Sampling Scheme							
Index	Start	End	Middle	Width			
	Milliseconds						
4	0.018	0.023	0.021	0.005			
5	0.023	0.029	0.026	0.005			
6	0.029	0.034	0.031	0.005			
7	0.034	0.039	0.036	0.005			
8	0.039	0.045	0.042	0.006			
9	0.045	0.051	0.048	0.007			
10	0.051	0.059	0.055	0.008			
11	0.059	0.068	0.063	0.009			
12	0.068	0.078	0.073	0.010			
13	0.078	0.090	0.083	0.012			



	VTEM™ Decay Sampling Scheme					
Index	Start	End	Middle	Width		
	Milliseconds					
14	0.090	0.103	0.096	0.013		
15	0.103	0.118	0.110	0.015		
16	0.118	0.136	0.126	0.018		
17	0.136	0.156	0.145	0.020		
18	0.156	0.179	0.167	0.023		
19	0.179	0.206	0.192	0.027		
20	0.206	0.236	0.220	0.030		
21	0.236	0.271	0.253	0.035		
22	0.271	0.312	0.290	0.040		
23	0.312	0.358	0.333	0.046		
24	0.358	0.411	0.383	0.053		
25	0.411	0.472	0.440	0.061		
26	0.472	0.543	0.505	0.070		
27	0.543	0.623	0.580	0.081		
28	0.623	0.716	0.667	0.093		
29	0.716	0.823	0.766	0.107		
30	0.823	0.945	0.880	0.122		
31	0.945	1.086	1.010	0.141		
32	1.086	1.247	1.161	0.161		
33	1.247	1.432	1.333	0.185		
34	1.432	1.646	1.531	0.214		
35	1.646	1.891	1.760	0.245		
36	1.891	2.172	2.021	0.281		
37	2.172	2.495	2.323	0.323		
38	2.495	2.865	2.667	0.370		
39	2.865	3.292	3.063	0.427		
40	3.292	3.781	3.521	0.490		
41	3.781	4.341	4.042	0.560		
42	4.341	4.987	4.641	0.646		
43	4.987	5.729	5.333	0.742		
44	5.729	6.581	6.125	0.852		
45	6.581	7.560	7.036	0.979		
46	7.560	8.685	8.083	1.125		

Z Component: 4 - 46 time gates X Component: 20 - 46 time gates



Table 3: VTEM™ System Specifications

Transmitter	Receiver
Transmitter loop diameter: 26 m	X -Coil diameter: 0.32 m
Number of turns: 4	Number of turns: 245
Effective Transmitter loop area: 2123.7 m <sup>2</sup>	Effective coil area: 19.69 m²
Transmitter base frequency: 30 Hz	
Peak current: 194 A	
Pulse width: 7.14 ms	Z-Coil diameter: 1.2 m
Waveform shape: Bi-polar trapezoid	Number of turns: 100
Peak dipole moment: 412,001 nIA	Effective coil area: 113.04 m <sup>2</sup>
Average transmitter-receiver loop terrain clearance: 50	
metres	

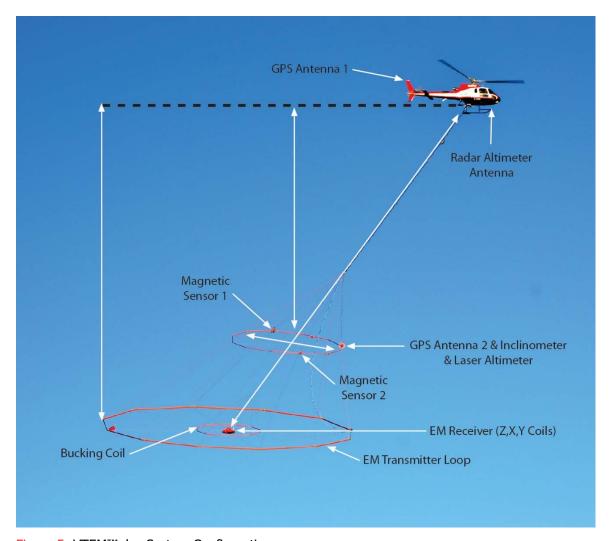


Figure 5: VTEM™plus System Configuration.

### 2.4.3 FULL WAVEFORM VTEM™ SENSOR CALIBRATION

The calibration is performed on the complete  $VTEM^{m}$  system installed in and connected to the helicopter, using special calibration equipment. This calibration takes place on the ground at the start of the project prior to surveying.

The procedure takes half-cycle files acquired and calculates a calibration file consisting of a single stacked half-cycle waveform. The purpose of the stacking is to attenuate natural and man-made magnetic signals, leaving only the response to the calibration signal.

This calibration allows the transfer function between the EM receiver and data acquisition system and the transfer function between the current monitor and data acquisition system to be determined. These calibration results are then used in VTEM full waveform processing.

#### 2.4.4 HORIZONTAL MAGNETIC GRADIOMETER

The horizontal magnetic gradiometer consists of two Geometrics split-beam field magnetic sensors with a sampling interval of 0.1 seconds. These sensors are mounted 12.5 metres apart on a separate loop, 10 metres above the Transmitter-receiver loop. A GPS antenna and Gyro Inclinometer is installed on the separate loop to accurately record the tilt and position of the magnetic gradiomag bird.

#### 2.4.5 RADAR ALTIMETER

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit (Figure 5).

### 2.4.6 GPS NAVIGATION SYSTEM

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel's WAAS (Wide Area Augmentation System) enabled GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and a NovAtel GPS antenna mounted on the helicopter tail (Figure 5). As many as 11 GPS and two WAAS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with WAAS active, it is 1.0 m. The coordinates of the survey area were set-up prior to the survey and the information was fed into the airborne navigation system. The second GPS antenna is installed on the additional magnetic loop together with Gyro Inclinometer.

### 2.4.7 DIGITAL ACQUISITION SYSTEM

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The data type and sampling interval as provided in Table 4



Table 4: Acquisition Sampling Rates

Data Type	Sampling
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec
Inclinometer	0.1 sec

### 2.5 BASE STATION

A combined magnetometer/GPS base station was utilized on this project. A Geometrics Caesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer.

The base station magnetometer sensor was installed in a secured location away from electric transmission lines and moving ferrous objects such as motor vehicles. The base station data were backed-up to the data processing computer at the end of each survey day.

### 3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

FIELD:

Project Manager: Adrian Sarmasag (Office)

Data QC: Nick Venter

Marta Orta

Crew chief: Paul Taylor

Juan Carlos Osorio

Operator: Daniel Zantingh

Jeremy Shin

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – Geotech Aviation Ltd.

Pilot: Rob Girald

Mechanical Engineer: n/a

**OFFICE**:

Preliminary Data Processing: Nick Venter

Marta Orta

Final Data Processing: Shuang Wang

Data QA/QC: Emily Data

Jean Legault

Reporting/Mapping: Emily Data

Melissa Pereira

Processing and Interpretation phases were carried out under the supervision of Emily Data & Jean M. Legault, M.Sc.A, P.Eng, P.Geo – Chief Geophysicist. The customer relations were looked after by Paolo Berardelli.



### 4. DATA PROCESSING AND PRESENTATION

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

### 4.1 FLIGHT PATH

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the WGS84 Datum, UTM Zone 15N coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM easting's (x) and UTM northing's (y).

#### 4.2 ELECTROMAGNETIC DATA

The Full Waveform EM specific data processing operations included:

- Half cycle stacking (performed at time of acquisition).
- System response correction.
- Parasitic and drift removal.

A three-stage digital filtering process was used to reject major sferic events and to reduce noise levels. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 15 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for the B-field Z component and dB/dt responses in the Z and X components. B-field Z component time channels recorded at 0.220 milliseconds after the termination of the impulse is also presented as a colour image. Calculated Time Constant (TAU) with Calculated Vertical Derivative contours is presented in Appendix C. Resistivity Depth Image (RDI) is also presented in Appendix G.

 $VTEM^{\mathsf{TM}}$  has two receiver coil orientations. Z-axis coil is oriented parallel to the transmitter coil axis and both are horizontal to the ground. The X-axis coil is oriented parallel to the ground and along the line-of-flight. The combination of the X and Z coils configuration provides information on the position, depth, dip, and thickness of a conductor. Generalized modeling results of VTEM data, are shown in Appendix D.

In general X-component data produce cross-over type anomalies: from "+ to - "in flight direction of flight for "thin" sub vertical targets and from "- to +" in direction of flight for "thick" targets. Z component data produce double peak type anomalies for "thin" sub vertical targets and single peak for "thick" targets.



The limits and change-over of "thin-thick" depends on dimensions of a TEM system (Appendix D, Figure D-16).

Because of X component polarity is under line-of-flight, convolution Fraser Filter (Figure 6) is applied to X component data to represent axes of conductors in the form of grid map. In this case positive FF anomalies always correspond to "plus-to-minus" X data crossovers independent of the flight direction.

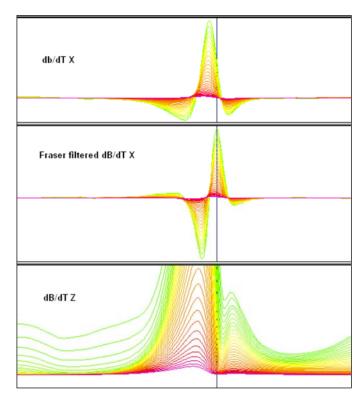


Figure 6: Z, X and Fraser filtered X (FFx) components for "thin" target.

#### 4.3 HORIZONTAL MAGNETIC GRADIOMETER DATA

The horizontal gradients data from the VTEM™Plus are measured by two magnetometers 12.5 m apart on an independent bird mounted 10m above the VTEM™ loop. A GPS and a Gyro Inclinometer help to determine the positions and orientations of the magnetometers. The data from the two magnetometers are corrected for position and orientation variations, as well as for the diurnal variations using the base station data.

The position of the centre of the horizontal magnetic gradiometer bird is calculated from the GPS utilizing in-house processing tool in Geosoft. Following that total magnetic intensity is calculated at the center of the bird by calculating the mean values from both sensors. In addition to the total intensity advanced processing is done to calculate the in-line and cross-line (or lateral) horizontal gradient which enhance the understanding of magnetic targets. The in-line (longitudinal) horizontal gradient is calculated from the difference of two consecutive total magnetic field readings divided by the distance along the flight line direction, while the cross-line (lateral) horizontal magnetic gradient is calculated from the difference in the magnetic readings from both magnetic sensors divided by their horizontal separation.

Two advanced magnetic derivative products, the total horizontal derivative (THDR), and tilt angle derivative and are also created. The total horizontal derivative or gradient is defined as:

THDR = sqrt(Hx\*Hx+Hy\*Hy), where Hx and Hy are cross-line and in-line horizontal gradients.

The tilt angle derivative (TDR) is defined as:

TDR = arctan(Vz/THDR), where THDR is the total horizontal derivative, and Vz is the vertical derivative.

Measured cross-line gradients can help to enhance cross-line linear features during gridding.



### 5. DELIVERABLES

### 5.1 SURVEY REPORT

The survey report describes the data acquisition, processing, and final presentation of the survey results. The survey report is provided in two paper copies and digitally in PDF format.

### 5.2 MAPS

Final maps were produced at scale of 1:25,000 for best representation of the survey size and line spacing. The coordinate/projection system used was WGS84 Datum, UTM Zone 15N. All maps show the flight path trace, and topographic data; latitude and longitude are also noted on maps.

The results of the survey are presented as EM profiles, a late-time gate gridded EM channel, and a colour magnetic TMI contour map.

• Maps at 1:25,000 in Geosoft MAP format, as follows:

colour image.  GL200199_**_SFz20:  VTEM dB/dt Z Component Channel 20, Time Gate 0.220 ms colour image  GL200199_**_SFxFF25:  Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440 ms colour image.  GL200199_**_TMI:  Total Magnetic Intensity (TMI) colour image and contours.	GL200199_**_dBdt:	dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
GL200199_**_BFz20:  GL200199_**_SFz20:  GL200199_**_SFx20:  GL200199_**_SFxFF25:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TAUSF:  GL200199_**_TAUSF:  GL200199_**_TOtHG:  B-field Z Component Channel 20, Time Gate 0.220 ms colour image  Channel 20, Time Gate 0.220 ms colour image  Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440 ms colour image.  GL200199_**_TMI:  GL200199_**_TMI:  GL200199_**_TAUSF:  GL200199_**_TAUSF:  Magnetic Total Horizontal Gradient colour image.	GL200199_**_BField:	•
GL200199_**_SFz20:  UTEM dB/dt Z Component Channel 20, Time Gate 0.220 ms colour image  GL200199_**_SFxFF25:  Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440 ms colour image.  GL200199_**_TMI:  Total Magnetic Intensity (TMI) colour image and contours.  GL200199_**_TauSF:  dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours  GL200199_**_TotHG:  Magnetic Total Horizontal Gradient colour image.	GL200199_**_BFz20:	B-field Z Component Channel 20, Time Gate 0.220 ms
GL200199_**_SFxFF25:  Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440 ms colour image.  GL200199_**_TMI:  Total Magnetic Intensity (TMI) colour image and contours.  GL200199_**_TauSF:  dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours  GL200199_**_TotHG:  Magnetic Total Horizontal Gradient colour image.	GL200199_**_SFz20:	VTEM dB/dt Z Component Channel 20, Time Gate
GL200199_**_TMI:  Total Magnetic Intensity (TMI) colour image and contours.  GL200199_**_TauSF:  dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours  GL200199_**_TotHG:  Magnetic Total Horizontal Gradient colour image.	GL200199_**_SFxFF25:	Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440 ms colour image.
Vertical Derivative contours  GL200199_**_TotHG:  Magnetic Total Horizontal Gradient colour image.	GL200199_**_TMI:	Total Magnetic Intensity (TMI) colour image and
GL200199_**_TotHG: Magnetic Total Horizontal Gradient colour image.	GL200199_**_TauSF:	dB/dt Calculated Time Constant (Tau) with Calculated Vertical Derivative contours
		Magnetic Total Horizontal Gradient colour image.

Where \*\* represents block name and map scale. E.g., GL200199 InfiniteOre 25k Bfield.map

- Maps are also presented in PDF format.
- The topographic data base was derived from 1:50,000 CANVEC data. Background shading is from ASTER GDEM (<a href="https://gdex.cr.usgs.gov/gdex">https://gdex.cr.usgs.gov/gdex</a>). Inset data derived from the Geocommunities (www.geocomm.com)
- A Google Earth file *GL200199\_InfiniteOre.kmz* showing the flight path of the block is included. Free versions of Google Earth software from: http://earth.google.com/download-earth.html



### 5.3 DIGITAL DATA

Two copies of the data and maps on DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj format as well as the maps in Geosoft Montaj Map and PDF format.

• DVD structure.

Data contains databases, grids and maps, as described below.

Report contains a copy of the report and appendices in PDF format.

Databases in Geosoft GDB format, containing the channels listed in Table 5.

Table 5: Geosoft GDB Data Format

Channel name	Units	Description	
X	metres	Easting WGS84 Zone 15N	
Υ	metres	Northing WGS84 Zone 15N	
Longitude	Decimal Degrees	WGS84 Longitude data	
Latitude	Decimal Degrees	WGS84 Latitude data	
Z	metres	GPS antenna elevation	
Zb	metres	EM bird elevation	
Radar	metres	Helicopter terrain clearance from radar altimeter	
Radarb	metres	Calculated EM transmitter-receiver loop terrain clearance	
		from radar altimeter	
DEM	metres	Digital Elevation Model	
Gtime	Seconds of the day	GPS time	
Mag1L	nT	Measured Total Magnetic field data (left sensor)	
Mag1R	nT	Measured Total Magnetic field data (right sensor)	
Basemag	nT	Magnetic diurnal variation data	
Mag2LZ	nT	Z corrected (w.r.t. loop center) and diurnal corrected	
		magnetic field left mag	
Mag2RZ	nT	Z corrected (w.r.t. loop center) and diurnal corrected	
		magnetic field right mag	
TMI2	nT	Calculated from diurnal corrected total magnetic field	
		intensity of the centre of the loop	
TMI3	nT	Microleveled total magnetic field intensity of the centre	
		of the loop	
Hginline		Calculated in-line gradient	
Hgcxline		Measured cross-line gradient	
CVG	nT/m	Calculated Magnetic Vertical Gradient of TMI	
SFz[4]	pV/(A*m4)	Z dB/dt 0.021 millisecond time channel	
SFz[5]	pV/(A*m4)	Z dB/dt 0.026 millisecond time channel	
SFz[6]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.031 millisecond time channel	
SFz[7]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.036 millisecond time channel	
SFz[8]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.042 millisecond time channel	
SFz[9]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.048 millisecond time channel	
SFz[10]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.055 millisecond time channel	
SFz[11]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.063 millisecond time channel	
SFz[12]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.073 millisecond time channel	
SFz[13]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.083 millisecond time channel	
SFz[14]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.096 millisecond time channel	



Channel name	Units	Description	
SFz[15]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.110 millisecond time channel	
SFz[16]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.126 millisecond time channel	
SFz[17]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.145 millisecond time channel	
SFz[18]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.167 millisecond time channel	
SFz[19]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.192 millisecond time channel	
SFz[20]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.220 millisecond time channel	
SFz[21]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.253 millisecond time channel	
SFz[22]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.290 millisecond time channel	
SFz[23]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.333 millisecond time channel	
SFz[24]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.383 millisecond time channel	
SFz[25]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.440 millisecond time channel	
SFz[26]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.505 millisecond time channel	
SFz[27]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.580 millisecond time channel	
SFz[28]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.667 millisecond time channel	
SFz[29]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.766 millisecond time channel	
SFz[30]	pV/(A*m <sup>4</sup> )	Z dB/dt 0.880 millisecond time channel	
SFz[31]	pV/(A*m <sup>4</sup> )	Z dB/dt 1.010 millisecond time channel	
SFz[32]	pV/(A*m <sup>4</sup> )	Z dB/dt 1.161 millisecond time channel	
SFz[33]	pV/(A*m <sup>4</sup> )	Z dB/dt 1.333 millisecond time channel	
SFz[34]	pV/(A*m <sup>4</sup> )	Z dB/dt 1.531 millisecond time channel	
SFz[35]	pV/(A*m <sup>4</sup> )	Z dB/dt 1.760 millisecond time channel	
SFz[36]	pV/(A*m <sup>4</sup> )	Z dB/dt 2.021 millisecond time channel	
SFz[37]	pV/(A*m <sup>4</sup> )	Z dB/dt 2.323 millisecond time channel	
SFz[38]	pV/(A*m <sup>4</sup> )	Z dB/dt 2.667 millisecond time channel	
SFz[39]	pV/(A*m <sup>4</sup> )	Z dB/dt 3.063 millisecond time channel	
SFz[40]	pV/(A*m <sup>4</sup> )	Z dB/dt 3.521 millisecond time channel	
SFz[41]	pV/(A*m <sup>4</sup> )	Z dB/dt 4.042 millisecond time channel	
SFz[42]	pV/(A*m <sup>4</sup> )	Z dB/dt 4.641 millisecond time channel	
SFz[43]	pV/(A*m <sup>4</sup> )	Z dB/dt 5.333 millisecond time channel	
SFz[44]	pV/(A*m <sup>4</sup> )	Z dB/dt 6.125 millisecond time channel	
SFz[45]	pV/(A*m <sup>4</sup> )	Z dB/dt 7.036 millisecond time channel	
SFz[46]	pV/(A*m <sup>4</sup> )	Z dB/dt 8.083 millisecond time channel	
SFx[20]	pV/(A*m <sup>4</sup> )	X dB/dt 0.220 millisecond time channel	
SFx[21]	pV/(A*m <sup>4</sup> )	X dB/dt 0.253 millisecond time channel	
SFx[22]	pV/(A*m <sup>4</sup> )	X dB/dt 0.290 millisecond time channel	
SFx[23]	pV/(A*m <sup>4</sup> )	X dB/dt 0.333 millisecond time channel	
SFx[24]	pV/(A*m <sup>4</sup> )	X dB/dt 0.383 millisecond time channel	
SFx[25]	pV/(A*m <sup>4</sup> )	X dB/dt 0.440 millisecond time channel	
SFx[26]	pV/(A*m <sup>4</sup> )	X dB/dt 0.505 millisecond time channel	
SFx[27]	pV/(A*m <sup>4</sup> )	X dB/dt 0.580 millisecond time channel	
SFx[28]	pV/(A*m <sup>4</sup> )	X dB/dt 0.667 millisecond time channel	
SFx[29]	pV/(A*m <sup>4</sup> )	X dB/dt 0.766 millisecond time channel	
SFx[30]	pV/(A*m <sup>4</sup> )	X dB/dt 0.880 millisecond time channel	
SFx[31]	pV/(A*m <sup>4</sup> )	X dB/dt 1.010 millisecond time channel	
SFx[32]	pV/(A*m <sup>4</sup> )	X dB/dt 1.161 millisecond time channel	
SFx[33]	pV/(A*m <sup>4</sup> )	X dB/dt 1.333 millisecond time channel	
SFx[34]	pV/(A*m <sup>4</sup> )	X dB/dt 1.531 millisecond time channel	
SFx[35]	pV/(A*m <sup>4</sup> )	X dB/dt 1.760 millisecond time channel	
SFx[36]	pV/(A*m <sup>4</sup> )	X dB/dt 2.021 millisecond time channel	
SFx[37]	pV/(A*m <sup>4</sup> )	X dB/dt 2.323 millisecond time channel	



Channel name	Units	Description	
SFx[38]	pV/(A*m <sup>4</sup> )	X dB/dt 2.667 millisecond time channel	
SFx[39]	pV/(A*m <sup>4</sup> )	X dB/dt 3.063 millisecond time channel	
SFx[40]	pV/(A*m <sup>4</sup> )	X dB/dt 3.521 millisecond time channel	
SFx[41]	pV/(A*m <sup>4</sup> )	X dB/dt 4.042 millisecond time channel	
SFx[42]	pV/(A*m <sup>4</sup> )	X dB/dt 4.641 millisecond time channel	
SFx[43]	pV/(A*m <sup>4</sup> )	X dB/dt 5.333 millisecond time channel	
SFx[44]	pV/(A*m <sup>4</sup> )	X dB/dt 6.125 millisecond time channel	
SFx[45]	pV/(A*m <sup>4</sup> )	X dB/dt 7.036 millisecond time channel	
SFx[46]	pV/(A*m <sup>4</sup> )	X dB/dt 8.083 millisecond time channel	
BFz	(pV*ms)/(A*m <sup>4</sup> )	Z B-Field data for time channels 4 to 46	
BFx	(pV*ms)/(A*m <sup>4</sup> )	X B-Field data for time channels 20 to 46	
SFxFF	pV/(A*m <sup>4</sup> )	Fraser Filtered X dB/dt	
NchanBF		Latest time channels of TAU calculation	
TauBF	ms	Time constant B-Field	
NchanSF		Latest time channels of TAU calculation	
TauSF	ms	Time constant dB/dt	
PLM		60 Hz power line monitor	

Electromagnetic B-field and dB/dt Z component data is found in array channel format between indexes 4-46, and X component data from 20-46, as described above.

 Database of the Resistivity Depth Images in Geosoft GDB format, containing the following channels:

Table 6: Geosoft Resistivity Depth Image GDB Data Format

Channel name	Units	Description	
Xg	metres	Easting WGS84 Zone 15N	
Yg	metres	Northing WGS84 Zone 15N	
Dist	metres	Distance from the beginning of the line	
Depth	metres	array channel, depth from the surface	
Z	metres	array channel, depth	
AppRes	Ohm-m	array channel, Apparent Resistivity	
TR	metres	EM system height	
Торо	metres	digital elevation model	
Radarb	metres	Calculated EM transmitter-receiver loop terrain clearance from	
		radar altimeter	
SF	pV/(A*m^4)	array channel, Z dB/dT	
MAG	nT	TMI data	
CVG	nT/m	CVG data	
DOI	metres	Depth of Investigation: a measure of VTEM depth effectiveness	
PLM		60Hz Power Line Monitor	

• Database of the VTEM Waveform "GL200199\_Waveform.gdb" in Geosoft GDB format, containing the following channels:

Table 7: Geosoft database for the VTEM waveform

Channel name	Units	Description	
Time	milliseconds Sampling rate interval, 5.2083 micro		
Tx_Current	amps	Output current of the transmitter	

• Geosoft Resistivity Depth Image Products:

Sections: Apparent resistivity sections along each line in .GRD and .PDF format Slices: Apparent resistivity slices at selected depths from 25m to depth of

investigation, at an increment of 25m in .GRD and .PDF format

Voxel: 3D Voxel imaging of apparent resistivity data clipped by digital

elevation and depth of investigation

Grids in Geosoft GRD and GeoTIFF format, as follows:

GL200199 \*\* BFz20: B-Field Z Component Channel 35 (Time Gate 1.760ms) GL200199\_\*\*\_SFxFF25: Fraser Filtered dB/dt X Component Channel 30 (Time Gate 0.290 ms) GL200199\_\*\*\_SFz10: dB/dt Z Component Channel 10 (Time Gate 0.055 ms) GL200199\_\*\*\_SFz30: dB/dt Z Component Channel 30 (Time Gate 0.880 ms) GL200199\_\*\*\_SFz40: dB/dt Z Component Channel 40 (Time Gate 3.521 ms) GL200199 \*\* TauBF: B-Field Z Component, Calculated Time Constant (ms) GL200199\_\*\*\_TauSF: dB/dt Z Component, Calculated Time Constant (ms) GL200199\_\*\*\_TMI: Total Magnetic Intensity (nT) GL200199\_\*\*\_CVG: Calculated Vertical Derivative (nT/m) GL200199\_\*\*\_Hgcxline: Measured Cross-Line Gradient (nT/m) GL200199\_\*\*\_Hginline: Measured In-Line Gradient (nT/m) GL200199\_\*\*\_TotHGrad: Magnetic Total Horizontal Gradient (nT/m) GL200199\_\*\*\_TiltDrv: Magnetic Tilt derivative (radians) GL200199\_\*\*\_DEM: Digital Elevation Model (m) GL200199 \*\* PLM: 60Hz Power Line Monitor

Where \*\* represents block name. E.g., GL200199\_InifniteOre\_BFz20.grd

A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 50 metres was used.



### 6. CONCLUSIONS AND RECOMMENDATIONS

A helicopter-borne versatile time domain electromagnetic (VTEM™plus) horizontal magnetic gradiometer geophysical survey has been completed over the Confederation North and South Project near Ear Falls, ON, on behalf of Infinite Ore Corp.

The total area coverage is 155 km² and the total survey line coverage is 827 line kilometres over two blocks. The principal sensors included a Time Domain EM system, and a horizontal magnetic gradiometer system with two caesium magnetometers. Results have been presented as stacked profiles, and contour colour images at a scale of 1:25,000. A formal interpretation has not been included in this study, however RDI resistivity-depth imaging has been performed in support of the VTEM data.

Based on the geophysical results obtained, a number of geophysical anomalies have been identified across the two properties: Confederation North: Magnetically, the Confederation North block is the most active, with a prominent band of WNW-ESE trending, thin paralleling /alternating high and low magnetic units in the southern half of that block with a length of approximately 7-8 km, and more moderately magnetic rocks in the northern half. Two, more intrusive like magnetic bodies appear to also be partially defined in the eastern and northeastern parts of the property. The EM results have defined a prominent, highly conductive, long strike-length, stratigraphic like conductive unit that extends through the middle of the block and in a region of low to moderate magnetism. And it is flanked to the north and south, mostly, by numerous short to moderate length conductive bodies. Confederation South: The magnetic response of the west block is described as a mixed package of thin high and moderately magnetic units with ENE-WSW strike; and a thicker band of weak to low magnetic units are mainly found throughout the east block of the property. The EM results at west block of Confederation South define a mix of short to moderate strike length but more highly conductive anomalies that are relatively isolated and distributed throughout the block. At east block of Confederate Lake South, the EM response consists of two major subparalleling, ENE-WSW oriented EM trends that extend through the center of the block: the southernmost is a more strikecontinuous, stratigraphic-like conductor with moderate to high magnetic association; whereas the northern conductor is more discontinuous along strike and is generally non magnetic. Based on the EM profiles and RDI sections, the source of most of the EM anomalies are vertical, thin conductors, with top depths about 200 meters. Depths of investigation (DOI) vary between 150-+700m across the property.

The geophysical results at Ear Falls are affected by man-made culture, notably along the South Bay road that extends across west block of Confederation South and is marked by a prominent NNE-SSW trending false conductive lineament. Although magnetic results appear to be far less affected, care should nevertheless be exercised when evaluating geophysical anomalies, particularly the EM data.

The Confederation North and South projects are known for their base metal VMS style mineralization potential, as well as being prospective for orogenic gold mineralization (www.infiniteore.com). Thus both the EM and magnetic results are likely to be of primary interest for exploration. We therefore recommend that EM anomaly picking be performed and that anomalies of interest be further analyzed using Maxwell plate modeling with test drill hole planning prior to ground follow up and drill testing. More advanced 1D layered earth modeling of the EM data will prove useful in highlighting weakly anomalous resistive and conductive features of interest for gold exploration, both in plan and in cross-section. Magnetic CET structural and lineament analysis and 3D MVI magnetic inversions will be useful for mapping structure, alteration, and lithology in 2D-3D space across the property. We recommend that more advanced, integrated interpretation be



performed on these geophysical data and these results further evaluated against the known geology for future targeting.

Respectfully submitted<sup>2,</sup>

Nick Venter **Geotech Ltd.** 

JEAN THEGAULT PRACTISAN THEMBER USA8

Jean M. Legault, M.Sc.A, P.Eng, P.Geo Geotech Ltd.

Marta Orta Geotech Ltd.

Shuang Wang Geotech Ltd.

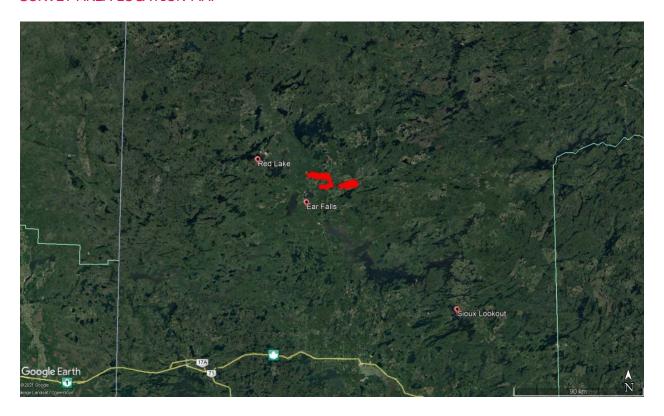
April, 2021

<sup>&</sup>lt;sup>2</sup> Final data processing of the EM and magnetic data were carried out by Shuang Wang, from the offices of Geotech Ltd. in Aurora, Ontario, under the supervision of Emily Data & Jean M. Legault, M.Sc.A., P.Eng, P.Geo – Chief Geophysicist.



# **APPENDIX A**

# SURVEY AREA LOCATION MAP



Overview of the Survey Area



# **APPENDIX B**

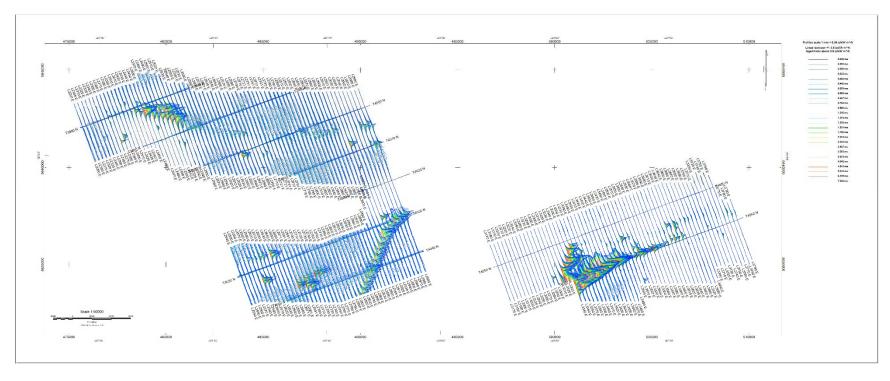
# SURVEY AREA COORDINATES

(WGS84 UTM Zone 15N)

and Sou	ation North th (West)	Confederation South (East) Block	
y BI	Block		) BIOCK
475143.7	5643350.3	496620.4	5636042.3
478603.9	5644513.6	505807.6	5639412.9
478603.9	5644513.6	507030.6	5639144.5
478484.6	5644931.3	507090.3	5639800.7
479558.4	5644931.3	508044.8	5639621.7
479767.2	5644364.5	508402.7	5638339.1
481109.5	5644334.7	509059.0	5638428.6
481288.5	5643887.2	510311.8	5635087.8
489580.8	5643857.4	508283.4	5634938.6
490028.3	5644185.5	508313.2	5634222.8
493488.4	5634670.2	504435.5	5634043.8
488924.6	5632999.8	504346.0	5633089.3
485136.4	5633089.3	501363.2	5633029.6
484360.8	5632880.5	500856.1	5634252.6
483197.5	5635923.0	497724.1	5632999.8
483644.9	5636131.8	496590.6	5636012.5
487940.3	5636012.5		
490207.2	5636937.2		
490296.7	5639114.7		
486926.1	5639114.7		
486776.9	5639591.9		
482302.6	5639591.9		
482064.0	5640099.0	ı	
480125.1	5640009.5		
479528.6	5641143.0		
478424.9	5641083.3		
476277.2	5640248.1		
475084.1	5643529.3		



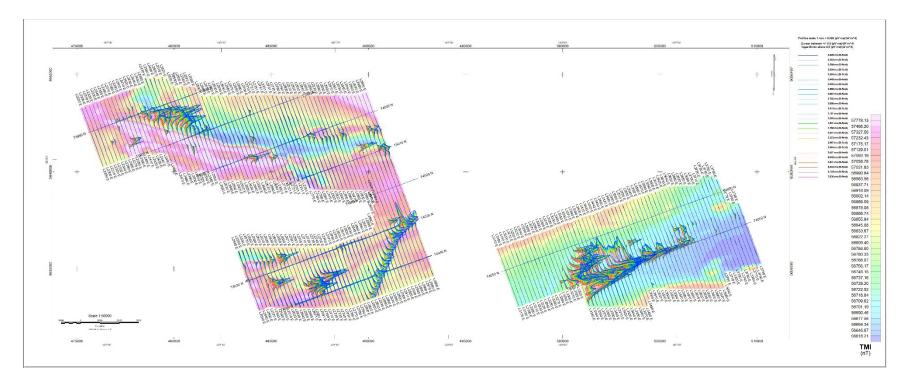
# APPENDIX C - GEOPHYSICAL MAPS<sup>1</sup>



Z Component dB/dt profiles, Time Gates 0.220 – 7.036 ms

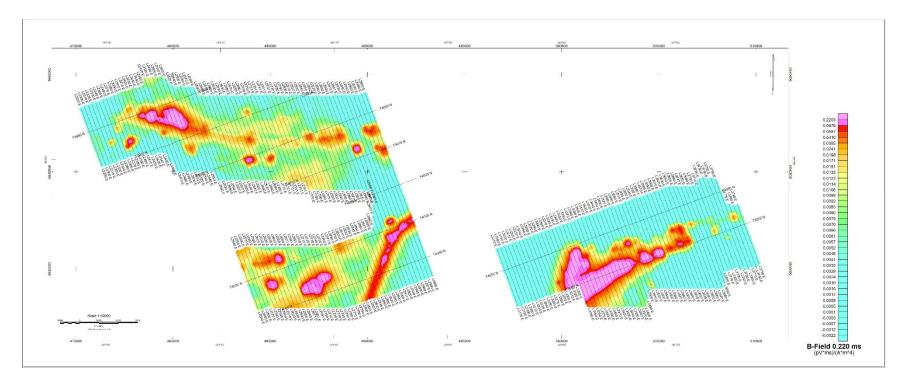


<sup>&</sup>lt;sup>1</sup> Complete full size geophysical maps are also available in PDF format located in the final data maps folder.



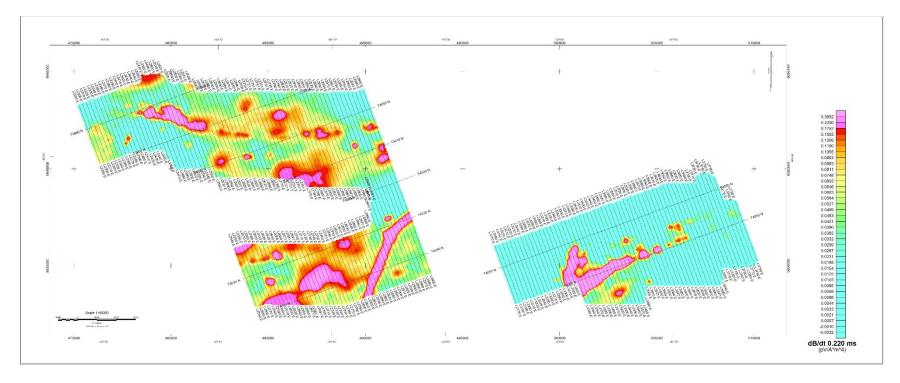
Z Component B-field profiles, Time Gates 0.220 – 7.036 ms over TMI colour image





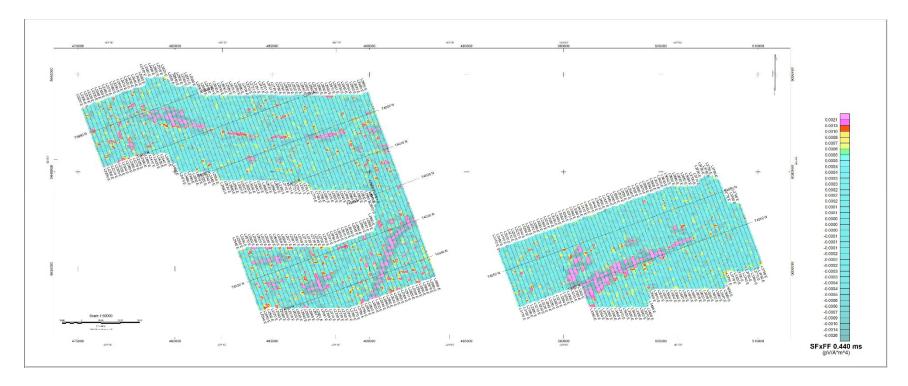
B-field Z Component Channel 20, Time Gate 0.220 ms colour image



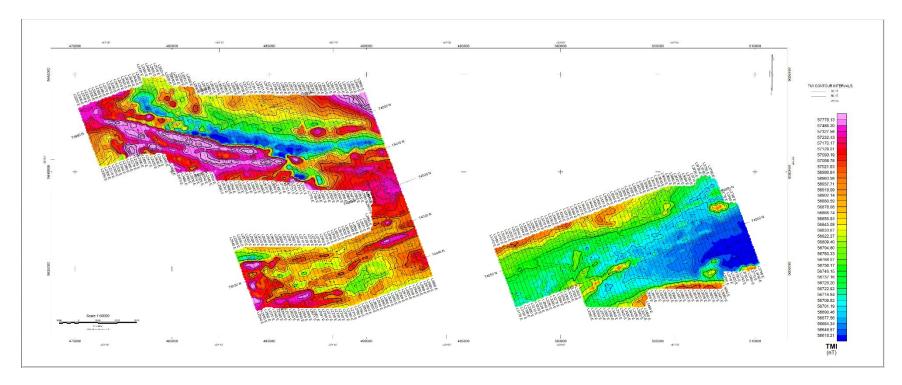


VTEM dB/dt Z Component Channel 20, Time Gate 0.220 ms colour image

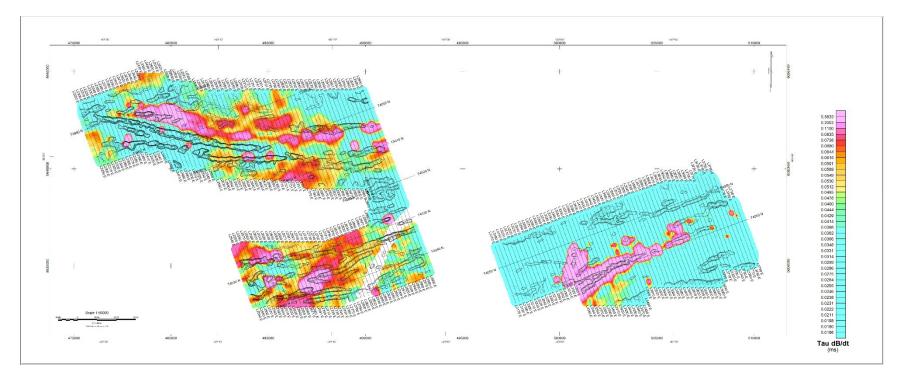




Fraser Filtered dB/dt X Component Channel 25, Time Gate 0.440ms colour image

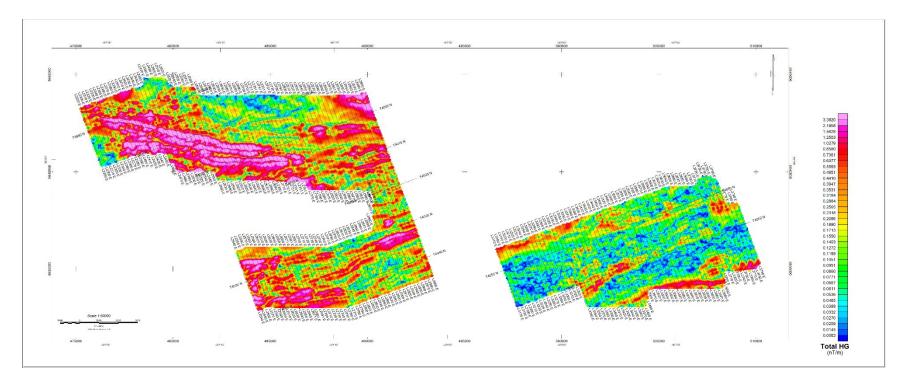


Total Magnetic Intensity (TMI) colour image and contours



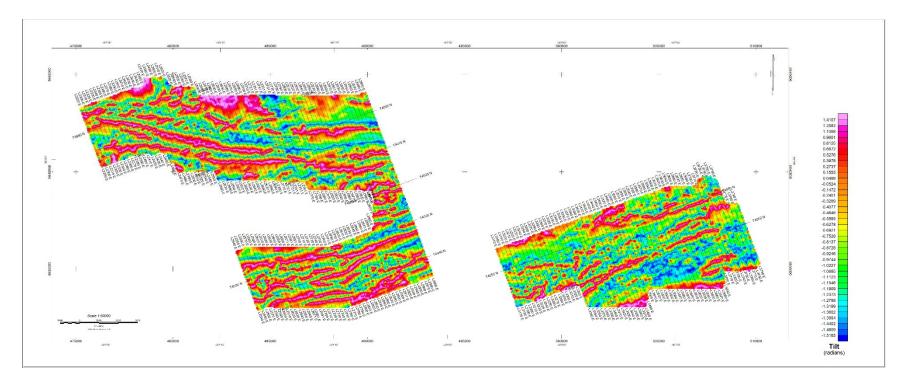
dB/dT Z-Component Calculated Time Constant (Tau) with Calculated Vertical Gradient (CVG) contours





Magnetic Total Horizontal Gradient colour image

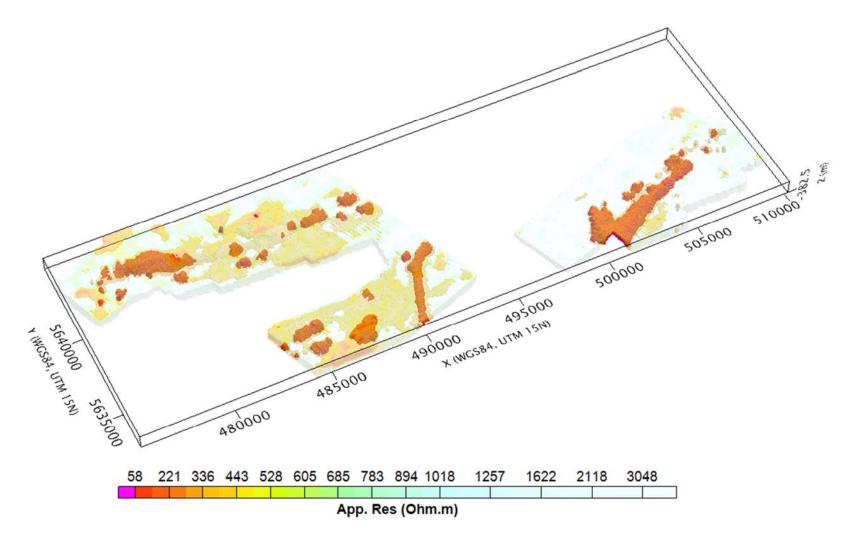




Magnetic Tilt-Angle



# RESISTIVITY DEPTH IMAGE (RDI) MAPS



3D View of Resistivity-Depth Image (RDI) Resistivity Voxel



### APPENDIX D

# GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM INTRODUCTION

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a transmitter loop that produces a primary field. The wave form is a bipolar, modified square wave with a turn-on and turn-off at each end.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

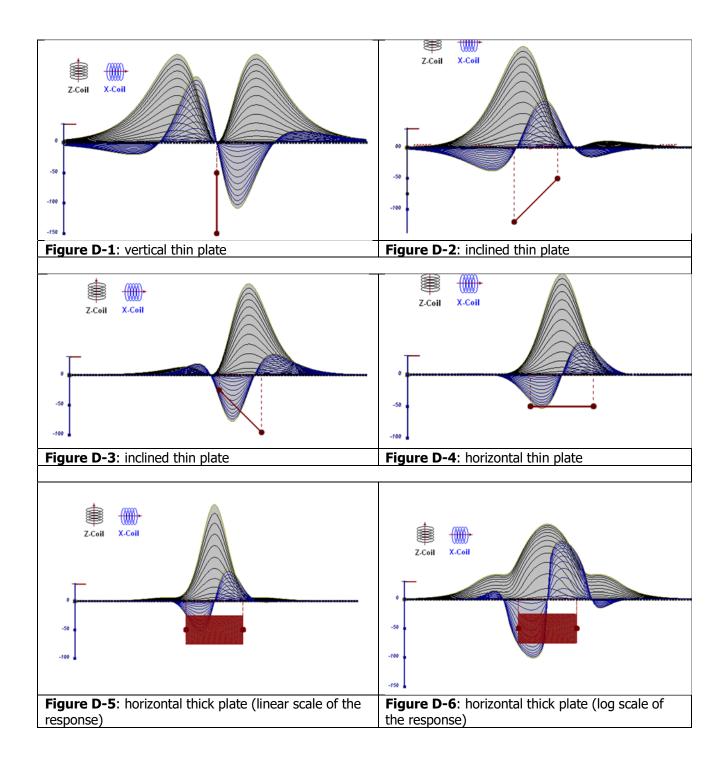
Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

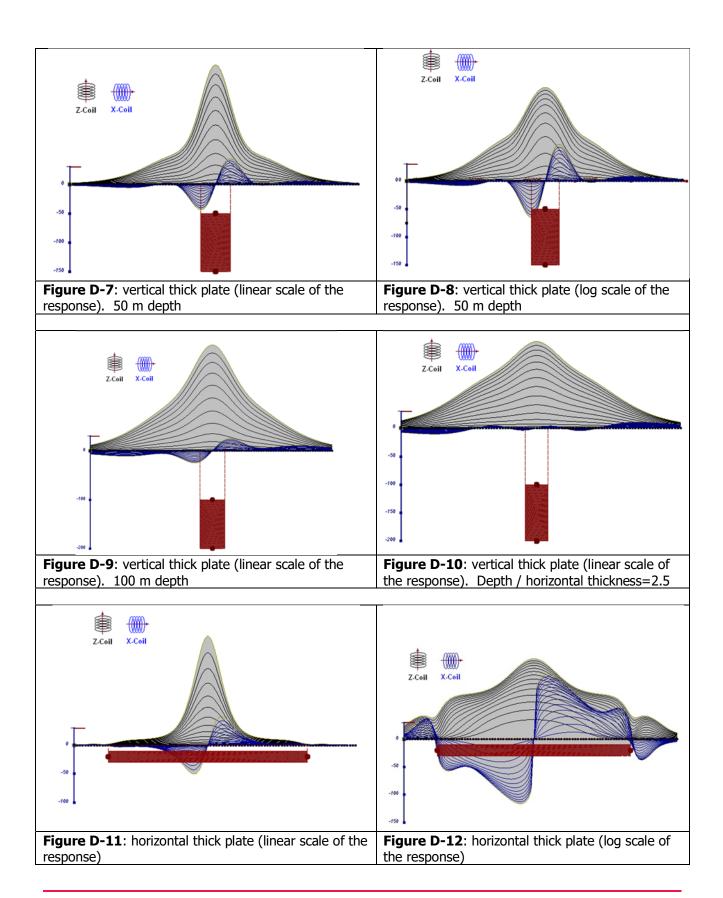
A set of models has been produced for the Geotech VTEM™ system dB/dT Z and X components (see models D1 to D15). The Maxwell ™ modeling program (EMIT Technology Pty. Ltd. Midland, WA, AU) used to generate the following responses assumes a resistive half-space. The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.

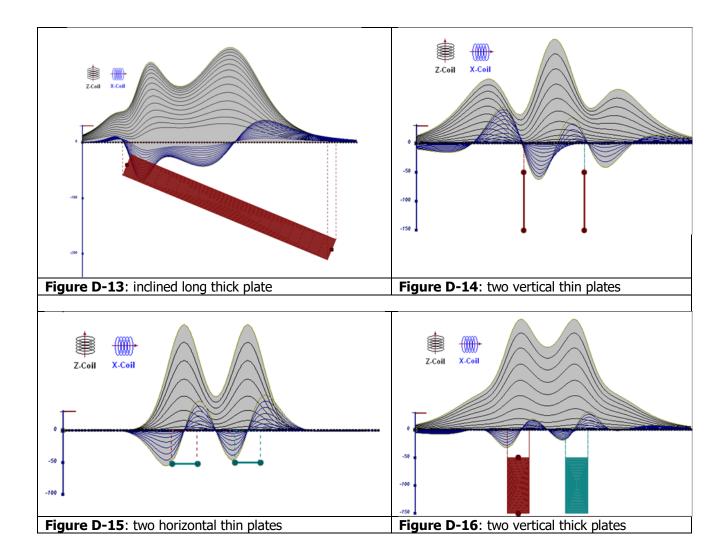
As the plate dips and departs from the vertical position, the peaks become asymmetrical.

As the dip increases, the aspect ratio (Min/Max) decreases, and this aspect ratio can be used as an empirical guide to dip angles from near  $90^{\circ}$  to about  $30^{\circ}$ . The method is not sensitive enough where dips are less than about  $30^{\circ}$ .

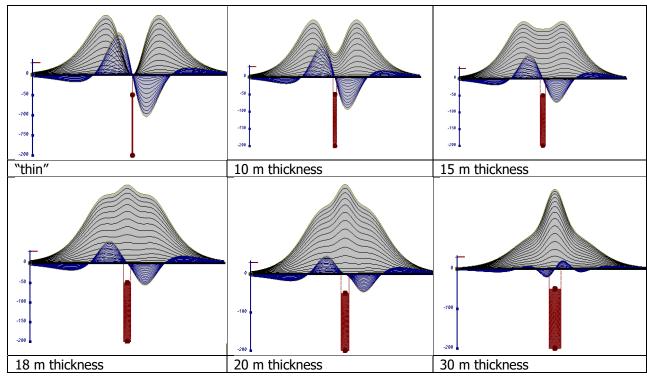








The same type of target but with different thickness, for example, creates different form of the response:



**Figure D-17**: Conductive vertical plate, depth 50 m, strike length 200 m, depth extends 150 m.

Alexander Prikhodko, PhD, P.Geo **Geotech Ltd.** 

September 2010



### APPENDIX E

### EM TIME CONSTANT (TAU) ANALYSIS

Estimation of time constant parameter<sup>1</sup> in transient electromagnetic method is one of the steps toward the extraction of the information about conductances beneath the surface from TEM measurements.

The most reliable method to discriminate or rank conductors from overburden, background or one and other is by calculating the EM field decay time constant (TAU parameter), which directly depends on conductance despite their depth and accordingly amplitude of the response.

### **THEORY**

As established in electromagnetic theory, the magnitude of the electro-motive force (emf) induced is proportional to the time rate of change of primary magnetic field at the conductor. This emf causes eddy currents to flow in the conductor with a characteristic transient decay, whose Time Constant (Tau) is a function of the conductance of the survey target or conductivity and geometry (including dimensions) of the target. The decaying currents generate a proportional secondary magnetic field, the time rate of change of which is measured by the receiver coil as induced voltage during the Off time.

The receiver coil output voltage  $(e_0)$  is proportional to the time rate of change of the secondary magnetic field and has the form,

$$e_0 \alpha (1 / \tau) e^{-(t / \tau)}$$

Where,

 $\tau$  = L/R is the characteristic time constant of the target (TAU)

R = resistance

L = inductance

From the expression, conductive targets that have small value of resistance and hence large value of  $\tau$  yield signals with small initial amplitude that decays relatively slowly with progress of time. Conversely, signals from poorly conducting targets that have large resistance value and small $\tau$ , have high initial amplitude but decay rapidly with time<sup>1</sup> (Fig. E1).

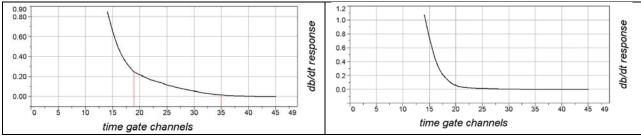


Figure E-1: Left – presence of good conductor, right – poor conductor.

<sup>&</sup>lt;sup>1</sup> McNeill, JD, 1980, "Applications of Transient Electromagnetic Techniques", Technical Note TN-7 page 5, Geonics Limited, Mississauga, Ontario.



### EM Time Constant (Tau) Calculation

The EM Time-Constant (TAU) is a general measure of the speed of decay of the electromagnetic response and indicates the presence of eddy currents in conductive sources as well as reflecting the "conductance quality" of a source. Although TAU can be calculated using either the measured dB/dt decay or the calculated B-field decay, dB/dt is commonly preferred due to better stability (S/N) relating to signal noise. Generally, TAU calculated on base of early time response reflects both near surface overburden and poor conductors whereas, in the late ranges of time, deep and more conductive sources, respectively. For example, early time TAU distribution in an area that indicates conductive overburden is shown in Figure 2.

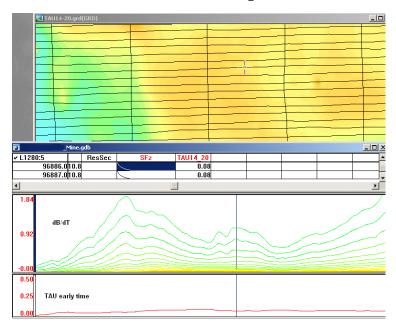


Figure E-2: Map of early time TAU. Area with overburden conductive layer and local sources.

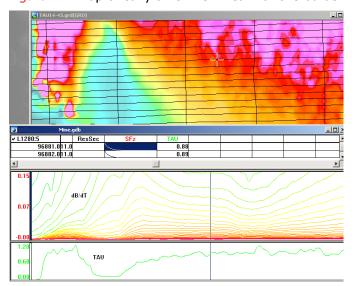


Figure E-3: Map of full-time range TAU with EM anomaly due to deep highly conductive target.



There are many advantages of TAU maps:

- TAU depends only on one parameter (conductance) in contrast to response magnitude.
- TAU is integral parameter, which covers time range, and all conductive zones and targets are displayed independently of their depth and conductivity on a single map.
- Very good differential resolution in complex conductive places with many sources with different conductivity.
- Signs of the presence of good conductive targets are amplified and emphasized independently of their depth and level of response accordingly.

In the example shown in Figure 4 and 5, three local targets are defined, each of them with a different depth of burial, as indicated on the resistivity depth image (RDI). All are very good conductors, but the deeper target (number 2) has a relatively weak dB/dt signal yet also features the strongest total TAU (Figure 4). This example highlights the benefit of TAU analysis in terms of an additional target discrimination tool.

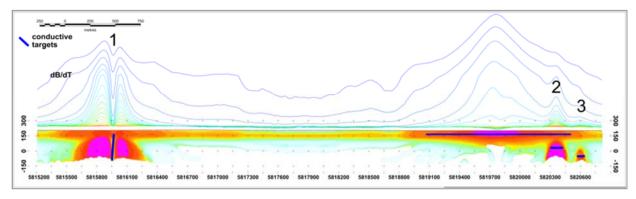


Figure E-4: dB/dt profile and RDI with different depths of targets.

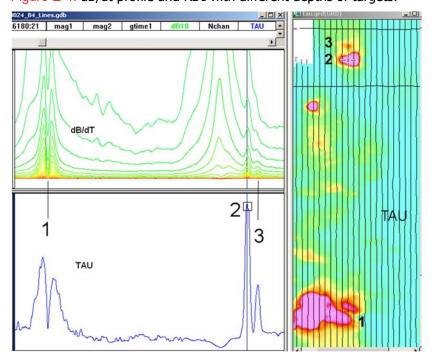


Figure E-5: Map of total TAU and dB/dt profile.



The EM Time Constants for dB/dt and B-field were calculated using the "sliding Tau" in-house program developed at Geotech2. The principle of the calculation is based on using of time window (4 time channels) which is sliding along the curve decay and looking for latest time channels which have a response above the level of noise and decay. The EM decays are obtained from all available decay channels, starting at the latest channel. Time constants are taken from a least square fit of a straight-line (log/linear space) over the last 4 gates above a pre-set signal threshold level (Figure E6). Threshold settings are pointed in the "label" property of TAU database channels. The sliding Tau method determines that, as the amplitudes increase, the time-constant is taken at progressively later times in the EM decay. Conversely, as the amplitudes decrease, Tau is taken at progressively earlier times in the decay. If the maximum signal amplitude falls below the threshold, or becomes negative for any of the 4 time gates, then Tau is not calculated and is assigned a value of "dummy" by default.

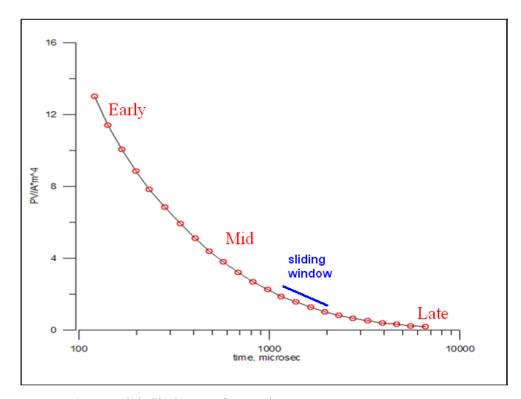


Figure E-6: Typical dB/dt decays of Vtem data

Alexander Prikhodko, PhD, P.Geo **Geotech Ltd.** 

September 2010



<sup>&</sup>lt;sup>2</sup> by A. Prikhodko

### APPENDIX F

## TEM RESISTIVITY DEPTH IMAGING (RDI)

Resistivity depth imaging (RDI) is technique used to rapidly convert EM profile decay data into an equivalent resistivity versus depth cross-section, by deconvolving the measured TEM data. The used RDI algorithm of Resistivity-Depth transformation is based on scheme of the apparent resistivity transform of Maxwell A.Meju (1998)¹ and TEM response from conductive half-space. The program is developed by Alexander Prikhodko and depth calibrated based on forward plate modeling for VTEM system configuration (Fig. 1-10).

RDIs provide reasonable indications of conductor relative depth and vertical extent, as well as accurate 1D layered-earth apparent conductivity/resistivity structure across VTEM flight lines. Approximate depth of investigation of a TEM system, image of secondary field distribution in half space, effective resistivity, initial geometry and position of conductive targets is the information obtained on base of the RDIs.

Maxwell forward modeling with RDI sections from the synthetic responses (VTEM system).

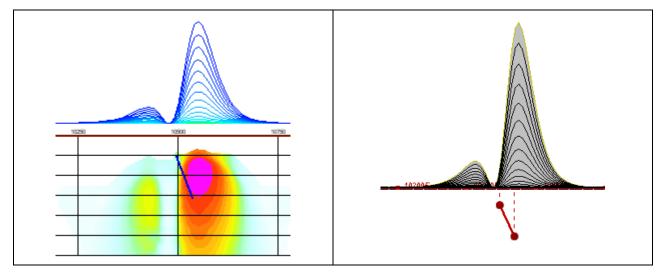


Figure F-1: Maxwell plate model and RDI from the calculated response for conductive "thin" plate (depth 50 m, dip 65 degree, depth extend 100 m).

<sup>&</sup>lt;sup>1</sup> Maxwell A.Meju, 1998, Short Note: A simple method of transient electromagnetic data analysis, Geophysics, **63**, 405–410.



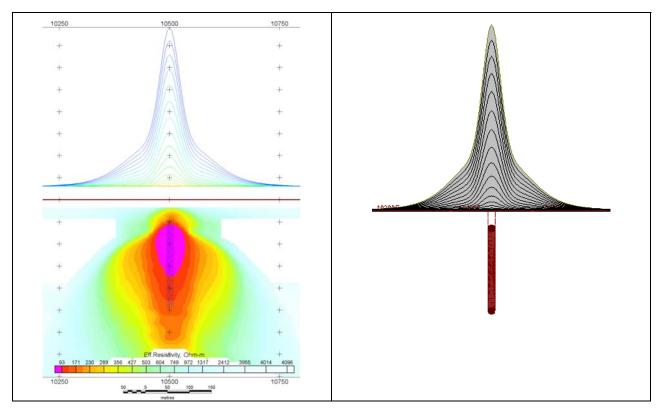


Figure F-2: Maxwell plate model and RDI from the calculated response for "thick" plate 18 m thickness, depth 50 m, depth extend 200 m).

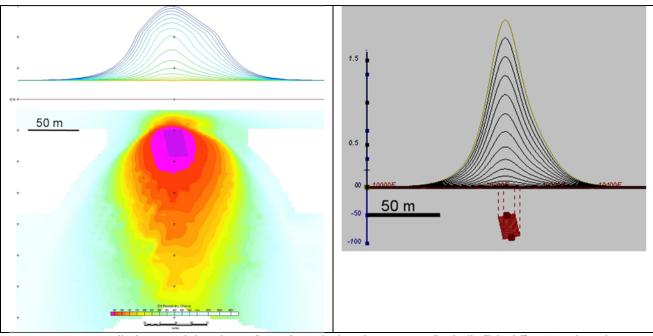


Figure F-3: Maxwell plate model and RDI from the calculated response for bulk ("thick") 100 m length, 40 m depth extend, 30 m thickness.

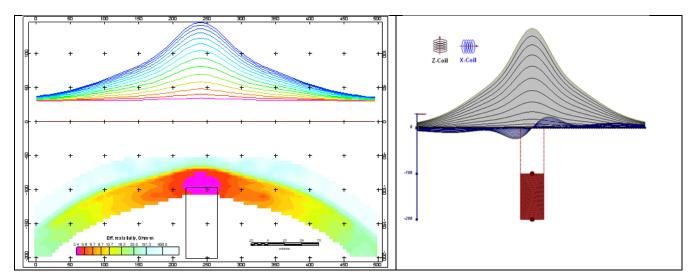


Figure F-4: Maxwell plate model and RDI from the calculated response for "thick" vertical target (depth 100 m, depth extend 100 m). 19-44 chan.

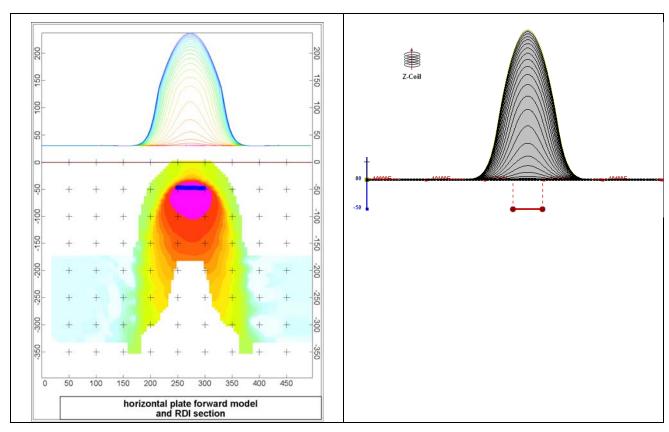


Figure F-5: Maxwell plate model and RDI from the calculated response for horizontal thin plate (depth 50 m, dim 50x100 m). 15-44 chan.

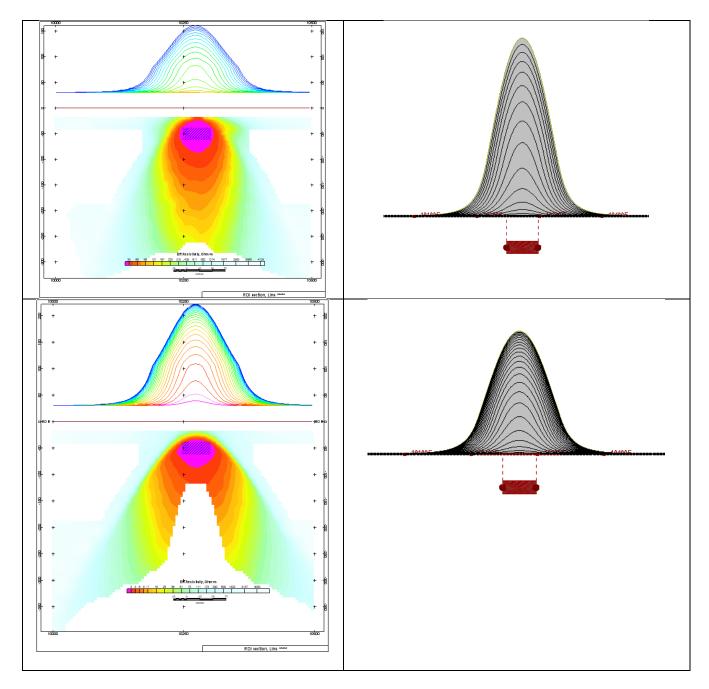


Figure F-6: Maxwell plate model and RDI from the calculated response for horizontal thick (20m) plate – less conductive (on the top), more conductive (below).

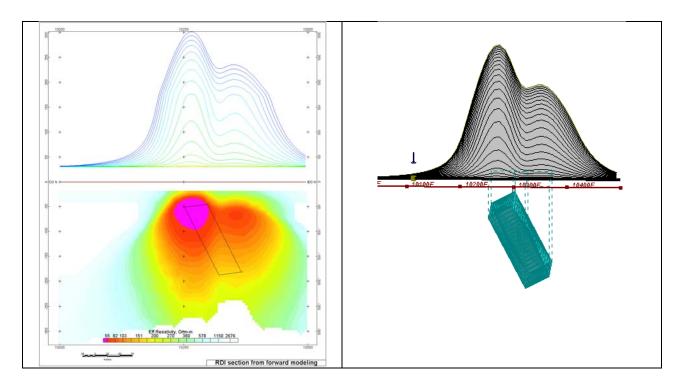


Figure F-7: Maxwell plate model and RDI from the calculated response for inclined thick (50m) plate. Depth extends 150 m, depth to the target 50 m.

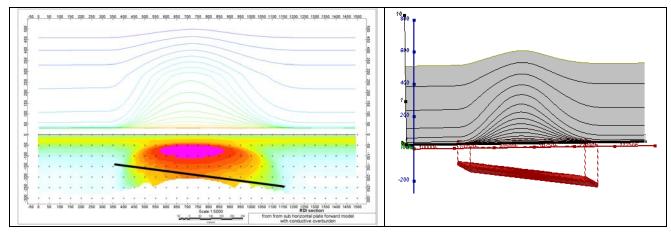


Figure F-8: Maxwell plate model and RDI from the calculated response for the long, wide and deep subhorizontal plate (depth 140 m, dim 25x500x800 m) with conductive overburden.

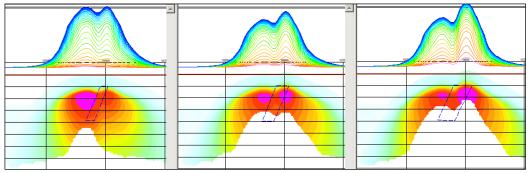


Figure F-9: Maxwell plate models and RDIs from the calculated response for "thick" dipping plates (35, 50, 75 m thickness), depth 50 m, conductivity 2.5 S/m.

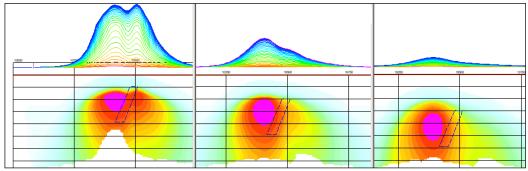


Figure F-10: Maxwell plate models and RDIs from the calculated response for "thick" (35 m thickness) dipping plate on different depth (50, 100, 150 m), conductivity 2.5 S/m.

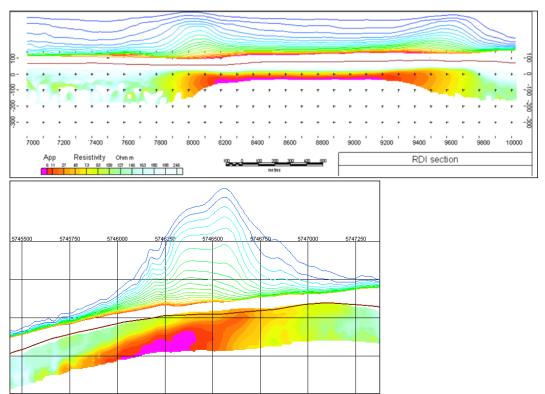
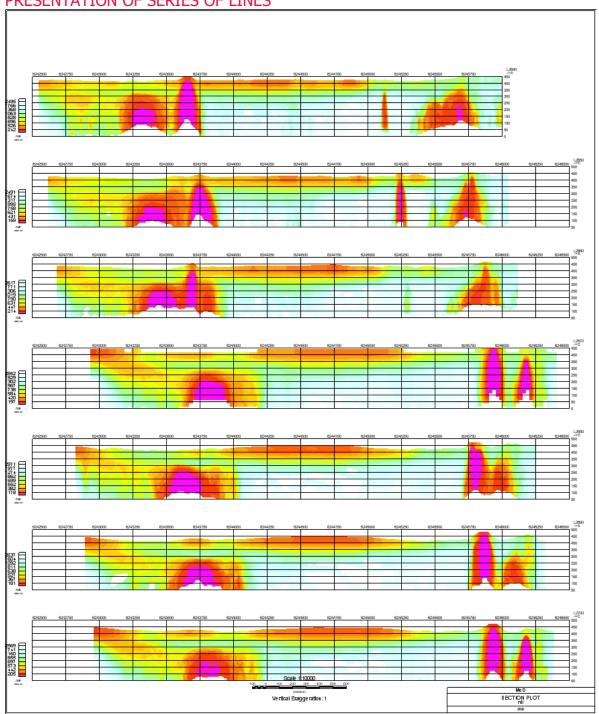


Figure F-11: RDI section for the real horizontal and slightly dipping conductive layers.

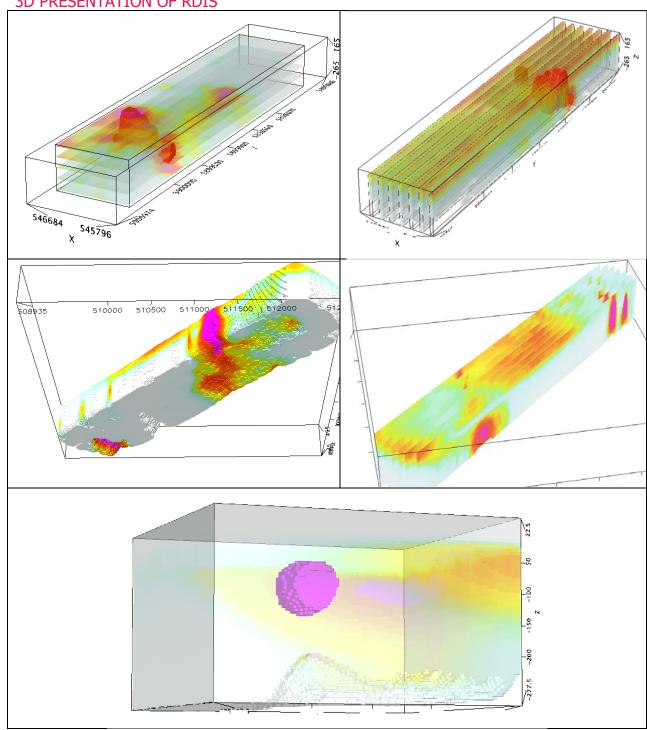
# FORMS OF RDI PRESENTATION

# PRESENTATION OF SERIES OF LINES



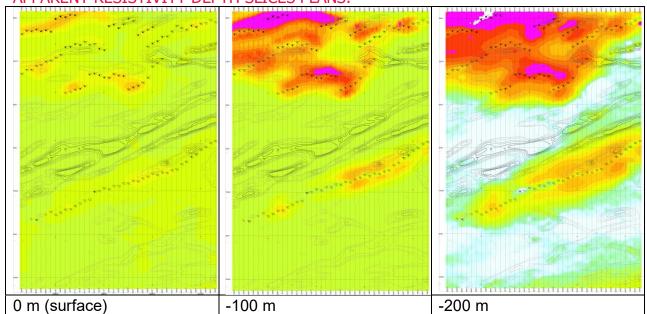


# 3D PRESENTATION OF RDIS

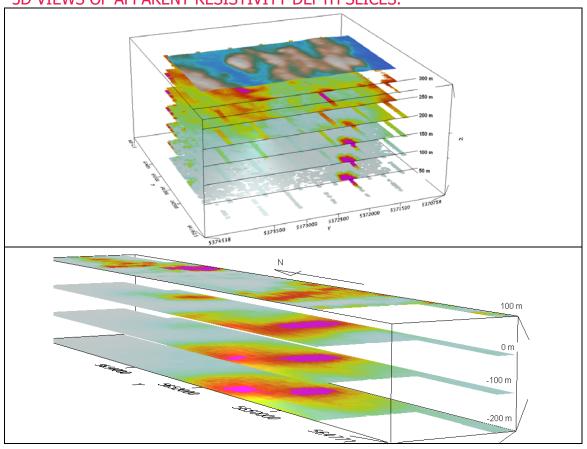




# APPARENT RESISTIVITY DEPTH SLICES PLANS:



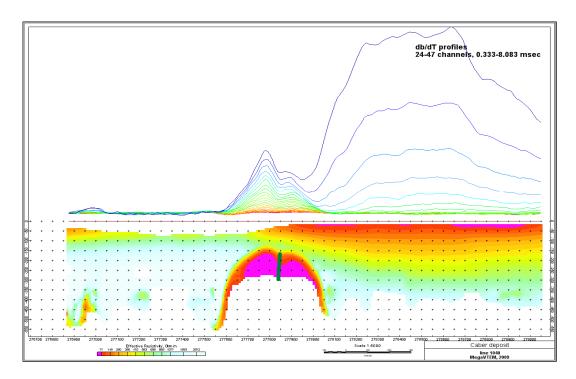
# 3D VIEWS OF APPARENT RESISTIVITY DEPTH SLICES:



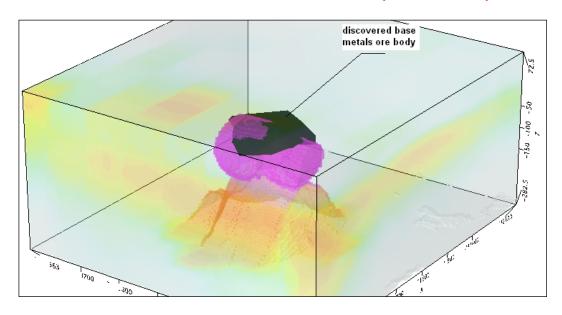


# REAL BASE METAL TARGETS IN COMPARISON WITH RDIS:

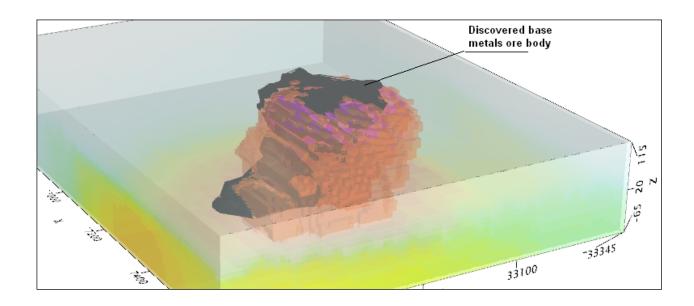
RDI section of the line over Caber deposit ("thin" subvertical plate target and conductive overburden.



# 3D RDI VOXELS WITH BASE METALS ORE BODIES (MIDDLE EAST):







Alexander Prikhodko, PhD, P.Geo **Geotech Ltd.** April 2011



# **APPENDIX G**

# RESISTIVITY DEPTH IMAGES (RDI) Please see RDI Folder on DVD for the PDF's



# **APPENDIX IV**

Novatem G2 Airborne Report



## **TECHNICAL REPORT**

#### **NOVATEM G2**

VERY HIGH RESOLUTION HELIBORNE MAGNETIC SURVEY ON THE CONFEDERATION NORTH PROJECT, ON

for

## INFINITE ORE CORP.



#### INFINITE ORE Corp.

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Project manager : Michel Boily E.mail : geon@videotron.ca Tél. : +1 647 296 9871

#### Novatem Inc.

1087 Chemin de la Montagne Mont-Saint-Hilaire, Québec, Canada, J3G 4S6

Project manager : Pascal Mouge E.mail : mouge@novatem.com Tel : +1 514 966 8000

Period of the survey: 2021, April Data and report delivery date: 2021, May

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#### 1. INTRODUCTION

Novatem Inc. has been mandated by Infinite Ore to carry out a very high resolution helicopter-borne magnetic survey on the Confederation North project located about 35 kilometres south-east of the Red Lake Airport in Ontario. Novatem carried out the survey on the April 19<sup>th</sup>. This report describes the completion of the survey which totals 804 linear kilometres.

Novatem implemented its very-high resolution helicopter-borne system, using two laser optically pumped sensors providing 1000 measurements per second (1000 Hz) mounted at the front of a Guimbal G2 light helicopter. The instrumentation included:

- A "stinger", mounted at the front of the helicopter, designed and certified by Novatem in Canada;
- A miniaturized magnetometer using two laser optically pumping sensors;
- A multi-frequency GNSS sensor positioning system capable of receiving the GPS, Glonass, Galileo and BeiDou constellations:
- A laser altimeter manufactured by MDL measuring the height of the helicopter above the ground with centimeter precision;
- A compensation system developed by Novatem for very high resolution, using an inertial unit and a three-component fluxgate magnetometer manufactured by Billingsley and high-performance inversion algorithms for the calculation of the coefficients;
- A navigation system developed by Novatem to minimize the deviations at the intersections of the flight lines and tie-lines.

Novatem was associated for this project with the company Synergy Aviation based in Edmonton (Alberta) who supplied the helicopter, pilots and mechanics.

This report describes the operations during the survey, the equipment used, the operating methods for acquisition and data processing.



Figure 1: Helicopter in flight



#### 2. SURVEY SPECIFICATIONS

#### 2.1. SURVEY LOCATION

The Confederation North project is located about 35 km south-east of the Red Lake Airport, in Ontario.

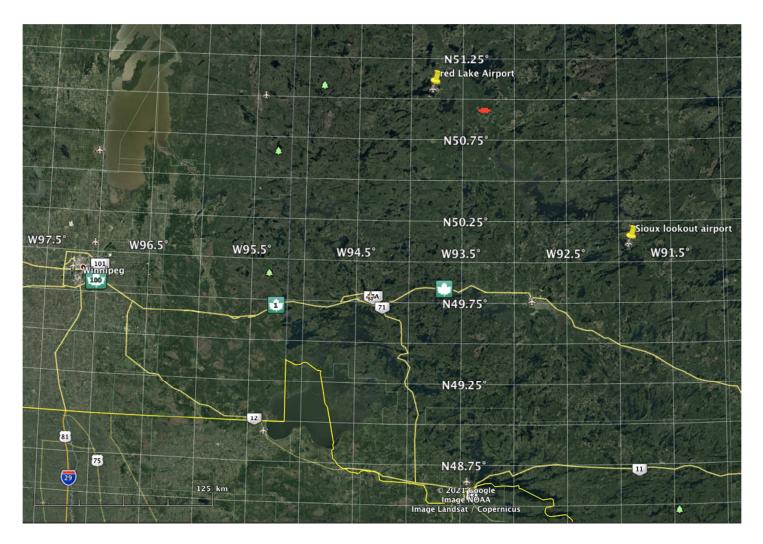


Figure 2: Location of the Confederation North project, 35 km south-east of the Red Lake Airport, in Ontario.





**Figure 3**: Zoom on the location of the Confederation North project, about 35 km south-east of the Red Lake Airport.



#### 2.2. SURVEY AREA

The extent of the project is summarized here using the perimeter and area, measured in geographic coordinates, converted from UTM coordinates provided by Infinite Ore:

Bloc	Perimeter	Area
Confederation North	14,8 km	$10 \text{ km}^2 = 1005 \text{ hectares}$

Table 1: Perimeter and area of the blocks

#### 2.3. DATA ACQUISITION PARAMETERS

#### 2.3.1. Spacing and orientation of flight lines

The flight parameters used for the project are summarized in the following table.

Project	Flight Lines Azimuth	Control Lines Azimut	Flight Line Spacing	Control Line Spacing	Sensor Height Above Ground
Confederation North	N0	N90	25 m	250 m	Rase-mottes (as low as possible)

Table 2: Flight parameters used

# 2.3.2. FLIGHT HEIGHT ABOVE THE WATER AND GROUND

The survey was carried out following the lowest possible flight surface above the vegetation. The median height above the ground is about 26 m.

#### 2.3.3. SPEED

The average speed of the helicopter, measured over the entire survey, was 64 kts or 118 km/h.

The pilot tried to follow the specs to the best of his ability. These parameters may have varied temporarily, depending on local flight conditions (mainly lakes, vegetation, topography and air currents).

#### 2.3.4. TOLERANCES ON NAVIGATION

The maximum deviation, measured in the horizontal plane is about 5m. However, these values may have been locally exceeded depending on the vegetation, homes, power lines, etc.

#### 2.3.5. TOLERANCE ON THE NOISE LEVEL OF THE MEASUREMENTS

The noise level of the raw magnetic data, measured on the standard deviation of the normalized fourth difference of the compensated magnetic field is approximately 0.001 nT for the entire survey.

# 2.3.6. TOLERANCE ON TEMPORAL VARIATIONS OF THE MAGNETIC FIELD (DIURNAL AND SPHERICAL)



The maximum deviation at the base station over time variations of the magnetic field has always been less than 1 nT peak to peak over a one minute period and 0.5 nT peak to peak over a 15 second period. The measurements were made continuously, at the rate of one measurement per second, with an extension of at least one hour of measurement before and after each flight.

#### 2.4. MILEAGE

The following table gives the mileage measured on the completed flight path (measured on the projected plane coordinates).

Bloc	Total km
Lines km	405
Tie-lines km	45
Total	450

Table 3: Estimated and measured mileage of flown lines, in UTM rectangular coordinates

#### 2.5. FLIGHT LINES

Figure 4 shows the lines flown, spaced 25m in the N0 direction and 250m in the N90 direction. Deviations from the flight plan results from the presence of taller trees.

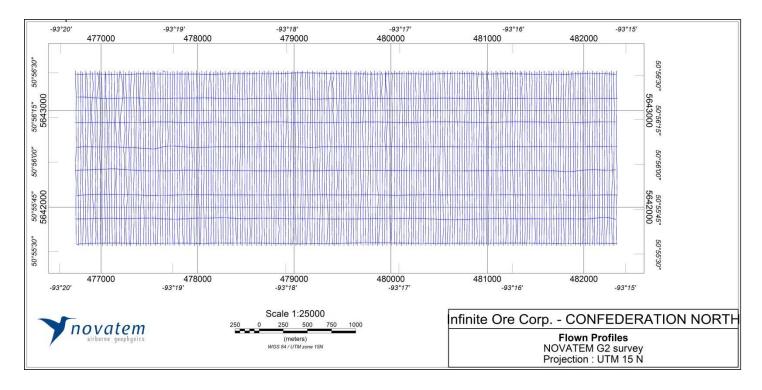


Figure 4: Lines flown (projected in UTM 15N).



#### 3. TESTS AND CALIBRATIONS

All instruments, including spare ones, were tested and calibrated prior to mobilization. The configuration was then tested at the location of the survey. The following tests were completed before the start of the work.

#### 3.1. TESTS AND CALIBRATIONS OF MAGNETIC MEASUREMENT INSTRUMENTS

#### 3.1.1. Static test of magnetic stations and GPS positioning

Ground and flight magnetometers recordings were made for at least 20 minutes. Magnetic data was recorded simultaneously by the base station magnetometers and the onboard magnetometers in the helicopter, while the helicopter was stationary on the ground, and the station was close to the helicopter.

#### 3.1.2. Dynamic testing of embedded systems

The helicopter flew a single line for at least 50 km and the data was compared to ensure that all systems produced similar results. This comparison line was taken at the start of the survey and repeated each time modifications were made to the helicopter.

#### 3.1.3 Calibration of on-board magnetometers (Morewood test)

The on-board magnetometer calibration was performed at the new CGC calibration base in Morewood, Ontario, at the start and end of operations.

This calibration included in particular a measurement of the heading error. The helicopter made at least two passes in each direction north, south, east and west.

The results of these tests are archived in the same graphic format as that used during the production of the survey, and in the digital format intended to archive the data. The same precision (two decimal places) is used for both presentations. The test results, as well as the video coverage of the flight path, were validated before going to the survey area.

The total magnetic field values recorded at the Ottawa Observatory (Ontario) were used as a reference during the duration of these calibration flights.

#### 3.1.4. Electronic navigation test (done with the Morewood test)

Simultaneously, an electronic navigation test was carried out. The quality of the DGPS positioning measurements of the on-board system was validated by comparison of the measurements overflown above a measurement point established on the ground.

#### 3.1.5. Parallax test

The time synchronization and recording systems were checked before operations began by flying over an intense, isolated magnetic source (a metal hangar) in opposite directions and at the nominal height of the survey. This delay, if observed, would then be corrected during data processing. No delay was observed here.



#### 3.1.6. Calibrating the altimeter

The laser altimeter used for this survey does not require any calibration other than that carried out in the laboratory before leaving for the survey. The heights above the ground provided by the instrument are therefore absolute measurements, requiring no other processing than the separation of the two pulses, reflected respectively by the ground and by the tops of trees.

#### 3.1.7. Helicopter magnetic disturbance calibration flights at high altitude (FOM)

The helicopter's FOM was flown as the weather conditions were favorable, at high altitude, over an area of low magnetic gradient. The FOM included 3 rolls of  $\pm$  10 °; 3 pitches of  $\pm$  5 °; 3 yaws of  $\pm$  5 ° in each direction of the survey flight lines (N0, N90, N180, N270). Each maneuver was performed over a period of at least 45 seconds.



#### 4. LOGISTICS

#### 4.1. GEOPHYSICAL AND LOGISTICS SERVICES

Novatem Inc. took charge of the following elements of the project:

- Obtaining flight authorizations
- Provision of qualified personnel necessary for the smooth running of the survey until its completion
- Supply of the necessary technical equipment as well as spare parts to carry out the survey as soon as possible
- Supply of the helicopter and fuel
- Provision of board and lodging for employees
- Maintenance and supervision of the proper functioning of the helicopter
- Preliminary processing and quality control of geophysical data on the site
- Preparation and supply of preliminary and final products

#### 4.2. Base of operation and project organization

The helicopter completed all of its flights from the Red Lake Airport.

A base of operations has been set up at Rade Lake. This base was equipped with an internet connection. A telephone link was available throughout the survey with the chef de mission on one hand and by radio telecommunication with the pilot on the other. The helicopter was also equipped with a Spidertracks communication and tracking system. All the equipment necessary for data preprocessing were available on site.

A magnetic and GPS base station was installed far from the roadhouse, isolated from human disturbances. The technical manager of Novatem collected the data every day. The location was chosen according to Novatem's specifications: location far from anthropogenic disturbances and a weak local gradient in particular. These validation measurements were performed using the ground station (GSM 19).

The geographical coordinates of the magnetic and GPS base station, as well as the base average are as follows:

Latitude: 93° 47′ 40″ West Latitude: 51° 04′ 15″ North

Average measured during the survey time: 56 860 nT



#### 4.3. HUMAN RESOURCES ASSIGNED TO GEOPHYSICAL WORK

The following personnel were assigned to preprocessing, quality control and final processing of the geophysical data:

Project manager: Pascal Mouge, Geo., Ph. D. Member of the Ordre des Géologues du Québec.

Responsible for data acquisition and quality controls in the field: Pascal Mouge, Geo., Ph. D. Member of the Ordre des Géologues du Québec.

Field Equipment Manager: Morten Skovgaard, M.Sc.

#### 4.4. HUMAN RESOURCES ASSIGNED TO THE HELICOPTER

The pilot who worked on this project hold a valid commercial license for Guimbal G2 helicopters, issued by Transport Canada.

Each instrument was scanned in real time using quality indices: if the value of one of these indices fell below the specifications, the corresponding indicator changed from green to red on the pilot's screen, who immediately stopped its flight and returned to his base. No incident occurred during this project.

The list of pilots for this project was as follows:

Clint Monson, Captain for Synergy Aviation Ltd.

#### 4.5. WORK SCHEDULE

The Confederation North project was carried out on the 2021 April 19<sup>th</sup>. Preliminary data was produced in the field as the work progressed. All phases of the survey, in particular planning and production flights, were coordinated with the Infinite Ore Project Manager.



#### 5. INSTRUMENTATION

#### 5.1. HELICOPTER

A *Guimbal G2* helicopter was used to complete this project. The helicopter was equipped with a magnetometer ("stinger") designed by Novatem, validated by an STC issued by Transport Canada.

NOVATEM's Supplemental Type Certificate		
Approval to	NOVATEM Inc.	
STC Number	SH20-14	
Approval Date	May 01, 2020	
Issue Date	May 01, 2020	
Fleet Eligibility List		
Aircraft Type or Model	Hélicoptères Guimbal Cabri G2	
Canadian type Certificate or Equivalent	H-113 (S/N 2 and subsequent)	
Type Design change	Stinger installation – Structural Provisions	

Table 4: Novatem's Supplemental Type Certificate

It is important to mention that Novatem benefited for these developments from the support of the Guimbal company and of its founder in particular (Bruno Guimbal) who personally ensured the supervision.

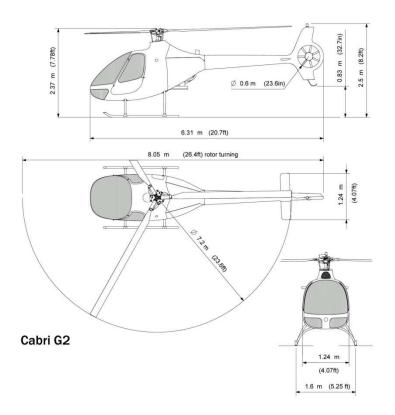


Figure 5 : Dimensions of the G2 helicopter



The geophysical measurement equipment mounted on board of the helicopter for this campaign mainly included:

- Two very high resolution laser optically pumped scalar magnetic sensors, mounted at the front of the magnetometer stinger.
- A real-time multi-frequency GNSS and RTK sensor positioning system capable of receiving the GPS, Glonass, Galileo and BeiDou constellations.
- A very high resolution fluxgate vector magnetic sensor, manufactured by Billingsley, also mounted on the end of the magnetometer pole.
- An attitude angle measurement system (Inertial Measurement Unit), manufactured by Microstrain, for magnetic compensation;
- A "draped" acquisition and navigation system (SAMM) developed by Novatem, making it possible to follow a continuous flight surface, calculated in advance, and therefore to minimize deviations at intersections of lines and tie-lines;
- A compensation system developed by Novatem for very high resolution using jointly the components provided by the fluxgate vector magnetometer, the angles measured by the attitude center, and inversion algorithms optimized for the calculation of the coefficients;

Prior to the start of operations, the equipment was tested on the ground to ensure that the acquisition parameters were within contract specifications. Throughout the project, quality checks were carried out on the data on a daily basis.



#### 5.2. MAGNETOMETERS

#### 5.2.1. MINIATURIZED SCALAR MAGNETOMETER

The magnetometer boom ('stinger') was equipped with two classified scalar vapor laser optical pumping (non-radioactive) sensors, measuring the total field with a sensitivity of 0.005 nT /  $\sqrt{\text{Hz}}$ .

Specifications		
Maximum sampling	1000 Hz	
Precision	0.1 nT	
Sensitivity	0.005 nT/√Hz	
Resolution	0.001nT	
Operation	20 000 à 100 000 nT	
'Heading error' maximum	5 nT	
Sensor dimensions	2 x (23,5 x 34 x 24,2) mm	
Sensor volume	15 cm <sup>3</sup>	
Dimensions of electronics	120 x 22 x 53 mm	
Volume	200 cm <sup>3</sup>	
Power consumption	5 W	
Dead zone	one only, polar ± 25°	

Table 5 : In flight magnetometer specifications

The magnetometer comprises two sensors that can be arranged parallel to each other for greater sensitivity or perpendicular to each other in order to eliminate the dead zone specific to the optically pumped sensors.

#### 5.2.2. VECTORIAL MAGNETOMETER

A vectorial magnetic sensor manufactured by Billingsley, measuring the three components of the total magnetic field was mounted on the end of the magnetometer pole. This latest generation of fluxgate magnetometer is the most efficient of the existing vector magnetometers.

Specifications		
Samplig rate	125 Hz	
Axis orthogonality	Better than 0.2 degree	
Accuracy	0.1 nT	
Sensibility	< 0.3 nT	
Resolution	0.1nT	
Range	> 65 000 nT	
'Heading error'	± 1 nT	

Table 6 : Fluxgate Vector Magnetometer specifications



#### 5.3. MULTI-BAND GNSS POSITIONING SYSTEM IN FLIGHT

A real-time multi-frequency GNSS positioning system was used for flight positioning. This receiver uses GPS, Glonass, Galileo and BeiDou constellations.

Specifications		
Sampling rate	10 Hz	
Precision	1 cm	
Precision with RTK corrections	1 mm	
GNSS bands	L1A/A, L1OF, B1I, E1B/C, L2OF, L2C, B2I, E5b	
RTK	Oui	
Antenna	ANN-MB multi-band	
Time precision	20 ns	
Temperatures	-40°C à +85 °C	

Table 7: Positioning system specifications

#### 5.4. MAGNETIC BASE STATION

A GEM GSM19 magnetic base station, equipped with an acquisition card and a GPS antenna, recorded the variations of the external magnetic field during the entire period of the survey. The station was left fixed throughout the duration of the works (reference station). The station was equipped with a battery resistant to very low temperatures.

Specifications		
Sampling rate	1 Hz	
Accuracy	0.2 nT	
Resolution	0.01 nT	

**Table 8**: Magnetometer base station specifications

#### 5.5. NAVIGATION AND DATA ACQUISITION SYSTEM

A navigation and data acquisition system (SAMM, *Système d'Acquisition de Mesures Magnétiques*) developed by Novatem, specifically for very high resolution helicopter-borne geophysical surveys, was used. The pilot has in front of him all the information necessary to follow his flight lines and his draped surface. The system also provides the pilot with flags on the quality of the measurements: if at least one of these alarm turns red, the pilot immediately ceases his flight and returns to his base.



Figure 6: Acquisition and navigation system (SAMM) installed in the helicopter

The helicopter was also tracked in real time both from the operational base and from the Synergy Aviation base using a Spidertracks satellite positioning system.

All data were synchronized in real time with the PPS signal of the GNSS receiver. The following data were recorded:

- Line number
- GNSS time
- Fiduce
- DGPS quality factors (HDOP, etc.)
- Latitude, longitude, DGPS altitude (WGS84)
- Laser height
- Attitude angles (roll, pitch, yaw)
- Components of the magnetic field (X, Y, Z) measured by the fluxgate
- Total magnetic field measurements for the Laser cesium sensors

The measurements of the ground station and of the rectangular coordinates (UTM) were integrated during the preliminary processing.

#### 5.6. IMU ('INERTIAL MEASUREMENT UNIT')

A Microstrain Inertial Measurements Unit was used to measure the attitude angles (roll, pitch and yaw) required to correct the magnetic gradients. The three attitude angles were measured with a very high sampling speed (between 100 and 600Hz) and then reduced at the same rate as the other measurements (10Hz).

Specifications		
Sampling	10 Hz (600Hz max)	
Accuracy (Roll, Picth, Yaw)	0.001 degree	

Table 9: IMU specifications

#### 5.7. BAROMETRIC PROBE

The helicopter was fitted with a temperature and pressure probe manufactured by Honeywell having a resolution of 0.1°C and 0.1 mbar, respectively.

#### 5.8. LASER ALTIMETER

The helicopter was equipped with a laser altimeter manufactured by MDL, digitally interfaced with the acquisition system and the inertial positioning system. This altimeter was placed directly under the frame of the device for optimum vertical positioning. The absolute precision of the model used is 1cm. It does not require any calibration.

Specifications		
Sampling rate	10 Hz (100 Hz max)	
Accuracy	1 cm	
Resolution	1 mm	
Color	904 nm (IR)	
Divergence	0.3°	

Table 10 : Laser altimeter specifications

#### 5.9. COMPUTERS

Two computers (Apple and Toshiba) dedicated to field measurements were used for data quality analysis, navigation plotting and raw measurements as well as for archiving immediately after flights. Quality control was done daily and the progress and production report was updated with the latest data. At the end of the checks, the preliminary grids were recalculated and then a plot was produced at the compilation scale in order to ensure the quality of the magnetic and positioning data.

#### 5.10. SPARE PARTS

A normal set of spare parts and instrumentation necessary for the proper functioning and verification of the devices was available in the field. A complete set of spare parts was available at Novatem's facilities in Mont-Saint-Hilaire.



#### 6. DATA QUALITY CONTROLS

During the survey, data quality control was performed by the Head of Field Operations. Data quality controls were built into the normal acquisition process and began with the establishment of flight paths and end with the delivery of finished products to the customer.

Before the survey, the checks serve to ensure in particular that:

- The specifications are appropriate for the targets considered
- Specifications are safe for personnel and equipment
- Navigation is safe given the topography and local weather conditions
- Equipment and instruments comply with the specifications (including software)
- Spare parts and instrumentation are in sufficient quantity to carry out the survey within the expected deadlines
  - Maintenance tools and spare parts for the helicopter are available
  - Aircraft maintenance will be done in safe conditions and as soon as possible

In flight, the data were analyzed in real time. The pilot was informed by flags of the proper functioning of instruments so that he can suspend his flight and return to base if necessary, where the appropriate modifications can be made.

#### 6.1. FLIGHT SPECIFICATION CHECK

After each flight, the raw data is inspected to ensure, on the one hand, the quality of the data and, on the other hand, that all the expected data is present, then saved on an independent and secure medium. For each flight, the following treatments are carried out on the field:

- Reconstruction of the trajectory of the aircraft
- Control of the flight path compared to the theoretical path
- Determination of lines to fly
- Checking the raw data of the reference DGPS station

The checks are then carried out as a priority, to ensure:

- The spacing between the measurement points (helicopter speed)
- The deviation on either side of the flight lines
- The deviation of the flight lines at altitude
- Continuity of profiles
- The level of data noise

In particular, it is ensured that each flight line intersects at least two control lines and that any sections meet at a low angle, without discontinuity.

All digital data is merged into a Geosoft format file. The profiles are then edited to ensure that all the expected data is present and that its quality meets demand. The data is finally archived, processed and then delivered to a database compatible with the client's software (Geosoft).



#### 7. DATA PROCESSING

#### 7.1. DIFFERENTIAL POSITIONING CORRECTIONS

The successive positions provided by the GDSS and RTK system in geographical coordinates are first converted to rectangular UTM coordinates during preprocessing in order to carry out navigation control.

At the end of the survey, the first phase of processing is to calculate the differential corrections using data from the reference station or local stations when available.

Differential GNSS corrections are calculated using Novatel's Waypoint software. The helicopter's positions were recalculated using data from the GPS base station. In addition, precise ephemeris and clock data was downloaded for the entire survey period to improve the accuracy of the recalculated position data.

#### 7.2. MAGNETIC DATA PROCESSING

#### 7.2.1. SUMMARY OF MAGNETIC DATA PROCESSING

The data measured in flight are edited daily and then archived in a Geosoft Oasis Montaj database. The profiles are then drawn and checked. The magnetic measurements are then corrected for disturbances due to the helicopter (compensation) using vector information supplied by the Fluxgate and inertial information supplied by the IMU. The compensated measurements are then corrected for variations in the external magnetic field (mainly diurnal variations and pulsations) using measurements from the magnetometric base station. The residual intrinsic directional error of each magnetometer ("heading error") is very precisely recalculated and subtracted from the measurements for each direction of flight. Finally, an iterative leveling procedure is applied, first on the control lines, then on the regular lines, in order to eliminate the residual errors caused mainly by the variations in height of the helicopter.

#### 7.2.2. COMPENSATION

The helicopter's magnetic noises (induced, permanent magnetization and eddy currents) are estimated from a model whose coefficients are calculated using a calibration flight, along a precise and reproducible geometry (FOM), carried out in clear weather without wind at very high altitude, far from the magnetic disturbances generated by the earth's crust. The coefficients are calculated by inversion, based on the physical model of the helicopter's magnetic disturbances. This model is a linear combination of 18 terms, constructed from the direction cosines of the orientation angles between the helicopter and the earth's magnetic field. The inversion is done on each of the 4 cardinal directions used for the survey (the 2 directions of the lines, plus the two directions of the tie-lines). The coefficients are then used to reconstruct the helicopter's magnetic disturbance field using the attitude angles provided by the inertial unit and the Fluxgate magnetometer.

#### 7.2.3. CORRECTION OF TEMPORAL VARIATIONS (DIURNAL)

The data measured at the base station (1Hz) were edited then archived in an ASCII file, then linearly interpolated at the instants of the acquisition in flight (10Hz). Since the base station is fixed and far from any artificial parasitic variations, the variations recorded are assumed to be temporal variations due to solar activity (diurnal variation, pulsations, etc.).

The magnetic constant of the place, estimated with the average of all the recordings over the entire duration of the project, serves as a reference level. This constant is then subtracted from all of the ground station measurements to obtain the variations due to the external magnetic field.



#### 7.2.4. CORRECTION OF INSTRUMENTAL DELAY (LAG)

Residual positioning errors, mainly caused by the "time delay" (lag) between the moment the position is measured and the one where it is assigned to the magnetometer can cause a systematic shift in each direction of flight. As the GNSS antenna is located very close to the magnetic sensors (38 cm), this delay is insignificant, ie. less than a fiduce (less than 0.1s).

#### 7.2.5. LEVELLING

A leveling procedure, based on the differences observed at the intersection of lines and tie lines, was applied, first on the tie-lines and then on the lines. This procedure is then recursively repeated until the convergence of the levelling. This 'final' field thus obtained represents the Intensity of the Total Magnetic Field.

#### 7.2.6. IGRF

The IGRF-13 coefficients, i.e. the coefficients of 13<sup>th</sup> generation of the International Geomagnetic Reference Field (IGRF) model have been used for the calculation of the main magnetic field.

#### 7.2.7. Anomalies and Reduction to the Pole

Anomalies of the total magnetic field intensity were calculated by subtracting the IGRF2020 model from the leveled total magnetic field intensity (TMI). The reduction to the pole was then calculated on the anomalies using the inclination and declination obtained from the IGRF2020 model, i.e.:

#### Confederation North:

- Dec = -0.59 degrees
- Inc = 75,35 degrees

The same direction of magnetization was used for the main field and for the inductive field. In other words, it was assumed that all anomalies were the result of induced magnetization.

#### 7.2.8. DERIVATIVE MAPS

All the derivative maps (Gradients, Tilt derivative, Analytical Signal, Reduction To Pole) were calculated by transforming all the data in Fourier space using the LEMM proprietary program from NOVATEM.



## 8. FINAL DATA

#### 8.1. PRODUCTS DELIVERED

The final products delivered are summarized in the following table:

Produits	Nom du produit	Données	
Database of processed measurements, in the Geosoft *.gdb format	- CONFEDERATION.gdb	Final data	
Grids of processed and derivative measurements, in Geosoft *.grd format	- TMI.grd - anomalies.grd - reduction_to_pole.grd - VG1.grd - VG2.grd - AS.grd - TILT.grd	<ul> <li>Total Magnetic Intensity (TMI) field</li> <li>Anomalies of the TMI field</li> <li>Reduction of Anomalies to the Pole</li> <li>1<sup>th</sup> vertical derivative (GV1)</li> <li>2<sup>nd</sup> vertical derivative (GV2)</li> <li>Analytic Signal</li> <li>Tilt derivative</li> </ul>	
Maps of processed and derivative measurements, in jpeg format	- TMI.jpg - anomalies.jpg - reduction_to_pole.grd - VG1.grd - VG2.grd - AS.jpg - TILT.jpg	<ul> <li>Total Magnetic Intensity (TMI) Field</li> <li>Anomalies of the TMI Field</li> <li>Reduction of Anomalies to the Pole</li> <li>1<sup>th</sup> vertical derivative (GV1)</li> <li>2<sup>nd</sup> vertical derivative (GV2)</li> <li>Analytic Signal</li> <li>Tilt derivative</li> </ul>	
Maps of processed and derivative measurements, in Geotiff format	- TMI.tif - anomalies.tif - reduction_to_pole.tif - VG1.grd - VG2.grd - AS.tif - TILT.tif	<ul> <li>Total Magnetic Intensity (TMI) field</li> <li>Anomalies of the TMI Field</li> <li>Reduction of Anomalies to the Pole</li> <li>1<sup>th</sup> vertical derivative (GV1)</li> <li>2<sup>nd</sup> vertical derivative (GV2)</li> <li>Analytic Signal</li> <li>Tilt derivative</li> </ul>	
Report (pdf file)		Logistics, processing and product documentation	

Table 11: Delivered products



## 8.2. MAGNETIC DATA BASE

The data were archived in Geosoft Oasis Montaj format (\* .gdb file).

The channels in the database are as follows:

	Nom du champ	Description	Unité
1	DATE	Local date	AAAA/MM/JJ
2	TIME_UTC	UTC time	HH :MM :SS.SS
3	TIME_GPS	GPS time	S
4	DATETIME	Date and decimal hour	S
5	LON	Longitude GPS NAD83	Decimal degre
6	LAT	Latitude GPS NAD83	Decimal degre
7	X	X UTM 18N, NAD83	m
8	Υ	Y UTM 18N, NAD83	m
9	SPEED_KTS	Ground speed	kts
10	COG	Course Over Ground (direction cardinale)	Decimal degre
11	HDOP	Horizontal Dilution Of Precision	
12	nSAT	Number of Satellites used in the calculation of positioning	
13	ALT	GNSS Altitude	m ASL
14	H_GEOID	Geoid Height	m
15	GC	Laser Ground Clearance, ie Height above the ground	m
16	DEM	Digital Elevation Model (ALT - GC)	m
17	ТМІ	Intensity of the Compensated total magnetic field for (corrected for the magnetic noise due to the manoeuvres of the helicopter and for the external magnetic field)	nT
18	IGRF	Main magnetic field at the survey time and location, calculated using the last IGRF2020 model	nT
19	INC	Inclination of the main magnetic field using the last IGRF2020 model	nT
20	DEC	Declination of the main magnetic field using the last IGRF2020 model	nT
21	Anomalies	Anomalies of the Total Magnetic Field Intensity (TMI - IGRF)	nT
22	VG1	First Vertical Gradient ( First Derivative of ANO)	nT/m
23	VG2	Second Vertical Gradient (Second Derivative of ANO)	nT/m2
24	AS	Analytic Signal	nT/m
25	TILT	Phase (Tilt Derivative) = Arctan (vertical gradient / horizontal gradient)	radian

Table 12: Content of the magnetic database



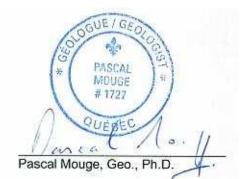
#### 9. REFERENCES

Client	
Projects	Confederation
Adress	Infinite Ore Corp.  1240-789 W Pender St., Vancouver, BC, Canada V6C 1H2
Project manager	Michel Boily
E.mail Phone number	geon@videotron.ca +1 647 296 9871
Novatem	
Contract	C21145
Adress Project manager	1087 Chemin de la Montagne Mont-Saint-Hilaire, Québec, Canada, J3G 4S6 Pascal Mouge
E.mail	mouge@novatem.com
Phone number	+1 514 966 8000
Projet	
Location	35km South-east of the Red Lake Airport in Ontario
Method	NOVATEM G2 - Very high resolution helicopter borne magnetic survey
Dates	2021, April 19
Data and report delivery	2021, May
Project manager, data quality manager and controller	Pascal Mouge, Ph.D., Géo.numéro 1727
Responsible for the acquisition and equipment in the field	Morten Skovgaard, M.Sc.
Helicopter pilot	Clint Monson, Commandant



#### 10. ATTESTATION OF QUALIFICATION

- I, the undersigned Pascal Mouge, certify that:
- I am a member in good standing of the Order of Geologists of Quebec
- I have a doctorate in geophysics, issued by the Institut de Physique du Globe de Paris
- I am working in the field of geophysics since 1985
- I am currently President of the company Novatem
- I have supervised and actively contributed to the work described in this report and declare that it was carried out according to industry rules and practices.



Pascal Mouge, Ph.D., Géo. numéro 1727





### **APPENDICES**

#### APPENDICE A: GEODESIC PARAMETERS USED IN PROJECTIONS

The following table summarizes the geodesic parameters used for the plane projection. These settings have been applied to all coordinate transformations.

Confederation North project:

Local reference system	WGS84
Ellipsoïd	WGS84
Projection	UTM
Zone:	15 N
Lat0, Lon0 (natural origin)	0, - 93
Coordinates of X origin (False easting)	500 000
Coordinates of Y origin (False northing)	0
Scale factor of natural origin	0.9996
Major axis radius	6 378 137
Inverse flattening	298.25772
Prime meridian	0

Table 13: Geodetic parameters used in plane projections

#### **APPENDICE B: GRID PARAMETERS**

The following table summarizes the grid parameters:

Confederation North project:

Туре	DOUBLE
Separation between two points along the X axis, in m	5
Separation between two points along the Y axis, in m	5
Number of points along the X axis	1 130
Number of points along the Y axis	372
Grid origin (min X, min Y), in m	X = 476 715 Y = 5 641 580
Plane coordinate system	WGS 84 / UTM zone 15 N
Azimut	0

Table 14: Grid parameters



#### Clark Exploration Infinite-Confed North Survey

SGH Units – ppt (Parts-per-trillion)

	SGH-Gold
B151651	74.9
B151652	54.1
B151653	41.0
B151654	59.0
B151655	30.3
B151655-R	30.7
B151656	21.5
B151657	29.9
B151658	28.9
B151659	11.8
B151660	32.0
B151661	74.3
B151662	115.3
B151663	18.0
B151664	51.9
B151665	18.3
B151666	29.8
B151667	65.1
B151668	52.0
B151669	22.8
B151670	62.2
B151670-R	62.0
B151671	57.2
B151672	67.7
B151673	39.1
B151674	48.7
B151675	42.5
B151676	136.6
B151677	62.4
B151678	52.9
B151679	183.5
B151680	29.8
B151681	45.0
B151682	43.8
B151683	64.3
B151684	37.5
B151685	46.9
B151685-R	32.7
B151686	13.4
B151687	24.5
B151688	29.6
B151689	64.3
B151699 B151690	55.5
B151690 B151691	82.2
B151692	86.1
B151693	24.0
B151694	17.3
D 10 1034	17.3

B151695	33.3
B151696	11.8
B151697	58.7
B151698	83.7
B151699	95.2
B151700	9.3
B151700-R	10.6
B151718	82.6
B151719	151.8
B151720	79.9
B151721 B151722	67.7 113.6
B151723	75.3
B151724	135.7
B151725	190.1
B151726	133.4
B151727	80.4
B151728	226.7
B151729	177.3
B151730	84.6
B151731	92.0
B151732	9.5
B151732-R	9.5
B151733	13.1
B151734	215.5
B151735	87.9
B151736	18.9
B151737	130.4
B151738	113.9
B151739	130.9
B151740	49.2
B151741	14.9
B151742	35.6 47.4
B151743 B151744	47.4 75.8
B151745	73.6 72.7
B151746	87.7
B151747	56.3
B151747-R	59.7
B151748	78.8
B151749	39.7
B151750	30.9
B151770	119.6
B151771	78.5
B151772	148.6
B151773	68.9
B151774	72.1
B151775	255.9
B151776	152.6
B151777	99.7
B151778	153.0

B151779	71.5
B151780	
	198.7
B151781	191.0
B151781-R	139.5
B151782	148.2
B151783	297.0
B151784	179.2
B151785	165.3
B151786	121.7
B151787	62.5
B151788	68.3
B151789	97.5
B151790	92.3
B151791	75.6
B151792	133.4
B151793	101.3
B151794	143.7
B151795	129.8
B151796	271.8
B151796-R	276.3
B151797	114.1
B151798	116.9
B151799	65.1
B151800	133.9
B151818	39.7
B151819	174.0
B151820	46.6
B151821	70.8
B151822	44.2
B151823	78.2
B151824	78.2
B151825	153.0
B151826	105.1
B151827	75.3
B151828	114.5
B151828-R	39.5
B151829	83.5
B151830	23.4
B151831	87.5
B151832	24.0
B151833	17.6
B151834	64.3
B151835	70.3
B151836	80.4
B151837	70.2
B151838	138.9
B151839	92.6
B151840	108.7
B151841	39.5
B151842	7.6
B151843	75.7

B151843-R	73.2
B151844	12.3
B151845	293.7
B151846	181.9
B151847	36.6
B151848	64.5
B151849	123.9
B151850	118.7
B151851	21.1
B151852	44.0
B151853	39.2
B151854	26.1
B151855	14.1
B151856	25.0
B151857	16.8
B151858	23.8
B151858-R	30.9
B151859	27.7
B151860	12.9
B151861	9.6
B151862	35.6
B151863	21.0
B151864	25.6
B151865	75.9
B151866	29.7
B151867	11.4
B151868	3.5
B151869	7.0
B151870	27.5
B151871	39.5
B151872	59.9
B151873	31.8
B151873-R	21.9
B151874	27.3
B151875	35.6
B151876	36.5
B151877	24.7
B151878	95.7
B151879	42.4
B151880	30.2
B151881	7.1
B151882	9.0
B151883	8.6
B151884	9.0
B151885	5.9
B151886	26.0
B151887	27.0
B151888	9.0
B151888-R	16.2
B151889	49.0
B151890	22.7

B151891 B151892 B151893 B151894 B151901 B151902 B151903 B151904 B151905 B151906 B151907 B151908 B151909 B151909-R B151910	44.7 35.1 30.1 26.7 9.8 23.0 11.1 5.3 5.9 5.6 102.9 17.7 82.5 64.2 39.5
B151911 B151912	62.6 72.0
B151913	36.0
B151914	17.0
B151915	30.6
B151916 B151917	25.6 101.2
B151918	9.9
B151919	7.3
B151920	46.4
B151921	70.2
B151922	23.7
B151923	43.3
B151924 B151924-R	20.5 16.2
B151924-R	3.5
B151926	4.0
B151927	8.4
B151928	5.6
B151929	4.7
B151930	7.7
B151931 B151932	45.1 16.0
B151933	13.8
B151934	32.4
B151935	18.1
B151936	20.9
B151937	16.7
B151938	11.9
B151939 B151939-R	6.2 6.3
B151940	11.0
B151941	32.1
B151942	6.7
B151943	10.3
B151944	7.2

B151955 B151956 B151956-R B151957 B151958 B151959 B151960 B151961 B151962 B151963 B151964 B151965 B151966 B151967 B151968 B151970 B151971 B151971-R B151971-R B151972 B151973 B151974 B151975 B151976 B151977 B151978 B151978 B151978 B151980 B151981 B151982 B151983 B151984 B151985 B151986 B151986 B151986	10.9 6.3 16.7 16.7 27.8 13.9 13.9 14.0 15.7 15.5 15.5 15.5 15.5 16.7 16.7 17.8 1
B151987 B151988 B151989 B151990 B151991 B151992	10.7

B151995	3.5
B151996	18.2
B151997	8.9
B151998	19.3
B151999	10.4
B152000	5.5
B152001	17.0
B152001-R	6.4
B152002	20.6
B152002 B152003	16.8
B152004	10.0
B152005	8.8
B152006	10.4
B152007	11.2
B152007 B152008	9.3
B152009	9.3 8.1
B152010	9.4
B152010	23.6
B152012	23.6 27.6
B152012	8.2
B152013	0.2 11.7
B152014 B152015	11.7
B152016	22.6
B152016 B152016-R	19.6
B152017	8.2
B152017	0.2 11.4
B152019	24.7
B152019	24.7 8.1
B152020	11.0
B152021	22.3
B152023	3.5
B152023	5.5 5.7
B152024 B152025	4.0
B152026	25.8
B152020	25.6 19.5
	14.4
B152028	
B152029 B152030	16.2 11.4
B152030	48.4
B152031-R	39.0
B152031-R B152032	32.5
B152032	24.3
B152034	26.9
B152035	20.9
B152036	45.1
B152037	20.9
B152037	51.3
B152039	18.9
B152040	12.6
B152040	24.0
B152041	24.0
D 102042	۷۱.۶

B152043	19.6
B152044	12.4
B152045	17.3
B152046	18.2
B152046-R	22.1
B152047	16.8
B152048	14.1
B152049	20.6
B152050	16.2
B152051	30.0
B152052	11.4
B152053	18.3
B152054	9.0
B152055	17.6
B152056	11.7
B152057	18.5
B152058	12.9
B152059	10.0
B152060	7.1
B152061	6.0
B152061-R	6.4
B152062	17.6
B152063	8.1
B152064	27.2
B152065	6.9
B152066	23.5
B152067	18.6
B152068	10.3
B152069	12.0
B152070	30.7
B152070	6.9
B152072	11.5
B152072 B152073	7.6
B152074	11.0
B152075	8.0
B152076	3.5
B152076-R	3.5
B152077	4.0
B152078	3.5
B152079	3.5
B152079 B152080	7.8
B152081	7.8 19.1
B152082	21.7
B152083	35.3
B152084	22.0
B152085	16.3
B152086	19.1
B152087	15.8
B152088	25.4
B152089	4.1
B152099	24.1
D 102090	∠ <del>,</del> 1

B152091	13.7
B152091-R	29.5
B152092	42.6
B152093	37.0
B152094	36.7
B152095	14.1
B152096	60.7
B152097	51.5
B152098	57.8
B152099	43.5
B152100	27.3
L18_IO_20_3641	95.0
L18 IO 20 3651	72.2
L18 IO 20 3661	64.0
L18 IO 20 3671	47.6
L18 IO 20 3681	73.8
L18 IO 20 3691	43.9
L18 IO 20 3691-R	42.4
L18 IO 20 3701	142.3
L18_IO_20_3711	17.2
L18_IO_20_3721	33.3
L18_IO_20_3731	18.7
L18_IO_20_3741	22.1
L18_IO_20_3751	36.1
L18_IO_20_3761	19.0
L18_IO_20_3771	15.5
L18 IO 20 3781	49.1
L18 IO 20 3791	8.3
L18 IO 20 3801	17.9
L18 IO 20 3811	20.9
L19 IO 20 3951	48.2
L19 IO 20 3961	61.0
L19_IO_20_3901 L19_IO_20_3971	44.7
L19_IO_20_3971-R	52.2
L19_IO_20_3981	33.2
L19_IO_20_3991	48.9
L19_IO_20_4001	64.1
L19_IO_20_4011	20.1
L19_IO_20_4021	26.0
L19_IO_20_4031	38.0
L19_IO_20_4041	54.7
L19 IO 20 4051	72.5
L19 IO 20 4061	36.9
L19_IO_20_407	23.2
L19 IO 20 4081	67.3
L19 IO 20 4091	59.3
L19 IO 20 4101	45.5
L19_IO_20_4101 L19_IO_20_4111	67.7
L19_IO_20_4111 L19_IO_20_4121	
<b>– – –</b>	28.5
L19_IO_20_4121-R	80.4
L20_IO_20_4271	29.0

L20_IO_20_4291	49.3
L20_IO_20_4301	39.9
L20_IO_20_4311	22.7
L20_IO_20_4321	42.3
L20_IO_20_4331	39.7
L20_IO_20_4341	40.3
L20_IO_20_4351	56.9
L20_IO_20_4361	28.5
L20_IO_20_437	70.3
L20_IO_20_4381	30.5
L20_IO_20_4391	23.6
L20_IO_20_4401	92.0
L20_IO_20_4411	90.2
L20_IO_20_4421	38.8
L20_IO_20_4421-R	32.2
L20_IO_20_4431	42.7
L20_IO_20_4821	41.9
L9 IO 20 001	75.3