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BC Geological Survey

Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Geochemical, Geophysical

TOTAL COST: 20,163.54

AUTHOR(S): Matt Fraser

SIGNATURE(S): *mfraser*

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): N/A

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PROPERTY NAME: Summers Fault

CLAIM NAME(S) (on which the work was done): 1058510, 1061530, 1071547, 1078384, 1078385, 1078386, 1078387, 1078388, 1078392, 1078393, 1078394, 1078395, 1078396

COMMODITIES SOUGHT: Cu, Mo, Au

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092HNE187, 092HNE234, 092HNE233

MINING DIVISION: Similkameen

NTS/BCGS: NTS: 092H/09 and 092H/10, BCGS: 092H.068

LATITUDE: 49 ° 36 '0 " LONGITUDE: -120 ° 27 '40 " (at centre of work)

OWNER(S):

1) Michael Lee 2) \_\_\_\_\_

MAILING ADDRESS:

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Vancouver, B.C.

OPERATOR(S) [who paid for the work]:

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MAILING ADDRESS:

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PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Southern Nicola arc, Quesnel Terrane, Nicola Group, Iron Mountain formation, Lower Cretaceous Spences Bridge Group, Late Triassic Mount Pike suite, Summers Creek stock, granodiorites, diorites, Skwel Pelken, breccias, Summers Creek Fault

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 07458, 10503, 10703, 19468, 20816, 22302, 23958, 24120, 31448, 31450, 06809,

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
<b>Ground, mapping</b> _____			
<b>Photo interpretation</b> _____			
<b>GEOPHYSICAL (line-kilometres)</b>			
<b>Ground</b>			
<b>Magnetic</b> 20.5 km		1078388, 1078395, 1078387, 1078394,	5,040.89
<b>Electromagnetic</b> _____			
<b>Induced Polarization</b> _____			
<b>Radiometric</b> _____			
<b>Seismic</b> _____			
<b>Other</b> _____			
<b>Airborne</b> _____			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
<b>Soil</b> 68		1078388, 1078395, 1078387, 1078394,	15,122.65
<b>Silt</b> _____			
<b>Rock</b> _____			
<b>Other</b> _____			
<b>DRILLING (total metres; number of holes, size)</b>			
<b>Core</b> _____			
<b>Non-core</b> _____			
<b>RELATED TECHNICAL</b>			
<b>Sampling/assaying</b> _____			
<b>Petrographic</b> _____			
<b>Mineralographic</b> _____			
<b>Metallurgic</b> _____			
<b>PROSPECTING (scale, area)</b> _____			
<b>PREPARATORY / PHYSICAL</b>			
<b>Line/grid (kilometres)</b> _____			
<b>Topographic/Photogrammetric (scale, area)</b> _____			
<b>Legal surveys (scale, area)</b> _____			
<b>Road, local access (kilometres)/trail</b> _____			
<b>Trench (metres)</b> _____			
<b>Underground dev. (metres)</b> _____			
<b>Other</b> _____			
		<b>TOTAL COST:</b>	20,163.54

**2020 Geochemical and Geophysical**  
Report on the Summers Fault Property  
Date Worked: October 2020

Similkameen Mining Division  
Southern British Columbia

NTS Map Sheets: 092H/09 and 092H/10  
BCGS: 092H.068

Latitude: 49.66247 N, Longitude: 120.46112 W  
UTM WGS 84 Zone 10 683215 E, 5504200 N

Owner/Operator:  
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Date Submitted: April 2021

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# 1 INTRODUCTION

At the request of Wild West Gold Corp., Decoors Mining Corp. visited the Summers Fault Property in October 2020. This report documents the work carried out on the Summers Fault claims by a three-person mineral exploration crew from October 19 – October 21, 2020 and December 15, 2020.

# 2 PROPERTY DESCRIPTION

## 2.1 LOCATION, ACCESS, PHYSIOGRAPHY, CLIMATE, AND INFRASTRUCTURE

### 2.1.1 LOCATION

Provincially, the Summers Fault Property is located 300km E/NE of Vancouver in southern British Columbia (Figure 2-1).

More locally, the Property is located 15.5km N of Princeton, B.C. and is situated on NTS Maps 092H/09 and 092H/10. Approximate longitude and latitude for the center of the area worked on the Property are 49.66247N, 120.46112W (UTM WGS 84 Zone 10 683215E, 5504200N).



*Figure 2-1. Axe Property Location Map.*

### 2.1.2 ACCESS

The Axe Project can be reached from Vancouver by taking Highways 1 and 3 east 275km to Princeton. From Princeton the Property can be reached by 2 ways:

- 1) East Block: Take the Princeton-Summerland Road N from Princeton for 8.5km before turning left onto the Hembrie Mountain Road. This road reaches the SE corner of the claims after 7.5km and continues to provide access to the northern limit of the claims around Rampart Lake.
- 2) West Block: Take the Merritt-Princeton Highway N from Princeton for 10.6km before turning right onto an unnamed logging road. This road reaches the SW corner of the claims after 8.7km.

### 2.1.3 PHYSIOGRAPHY AND CLIMATE

The Summers Fault claims lie within the Okanagan Range Ecoregion of the Northern Cascades Range Ecoregion. This ecoregion is characterized by high mountains in the south, with deep, dry valleys in the centre and south, lowering to rounded summits north of the Similkameen River. The higher summits show the effects of glaciations with serrate ridges and cirque-basin erosion.

This ecoregion lies in a rainshadow of the higher Cascade Ranges to the west. Summer temperatures are warm and hot dry subtropical air can arrive via the Columbia Basin to the southeast. Winters are cool, but cold dense Arctic air seldom occurs here unless under a large southward flowing air mass. Subalpine forests and rolling alpine tundra dominate the upper slopes, while sagebrush-steppe habitats occur in the wide, low elevation basins (Demarchi, 2011).

Within the Property elevations range from 860m along Summers Creek Valley in the south center to 1540m at the top of a hill in the northeastern corner. Surface waters flow primarily into Summers Creek, which drains south into the Similkameen River at Princeton.

### 2.1.4 INFRASTRUCTURE

Logging, mineral exploration, and hard rock mining are extensive throughout the area.

Nearby Princeton (population 2,700) is the largest town in the Similkameen with primary economic drivers of mining, forestry, and agriculture. The town's biggest employers are the Copper Mountain Mine and a sawmill owned by Weyerhaeuser. Downtown Princeton has a vibrant retail and services sector that is capable of servicing any mineral exploration program.

There are multiple freshwater streams, creeks, and lakes throughout the Property that can provide sufficient water for all mineral exploration activities.

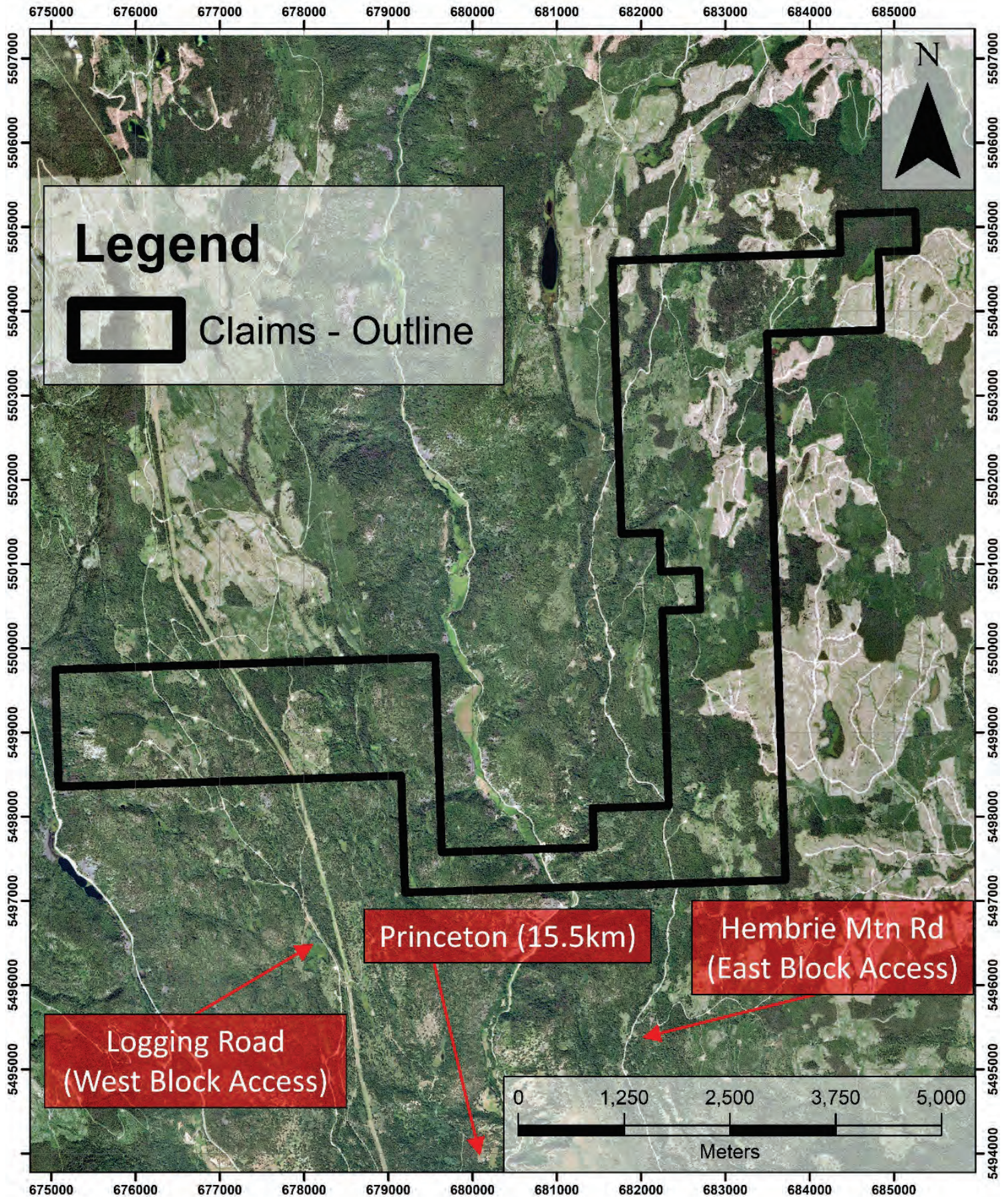


Figure 2-2. Property Access.



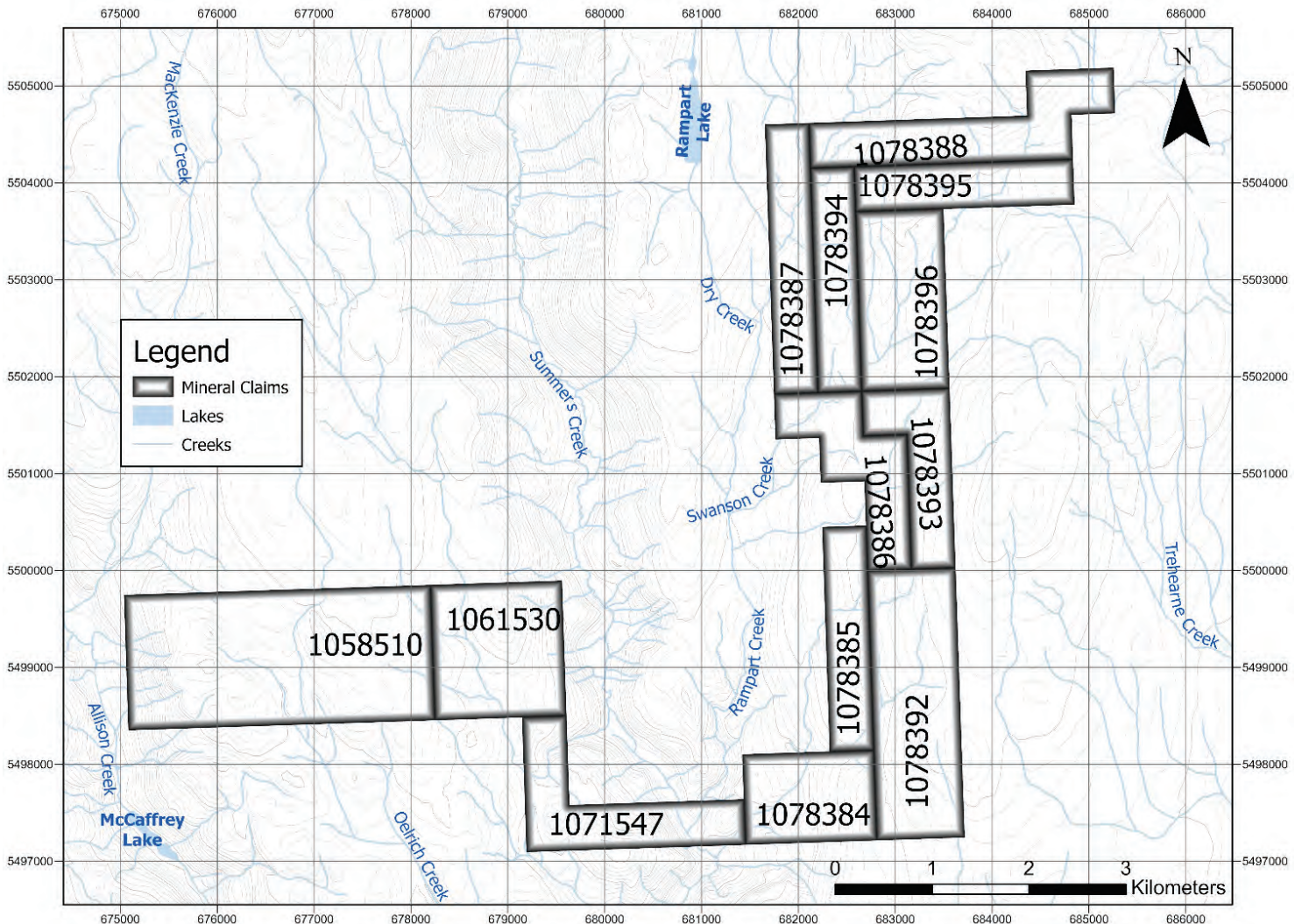
## 2.2 CLAIMS AND OWNERSHIP

### 2.2.1 LIST OF CLAIMS

The Summers Fault claim block consists of 13 contiguous claims covering 2,155.3984 hectares (Table 2-1, Figure 2-3). All claims are owned by Michael Richard Lee of Wild West Gold Corp.

*Table 2-1. Claims and Ownership.*

Tenure Number	Tenure Type	Claim Name	Area (ha)	Owner Name
1058510	Mineral		439.5539	LEE, MICHAEL RICHARD
1061530	Mineral		188.3807	LEE, MICHAEL RICHARD
1071547	Mineral		146.5617	LEE, MICHAEL RICHARD
1078384	Mineral		125.6206	LEE, MICHAEL RICHARD
1078385	Mineral		104.6531	LEE, MICHAEL RICHARD
1078386	Mineral		125.5431	LEE, MICHAEL RICHARD
1078387	Mineral		125.4935	LEE, MICHAEL RICHARD
1078388	Mineral		167.2866	LEE, MICHAEL RICHARD
1078392	Mineral		251.1989	LEE, MICHAEL RICHARD
1078393	Mineral		104.6196	LEE, MICHAEL RICHARD
1078394	Mineral		104.5826	LEE, MICHAEL RICHARD
1078395	Mineral		104.565	LEE, MICHAEL RICHARD
1078396	Mineral		167.3391	LEE, MICHAEL RICHARD
<b>Total</b>			<b>2155.3984</b>	



*Figure 2-3. Mineral Tenures.*

### 3 OVERVIEW AND PROPERTY HISTORY

#### 3.1 OVERVIEW

##### 3.1.1 SOUTH-CENTRAL B.C.

The South-Central Region of B.C. is currently the most productive copper mining district in Canada. Table 3-1 displays the major mines of the district including Copper Mountain (35km south), Highland Valley (100km northwest), New Afton and Ajax (115km north), and the past producing Craigmont (70km northwest).

*Table 3-1. Major Mines of South-Central B.C.*

Deposit	Tonnage (10 <sup>6</sup> tonnes)	Cu (%)	Au (g/t)	Mo (%)
Copper Mountain	449.0	0.30	0.12	N/A
Highland Valley	2518.9	0.26	N/A	0.009
Gibraltar	951.6	0.25	N/A	0.008
Ajax	597.0	0.25	0.18	N/A
New Afton	132.1	0.73	0.59	N/A
Craigmont	26.5	1.78	N/A	N/A

\*These mineral reserve estimates have been taken from the most recent NI 43-101 compliant technical reports published on each of the properties.

##### 3.1.2 SUMMERS CREEK

In addition to the above mines, there are several past producers and advanced prospects throughout the district. A summary of Prospects located along the Summers Creek Fault follows from 3.1.1 .1– 3.1.1.7.

###### 3.1.2.1 MPD (Kodiak Copper)

Target: Cu porphyry

The MPD claims contain the Man, Prime, Dillard, and Gate Zones ~33km N of Princeton and 1km east of Summers Creek. From 1966-2014 previous operators, including Rio Tinto and Newmont, drilled a total of 129 holes (25,780m) on the MPD Property. The drilling confirmed widespread gold and copper mineralization from surface over a 10 km<sup>2</sup> area. Historic drill holes rarely tested below 200m in depth.

In 2019, Kodiak Copper consolidated three properties (Man, Prime, and Dillard) and discovered the Gate Zone by drilling deeper than the historical holes. In 2020, Kodiak drilled into a high-grade copper-gold zone at the Gate Zone, hitting the highest grades to date on the property. The best intercept contained 535m of 0.49% Cu and 0.29 g/t Au, including 282 m of 0.70% Cu and 0.49 g/t Au, including 45.7 m of 1.41% Cu and 1.46 g/t Au. Up to 30,000m of follow up drilling is planned for 2021 on the Gate, Dillard, and Dillard East Zones – each of which is highlighted by regional magnetic lows. ([Kodiak Copper Company Presentation – March 2021](#))

###### 3.1.2.2 Rum and Coke (QuestEx)

Target: Cu Porphyry

The Rum and Coke prospects are ~32km N of Princeton and on just west of Summers Creek. These deposits have been extensively explored by various operators since the 1960 by several geochemical, geological, and geophysical surveys. Historical trenching at the Rum Prospect includes 183m at 0.16% Cu. Historical drilling at the Coke Prospect includes 83.2m at 0.23% Cu. ([Rum MINFILE](#)) ([Coke MINFILE](#))

###### 3.1.2.3 Sadim (Richard Billingsley)

Target: Au quartz veins, polymetallic veins

The Sadim Prospect is 29km N of Princeton and ~2km west of Summers Creek. This deposit was discovered by Laramide Resources Ltd. in 1985 after carrying out geological, soil, and rock geochemical surveys. This work was followed with the excavation of a number of trenches in 1986 and 1987, and the completion of additional geological and rock geochemical surveys. Historical drilling includes 9m of 3.566 g/t Au and 25.4 g/t Ag.

([Sadim MINFILE](#))

#### 3.1.2.4 Hit & Miss (QuestEx)

Target: Au quartz veins, poly-metallic veins (<https://questex.ca/projects/hit-property/>)

The Hit and Miss Prospects are ~25km N of Princeton and just west of Summers Creek. These have been explored by prospecting, geochemical, geological, and geophysical surveys. Historical work on the Miss includes:

Trenching: 0.012% Cu, 1.46 g/t Au, 30.7 g/t Ag, and 1.67% Pb over 0.25m.

Drilling: 0.90% Cu, 0.049 g/t Au, 5.8 g/t Ag, 0.06% Pb, 0.8% Pb over 2.05m.

Historical work at the Hit has focused on the trenching of quartz veins with rock samples ranging from trace to 22.4 g/t Au. Since 2010 QuestEx has been working the Property and has:

- trenched up to 11.9 g/t Au and 152 g/t Ag over 0.75m within the Hit quartz vein system.
- identified multiple gold and copper soil anomalies throughout the Property.
- identified four chargeability IP anomalies within the Property.

(<https://questex.ca/projects/hit-property/>)

#### 3.1.2.5 Axe (Orogen Royalties)

Target: Cu porphyry

The Axe Prospect is 20km N of Princeton. The Prospect contains copper and molybdenum showing over an area of more than 6km<sup>2</sup>. The showings have been grouped into six zones known as the 1516, Adit, Mid, Ohio, South, and West zones – and have been the object of extensive exploration by several companies. All of these zones, with the exception of the 1516 zone, are ~1km west of Summers Creek. The 1516 zone is an underexplored, drill-ready target with strong similarities to Kodiak's Gate Zone. It is outlined by coincident Cu-Au soil geochemistry, an IP chargeability high, and a magnetic low.

Though extensive trenching and shallow drilling have outlined several mineralized bodies of considerable proportions, exploration to date has not disclosed a body of economic size and grade. In 2006, a NI 43-101 resource of 39 million tonnes ("Mt") at 0.38% copper in the indicated category and an additional 32 Mt at 0.38% copper in the inferred category was estimated, although gold was not included as it was not assayed in most previous drilling. ([Orogen Axe Presentation – November 2020](#)).

#### 3.1.2.6 Rita (Richard Billingsley)

Target: Cu porphyry

The Rita Prospect is 19km N of Princeton and ~2km east of Summers Creek. Scattered exposures of copper mineralization occur in an area roughly 1000m long and 700m wide. Malachite and azurite commonly accompany this mineralization. ([Rita MINFILE](#))

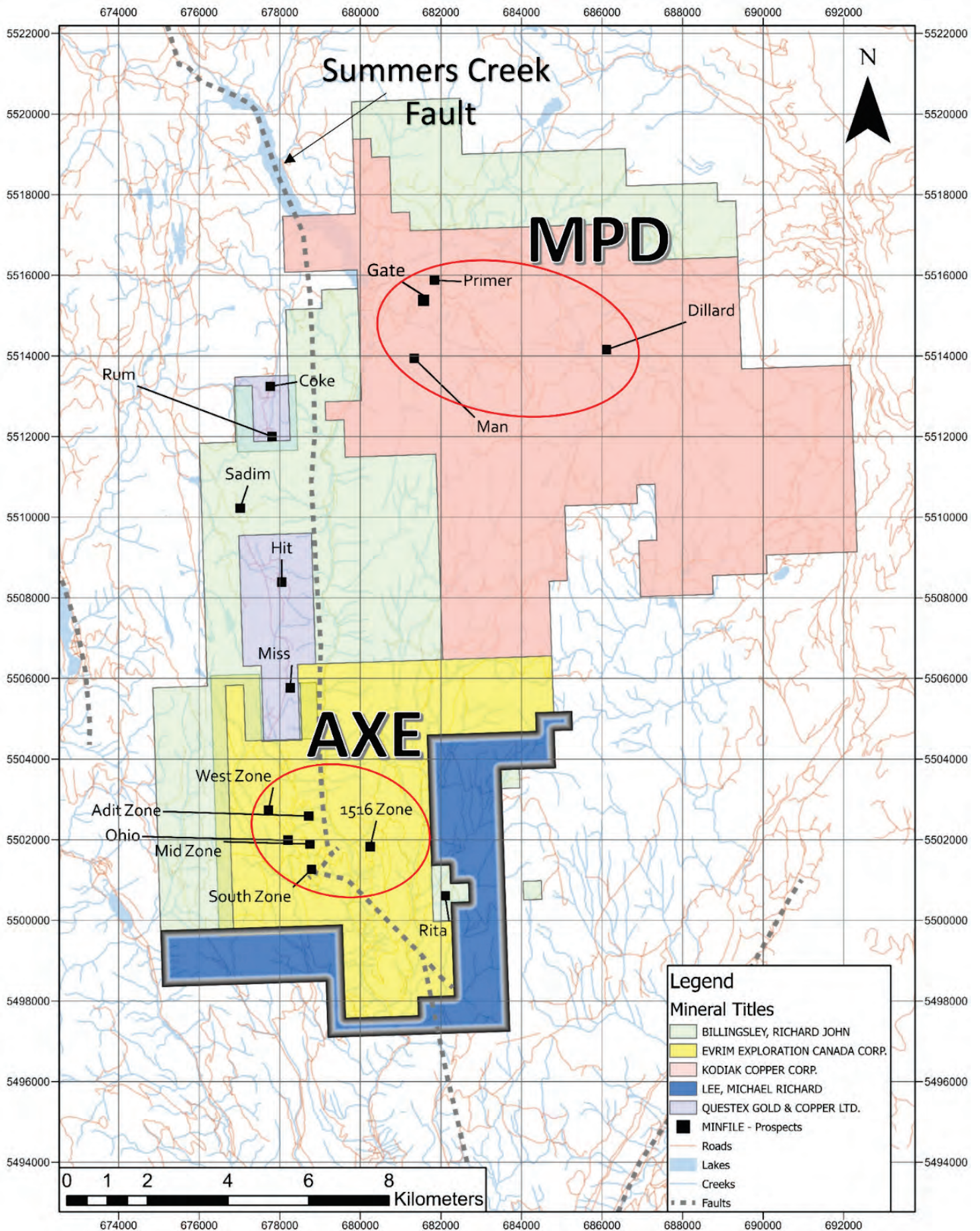


Figure 3-1. Summers Creek Prospects.

### 3.1.3 QUEST SOUTH STREAM SEDIMENT PROGRAM

QUEST-South includes an airborne gravity survey which covers 45,000 square kilometers between Williams Lake and the USA border, a new ground geochemical survey in the Merritt area, and the reanalysis of almost 9000 existing geochemical samples over an area of approximately 126,000km<sup>2</sup>. ([Geoscience BC – Quest South](#))

There are ~50 stream sediment samples taken around the Summers Fault claims. A significant number of these are of the 99<sup>th</sup> percentile for Cu. The high samples in the vicinity of the Summers Fault claims are of particular interest

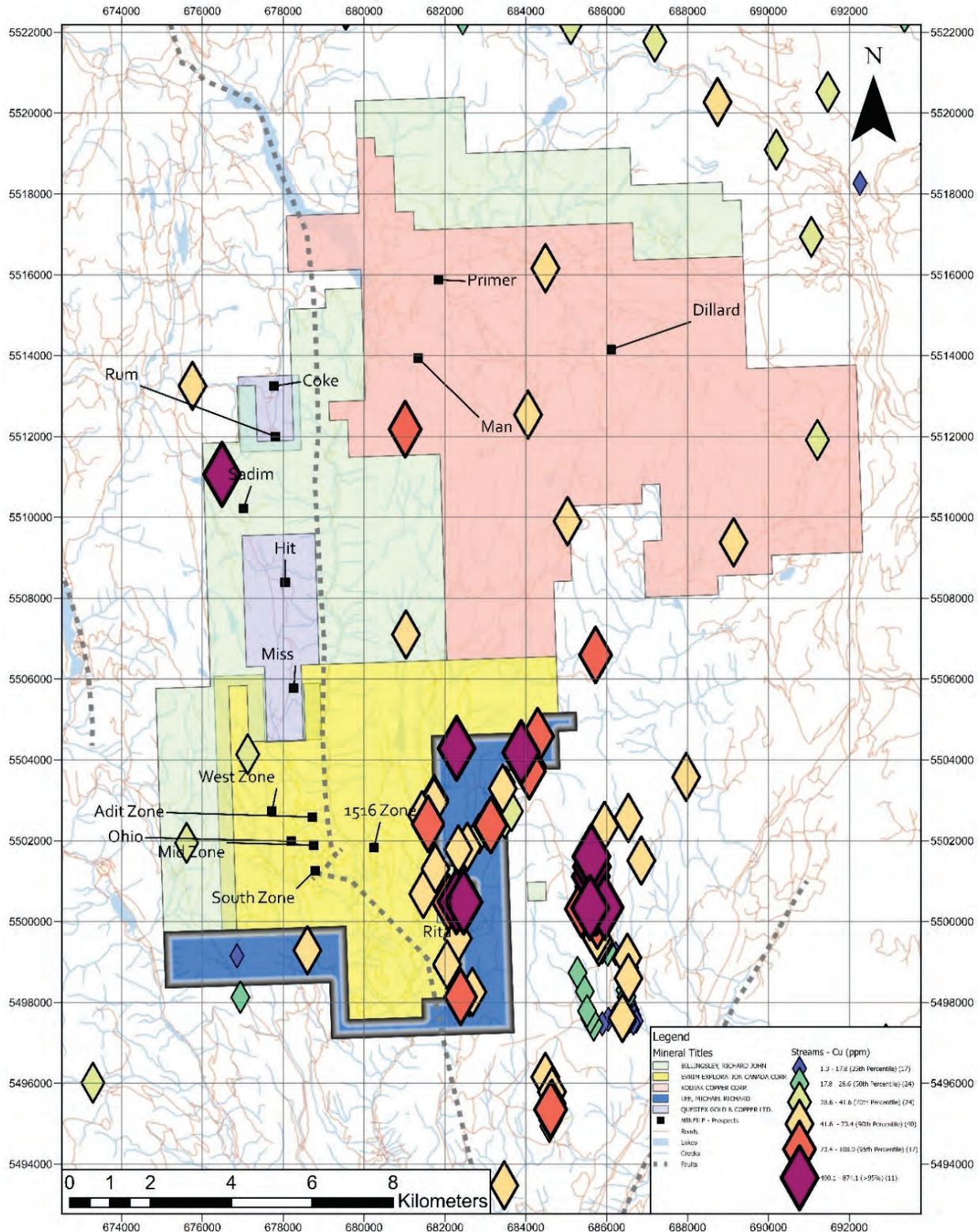


Figure 3-2. Regional Stream Sediments (Cu - ppm)

since these are taken east of Summers Creek and the Axe Project. An additional 70 stream sediment samples from historic reports have been added to this database. Additional stream sediment maps can be found in Appendix 3.

## 3.2 SUMMERS FAULT PROPERTY HISTORY

### 3.2.1 1978-1982: COPPER EXPLORATION

Initial exploration within the Summers Fault claims was for porphyry copper mineralization similar to that of the Axe Prospect to the West.

- 1978-79 Kalco Valley Mines collected soil samples 587 soil samples (333 in 1978, 254 in 1979) in the area east of Rampart Lake on their MUF claims. Results identified small and scattered copper anomalies. The most interesting area was the western margin of the survey where several values greater than 200 ppm Cu were obtained. (Trenholme, 1978 and Fraser, 1979)
- 1981 Debicki and Peto staked the Rita 1-4 claims. They collected 331 soil and 60 stream sediment samples. Stream sediment samples collected from the headwaters of Trehearne Creek and Swanson Creek were weakly anomalous in molybdenum. Significant Cu anomalies of 125 and 290 ppm were obtained from stream sediments draining pyritic tuffs at the southern end of the claim. Soil samples indicated scattered, small, low level, Cu anomalies. (Debicki and Peto, 1982)
- 1982 Canadian Nickel Company optioned the Rita 1-4 claims and completed a detailed evaluation of the claims. Gridding, prospecting, and geological, geochemical, and geophysical surveys were completed. Within the Nicola volcanics, Cu reached a high of 175 ppm Cu. Enhancement of Cu values up to 395 ppm occurred in the SE corner of the grid where Molybdenum and Lead were also anomalous. These were attributed to near surface outcrop exposures of diorites of the Pennask Batholith. Several anomalous isolated Au values range from 50 to 410 ppb versus a background of 5 ppb Au. All of these anomalous values occurred within the intrusive phases of the Pennask Batholith (Debicki, 1982).

### 3.2.2 1989-1995: GOLD EXPLORATION

1989-95 In 1989 Fairfield Minerals conducted reconnaissance stream sediment samples. A strongly anomalous sample of 182 ppb Au led them to stake their Swan claims in the same area as the previous Rita 1-4 claims. From 1989-94 Fairfield collected a total of 4,516 samples and concluded that several gold geochemical anomalies with values of up to 410 ppb Au indicate good potential for the discovery of a significant vein deposit.

In 1995, Fairfield also put in four trenches and one test pit. They predominantly exposed weakly altered intrusive and volcanic rocks cut by abundant thin clay shears and occasional thin quartz-limonite veinlets.

Trench 95-1 was dug to test a 410 ppb Au anomaly and failed to reach bedrock. Ten soil samples were collected at 5m intervals from the base of the trench wall. S1, at the 5m point in the trench, returned a significant value of 138 ppb Au. This sample is located closest to the original surface anomaly station of 410 ppb Au and confirms that a mineralized source may be present in bedrock near the sample site. Bedrock is speculated to be at a depth of about 10m in this location.

Trench 95-2 was dug to test a 29 ppb Au anomaly and a quartz float occurrence which returned 2640 ppb Au. All of the rocks exposed in the trench wall were moderately to strongly fractured and cut by numerous thin clay-limonite shears and less commonly by quartz veinlets. A grab sample of the quartz (SW 952-24G) returned only 13 ppb Au but had an anomalously high Mo value of 1203 ppm. Sample SW 952-14, a 1.0m chip across two quartz veinlets, returned 310 ppb Au.

Trench 95-3 was dug to test a 69 ppb Au anomaly. The excavation revealed mainly granodiorite bedrock with abundant limonite and clay shears. All of the samples from this trench returned anomalous values in zinc, ranging from 931 ppm to 2841 ppm Zn.

Trench 95-4 was dug to test a 25 ppb Au anomaly. Bedrock was comprised of weakly to moderately chloritized granodiorite with blocky jointing and several clay-limonite shears. These shears returned values of up to 2.3% zinc and 1.0% lead.

Pit 95-5 was dug to test a 160 ppb Au anomaly. Groundwater quickly flooded the pit. Fragments of bedrock were scooped from the bottom of the pit with the excavator and brought to surface. The pieces consisted of relatively fresh, medium-grained diorite, strongly fractured, with pyrite on fracture surfaces and a few quartz stringers up to 4 mm with disseminated pyrite. A grab sample of this pyritic diorite was analyzed but returned only 4 ppb gold and a moderate zinc value of 1135 ppm (sample SW955-1G).

(Cormier, 1990 and Rowe, 1989, 1992, 1995a, 1995b)

### 3.2.3 2000S: ADDITIONAL EXPLORATION

2009 In 2009, Solitaire Minerals Inc. conducted a preliminary surface exploration program consisting of geological mapping, rock, soil, and silt sampling on Blocks 1 and 2 of their Copper Mountain Project.

Block 1 covers the Western Block of the Summers Fault Property. Solitaire identified two weak copper anomalies at the northern and eastern margins of the claim block and recommended further work to determine whether the anomalies represent one unit with a minimum strike length of 2.0 km, or multiple units. The highest gold grades from rock and soil sampling were returned from an area hosting several narrow altered and pyritic shear zones in the northwestern property area. Alteration and mineralization suggest an epithermal setting. (Schulze, 2010a)

Block 2 covers part of the Rita/Swan claims mentioned above. Solitaire identified gold, copper, lead, and zinc anomalies in this area and recommended a follow up program of geological mapping with rock, stream silt, and soil sampling. (Schulze, 2010b)

2012 In 2012, X-Strata flew a 954-line km high resolution aeromagnetic and radiometric survey over the Axe Prospect. This survey also covered a large portion of the Summers Fault claims (Rossett, 2013).

Figure 3-3 displays a compilation of the historical geochemical data.

Figure 3-4 displays the Summer Fault claims overlaying the 2012 X-Strata TMI airborne data.

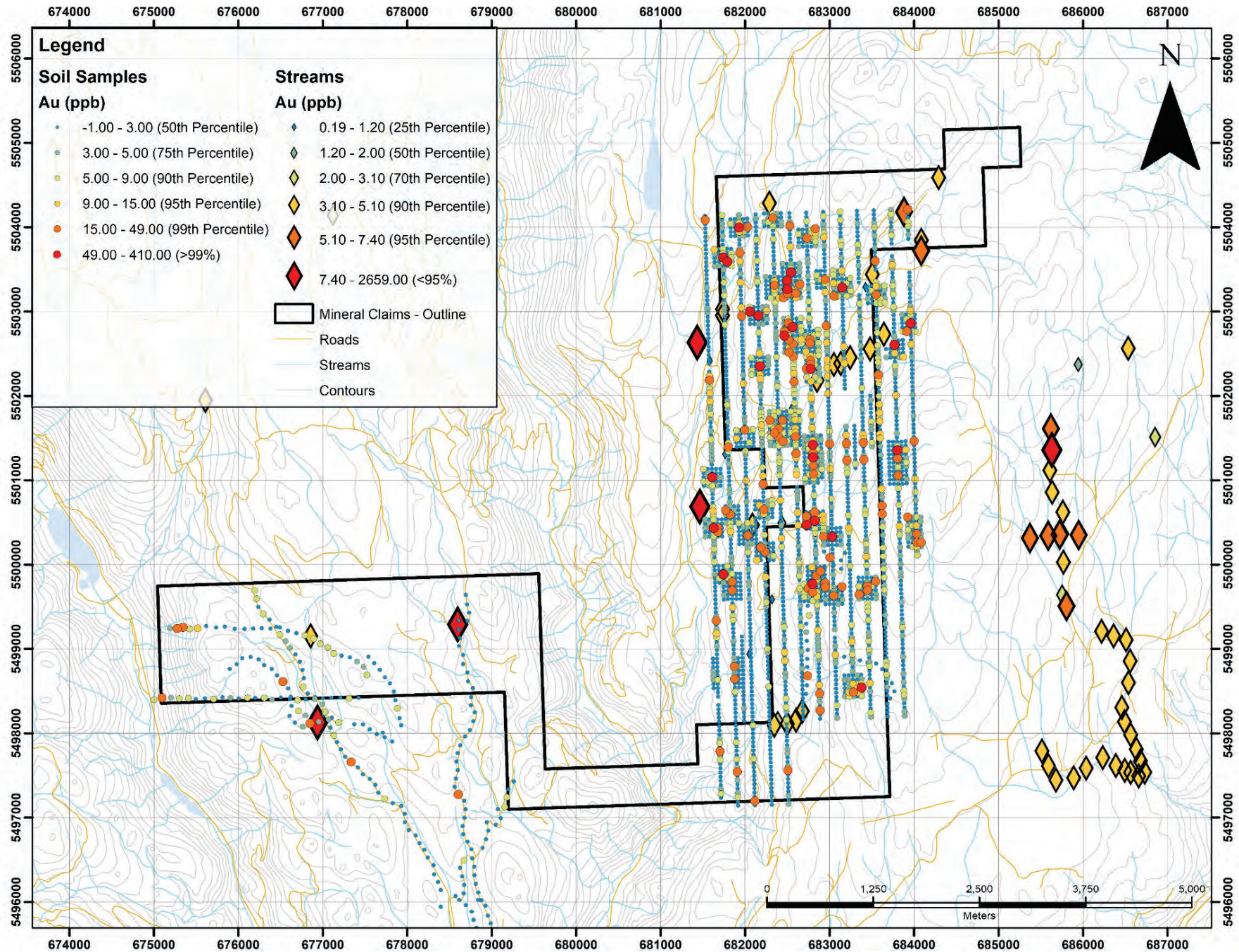


Figure 3-3. Compilation of Historical Geochemical Data.



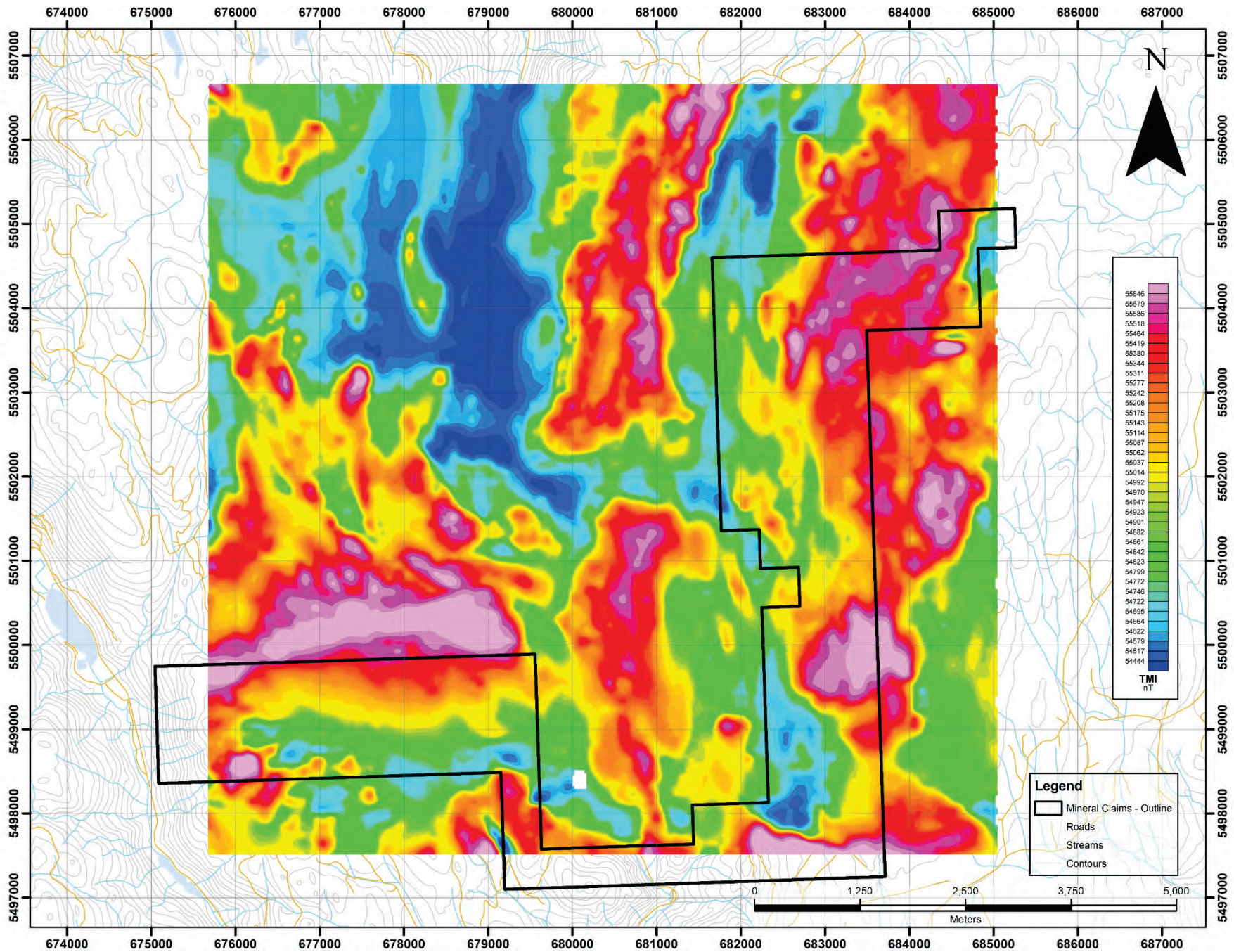


Figure 3-4. Summers Fault Claims overlaying 2012 XSTRATA Airborne Magnetic Survey.

## 4 GEOLOGY

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### 4.1 REGIONAL GEOLOGY

The Summers Creek area is centred on the Southern Nicola arc. Owing in part to its important metal endowment, the southern Nicola arc has been extensively explored. Regional geology is described from the BCGS Southern Nicola Arc Project (SNAP) Paper 2014-1 (Mihalynuk, 2014) and Open File 2020-1 (Mihalynuk, 2020).

The southern Nicola arc and underlying basement rocks belong to the Quesnel Terrane, which stretches from the U.S.-Canada border over the length of B.C. and into the Yukon. The Nicola Group and underlying basement rocks together comprise a composite island arc that initiated at the western margin of ancestral North America in Devonian time (Monger et al., 1972; Monger, 1977; Mihalynuk et al., 1994; Ferri, 1997), on rocks at least as old as Late Silurian; (Read and Okulitch, 1977). Formation of a back-arc basin likely rifted Quesnel arc from its continental margin homeland (Mihalynuk et al. 1994, 1999). As the back arc basin grew to oceanic proportions, Quesnellia became isolated enough from North America to permit the colonization of endemic organisms, the fossil remains of which are lacking in now adjacent parts of cratonic North America but are found to the west in Stikine terrane (Ross and Ross, 1983 and 1985). Both Quesnel and Stikine terranes were repatriated with North America by Early to Middle Jurassic (Ricketts et al., 1992; Nixon et al., 1993; Mihalynuk et al., 2004;) as they buckled against the margin, capturing exotic oceanic rocks of the Cache Creek terrane between them (Monger and Ross, 1971; Mihalynuk et al., 1994). Since Middle Jurassic time, rocks of the Quesnel arc were deformed during collisions that shuffled rocks along the ancestral continental margin southward and then northward, coming to rest in the Eocene (Enkin, 2006; Sigloch and Mihalynuk, 2013). Eocene extension in the southern Cordillera (Brown and Journey, 1987) formed basins in which Princeton Group volcanosedimentary rocks accumulated. Extension may have persisted into the Miocene, outlasting effusive Chilcotin Group volcanism.

Magmatic roots of the Nicola arc include prolifically mineralized intrusions emplaced during an arc-building and collisional epoch centred on ~204 Ma (Logan and Mihalynuk 2014). Known as the Copper Mountain suite, these intrusions and Nicola Group arc rocks mineralized adjacent to them, have been a major source of British Columbia mining wealth for 50 years. Because of this wealth, many geological investigations have focused on the Late Triassic to Early Jurassic Nicola arc rocks. Magmatic and sedimentary units of the southern Nicola arc were previously partitioned into three subparallel belts separated by northerly trending faults (Preto, 1979; Monger, 1989) a Western belt distinguished by felsic volcanic rocks and limestone; 2) a Central belt consisting mainly of mafic volcanic rocks, comagmatic plutons, and locally prominent laharic rocks; and 3) an Eastern belt composed mainly of sedimentary rocks. Fossils from the volcanic-dominant western and central belts previously restricted timing of Nicola Group deposition to Late Triassic. The mainly sedimentary Eastern belt lacked fossils, inhibiting internal arc correlation; yet despite separation by a regional fault from the other belts, it was considered a lateral facies of belts to the west (Preto, 1979). Rocks of the Eastern belt are particularly well preserved in the Hedley basin where they comprised formations of the Nicola Group (Ray and Dawson, 1994), but are now believed to represent western exposures of the Slocan Group. In southwestern Quesnellia, the Slocan Group is a marine sequence that is a time-equivalent deep-basin corollary of the adjacent Nicola Group island arc strata. It is suspected to have periodically dominated deposition, either interdigitating or overlapping Nicola arc stratigraphy during Late Triassic sea level fluctuations, particularly in Carnian and Rhaetian times.

Building on earlier pioneering work on the Nicola Group, recent detailed mapping conducted during SNAP, and 25 new radioisotopic age determinations (Mihalynuk et al., 2014, 2015, 2016; Friedman et al., 2016) lead to abandoning the historic usage of the 'Belt' terminology, replacing it with a lithostratigraphy that is intended to redefine the Nicola Group within a segment of the Nicola magmatic arc in southwestern Quesnel terrane. Uranium-lead

geochronology now confirms lithostratigraphic ties for many kilometres along the arc, and importantly, new lithostratigraphic units demonstrably span historic belt boundaries, with felsic pulses dated at ~239 Ma and ~224 Ma in what was previously the Western belt; ~238 Ma, 224 Ma and ~202 Ma in what was previously the Central belt; and 223 Ma and ~200 Ma in what was previously the Eastern belt. Growth of the Nicola arc began in Middle Triassic (ca. 239 Ma) and continued through erosional unconformities (~214-211 Ma, and ~207 Ma), that preceded emplacement of calc-alkalic and alkalic porphyry copper deposits, and arc termination in earliest Jurassic (~200 Ma).

## 4.2 PROPERTY GEOLOGY

The Western block of the Summers Fault Property is underlain by Middle to Upper Triassic basalt and andesite flows of the Iron Mountain formation (uTrNIvmi) and Lower Cretaceous Spences Bridge Group rhyolite flows (IKSPvr), basaltic andesite and andesite flows (IKSPvmi), and polymictic conglomerate, sandstone and siltstone interbeds (IKSPscb). These are intruded by Late Triassic Mount Pike suite diorites (LTrPgd) in the far northwestern corner and Early Cretaceous Summers Creek stock granodiorites in the northeastern corner. The Early Cretaceous Summers Creek stock granodiorite intrusion continues over the Summers Creek Valley through the central portion of the claims.

The Eastern block of Property is underlain by Middle to Upper Triassic basalt and andesite flows of the Iron Mountain formation (uTrNIvmi) in the northwest. These are intruded by Middle to Late Jurassic Nelson suite (Osprey batholith) granodiorites in the south and northeast, and Middle to Upper Jurassic Skwel Pelken andesite breccias (mJSva) and rhyolite flows (mJSvr) in the far north.

Mapped faults include a northwest trending fault through the NE corner of the Western block, the north-south trending Summers Creek Fault through the center of the claims, and a parallel north-south fault that runs through Rampart Lake just west of the Eastern block.

Figure 4-1 displays the Property Geology.

Figure 4-2 contains a Geological Legend for Figure 4-2, including details on each strat unit mentioned above.

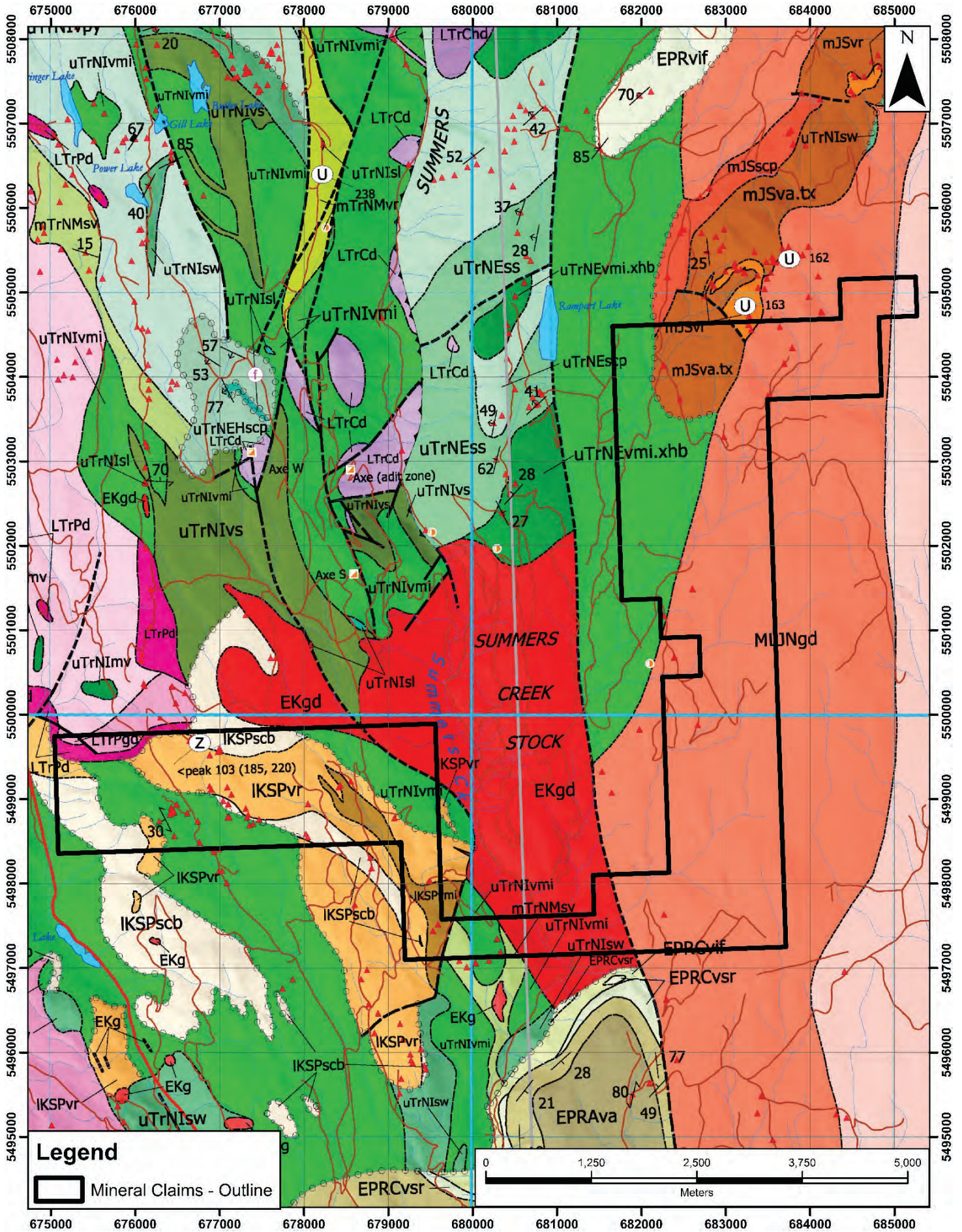


Figure 4-1. Property Geology.



## 5 2020 EXPLORATION

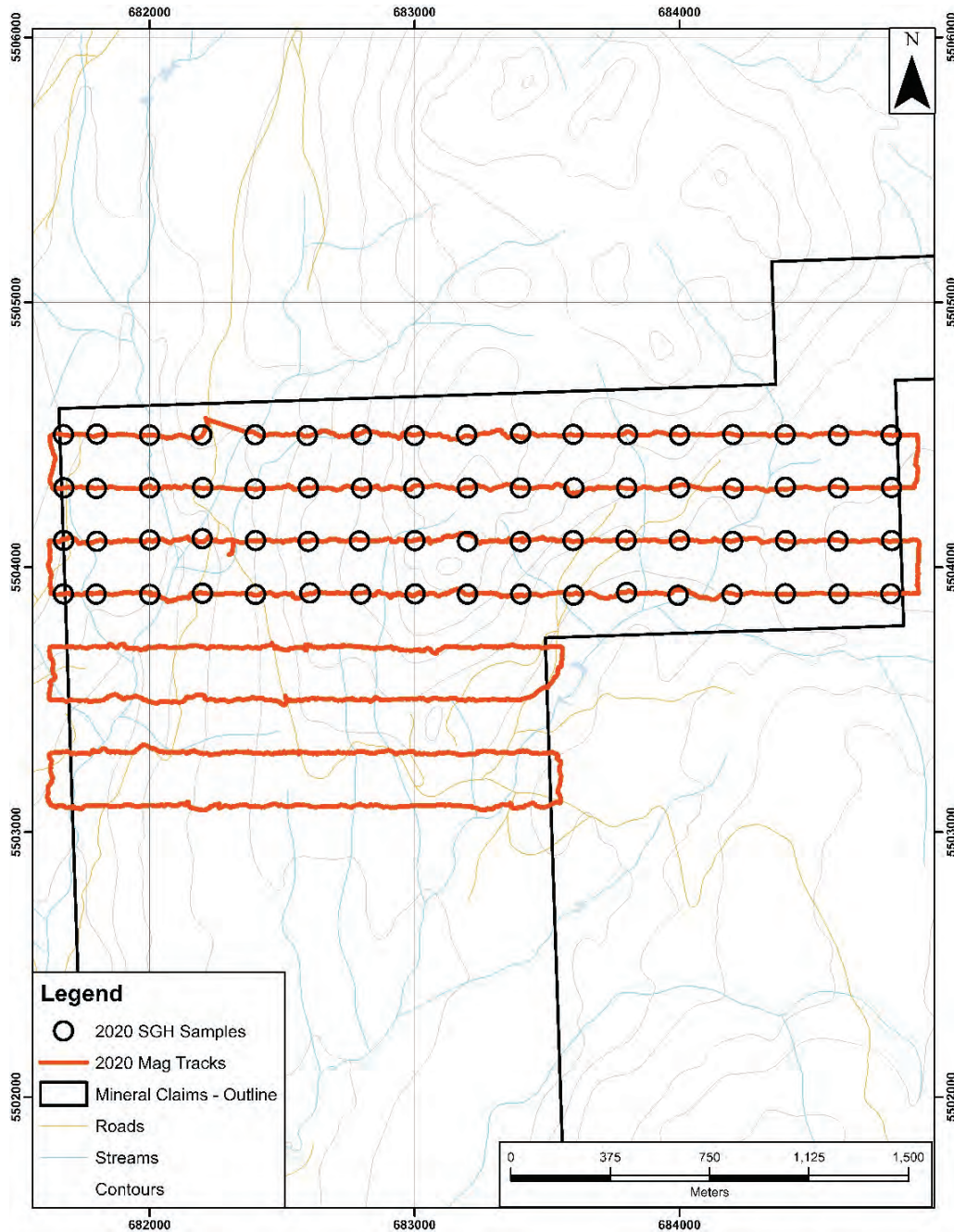
A small reconnaissance exploration program was conducted within the Summers Fault claims over October 19-20, 2020. Work consisted of Spatiotemporal Gas Hydrocarbon geochemical and walking magnetometer surveys at the far north of the Eastern Block. One rice bag of SGH samples was lost in shipment and a second property visit was made on December 15, 2020 to re-collect and re-ship the missing samples.

### 5.1 SPATIOTEMPORAL GAS HYDROCARBON (SGH) SURVEY

A total of 68 SGH samples were collected at 200m intervals on 200m spaced lines. The line length was 3.2 km for 17 samples per line.

### 5.2 MAGNETOMETER SURVEY

A walking magnetometer survey was carried out over the same area as the SGH Survey – with 4 additional lines walked further south – for a coverage of 20.5-line km.



*Figure 5-1. 2020 Exploration Work Done.*

## 6 SAMPLING METHODOLOGY, ANALYSIS, AND DATA VERIFICATION

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### 6.1 SPATIOTEMPORAL GAS HYDROCARBONS (SGH)

Spatiotemporal geochemical hydrocarbon (SGH) sampling is a geochemical analysis that has been researched since 1996. Rather than sampling for particular elements of interest, this method examines the composition and distribution of hydrocarbons found in the soil. The hydrocarbons of interest are produced through the decomposition of bacteria and microbes that feed on metallic mineralization. This form of hydrocarbon production is an ongoing process that will form a flux or plume which extends upwards from the mineralization and can be sampled from a variety of surficial materials including soil, peat, humus, rock, till, snow, and even lake or sea sediments.

A SGH survey can be used to identify mineralization at a range of depths between 5-950 metres and is typically used in difficult terrain where other analytical methods have not been effective. SGH analysis has been successful at identifying a wide range of deposits, including gold, nickel, copper, uranium, SEDEX, VMS, polymetallic, REE, and kimberlite. Mineralization may be detected regardless of the host lithologies present, and in a variety of different settings and climates. In all cases, the hydrocarbon plume rises upwards from the mineralization and adheres to soil particles directly above the mineralization, provided that there has been no significant ground movement. Ground conditions, whether soil or snow, must be constant for at least 3 weeks before an SGH sampling program is conducted.

In order to ensure consistency among samples taken during the field program, the soil sampling was completed in one field period. This ensured that the ground conditions for all samples were relatively similar and were thereby not affected by extreme changes in meteorological and/or seasonal conditions.

Upon arrival at a pre-determined sample site, a sample was taken. The following steps were followed to ensure consistency across the sample survey.

1. Before extracting a sample, the shovel and scoop were flushed with new dirt at the sample site and cleaned, ensuring that there was no cross-contamination from the remnants of the previous sample.
2. Using the shovel, a small hole was dug. Samples were collected from a developed soil layer at the upper B horizon at a consistent depth of ~10-15cm.
3. A small trowel was used to extract a fist-sized sample. This sample was then placed into pre-labelled Ziploc bag and then into a backpack.
4. At the end of the day the samples were transferred into labelled rice bags which were sent to ActLabs (41 Bittern Street, Ancaster, Ontario, L9G 4V5) for analysis.

### 6.2 MAGNETOMETER SURVEY

Readings were obtained using a GEM Systems GSMP-35 magnetometer. The GSMP-35 ground system is employed for subsurface investigations in numerous fields, including mineral prospecting and exploration. High data quality is assured through the GSMP-35 magnetometer's ultra-high sensitivity (0.0002 nT @ 1Hz).

Many subsurface targets have subtle signals that can only be detected with an ultra-sensitive magnetometer/gradiometer. These targets include gold deposits with subtle shear and fracture zones, archaeological artifacts, and subtle anomalies.

### 6.2.1 THEORY

A typical alkali vapour magnetometer consists of a glass cell containing an evaporated alkali metal (i.e., alkali atoms). According to quantum theory, there is a set distribution of valence electrons within every population of alkali atoms. These electrons reside in two energy levels: 1 and 2. Light of a specific wavelength is applied to the vapour cell to excite electrons from level 2 to a 3<sup>rd</sup> level – level 3. This is known as polarization.

Electrons at level 3 are not stable and spontaneously decay back to levels 1 and 2. Eventually, level 1 becomes fully populated and level 2 is fully depopulated. The result is that the cell stops absorbing light and turns from opaque to transparent.

At this point, depolarization begins. Energy that corresponds to the energy difference between levels 1 and 2 is applied to move electrons from level 1 back to level 2.

The significance of depolarization is that the energy difference between levels 1 and 2 is directly proportional to the magnetic field. In the process of polarization and depolarization light is modulated and the frequency value is then converted to magnetic field units.

### 6.2.2 SURVEY PROCEDURE

The GSMP-35 has an integrated GPS attachment. Using this the mag can be used as a ‘walk-mag’ in which it takes readings while recording location.

The GSMP-35 was set to automatically record data at 0.5 second intervals and the operator walked the survey areas with the magnetometer while checking for errors in real-time.

At the end of each survey day, data was downloaded to a Laptop computer and processed using the GeoSoft Oasis Montaj data processing software. Data was processed and plotted on a nightly basis. All data was backed up to an external hard drive.

## 7 RESULTS

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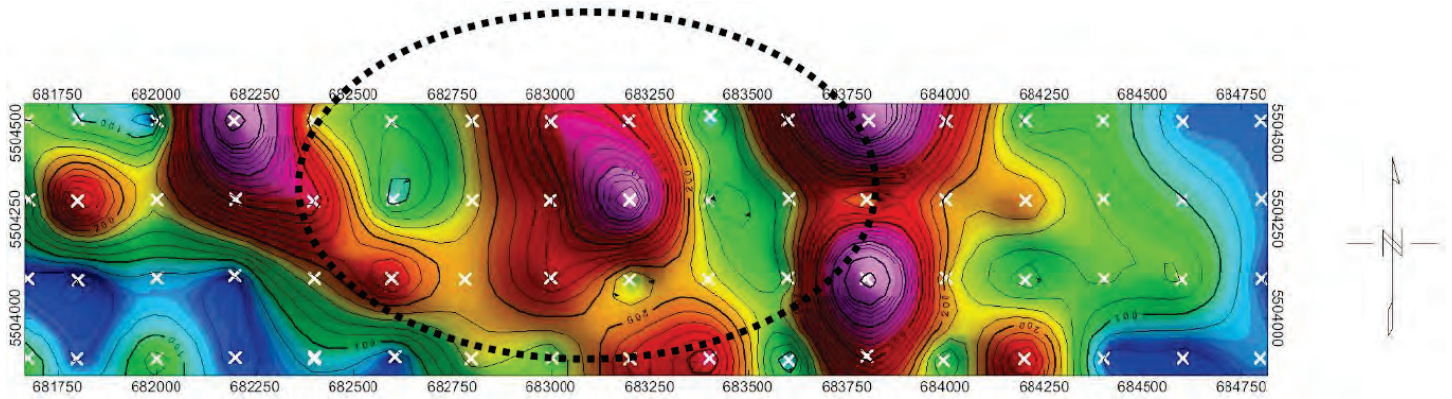
### 7.1 SPATIOTEMPORAL GAS HYDROCARBON (SGH) RESULTS

The collected samples were received and prepared at Actlabs in Ancaster, Ontario. Based on the report provided by Actlabs, the overall precision of the samples collected was considered to be excellent as demonstrated by the 5 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

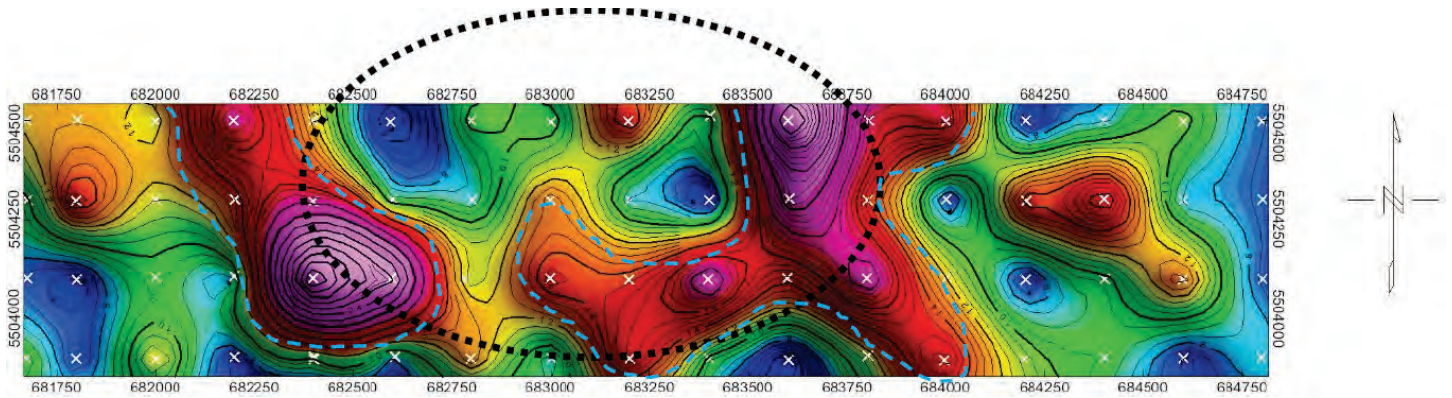


was 7.7% which represents an excellent level of analytical performance especially at such low parts-per-trillion concentrations.

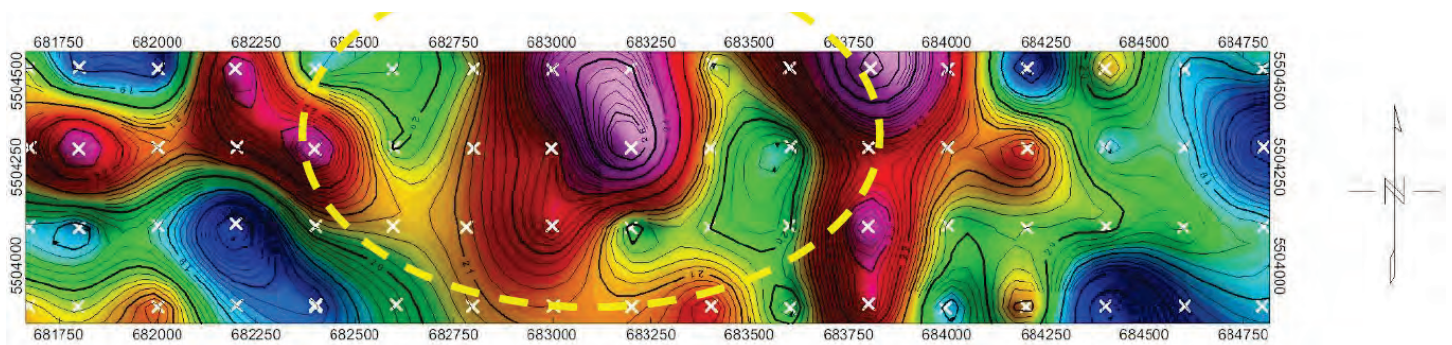
Interpretation of the SGH data used pathfinder classes in order to create 3 class maps that can predict the presence of redox conditions (Figure 7-1), copper mineralization (Figure 7-2), and gold mineralization (Figure 7-3).



*Figure 7-1. SGH "Redox" Pathfinder Class Map.*



*Figure 7-2. SGH "Copper" Pathfinder Class Map.*



*Figure 7-3. SGH "Gold" Pathfinder Class Map.*

The SGH “Redox” Pathfinder Class map in Figure 7-1 displays the most reliable SGH pathfinder classes in predicting the presence of Redox conditions that can support other Pathfinder Class maps for Copper and Gold mineralization. A partial segmented nested-halo anomaly illustrating a possible redox zone is outlined in black.

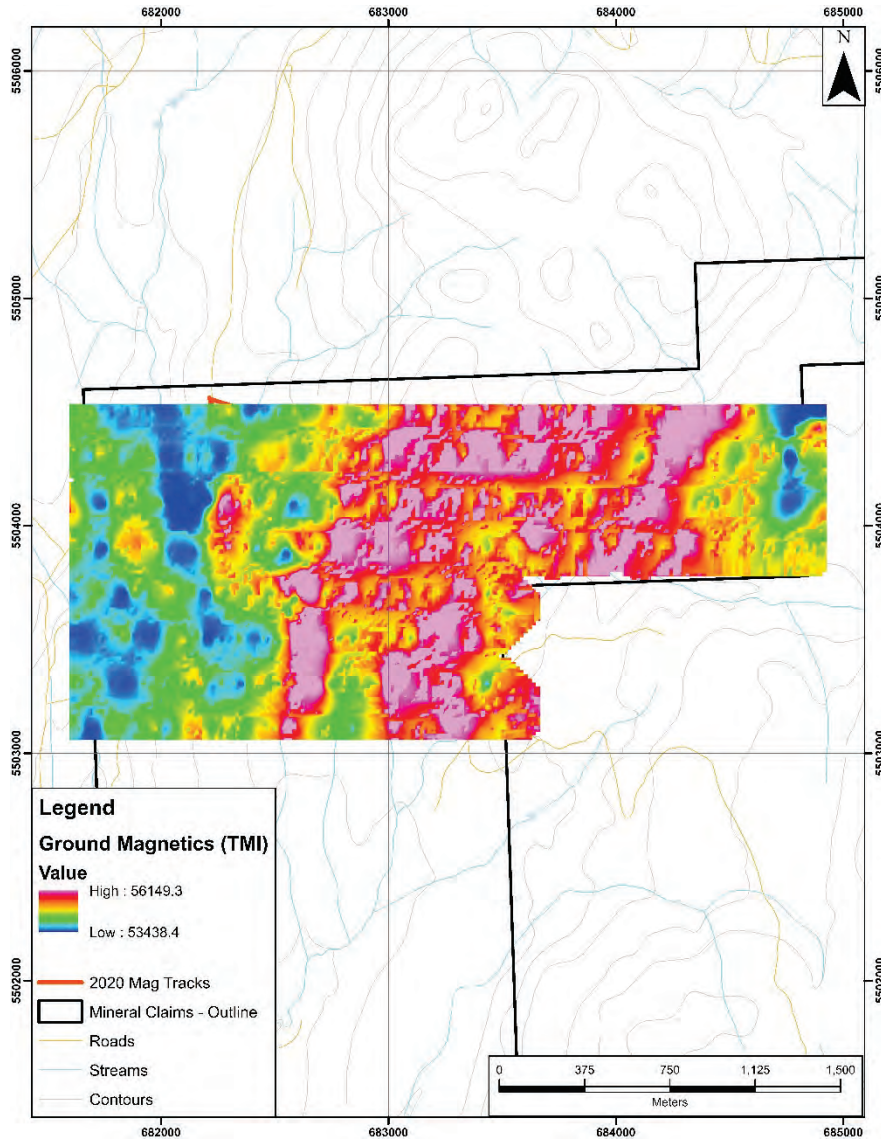
For Copper and Gold pathfinder class maps, a rating was assigned indicating the prospectivity of the target. A rating of 6.0 is best, a rating of 4.0 indicates that the signature starts to have good identification relative to that type of mineralization, and a rating of 2.0 or 3.0 may indicate that there is some evidence of a redox cell having developed in the overburden.

The SGH “Copper” Pathfinder Class map in Figure 7-2 displays the most reliable SGH pathfinder classes in predicting the presence of copper mineralization. Predicted copper mineralization is outlined in blue and was given an SGH signature rating of 5.0/6.

The SGH “Gold” Pathfinder Class map in Figure 7-3 displays the most reliable SGH pathfinder classes in predicting the presence of gold mineralization. Predicted gold mineralization is outlined in yellow and was given an SGH signature rating of 4.5/6.

## 7.2 MAGNETIC SURVEY RESULTS

Total magnetic intensity (TMI) ranged from 53,438.4 nT – 56,149.3 nT with lower readings on the west and east and higher readings in the center of the area surveyed.



## 8 DISCUSSION, INTERPRETATION, AND CONCLUSION

The 2020 SGH Results indicate a possible redox cell 1.4km long (from 682400E-683800E) and 800m wide (from 5503900N-5504700N) with high ratings of predictive copper (5.0/6) and gold (4.5/6) mineralization. 2 stream sediment samples greater than the 95<sup>th</sup> percentile and scattered copper anomalies of up to 300 ppm Cu from historical sampling occur in this area. The geochemical anomalies correspond well with magnetic highs seen in both the XSTRATA airborne and the 2020 ground surveys. Mapping by BCGS’ SNAP Project suggests that the

geochemical anomalies occur over Middle to Upper Jurassic andesite breccias of the Skwel Peken Formation (mJSva). This formation contacts basalt and andesite flows of the Iron Mountain formation (uTrNIvmi) to the west and Middle to Late Jurassic granodiorites of the Osprey batholith (MLJNgd) to the east.

The 2012 XSTRATA airborne survey shows the magnetic high continuing south through the center of the Eastern Block. Historical geochemistry in this area shows significant gold, copper, lead, and zinc anomalies.

The 2020 Exploration Program was successful in identifying the Eastern Block as a prospective copper porphyry target. Follow up surveys should be made within the Eastern Block over the historical gold, copper, lead, and zinc geochemical anomalies.

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\*All Assessment Reports are available on-line at: <http://aris.empr.gov.bc.ca/>  
Minfile descriptions are available on-line at: <http://minfile.gov.bc.ca/searchbasic.aspx>

## APPENDIX 1 – STATEMENT OF COSTS

Exploration Work Type	Comment	Days			Totals
<b>Prospecting, Soils, and Mag</b>					
<b>Decoors Mining Corp.</b>	<b>Field Days (list actual days)</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal*</b>	
Exploration Manager/Matt Fraser	October 19-21, December 15	4	\$ 500.00	\$ 2,000.00	
Field Assistant/Ryan Dix	October 19-21, December 15	4	\$ 400.00	\$ 1,600.00	
Field Assistant/James Fraser	October 19-21	3	\$ 400.00	\$ 1,200.00	
					<b>\$ 4,800.00</b>
<b>Office</b>	<b>Personnel</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal*</b>	
Supervision/Field Preparation/Field Planning	Matt Fraser	1	\$ 500.00	\$ 500.00	
Compilation of existing data and literature	Matt Fraser	3	\$ 500.00	\$ 1,500.00	
GIS and Database Management	Matt Fraser	2	\$ 500.00	\$ 1,000.00	
Interpretation and Reporting	Matt Fraser	4	\$ 500.00	\$ 2,000.00	
					<b>\$ 5,000.00</b>
<b>Analytical</b>	<b>Comment</b>	<b>Qty</b>	<b>Rate</b>	<b>Subtotal</b>	
Act Labs	Sample prep and SGH analysis	68	\$ 52.70	\$ 3,583.60	
Shipping Costs	Shipping (Ancaster, Ontario)		\$ 250.00	\$ -	
Magnetometer - GEM Systems GSMP-35	Rental of walk-mag	1	\$1,000.00	\$ 1,000.00	
					<b>\$ 4,583.60</b>
<b>Transportation</b>	<b>Comment</b>	<b>Days</b>	<b>Rate</b>		
Ford F350	Truck rental	4	\$ 100.00	\$ 400.00	
Toyota Tacoma	Truck rental	4	\$ 100.00	\$ 400.00	
Fuel (Trucks)	Fuel receipts		\$ 400.00	\$ 400.00	
					<b>\$ 1,200.00</b>
<b>Accomodation &amp; Food</b>	<b>Comment</b>	<b>Days</b>	<b>Rate</b>		
Crew Room & Board		11	\$ 150.00	\$ 1,650.00	
					<b>\$ 1,650.00</b>
<b>Equipment</b>					
Field Gear Rental: GPS, inReach,		4	\$ 50.00	\$ 200.00	
Field Consumables: Ziplocs, flagging, etc.		1	\$ 100.00	\$ 100.00	
					<b>\$ 300.00</b>
<b>Management Fee</b>					
Project Management Fee				\$ 0.15	
					<b>\$ 2,630.04</b>
<b>TOTAL EXPENDITURES</b>					<b>\$20,163.64</b>

## APPENDIX 2 – STATEMENT OF QUALIFICATIONS

I, Matt Fraser, do hereby certify that:

I am an employee of Decoors Mining Corp., and currently residing at Apt 103, 3017 Oak St, Vancouver, BC.

I am a graduate of the University of Victoria with a Bachelor of Science (BSc., 2009).

I have worked continuously in Mineral Exploration in Canada since 2005 as a prospector, field hand, exploration manager, and camp manager.

I am responsible for the preparation of the report entitled 'Assessment Report for Geochemical and Geophysical Work Performed on the Summers Fault Property Date Worked: October 2020' – including the conclusions reached, and the recommendations made.

I was directly involved with conducting the work presented in this Assessment Report.

As of the date of the certificate, to the best of my knowledge, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

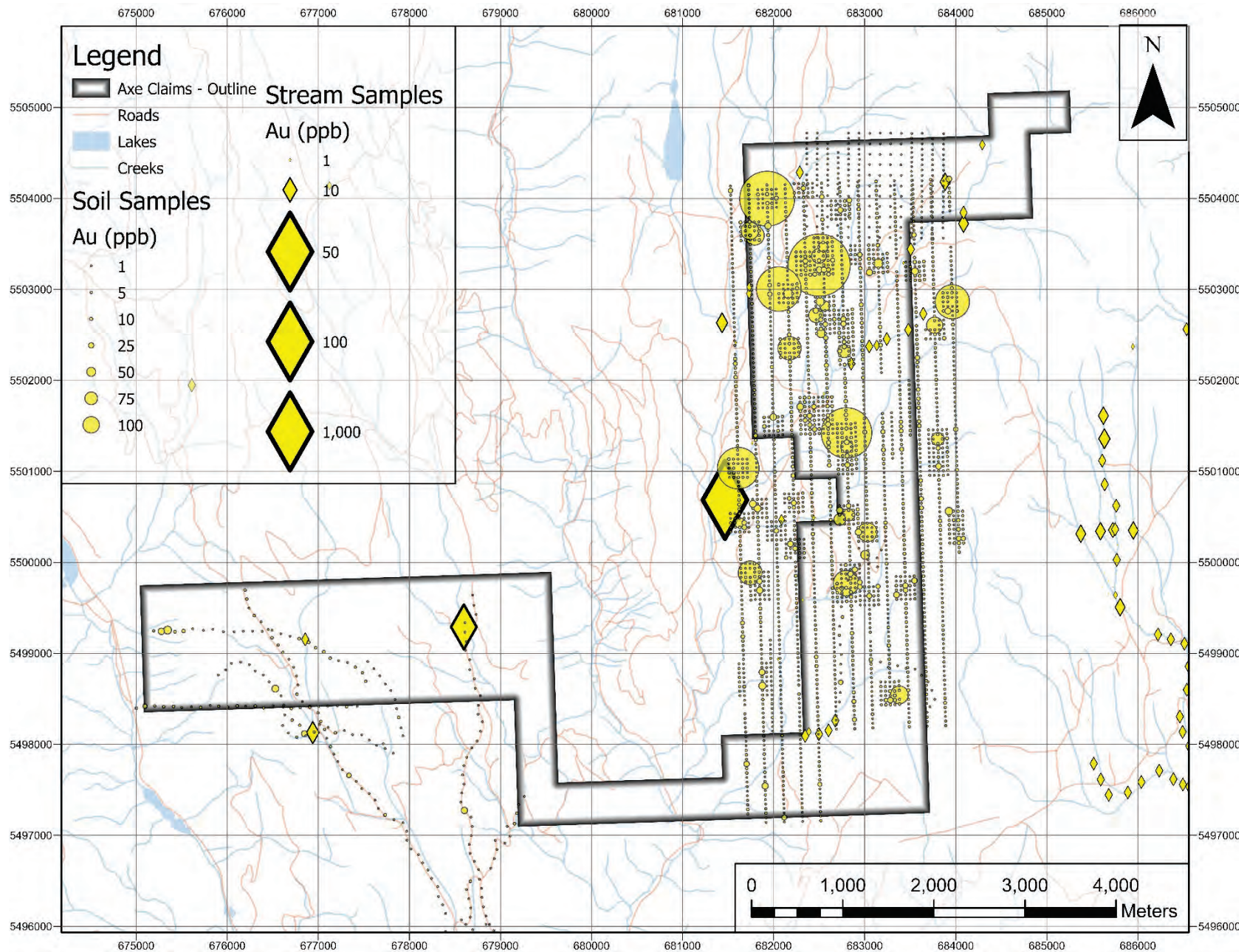
Dated this 15 of April, 2021

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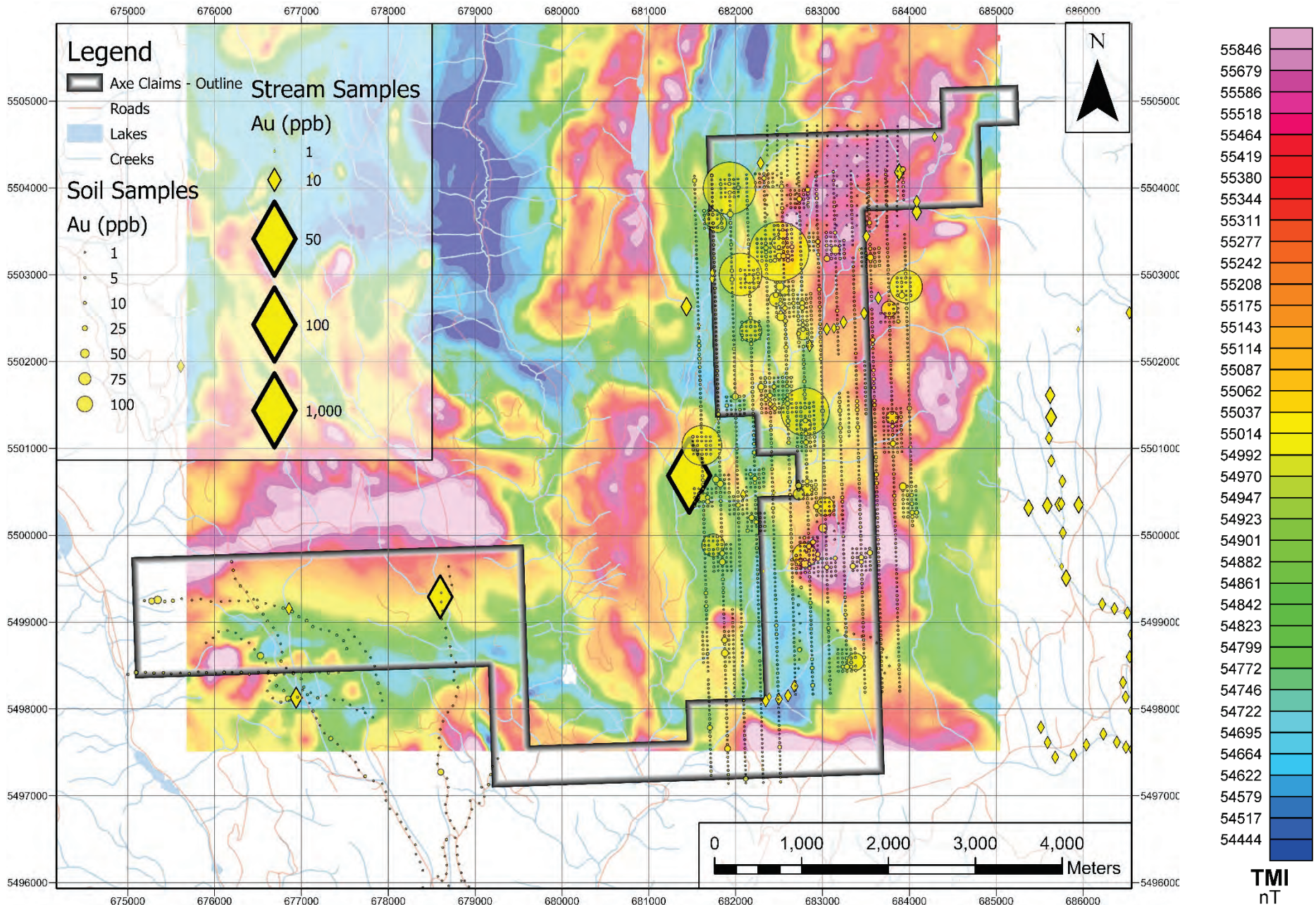
Matt Fraser

## APPENDIX 3.1 – HISTORICAL GEOCHEM (AU – PPB)

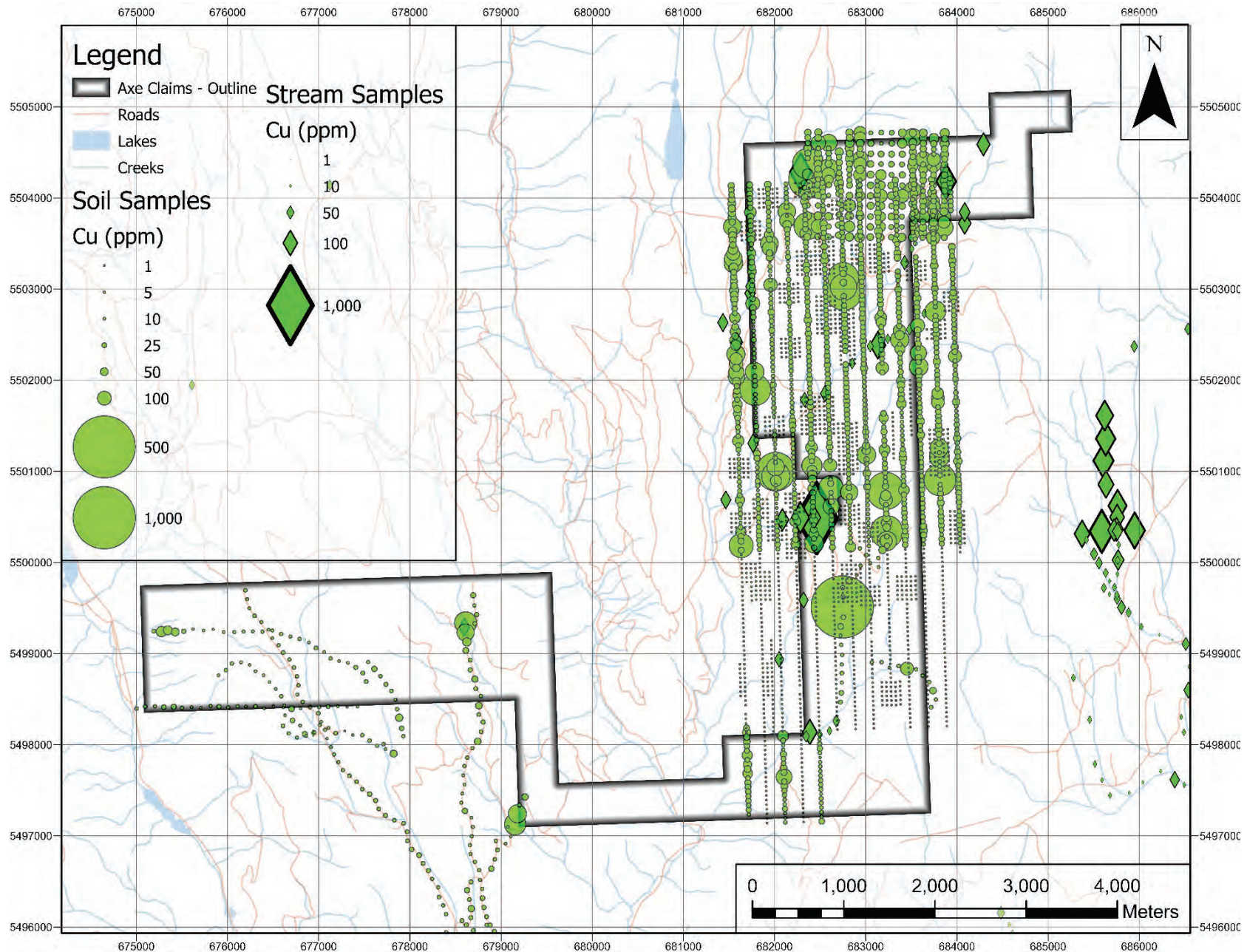




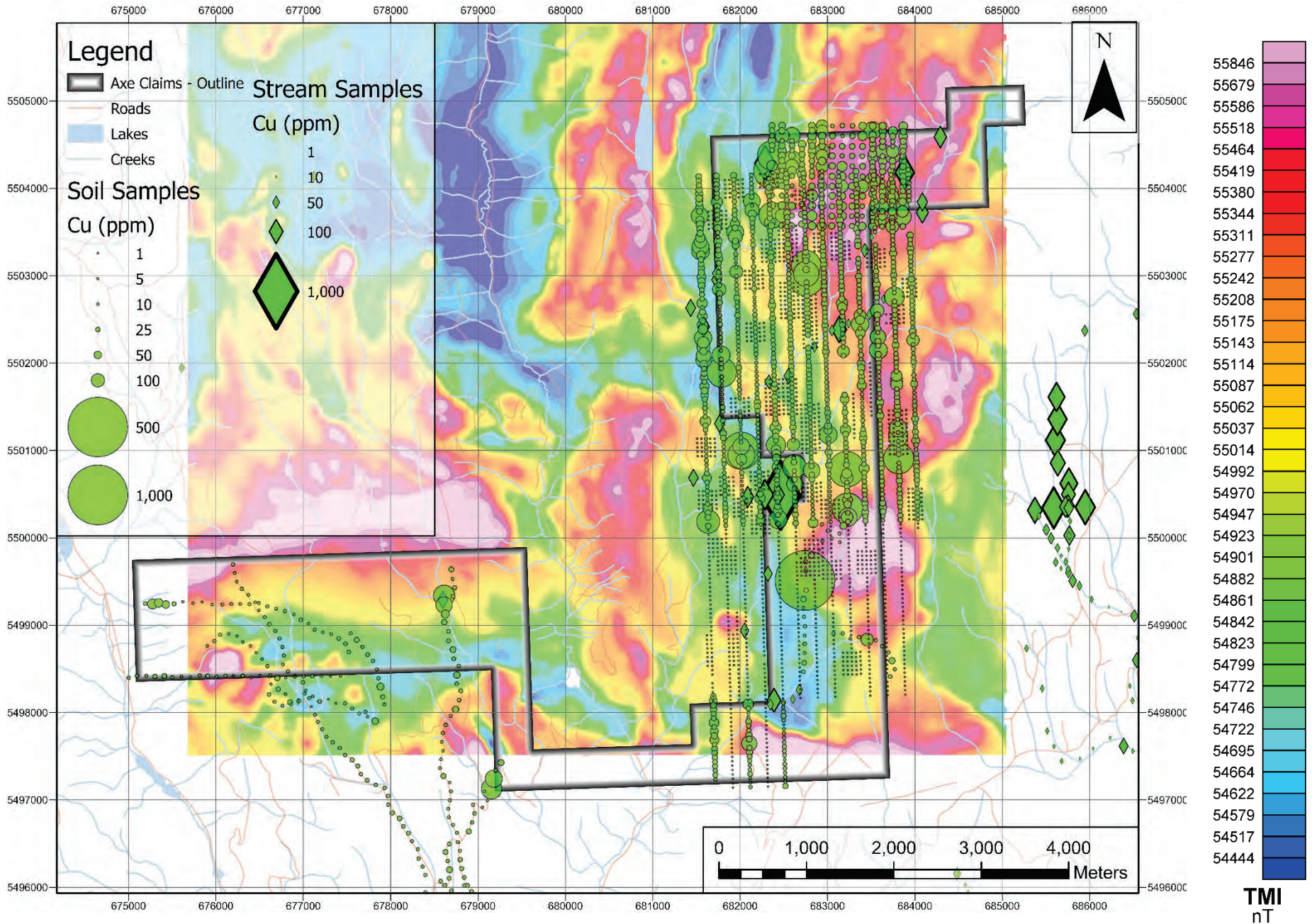
# APPENDIX 3.2 – HISTORICAL GEOCHEM (AU – PPB) OVERLYING MAG (TMI – NT)



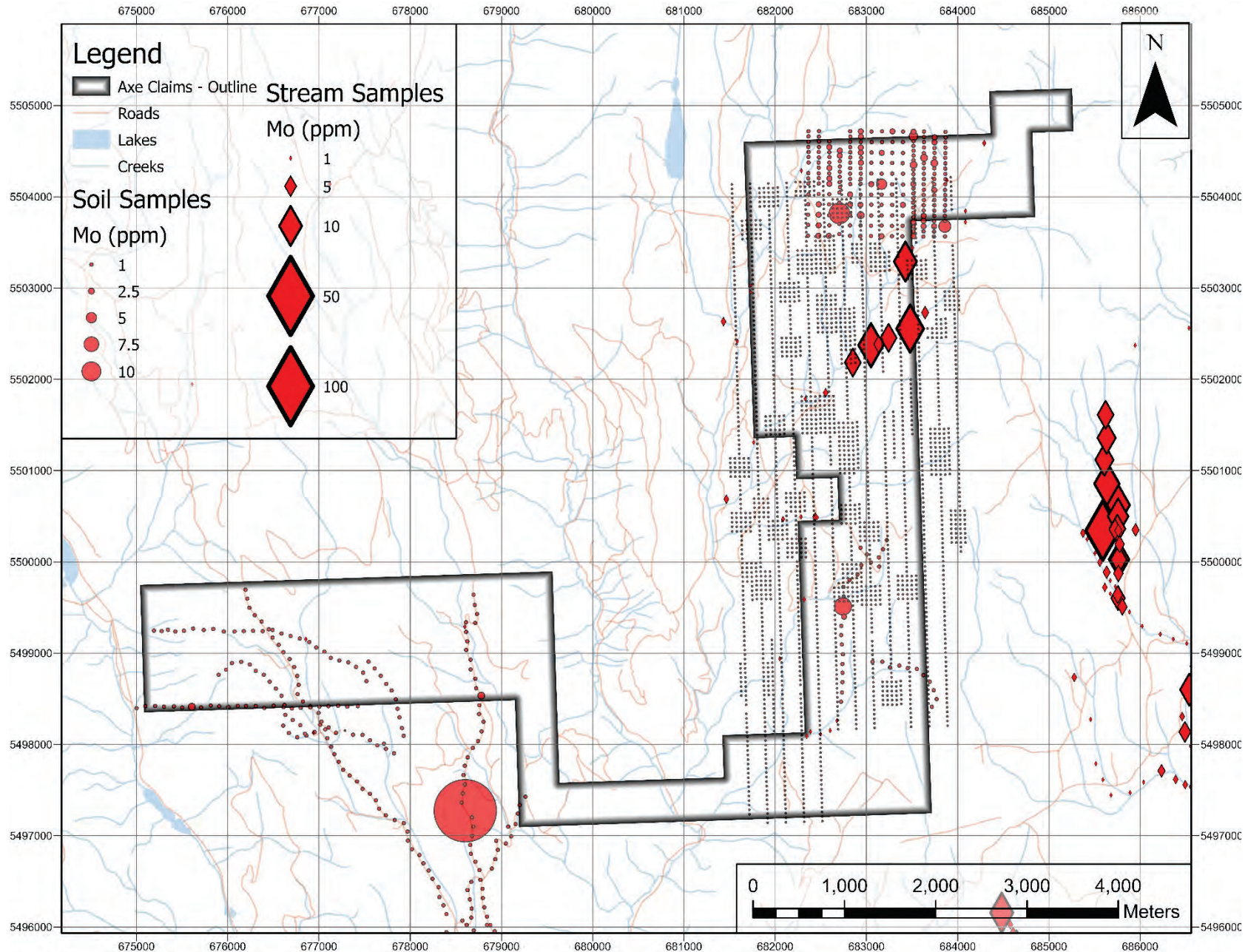
## APPENDIX 3.3 - HISTORICAL GEOCHEM (CU – PPM)



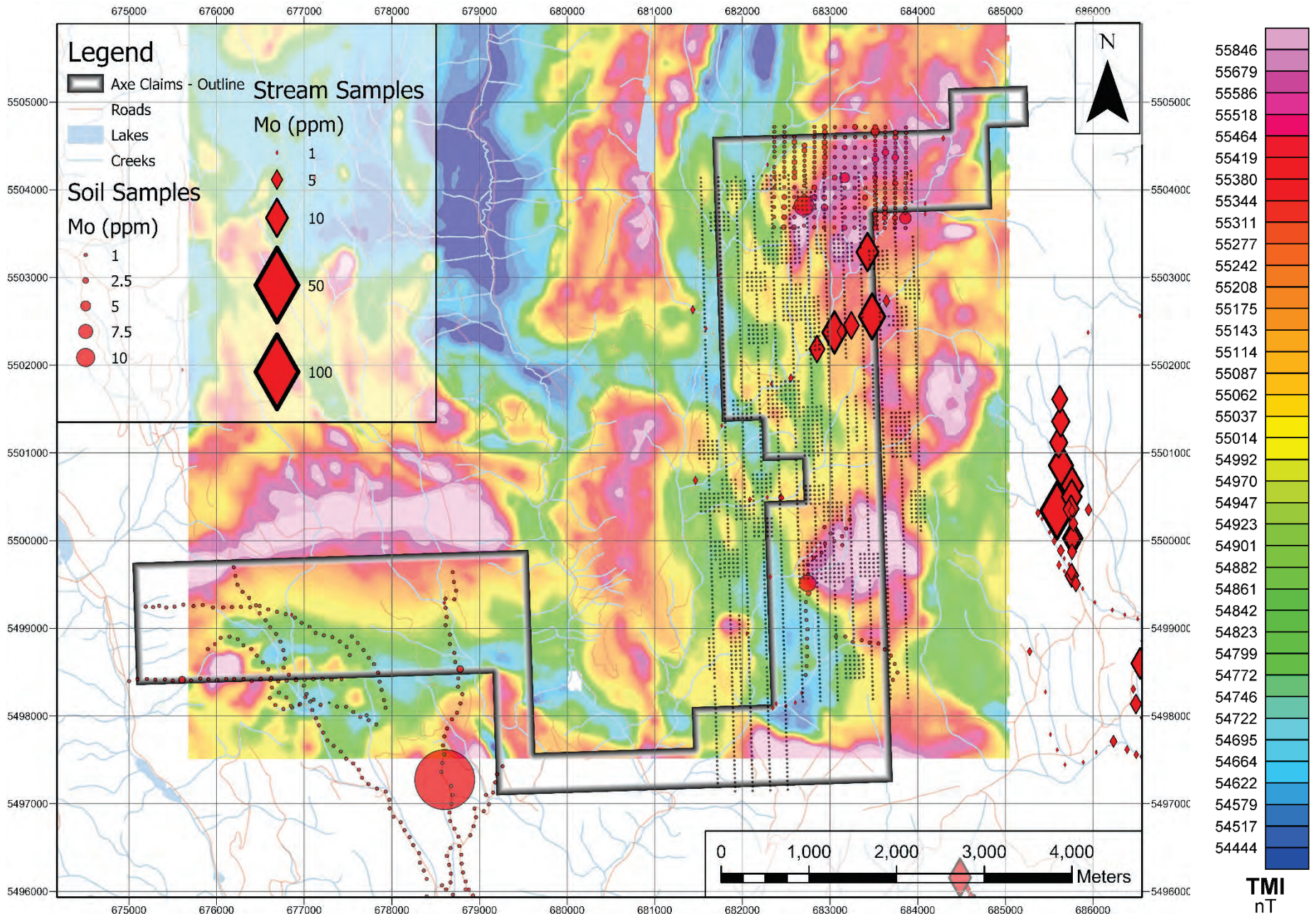
# APPENDIX 3.4 – HISTORICAL GEOCHEM (CU – PPM) OVERLYING MAG (TMI – NT)



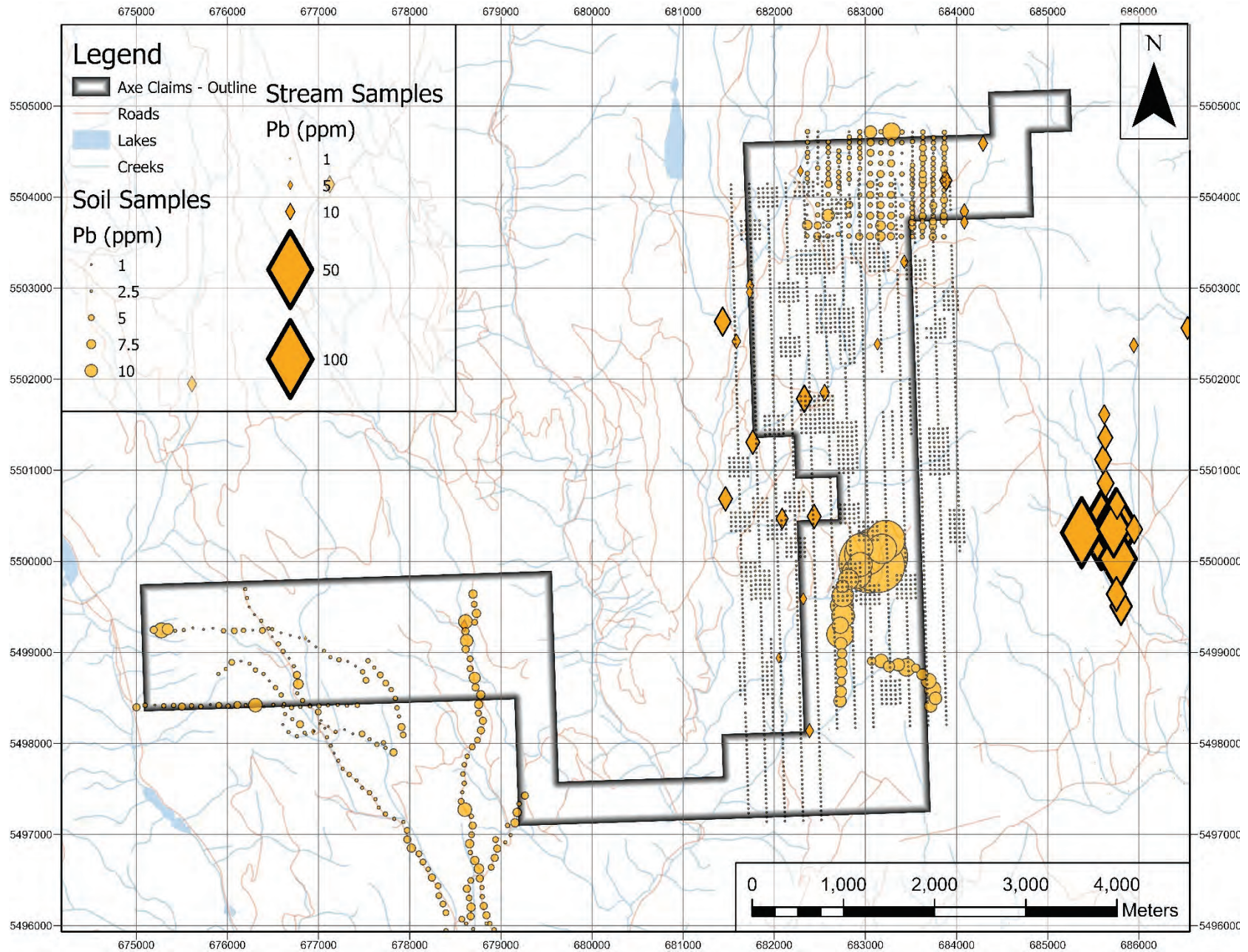
## APPENDIX 3.5 - HISTORICAL GEOCHEM (Mo – PPM)



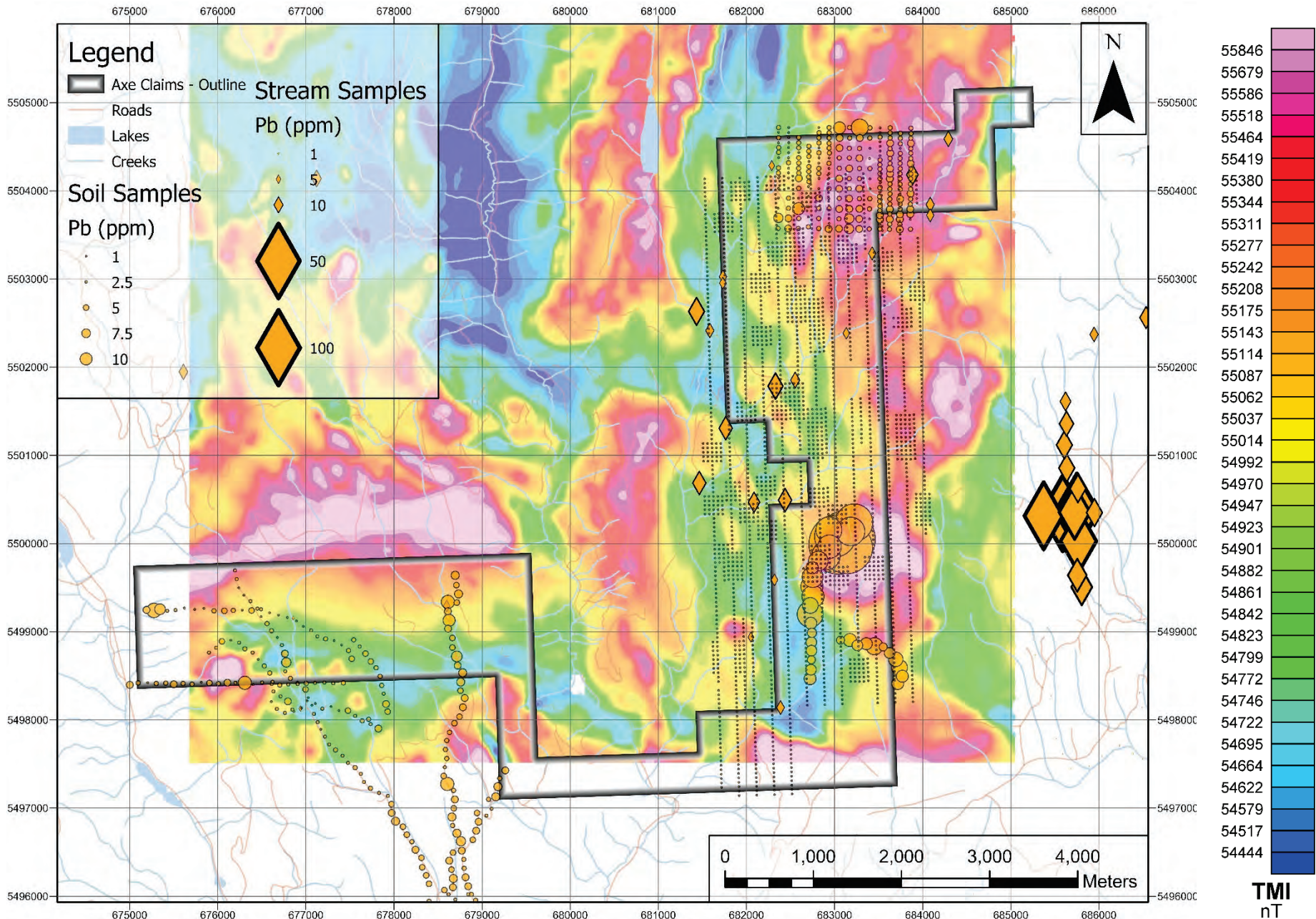
# APPENDIX 3.6 – HISTORICAL GEOCHEM (Mo – PPM) OVERLYING MAG (TMI – NT)



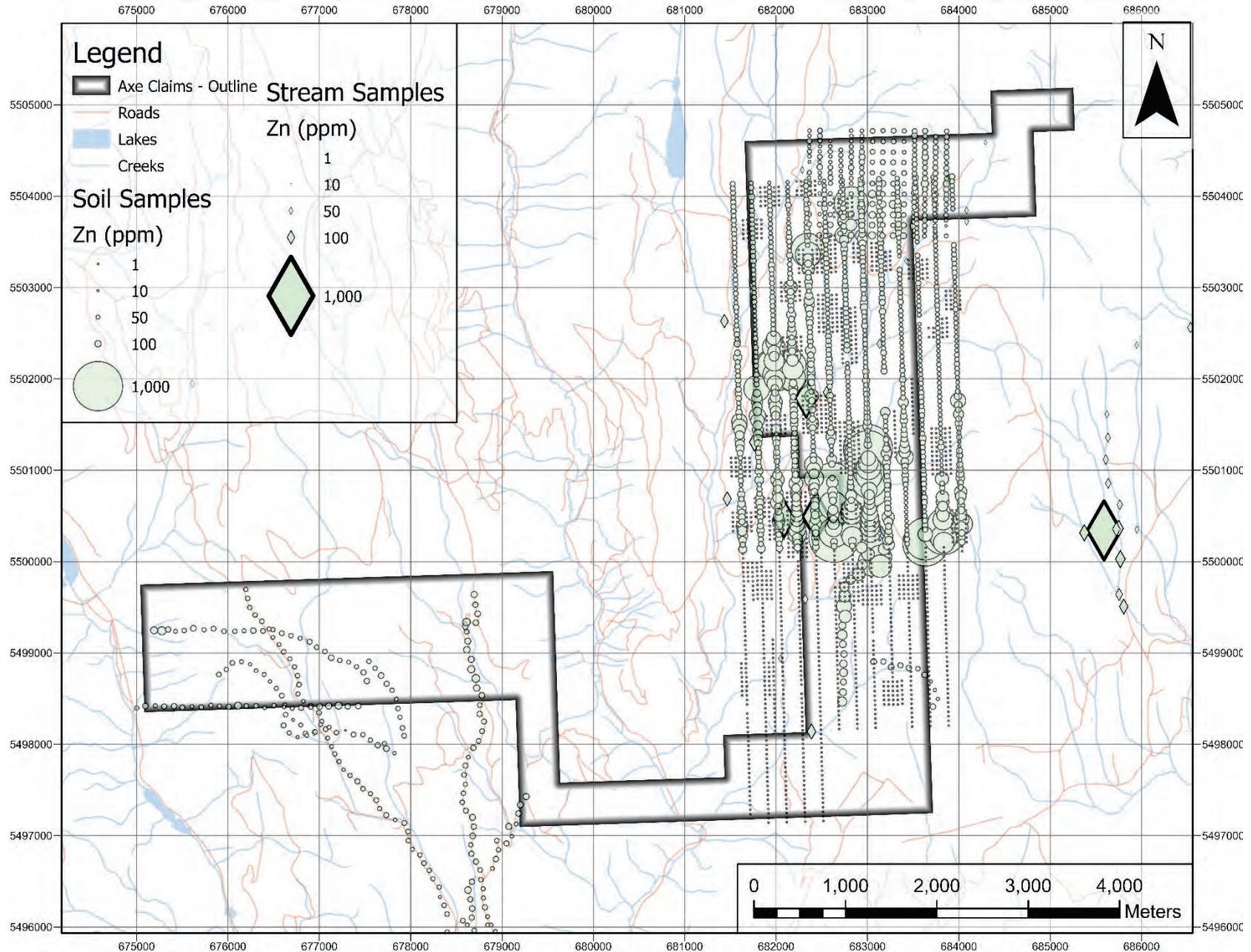
## APPENDIX 3.7 - HISTORICAL GEOCHEM (Pb – PPM)



# APPENDIX 3.8 – HISTORICAL GEOCHEM (Pb – PPM) OVERLYING MAG (TMI – NT)

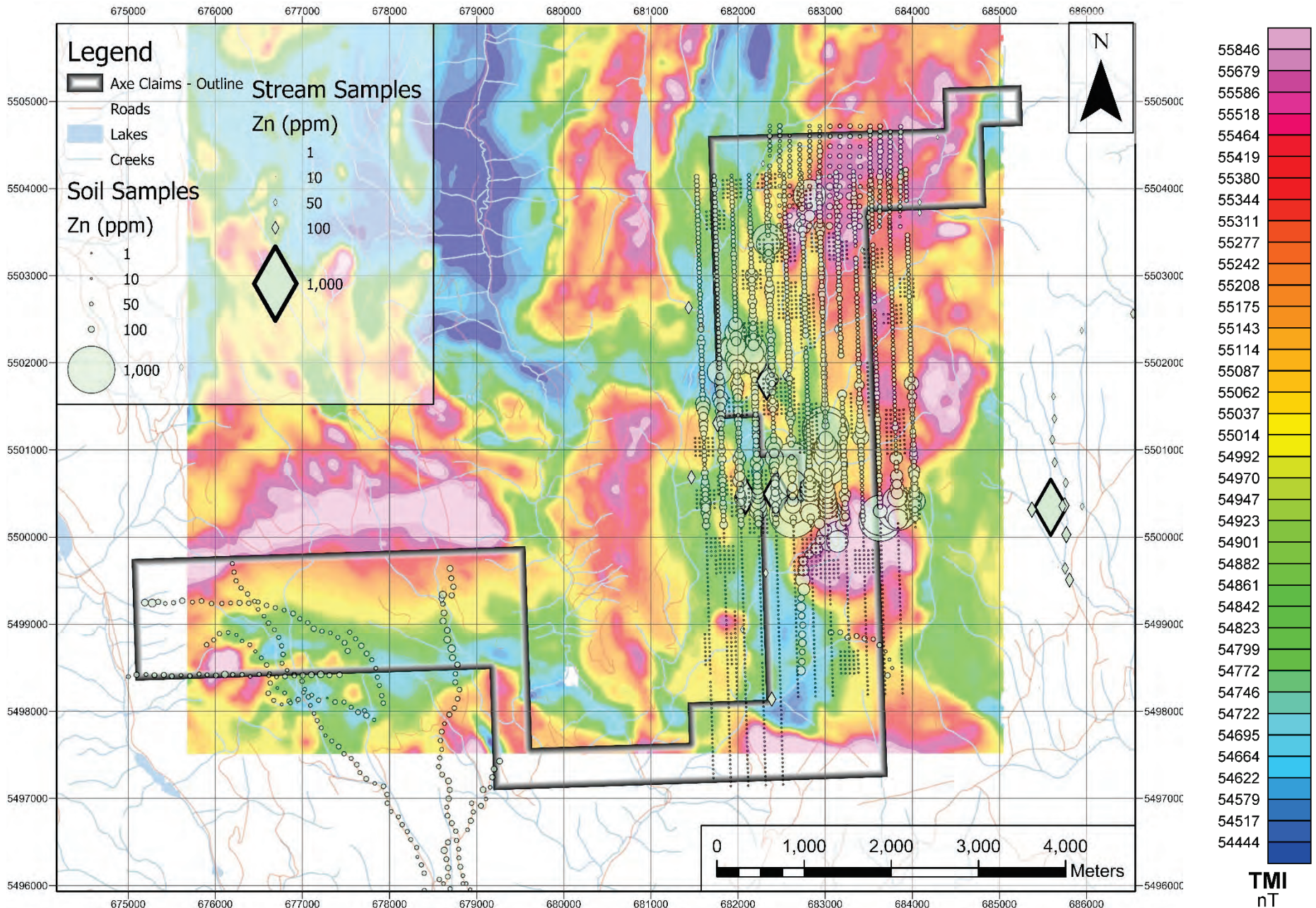


## APPENDIX 3.9 - HISTORICAL GEOCHEM (Zn – PPM)

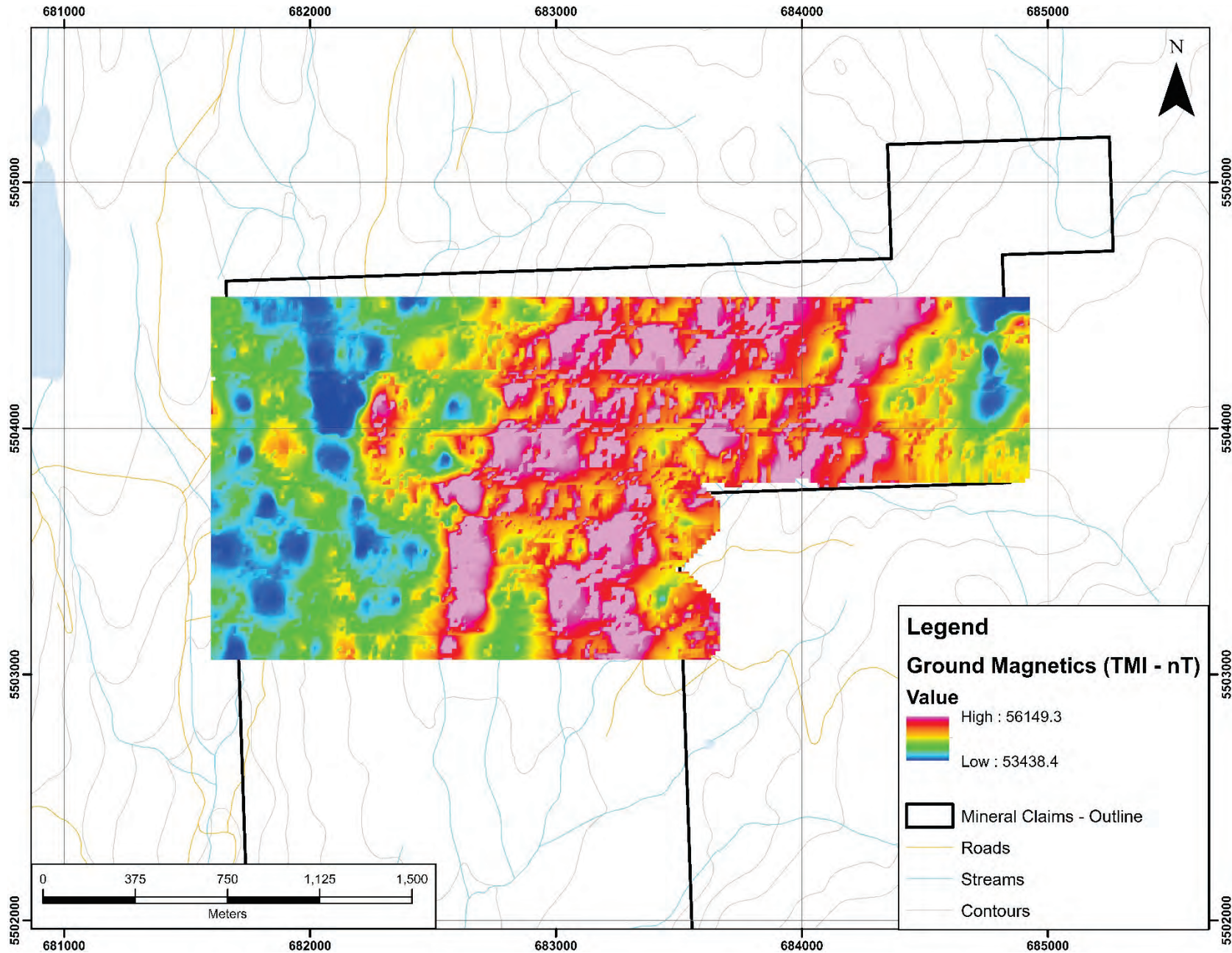




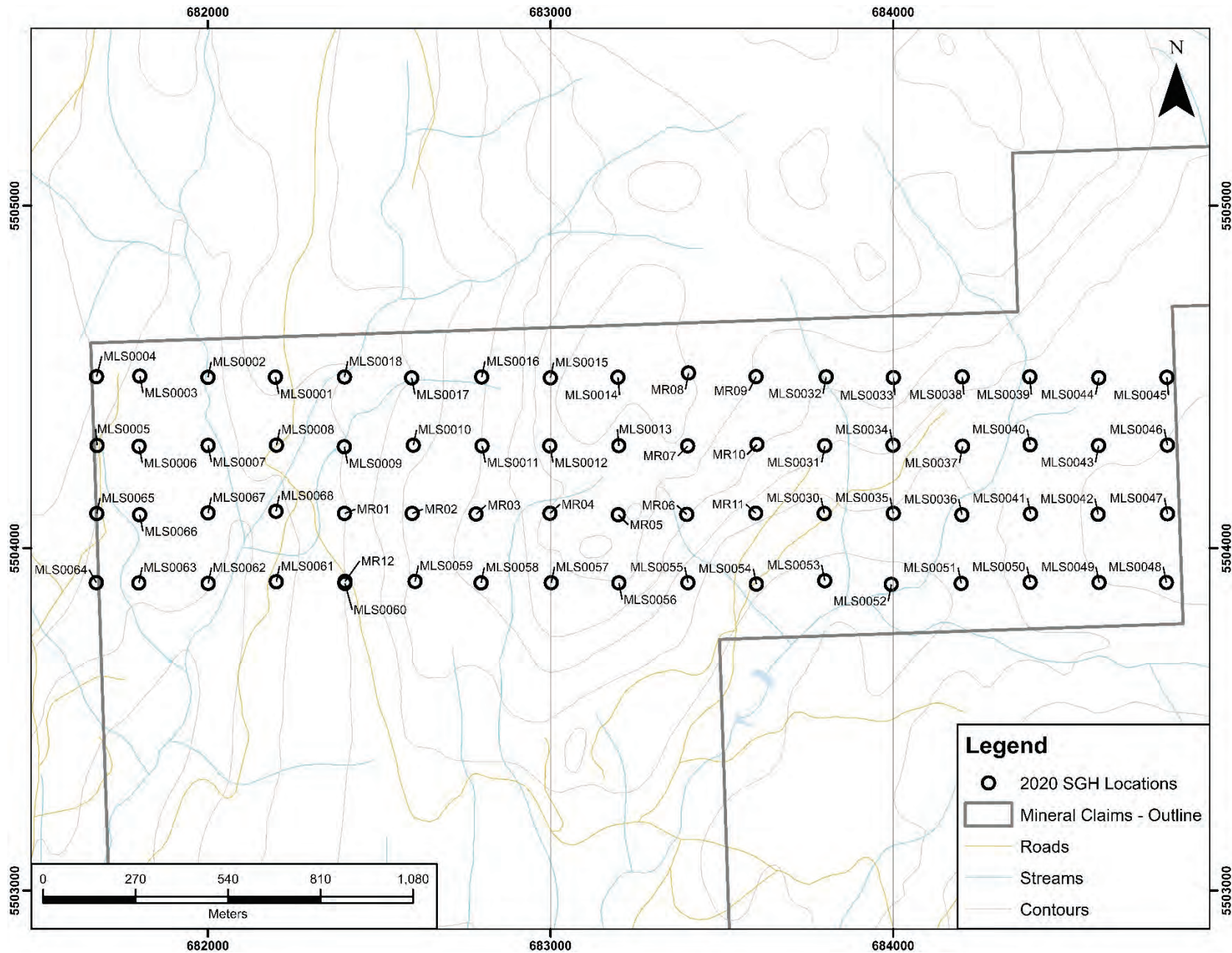
# APPENDIX 3.10 – HISTORICAL GEOCHEM (Zn – PPM) OVERLYING MAG (TMI – NT)



# APPENDIX 4 – 2020 GROUND MAG



# APPENDIX 5 – 2020 SGH SAMPLE LOCATIONS



## APPENDIX 6 – SGH SAMPLE DESCRIPTIONS

Sample	Year	Property	Zone	Easting	Northing	SGH Sample Depth
MLS0001	2020	Summers Fault	10	682197.308	5504499.451	10-15 cm
MLS0002	2020	Summers Fault	10	682000.424	5504498.734	10-15 cm
MLS0003	2020	Summers Fault	10	681801.595	5504502.189	10-15 cm
MLS0004	2020	Summers Fault	10	681675.104	5504500.396	10-15 cm
MLS0005	2020	Summers Fault	10	681676.85	5504299.584	10-15 cm
MLS0006	2020	Summers Fault	10	681799.512	5504297.242	10-15 cm
MLS0007	2020	Summers Fault	10	682000.961	5504299.884	10-15 cm
MLS0008	2020	Summers Fault	10	682200.518	5504300.801	10-15 cm
MLS0009	2020	Summers Fault	10	682398.39	5504295.994	10-15 cm
MLS0010	2020	Summers Fault	10	682599.852	5504300.439	10-15 cm
MLS0011	2020	Summers Fault	10	682800.582	5504298.747	10-15 cm
MLS0012	2020	Summers Fault	10	682998.154	5504298.625	10-15 cm
MLS0013	2020	Summers Fault	10	683199.68	5504299.089	10-15 cm
MLS0014	2020	Summers Fault	10	683196.969	5504498.981	10-15 cm
MLS0015	2020	Summers Fault	10	682999.832	5504497.107	10-15 cm
MLS0016	2020	Summers Fault	10	682799.36	5504499.913	10-15 cm
MLS0017	2020	Summers Fault	10	682595.035	5504497.032	10-15 cm
MLS0018	2020	Summers Fault	10	682398.832	5504499.663	10-15 cm
MLS0030	2020	Summers Fault	10	683799.097	5504101.256	10-15 cm
MLS0031	2020	Summers Fault	10	683800.834	5504299.296	10-15 cm
MLS0032	2020	Summers Fault	10	683804.713	5504500.191	10-15 cm
MLS0033	2020	Summers Fault	10	684000.68	5504498.271	10-15 cm
MLS0034	2020	Summers Fault	10	683999.95	5504300.598	10-15 cm
MLS0035	2020	Summers Fault	10	684000.707	5504101.64	10-15 cm
MLS0036	2020	Summers Fault	10	684200.818	5504097.307	10-15 cm
MLS0037	2020	Summers Fault	10	684202.681	5504297.579	10-15 cm
MLS0038	2020	Summers Fault	10	684201.863	5504500.208	10-15 cm
MLS0039	2020	Summers Fault	10	684398.922	5504500.231	10-15 cm
MLS0040	2020	Summers Fault	10	684400.257	5504301.737	10-15 cm
MLS0041	2020	Summers Fault	10	684401.188	5504100.224	10-15 cm
MLS0042	2020	Summers Fault	10	684598.455	5504098.814	10-15 cm
MLS0043	2020	Summers Fault	10	684599.859	5504299.405	10-15 cm
MLS0044	2020	Summers Fault	10	684600.477	5504497.632	10-15 cm
MLS0045	2020	Summers Fault	10	684799.234	5504498.729	10-15 cm
MLS0046	2020	Summers Fault	10	684800.773	5504301.02	10-15 cm
MLS0047	2020	Summers Fault	10	684801.184	5504100.38	10-15 cm
MLS0048	2020	Summers Fault	10	684797.549	5503899.712	10-15 cm
MLS0049	2020	Summers Fault	10	684601.414	5503899.485	10-15 cm
MLS0050	2020	Summers Fault	10	684400.121	5503900.091	10-15 cm
MLS0051	2020	Summers Fault	10	684198.877	5503897.145	10-15 cm
MLS0052	2020	Summers Fault	10	683994.96	5503894.226	10-15 cm
MLS0053	2020	Summers Fault	10	683800.698	5503904.886	10-15 cm
MLS0054	2020	Summers Fault	10	683600.991	5503895.003	10-15 cm
MLS0055	2020	Summers Fault	10	683401.251	5503898.926	10-15 cm
MLS0056	2020	Summers Fault	10	683199.786	5503898.346	10-15 cm
MLS0057	2020	Summers Fault	10	683002.393	5503899.136	10-15 cm
MLS0058	2020	Summers Fault	10	682797.458	5503898.676	10-15 cm
MLS0059	2020	Summers Fault	10	682605.005	5503902.986	10-15 cm
MLS0060	2020	Summers Fault	10	682400.253	5503897.094	10-15 cm
MLS0061	2020	Summers Fault	10	682199.697	5503901.813	10-15 cm
MLS0062	2020	Summers Fault	10	682001.19	5503897.148	10-15 cm
MLS0063	2020	Summers Fault	10	681798.734	5503898.256	10-15 cm
MLS0064	2020	Summers Fault	10	681674.52	5503899.212	10-15 cm
MLS0065	2020	Summers Fault	10	681675.992	5504101.022	10-15 cm
MLS0066	2020	Summers Fault	10	681801.225	5504097.541	10-15 cm
MLS0067	2020	Summers Fault	10	682000.792	5504102.68	10-15 cm
MLS0068	2020	Summers Fault	10	682198.998	5504107.446	10-15 cm
MR01	2020	Summers Fault	10	682399.087	5504101.377	10-15 cm
MR02	2020	Summers Fault	10	682596.369	5504101.453	10-15 cm
MR03	2020	Summers Fault	10	682782.96	5504099.394	10-15 cm
MR04	2020	Summers Fault	10	682998.659	5504101.775	10-15 cm
MR05	2020	Summers Fault	10	683198.185	5504097.497	10-15 cm
MR06	2020	Summers Fault	10	683397.744	5504098.68	10-15 cm
MR07	2020	Summers Fault	10	683400.731	5504298.654	10-15 cm
MR08	2020	Summers Fault	10	683403.132	5504511.628	10-15 cm
MR09	2020	Summers Fault	10	683600.129	5504500.603	10-15 cm
MR10	2020	Summers Fault	10	683602.862	5504302.603	10-15 cm
MR11	2020	Summers Fault	10	683599.108	5504102.046	10-15 cm
MR12	2020	Summers Fault	10	682400.492	5503902.889	10-15 cm

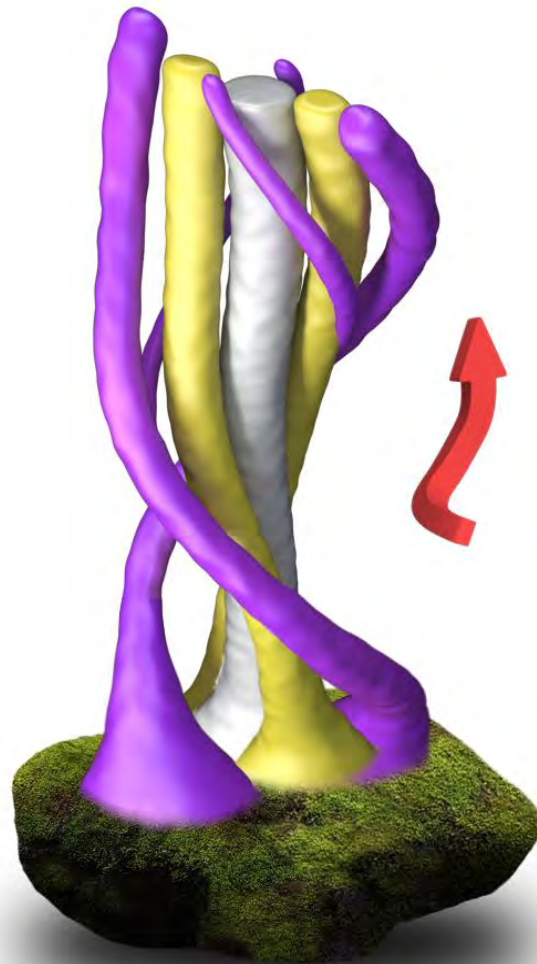
## APPENDIX 7 – ACTLABS ASSAY RESULTS

Sample	SGH-Redox	SGH-Copper	SGH-Gold
MLS0001	673.7	18.1	24.0
MLS0002	59.4	11.4	17.3
MLS0003	93.9	12.4	17.6
MLS0004	142.2	12.3	20.4
MLS0005	143.6	11.6	22.3
MLS0005-R	100.5	7.7	20.9
MLS0006	339.1	15.4	24.7
MLS0007	163.6	11.5	21.5
MLS0008	314.7	13.3	22.2
MLS0009	329.2	17.4	24.3
MLS0010	82.1	8.8	19.9
MLS0011	169.9	8.5	21.2
MLS0012	251.3	13.4	22.5
MLS0013	517.1	8.4	27.4
MLS0014	290.4	15.1	25.1
MLS0015	327.8	9.4	24.7
MLS0016	178.4	10.4	20.4
MLS0017	119.7	4.8	19.6
MLS0018	155.7	12.3	19.0
MLS0030	670.6	19.5	24.3
MLS0031	198.6	14.5	22.4
MLS0032	633.7	16.8	27.9
MLS0033	296.2	17.2	23.1
MLS0034	189.6	6.7	21.3
MLS0035	121.1	11.4	19.4
MLS0035-R	231.0	12.6	20.6
MLS0036	100.8	6.5	20.2
MLS0037	211.3	14.7	22.0
MLS0038	105.9	5.9	16.9
MLS0039	117.2	8.2	21.0
MLS0040	133.5	17.3	19.0
MLS0041	145.8	9.5	20.3
MLS0042	147.3	13.8	19.9
MLS0043	100.9	7.9	19.3
MLS0044	62.8	10.4	18.8
MLS0045	65.5	7.5	19.3
MLS0046	65.9	7.3	16.3
MLS0047	58.2	7.1	19.4
MLS0048	71.5	8.6	19.0
MLS0049	48.9	6.6	18.4
MLS0050	35.3	7.1	15.8
MLS0050-R	60.4	12.0	15.9
MLS0051	308.0	10.8	21.5
MLS0052	107.4	16.2	18.5
MLS0053	319.2	11.4	23.3
MLS0054	68.4	4.8	19.5
MLS0055	332.5	9.6	22.2
MLS0056	245.9	16.0	21.1
MLS0057	139.6	8.5	21.2
MLS0058	170.0	13.0	20.8
MLS0059	55.5	7.7	19.7
MLS0060	128.0	11.7	21.1
MLS0061	50.3	6.9	18.6
MLS0062	136.0	12.1	21.7
MLS0063	53.3	6.8	20.3
MLS0064	121.1	10.1	20.8
MLS0065	49.4	7.0	18.9
MLS0065-R	48.3	7.4	19.1
MLS0066	31.6	6.3	18.6
MLS0067	70.4	9.8	19.2
MLS0068	50.2	8.1	15.8
MR01	174.4	37.4	20.5
MR02	280.5	26.7	20.8
MR03	185.4	11.1	21.1
MR04	266.0	15.0	22.8
MR05	143.5	14.4	19.7
MR06	167.8	20.2	20.0
MR07	119.0	5.4	20.5
MR08	79.6	9.4	20.2
MR09	309.4	28.4	22.1
MR10	152.4	21.2	19.2
MR11	135.7	14.2	19.9
MR12	67.5	8.7	16.6
MR12-R	77.4	9.5	16.6

3D - SGH

# "A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

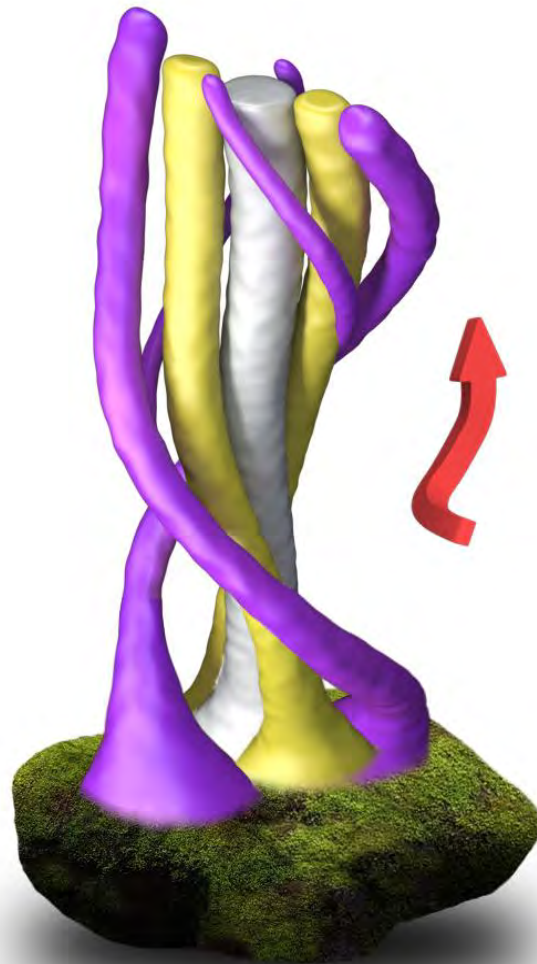
*DECOORS MINING CORP.  
AXE SGH PROJECT*



3D - SGH

**"A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"**

*DECOORS MINING CORP.  
AXE SGH PROJECT*





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SGH – SOIL GAS HYDROCARBON  
Predictive Geochemistry  
*for*  
*DECOORS MINING CORP.*  
*AXE PROJECT SGH SOIL SURVEY*

*\* Jeff Brown,*

*Activation Laboratories Ltd*

*(\* - author)*

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

*EVALUATION OF SAMPLE DATA – EXPLORATION FOR:  
"COPPER" and "GOLD" TARGETS*

*THE SGH COPPER AND GOLD INTERPRETATION TEMPLATES ARE  
USED FOR THIS REPORT*

*Workorders: A20-14367*



## 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.

The customized section for the Axe Project Survey starts on page 15. **In the author's opinion, SGH** appeared to perform well in terms of response, however additional sampling may be required to the north of this survey to better define the 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.

## 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.

## 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.

## 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.

## 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 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. ([www.goldenbandresources.com](http://www.goldenbandresources.com)) 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.

# SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING

Summary: See Appendix C for more details

In summary, the best conditions for the sample type and survey design include:

- Fist sized samples are usually retrieved from a shallow dug hole in the 15 to 40 cm range of depth.
- Different sample types can **be taken even "within" the same survey or transect, data leveling is rarely required.** SGH is highly effective in areas of very difficult terrain. The Golden Rule is to always take a sample.
- Samples should be evenly spaced in a grid or as a second choice, in a series of transects with sample lines spaced at a ratio of up to 4:1 (line spacing: sample spacing).
- A minimum of 50 **sample "locations" is recommended with one-third** over the target and one-third on each side of the target into background if this can be predicted. More samples representing a larger area is preferred in order to optimize data contrast.
- If very wet, samples can be drip dried in the field. No special preservation is required for shipping.
- Relative or UTM sample location coordinates are required to allow interpretation.

## SAMPLE PREPARATION AND SGH ANALYSIS

Summary: See Appendix D for more details

Upon receipt at Activation Laboratories:

- The samples are air-dried at a relatively low temperature of 40°C.
- The samples are then sieved and the -80 mesh sieve fraction (<177 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected.
- The collected **"pulp" is packaged in a Kraft paper envelope and transferred from our sample preparation department to our Organic Geochemical department also located in our World Headquarters in Ancaster, Ontario, Canada.**
- Each sample is then extracted, compounds separated by gas chromatography and detected by mass spectrometry at a *Reporting Limit* of one part-per-trillion (ppt).
- The results of the SGH analysis is reported in raw data form in an Excel spreadsheet as **"semi-quantitative" concentrations without any additional statistical modification.**



## SGH DATA QUALITY

Summary: See Appendix E for more details

Reporting Limit:

- The Excel spreadsheet of concentrations for the hydrocarbons monitored is in units of ppt as **“parts-per-trillion” which is equivalent to nanograms/kilogram (ng/Kg)**. The reporting limit of 1 ppt represents a value of approximately 5 times the standard deviation of low level analysis. Essentially all background noise has already been eliminated. All data reported should be used in geochemical mapping. Actual detectable levels can be significantly < 1 ppt.

Laboratory Replicate Analysis:

- An equal aliquot of a random sample is analyzed as a laboratory replicate.
- Due to the large amount of data, the estimate of method variability is reported as the percent coefficient of Variation (%CV).
- A laboratory replicate analysis is reported at a frequency of 1 for every 15 samples analyzed.
- The variability of field duplicate samples are similarly reported if identified.

Historical SGH Precision:

- Although the SGH analysis reports results at such trace ppt concentration levels, the average %CV for laboratory replicates is excellent at an average of 8% within a range of  $\pm 4\%$ .
- Field duplicates have historically been 3 to 5% higher than laboratory replicates.

# SGH DATA INTERPRETATION

Summary: See Appendix F for more details

SGH Interpretation and Report:

- Due to the very large data set provided by the SGH analysis, this interpretation report is provided to offer guidance in regards to the results of this geochemistry for the survey.
- In our interpretation procedure, we separate 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. None of these compounds are gaseous at room temperature.
- At this time the magnitude of the hydrocarbon class data has not been proven to imply a higher grade or quantity of the mineralization if present.
- **A "geochemical anomaly threshold value" should not be calculated for** SGH data as any background or noise has already been filtered out through the use of a Reporting Limit instead of some type of detection limit.
- SGH hydrocarbon data should never be interpreted individually. Interpretation must always use a compound class.
- Multiple SGH Classes are 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.
- The interpretation is customized for the project survey by the Author. The SGH Rating and Interpretation is subjective and based on the experience from 1,000+ SGH survey interpretations. The interpretation is not conducted or assisted by any computerized process.

## SGH CHARACTERISTICS

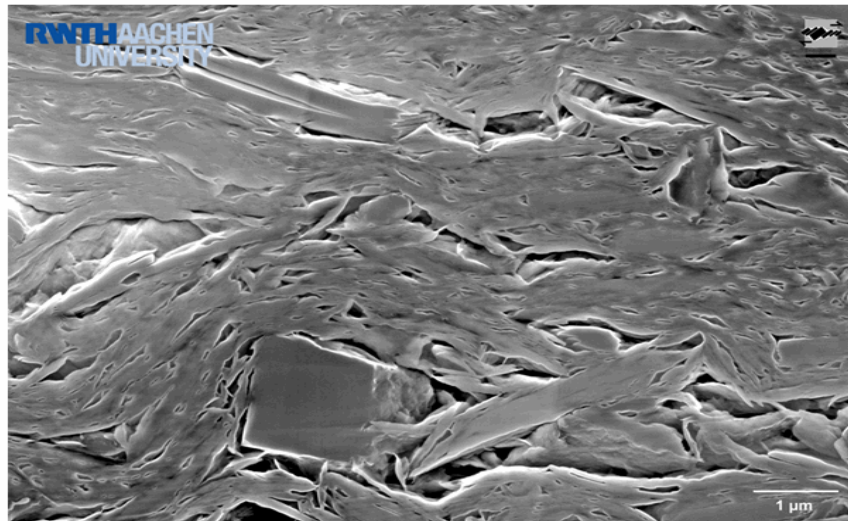
Summary: See Appendix G for more details

SGH Characteristics:

- The pattern of SGH anomalies are usually of high contrast and easily observed.
- SGH is able to illustrate exceptionally symmetrical anomalies in spite of exotic overburden and barriers such as permafrost, shale and basalt caps, previously thought to be impenetrable.
- Inorganic geochemistry can illustrate anomalies of metals that have been mobilized by surficial physical processes. As SGH is essentially “blind” to the inorganic content of a sample, SGH anomalies illustrate the true source of mineralization as it is not affected by the effects of terrain or from mobilized cover such as from glacial transport.
- As SGH hydrocarbons are essentially non-polar, highly symmetrical anomalies are observed. As such symmetry is rare in geochemistry this provides a higher level of confidence to the interpretation that is reflected by a higher SGH Rating Score in comparison to known case studies.
- SGH can be analyzed on samples collected in different seasons or adjacent years. The combined data most often does not require any data leveling.

## SGH INTERPRETATION – LATEST ENHANCEMENTS

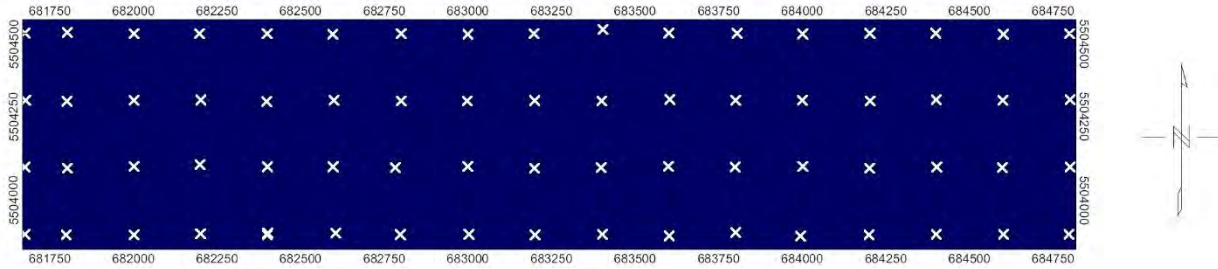
SGH continues to be developed even after 18 years since inception. Although the sample preparation and analysis has stayed the same, in the last 10 years in particular it is the interpretation and understanding of the SGH data and the intricacies of the SGH signatures that have been more refined. In the last 4 years this understanding has extended to the ability to make some prediction of depth from just the use of this geochemistry. A “first” for a geochemistry that is unique to SGH. Today the latest SGH development is the introduction of the concept of the “transparent overburden”. The basis of this ability is the understanding that SGH is a Nano-geochemistry. The term “Nano” is not only used to describe the capability in detecting “Nano” quantities of these hydrocarbon based bacterial decomposition products, with the ability to detect 1 nanogram per kilogram (ng/Kg or 1 part-per-trillion), but “Nano” also describes the size of the hydrocarbon compounds detected which are typically < 1 micron in size. These relatively non-polar hydrocarbons are far smaller in size than inorganic oxides and sulphides. This difference is the reason why SGH anomalies are reliable vertical projections of mineral and/or petroleum based targets. This SGH Nano-geochemistry thus makes even the most exotic overburden “transparent”. The SEM (Scanning Electron Microscope) image below illustrates the large number of micron sized pore spaces in “Boom Clay”, specific high density clay, used to cap deep chambers of high hazard and radioactive wastes. To SGH, this is just a sieve that these hydrocarbons are able to still migrate through by Nano-Capillary action. Inorganic oxides and sulphide anomalies from targets below such complex overburden may be laterally displaced as they must rely on faults and shears in order to migrate to the surface.



This new understanding of the rationale of why SGH anomalies are so reliable in their vertical projection of the location of mineralization and in the ability to so accurately delineate shallow and deep mineralization has further lead to the ability to use SGH to review different layers of the overburden as it relates to the mineral target due to the wide molecular weight range of the SGH Nano-geochemistry. Another factor that aids in this review of layers, much like peeling back the layers of a sweet-onion, is the understanding of weathering processes in the 5 metres near the surface that includes the Vadose zone.

# INTERPRETATION OF SGH RESULTS – A20-14367 DECOORS MINING – AXE PROJECT SGH SOIL SURVEY

This report is based on the SGH results from the analysis of a total of 69 soil samples from the Axe Project survey. The survey can be described as a grid of 4 transects with sample spacing of approximately 200m. 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.



## SGH INTERPRETATION - DECOORS MINING QUALITY ASSURANCE – AXE PROJECT 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 deep-penetrating 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 and gold. 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 Axe Project SGH Soil Survey was excellent as demonstrated by the 5 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 7.7% which represents an excellent level of analytical performance especially at such low parts-per-trillion concentrations.

The 1 Field Duplicate sample submitted from the Axe Project SGH Soil Survey was considered very good at 15.0%. 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 Axe Project survey samples. A template or group of SGH Pathfinder Classes that have been found to be associated with buried Copper and Gold targets was used as the basis for the interpretation of these areas. 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.**

## 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, Copper and gold type 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 Axe Project 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 Gold template 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 Gold types of 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 and Gold as described. Each pathfinder class map is still just one of the Pathfinder Class maps used in the interpretation template for Copper and Gold. Additional interpretation information which may contain additional SGH Pathfinder Class maps is available as a Supplementary Report at an additional price (see Appendix H).

A20-14367 – DECOORS MINING  
AXE PROJECT - 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-per-trillion 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. Targets shallower than about 3 to 5 metres (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.



A20-14367 – DECOORS MINING  
AXE PROJECT 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.

## A20-14367 – DECOORS MINING – AXE PROJECT

### **SGH “REDOX” INTERPRETATION**

As a general comment in regard to the SGH results at the Axe Project SGH Soil Survey, the SGH data in general had good signal strength and the SGH Class maps in this report are quite 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.

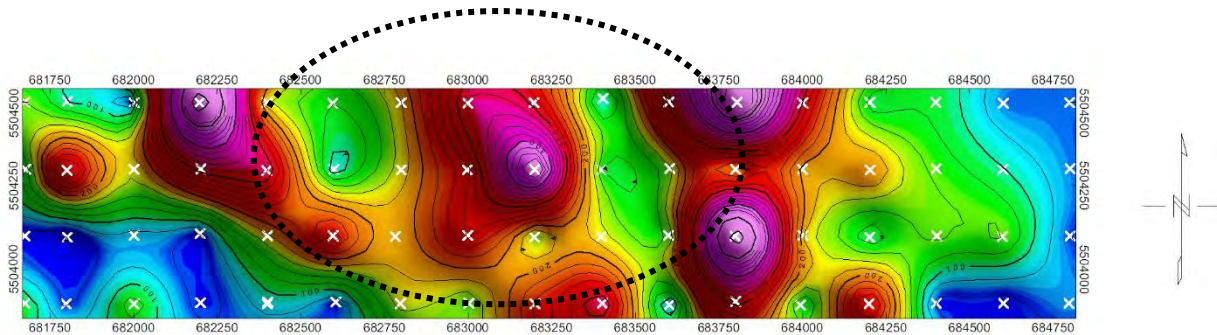
## A20-14367 – DECOORS MINING – AXE PROJECT SGH SOIL SURVEY - **SGH "COPPER and GOLD" INTERPRETATION**

The SGH Pathfinder Class map shown on page 22 and in 3D on page 23 shows the anomaly from one of the most reliable SGH pathfinder classes in predicting the presence of Redox conditions that can support other Pathfinder Class maps for Copper and Gold mineralization. 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.

These SGH Class maps are only a portion of the SGH Copper and Gold 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 or Gold 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 Gold based on previous research and case studies. Other SGH Classes at the Axe Project surveys 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 Gold 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 and Gold. 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).

A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "REDOX" PATHFINDER CLASS MAP**

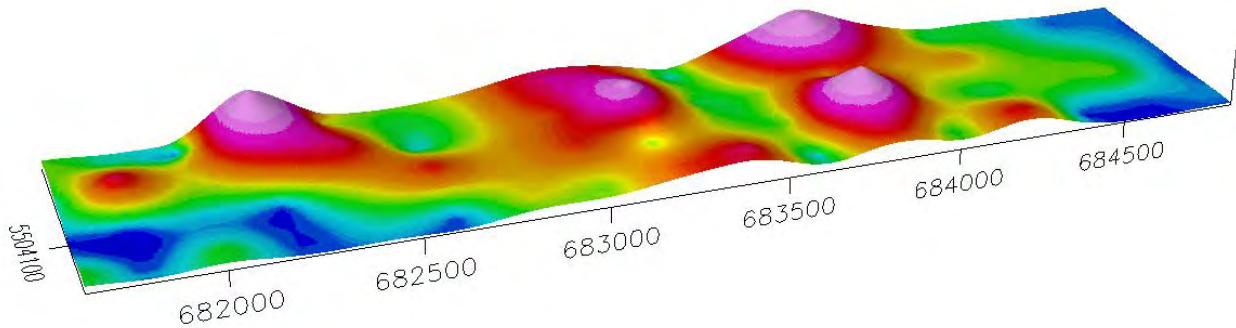


PARTIAL SEGMENTED-NESTED HALO ANOMALY ILLUSTRATING POSSIBLE REDOX ZONE



Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "REDOX" PATHFINDER CLASS MAP**



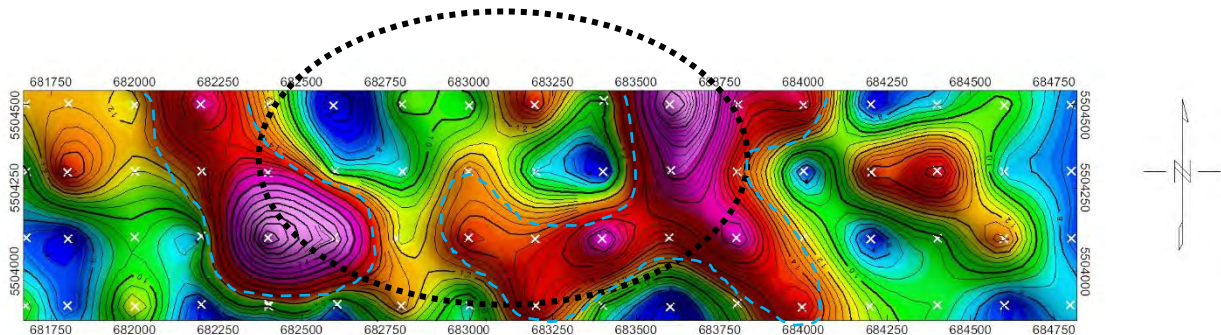
Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

## A20-14367 – DECOORS MINING – AXE PROJECT SGH COPPER INTERPRETATION

Page 25 of this report, and in 3D-view on page 26, shows the anomalies from the most reliable SGH Pathfinder Class in predicting the presence of Copper Mineralization. Each of the apical anomalies within and at the edge of the dotted black oval Redox zone, may be indicative of copper 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 Copper mineralization (not shown in this report) lend support to this interpretation of these anomalies at the Axe Project SGH survey.

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

A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "COPPER" PATHFINDER CLASS MAP**



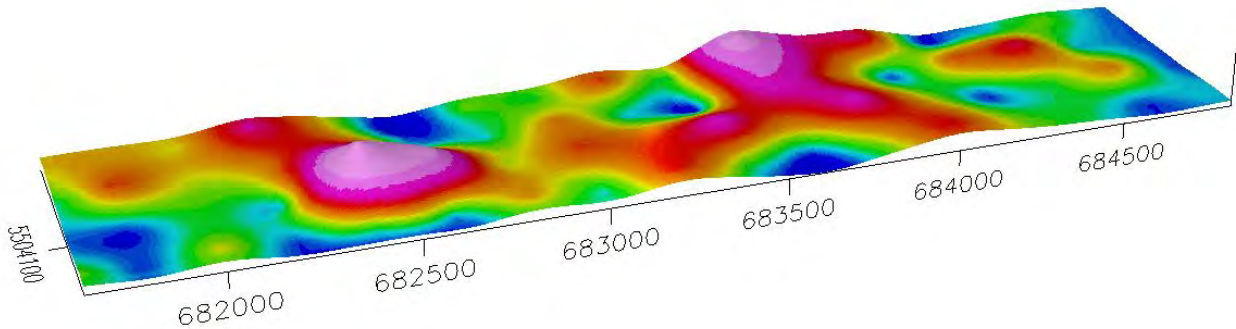
PREDICTED COPPER MINERALIZATION - BLUE OUTLINE

**SGH SIGNATURE RATING RELATIVE TO "COPPER" = 5.0 OF 6.0**



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A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "COPPER" PATHFINDER CLASS MAP**



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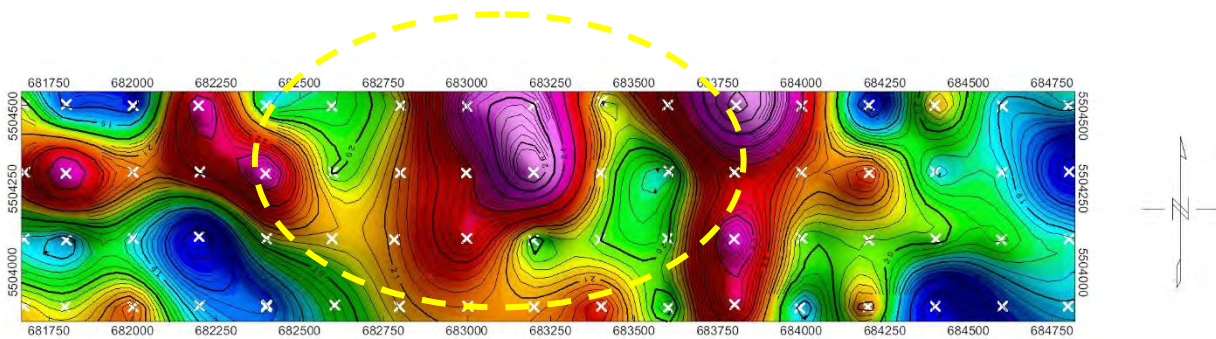


## A20-14367 – DECOORS MINING – AXE PROJECT SGH GOLD INTERPRETATION

Page 28 of this report, and in 3D-view on page 29, shows the anomaly from one the most reliable SGH Pathfinder Classes in predicting the presence of Gold Mineralization. This map illustrates what appears to be a partial segmented-nested halo anomaly coincident to that of the Redox Zone. Additional sampling may be required to better define the mineralization. We believe that mineralization might exist at this location as a vertical projection beneath this anomaly. Other SGH Pathfinder Class Maps associated with the presence of Gold mineralization (not shown in this report) support this interpretation of this anomaly at the Axe Project SGH Survey.

Again, the prediction of this anomaly for Gold mineralization is based only on SGH.

A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "GOLD" PATHFINDER CLASS MAP**



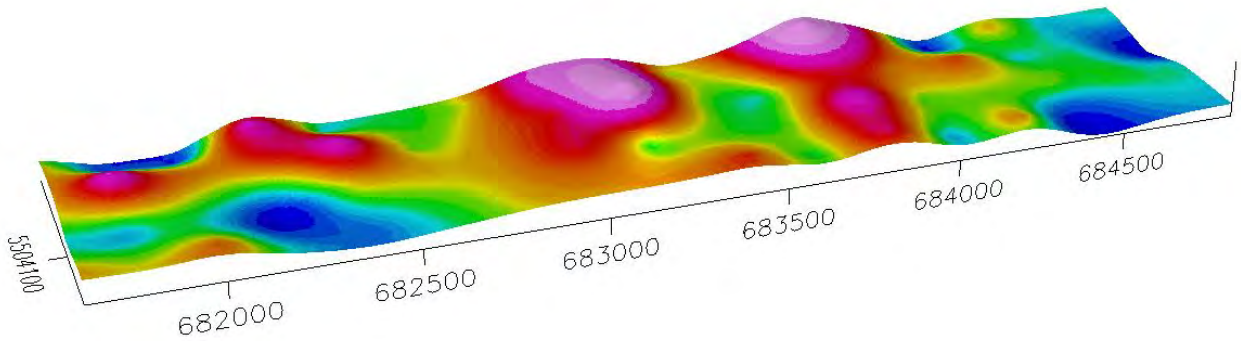
PREDICTED GOLD MINERALIZATION – YELLOW OUTLINE

**SGH SIGNATURE RATING RELATIVE TO "GOLD" = 4.5 OF 6.0**



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A20-14367 – DECOORS MINING – AXE PROJECT  
**SGH "GOLD" PATHFINDER CLASS MAP**



Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

# A20-14367 – DECOORS MINING AXE PROJECT SGH SOIL SURVEY - SGH INTERPRETATION FOR THE PRESENCE OF MINERALIZATION

The interpretation of the SGH data on pages 25 and 28 relative to the presence of Copper and Gold mineralization at the Axe Project survey may be based on what may appear to be the presence of a Redox Zone. Based also on the makeup of the SGH signatures, this Redox Zone may be associated 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 this survey assigned to the anomaly in general on these maps where the anomalies coincide on their location is on average 5.0 on a scale of 6.0. This Rating means that, based only on SGH, that there is a high probability 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 pages 25 and 28 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. These 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.

A20-14367 – DECOORS MINING  
AXE PROJECT 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.

# A20-14367 – DECOORS MINING AXE PROJECT 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 Axe Project 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. There is a recommendation for infill sampling on the northern portion of this survey to potentially better define the mineralization. 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 expense. 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 sample locations from the original survey within, 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.

Date Received at Actlabs (Final Shipment): December 21, 2020

Date Analysis Complete: December 29, 2020

Interpretation Report: January 29, 2021

DECOORS MINING CORP.

6204 125 St.

Surrey, BC, Canada

V3X 2E1

Attention: Peter Shorts

RE: Your Reference: Axe Project

**Activation Laboratories Workorder: A20-14367**

## 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.*

69 Samples were analyzed for this submission.

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

Interpretation relative to Copper and Gold 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)

**REPORT/WORKORDER: A20-14367**

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 organic 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 "A"

### List of terms

1. SGH – **"SOIL GAS HYDROCARBON" GEOCHEMISTRY** – a Predictive Geochemistry, used for delineate buried inorganic mineral deposits and organic petroleum plays. This is the original name used to describe this geochemistry since inception in 1996. Code SGH is still used when submitting samples.
2. 3D-SGH- **"3D- SPATIAL TEMPORAL GEOCHEMICAL HYDROCARBONS** - the method of interpreting SGH and OSG results based on the Redox/Electrochemical Cell model developed by Activation Laboratories Ltd. in 2011.
3. Redox cell- an area of oxidation-reduction reactions or exchange of electrons that is produced over geological bodies, mineralization and petroleum based plays.
4. Electrochemical cell- the effect of adjacent chemically reduced areas and chemically oxidized areas as a Redox cell produces a electrical gradient that obeys the physics of a typical Electrochemical cell.
5. Anthropogenic contamination- the introduction of impurities/compounds of the same type as those that are being analyzed by human actions that could lead to erroneous results.
6. Background areas- the area around a mineral deposit that is beyond the effect of the Redox cell formed over geological bodies or exploration targets. Sampling is required into background areas to produce data that has sufficient contrast to illustrate and differentiate anomalies associated with exploration targets.
7. Background subtracted- A sample taken some distances away as to not contain any elements of the target being analyzed.
8. Biofilm- a layer of microorganisms and microbe and their related secretions and decomposition products, in this case found to inhabit mineral deposits .
9. Biomarker- a compound used as an indicator of a biological state. In this case a biological substance used to indicate the presence of a mineral deposit.
10. Blind mineralization – buried mineralization that shows no physical indication of its existence at the surface
11. Compound – used synonymously with the term hydrocarbon in this report
12. Compound chemical class – a group of hydrocarbons that are similar in size, structure, and molecular weight such that their chemical characteristics, such as water solubility, partition coefficients, vapour pressures, etc. are similar
13. Cultural activities – human initiated processes that may affect the physical and chemical **characteristics at the earth's surface**
14. Delineating targets- indicate the position or outlines of an exploration target as a vertical projection of the target at depth.
15. Geochemical anomalies – inorganic element or organic hydrocarbon measurements that are significantly different than the average low level measurements or background in a survey i.e. the needle in a haystack is an anomaly
16. Dispersion patterns – the movement/ spreading of something. In this context the spatial arrangements of hydrocarbons caused by their movements to the surface from some depth.

17. Exploration tool – a geological, geophysical or geochemical method that attempts to illustrate data in exploration activities that may indicate the presence of mineralization or petroleum plays.
18. Fit for purpose- this method is ideal for its intended use.
19. Forensic signature- a grouping or pattern found to identify a substance having multiple characteristics with a high degree of specificity.
20. High specificity- as in being very specific to the mineralization.
21. Anomalies- this is the spatial representation of data that illustrates a high or low response as well as the combined spatial shape of anomalous data from several neighbouring samples in a survey that can form anomalies described as Rabbit-Ear, Halo, Segmented-halo, nested-halo, etc.
22. Inorganic geochemistry – the measurement of inorganic elements in a survey of near surface samples as a tool for exploration
23. Data leveling – a technique that attempts to normalize the data sets obtained between two or more sampling programs. The results of data leveling is always considered as an approximation.
24. Lithologies- the characteristics and classifications of rock.
25. Locations- the physical/ geographical position or coordinates of samples in a survey.
26. Noise- interference in a measurement which is independent of the data signal.
27. Nugget effect- Anomalously high precious metal assays resulting from the analysis of samples that may not adequately represent the composition of the bulk material tested due to non-uniform distribution of high-grade nuggets in the material to be sampled. (Webster's online dictionary)
28. Organic geochemistry- the Soil Gas Hydrocarbon geochemistry (SGH), or now more accurately named as Spatiotemporal Geochemical Hydrocarbons, is the analysis to detect specific organic, or carbon based, hydrocarbon compounds in a sample. The Organo-Sulphur Geochemistry (OSG) is the analysis to detect specific organic compounds that have sulphur joined to carbon in its molecular structure.
29. Percent Coefficient of Variation (% CV) – a measure of data variability
30. Project maintenance – an activity where the associated cost is applied to the exploration, advancement, and/or operation of activities associated with a particular claim
31. Rating- a value given to the overall confidence in the SGH results
32. Real (in relation to data)- any rational or irrational number
33. Reporting Limit – minimum concentration of an analyte that can be accurately measured for a given analytical method.
34. Sample matrix- the components of a sample other than the analyte.
35. Sample type – soil, till, humus, lake bottom sediment, sand, snow, etc.
36. Semi-quantitative- yielding an approximation of the quantity or amount of a substance
37. SGH anomalies ("**Apical**", "**Nested-Halo**", and "**Rabbit-Ear**" or "**Halo**")
38. SGH Pathfinder (class map/compounds)
39. SGH template – a set of hydrocarbon classes that together form a geochemical signature that has been associated with the presence of a particular type of mineralization the majority of the time
40. Surficial bound hydrocarbons –
41. Surficial samples- a sample from **near the earth's surface**.
42. Survey- the area, position, or boundaries of a region to be analyzed, as set out by the client.

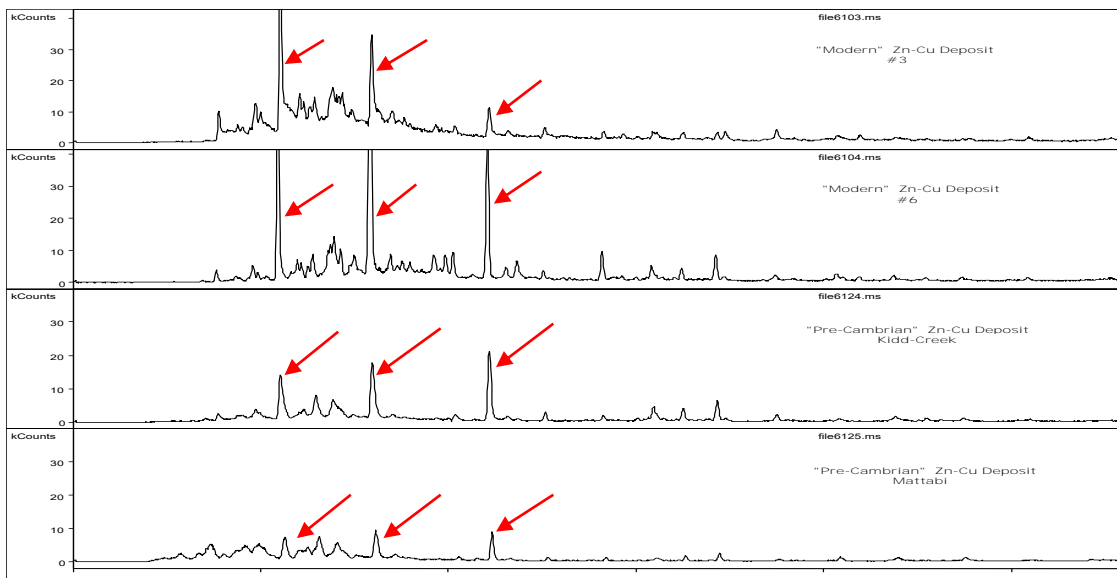
43. Project- a planned undertaking
44. Transect- A straight line or narrow section through an object or across a section of land.
45. Target- Target refers to the ore body of interest  
Target signature: the unique characteristics that identify the target.  
Target type:  
i.e. Gold, Nickel, Copper, Uranium, SEDEX, VMS, Lithium Pegmatites, IOCG, Silver, Ni-Cu-PGE, Tungsten, Polymetallic, Kimberlite as well as Coal, Oil and Gas.
46. Threshold- level or point at which data is accepted as significant or true.
47. Total measurement error- An estimate of the error in a measurement. Based on either limitation of the measuring instruments or from statistical fluctuations in the quantity being measured.
48. Visible (in terms of signature)- the portion shown in a chart or map

## APPENDIX "B"

### EXAMPLE OF AN SGH FORENSIC GEOCHEMICAL SIGNATURE EXAMPLE SHOWN FOR A VMS TARGET

The following analyses examine the Volcanic Massive Sulphide (VMS) deposit in various known locations. These analyses show how the gas chromatography indicates the reality of deposits. For all the profiles in this section, the red arrows indicate the signature of the VMS, which have all been found by organic geochemistry. These forensic geochemical signatures are shown to be consistent for similar target areas; therefore, the analyses are reliable indicators for the presence of VMS.

One of the first experiments in 1996 in the development of the SGH analysis was to observe if an SGH response could be obtained directly from an ore sample. From office shelf specimens, small rock chips were obtained which were then crushed and milled. The fine pulp obtained was then subjected to the SGH analysis. These shelf specimen samples were from well known VMS deposits of the Mattabi deposit from the Archean Sturgeon Lake Camp in Northwestern Ontario and from the Kidd Creek Archean volcanic-hosted copper-zinc deposit. Even these specimen samples contain a geochemical record of the hydrocarbons produced by the bacteria that had been feeding on these deposits at depth. As a comparison, SGH analysis were similarly conducted on modern-day VMS ore **samples taken from a "black smoker" hydrothermal volcanic vent from the deep sea bed of the Juan de Fuca Ridge** where high concentrations of microbial growth was also known to exist. The raw data profiles as GC/MS Total Ion Chromatograms are shown below to illustrate the **"visible"** portion of the VMS signature obtained from the SGH analysis.

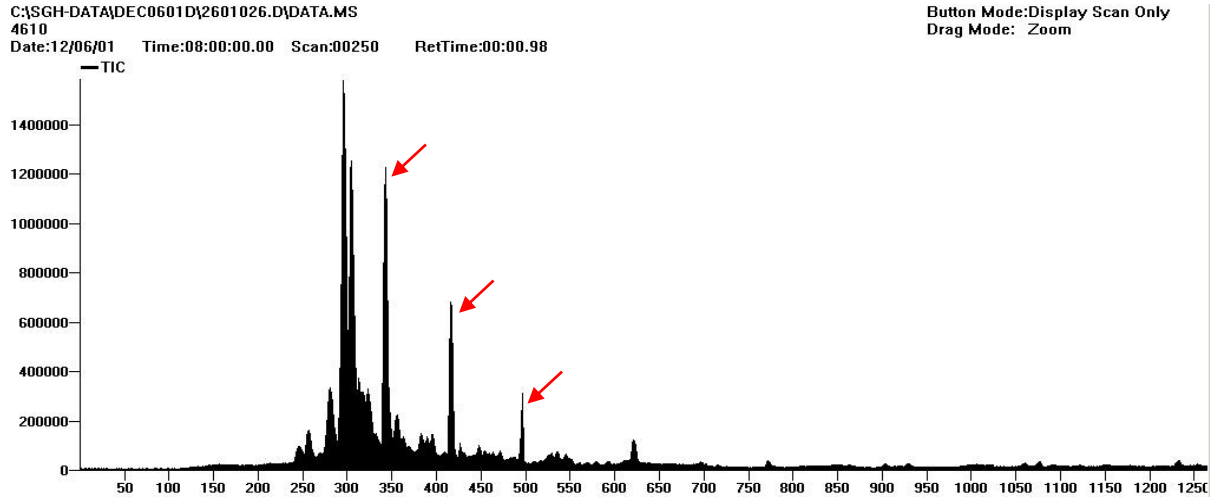


The above profiles are:

- **First profile: Samples from modern day "black smokers"**
- **Second profile: Samples from modern day "black smokers"**
- **Third profile: Samples from Pre-Cambrian Zn-Cu Kidd Creek deposit**
- **Fourth profile: Samples from Mattabi deposit**

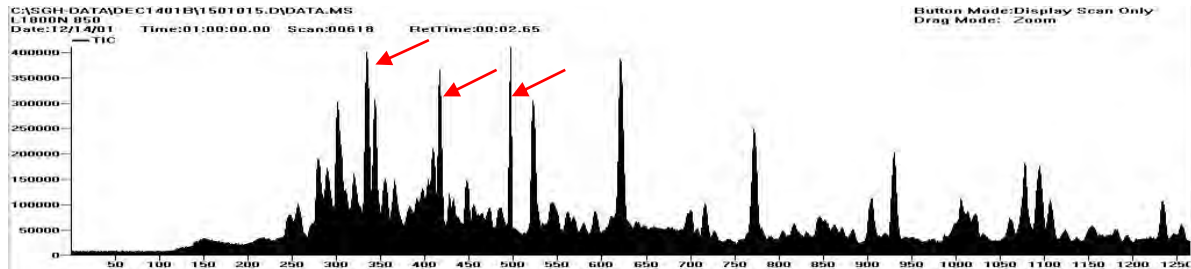
The red arrows point to three compounds that are a *portion* of the SGH signature for VMS type deposits. This visible portion of the VMS signature of hydrocarbons can easily be seen in the analysis of each of these four samples.

The next question in our early objectives was to see if this SGH signature could also be observed in *surficial soil samples* that had been taken over VMS deposits. Through our research projects, soil samples were obtained from over the Ruttan Cu-Zn VMS deposit near Leaf Rapids, Manitoba and located in the Paleoproterozoic Rusty Lake greenstone belt. The profile obtained, as observed in the raw GC/MS chromatogram, is shown in this next image below:



The three compounds indicated by the red arrows represent the same *visible portion* of the VMS signature observed from the modern day black smoker samples and the ore samples taken from the Mattabi and Kidd Creek, even though this soil was taken from over a different VMS deposit in a geographically different area. Is this coincidence?

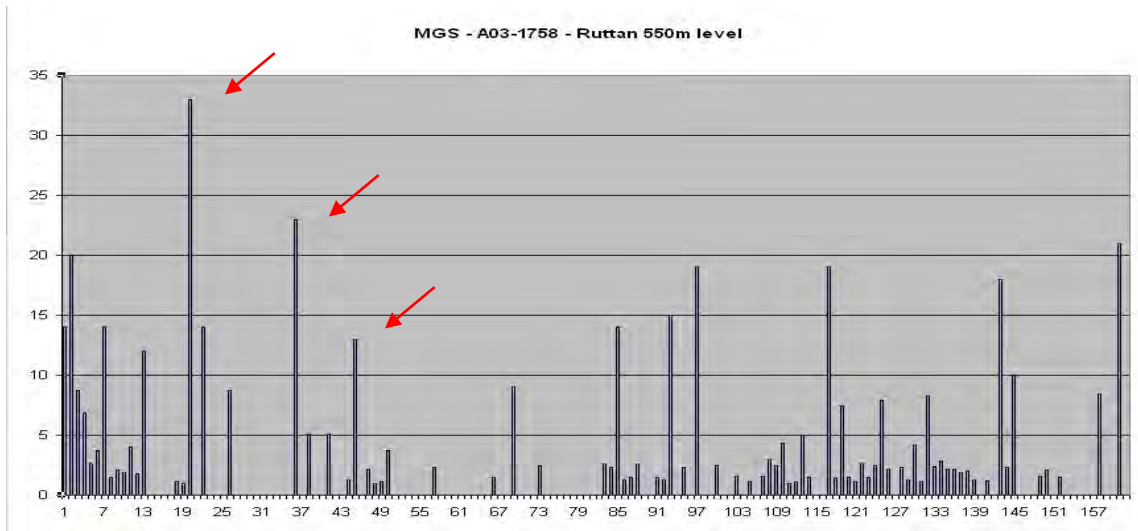
**Another soil sample was obtained from Noranda’s Gilmour South base-metal occurrence** in the Bathurst Mining camp in northern New Brunswick. As shown below, this sample contained a very complex SGH signature, however the visible portion of the VMS signature as indicated by the red arrows is still observed as in the black smoker, Mattabi and Kidd Creek ore samples.



In research conducted by the Ontario Geological Survey, this same portion of the SGH signature was also observed over the VMS deposit at Cross Lake in Ontario. Note that the visible signature shown as the three compounds indicated by the red arrows is only a small portion of the

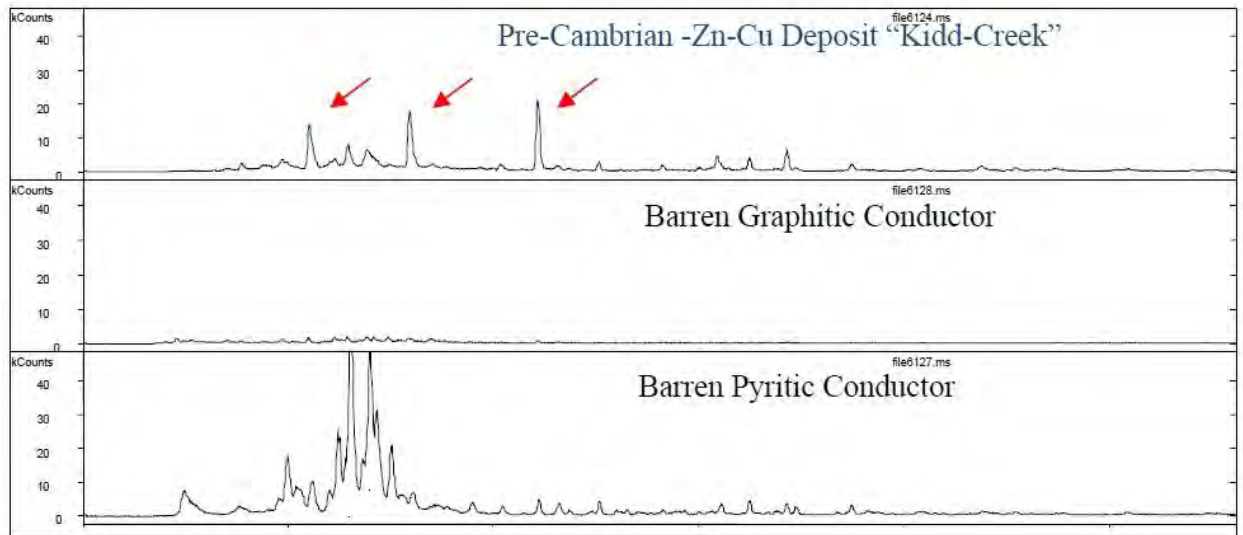
complete SGH VMS signature. The full VMS signature is made up of at least three groups, as three organic chemical classes, that together contain at least 35 of the individual SGH hydrocarbons.

The chromatograms shown on the preceding page from the GC/MS analysis are not used directly in the interpretation of SGH data. As we are only interested in a specific list of 162 hydrocarbons, the mass spectrometer and associated software programs specifically identifies the hydrocarbons of interest, runs calculations using relative responses to a short list of hydrocarbons used as standards, and develops an Excel spreadsheet of semi-quantitative concentration data to represent the sample. Thus the SGH results for a sample, like that observed in ore from the Ruttan, are filtered to obtain the concentrations for the specific 162 hydrocarbons. A simple bar graph drawn from the Excel spreadsheet of the hydrocarbons and their concentrations results in a DNA like *forensic SGH signature* as shown below. The portion discussed here **as the "visible" SGH VMS signature in the GC/MS chromatograms**, is again shown by the red arrows.



Through the work done in the SGH CAMIRO research projects, it was observed that the hydrocarbon signature produced by the SGH technique appeared to also be able to be used to differentiate barren from ore-bearing conductors. This was explored further through the submission and analysis of specific specimen samples that represented a barren pyritic conductor and a barren graphitic conductor.

The GC/MS chromatograms from these two specimens are compared to that obtained from the Kidd-Creek ore as shown below. This diagram conclusively shows that the SGH signatures obtained from the two types of barren conductors are completely different than that obtained by SGH over VMS type ore. SGH is thus able to differentiate between ore-bearing conductors and barren conductors as the Forensic SGH Geochemical signature is different.



SGH has been described by the Ontario Geological Survey of Canada (OGS) as a “REDOX cell locator”. Many SGH surveys for Gold and other mineral 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”, “Nested-Halo”, and “Rabbit-Ear” or “Halo” type SGH anomalies are all typically observed from the effect of REDOX cells that have developed over deposits. REDOX cells are also related to the presence of bacteriological activity.

The VMS template of SGH Pathfinder Classes uses low and medium weight classes of hydrocarbon compounds. Again, at least three Pathfinder Class group maps, associated with the SGH signature for VMS, must be present to begin to be considered for assignment of a good rating. The Pathfinder Class anomalies in these maps must logically concur and support a consistent interpretation in relation to the expected geochromatographic characteristics of the Pathfinder Class, for a specific area.

The interpretation development history for VMS SGH Pathfinder Class map(s) shown in this report is similar to the development history for other target types. The reader should not draw a conclusion that SGH is used only for sulphide based mineralization as some of the most intense SGH anomaly has been associated with Kimberlites where sulphides are essentially not present.

## APPENDIX "C"

### SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING

Sample Type and Survey Design: It is highly recommended that a *minimum* of 50 sample "locations" is preferred to obtain enough samples into background areas on both sides of *small* suspected targets (wet gas plays, Kimberlite pipes, Uranium Breccia pipes, veins, etc.). SGH is not interpreted in the same way as inorganic based geochemical method. SGH must have enough samples over both the target and background areas in order to fully study the dispersion patterns or geochromatography of the SGH classes of compounds. Based on our minimum recommendation of at least 50 sample locations we further suggest that all samples be *evenly spaced* with about one-third of the samples over the target and one-third on each side of the target in order for SGH to be used for exploration. Targets other than gas plays, pipes, dykes or veins usually require additional samples to represent both the target and background areas.

SGH has been shown to be very robust to the use of different sample types even "within" the same survey or transect. Research has illustrated that it is far more important to the ultimate interpretation of the results to take a complete sample transect or grid than to skip samples due to different sample media. The most ideal natural sample is **still believed to be soil from the "Upper B-Horizon", however excellent results can also be obtained from other soil horizons, humus, peat, lake-bottom sediments, and even snow.** The sampling design is suggested to use evenly spaced samples from 15 metres to 200 metres and line spacing from 50 metres to 500 metres depending on the size and type of target. A 4:1 ratio is suggested, however, larger orientation surveys have also been successful. Ideally even large grids should have one-third of the samples over the target and two-thirds of the samples into anticipated background areas. This will allow the proper assessment of the SGH geochromatographic vectoring and background site signature levels with minimal bias. Individual samples taken at significant distances from the main survey area to represent background are not of value in the SGH interpretation as SGH results are not background subtracted. Samples can be drip dried in the field and do not need special preservation for shipping and has been specifically designed to avoid common contaminants from sample handling and shipping. SGH has also been shown to be robust to cultural activities even to the point that successful results and interpretation has been obtained from roadside right-of-ways. In conclusion, the conditions for the sample type and survey design include:

- Fist sized samples are retrieved from a shallow dug hole in the 15-40 cm range of depth.
- **Different sample types can be taken even "within" the same survey or transect, data** leveling is rarely ever required. SGH is highly effective in areas of very difficult terrain. The Golden Rule is to always take a sample.
- Samples should be evenly spaced in a grid or a series of transects with sample lines spaced at a ratio of up to 4:1 (line spacing: sample spacing).
- **A minimum of 50 sample "locations" is recommended with one-third** over the target and one-third on each side of the target into background if this can be predicted. This provides the opportunity of optimal data contrast.
- If very wet, samples can be drip dried in the field.
- No special preservation is required for shipping.



## **APPENDIX "D"**

### SAMPLE PREPARATION AND ANALYSIS

Upon receipt at Activation Laboratories the samples are air-dried in isolated and dedicated environmentally controlled rooms set to 40°C. The dried samples are then sieved. In the sieving process, it is important that compressed air is not used to clean the sieves between samples as trace **amounts of compressor oils "may" poison the samples and significantly affect** some target signatures. Solvents such as Acetone, Methanol, and Hexane cannot be used at any time for cleaning sample containers or sampling apparatus ie. Cleaning sieves between samples. The use of solvents at this time severely reduces the response of the hydrocarbons measured. At Activation Laboratories a vacuum is used to clean the sieve between each sample. The -80 mesh sieve fraction (<177 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected and packaged in a Kraft paper envelope and transferred from our sample preparation department to our Organics Geochemical department also in our World Headquarters in Ancaster, Ontario, Canada. Each sample is then extracted, separated by gas chromatography and analyzed by mass spectrometry using customized parameters enabling the highly specific detection of the 162 targeted hydrocarbons at a *reporting limit* of one part-per-trillion (ppt). This trace level limit of reporting is critical to the detection of these hydrocarbons that, through research, have been found to be related at least in part to the breakdown and release of hydrocarbons from the death phase of microbes directly interacting with a deposit at depth. The hydrocarbon signatures are directly linked to the deposit type, which is used as a food source. The hydrocarbons that are mobilized and metabolized by the microbes are released in the death phase of each successive generation. Very few of the hydrocarbons measured are actually due to microbe cell structure, or hydrocarbons present or formed in the genesis of the deposit or from anthropogenic contamination. The results of the SGH analysis is reported in raw data **form in an Excel spreadsheet as "semi-quantitative" concentrations without** any additional statistical modification.

## APPENDIX "E"

### SGH DATA QUALITY

#### Reporting Limit

The SGH Excel spreadsheet of results contains the raw unaltered concentrations of the individual SGH compounds in units of "part-per-trillion" (ppt). The reporting of these ultra low levels is vital to the measurement of the small amounts of hydrocarbons now known to be leached/metabolized and subsequently released by dead bacteria that have been interacting with the ore at depth. To ensure that the data has a high level of confidence, a "reporting limit" is used. The reporting limit of 1 ppt actually represents a level of confidence of approximately 5 standard deviations where SGH data is assured to be "real" and non-zero. Thus in SGH the use of a reporting limit automatically removes site variability, and there is no need to further background subtract any data as the reporting limit has already filtered out any site background effects. Thus we recommend that all data that is equal to or greater than 2 ppt should be used in any data review. It is important to review all SGH data as low values that may be the centre of halo anomalies and higher values as apical anomalies or as halo ridges are all important.

#### Laboratory Replicate Analysis

A laboratory replicate is a sample taken randomly from the submitted survey being analyzed and are not unrelated samples taken from some large stockpile of bulk material. In the Organics laboratory an equal portion of this sieved sample, or pulp, is taken and analyzed in the same manner using the Gas Chromatography/Mass Spectrometer. The comparison of laboratory replicate and field duplicate results for chemical tests in the parts-per-million or even parts-per-billion range has typically been done using an absolute "relative percent difference (RPD)" statistic which is an easy proxy for error estimation rather than a more complete analysis of precision as specified by Thompson and Howarth. An RPD statistic is not appropriate for SGH results as the reporting limit for SGH is *1 part-per-trillion*. Further, *SGH is a semi-quantitative technique* and was not designed to have the same level of precision as other less sensitive geochemistry's as it is only used as an exploration tool and not for any assay work. SGH is also designed to cover a wide range of organic compounds with an unprecedented 162 compounds being measured for each sample. In order to analyze such a wide molecular weight range of compounds, sacrifices were made to the variability especially in the low molecular weight range of the SGH analysis. The result is that the first fifteen SGH compounds in the Excel spreadsheet is expected to exhibit more imprecision than the other 147 compounds. An SGH laboratory replicate is a large set of data for comparison even for just a few pairs of analyses. Precision calculations using a Thompson and Howarth approach should only be used for estimating error in individual measurements, and not for describing the average error in a larger data set. In geochemical exploration geochemists seek concentration patterns to interpret and thus rigorous precision in individual samples is not required because the concentrations of many samples are interpreted collectively. For these reasons recent and independent research at Acadia University in Canada promote that a percent Coefficient of Variation (%CV) should be used as a universal measurement of relative error in all geochemical applications. As SGH results are a relatively large data set for nearly all submissions, %CV is a better statistic for use with SGH. By using %CV, the concentration of duplicate pairs is irrelevant because the units of concentration cancel out in the formation of the coefficient of variation ratio. For SGH, the %CV is calculated on all values  $\geq 2$  ppt. These values are averaged and represent a value for each pair of replicate analysis of the sample. All of the %CV values for the replicates are then averaged to

report one %CV value to represent the overall estimate of the relative error in the laboratory sub-sampling from the prepared samples, and any instrumental variability, in the SGH data set for the survey. Actlabs' has successfully addressed the analytical challenge to minimize analytical variability for such a large list of compounds. Thus as SGH is also interpreted as a signature and is solely used for exploration and not assay measurement, the data from SGH is *"fit for purpose"* as a geochemical exploration tool.

## Historical SGH Precision

In the general history of geochemistry, studies indicate that a large component of total measurement error is introduced during the collection of the initial sample and in sub-sampling, and that only a subordinate amount of error in the result is introduced during preparation and analysis. A historical record encompassing many projects for SGH, including a wide variety of sample types, geology and geography, shows that the consistency and precision for the analysis of SGH *is excellent* with an overall precision of 6.8% Coefficient of Variation (%CV). When last calculated, this number had a range of a maximum of 12.4% CV, a minimum of 3.0% CV, with a standard deviation of 1.6%, in a population made up of over 400 targets (over 45,000 samples) interpreted since June of 2004. Again the precision of 6.8% CV included all of the sample types as soil from different horizons, peat, till, humus, lake-bottom sediments, ocean-bottom sediments, and even snow. When field duplicates have been revealed to us, we have found that the precision of the field duplicates are in the range of about 9 to 12 %CV. As SGH is interpreted using a combination of compounds **as a chemical "class" or signature**, the affect of a few concentrations that may be imprecise in a direct comparison of duplicates is not significant. Further, projects that have been re-sampled at different times or seasons are expected to have different SGH concentrations. The SGH anomalies may not be in exactly the same position or of the same intensity due to variable conditions that may have affected the dispersion of **different pathfinder classes. However, the SGH "signature" as to the presence of the specific mix of SGH pathfinder classes will definitely still exist, and will retain the ability to identify the deposit type and vector to the same target location.**

## APPENDIX "F"

### SGH DATA INTERPRETATION

#### SGH Interpretation Report

All SGH submissions must be accompanied by relative or UTM coordinates so that we may ensure that the sample survey design is appropriate for use with SGH, and to provide an SGH interpretation with the results. In our interpretation procedure, we separate the results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, thiophenes, aromatic, and polyaromatic compounds.

**Note that none of the SGH hydrocarbons are "gaseous" at room temperature and pressure. The classes are then evaluated in terms of their geochromatography and for coincident compound class anomalies that are unique to different types of mineralization. Actlabs uses a six point scale in assigning a subjective rating of similarity of the SGH signatures found in the submitted survey to signatures previously reviewed and researched from known case studies over the same commodity type. Also factored into this rating is the appropriateness of the survey and amount of data/sample locations that is available for interpretation. This rating scale is described in detail in the following section.**

#### SGH PATHFINDER CLASS MAGNITUDE

The magnitude of any individual concentration or that of a hydrocarbon class *does not imply* that the data is of more importance or that mineralization is of higher quantity or grade. SGH interpretation must use the review of the combination of specific hydrocarbon classes to make any interpretation.

#### GEOCHEMICAL ANOMALY THRESHOLD VALUE

In the interpretation of "inorganic" geochemical data one of the determinations to be made is to calculate a "Threshold" value above which data is considered anomalous. This is done on an element by element basis. In the interpretation of this "organic" geochemical data this determination is done differently. The determination of a threshold value is not calculated for each hydrocarbon compound. The determination of a threshold value is also a concentration below which geochemical data is considered as "noise" for the purposes of geochemical interpretation. As discussed, SGH uses a "Reporting Limit" instead of some type of Detection Limit. The amount of noise that is already eliminated in the data, as below the Reporting Limit of 1 part-per-trillion (shown in the data spreadsheet as "-1" as "not-detected at a Reporting Limit of 1 ppt") is equivalent to approximately 5 standard deviations of variability. *To thus calculate an additional Threshold Value is a loss of real and valuable data.* Further, in the interpretation of SGH data, individual compounds are not considered (unless explicitly mentioned in the report). The interpretation of SGH data is exclusively conducted by "compound chemical class" which is the sum of four to fourteen individual hydrocarbons in the same organic chemical class as these compounds naturally have the same chemical properties that ultimately define their spatial dispersion characteristics in their rise from a mineral target through the overburden. This combined class is more reliable than the measurement of any one compound. SGH also eliminates the need for a Threshold value determination above the Reporting Limit due to the "high specificity" of the specific hydrocarbons and the classes they form. Each of the hydrocarbons has been hand selected due to their lower probability of being found in general surface soils. Further, only those classes where the majority of the compounds are detected above the Reporting Limit are considered in the interpretation. This defines the SGH geochemistry as having less geochemical noise due to the use of a reporting limit and as having higher confidence in the use of groups (classes) of data instead of

individual compounds. However the most important aspect of interpretation is the use of a forensic signature. **At least three specific "Pathfinder" classes, based on the combinations or template of** classes we have developed, must be present to define the hydrocarbon signature to confidently predict the presence of a specific type of mineral target. *Do not calculate another Threshold value.* Fact: It has been proven many times that important SGH anomalies that depict mineralization at depth can exist even with data at 3 ppt.

## Mobilized Inorganic Geochemical Anomalies

It is important to note that SGH is essentially **"blind" to any inorganic content in samples as only organic** compounds as hydrocarbons are measured. Thus inorganic geochemical surface anomalies that have migrated away from the mineral source, and thus may be interpreted and found to be a false target location, is not detected and does not affect SGH results. This fact is of great advantage when comparing the SGH results to inorganic geochemical results. If there is agreement in the location of the anomalies between the organic and inorganic technique, **such as Actlabs' Enzyme Leach, a** significant increase in confidence in the target location can be realized. If there is no agreement or a shift in the location of the anomalies between the techniques, the inorganic anomaly may have been mobilized in the surficial environment.

## The Nugget Effect

**As SGH is "blind" to the inorganic content in the survey samples, any concern of a "nugget effect" will not be encountered with SGH data. A "nugget effect" may be of a concern for other** inorganic geochemical methods from surveys over copper, gold, lead, nickel, etc. type targets.

## SGH DATA LEVELING

The combination of SGH data from different field sampling events has rarely required leveling in order to combine survey grids. The only circumstances that have occasionally required leveling has been the combination of samples that are very fine in texture, thus having a combined large surface area to samples of peat that may be in nearby areas. Even after maceration of the peat and in using the maximum size of sample amenable to this test method, peat samples have a significantly lower surface area. Peat samples have only required leveling in one survey in the last 500 SGH interpretations.

In only the last year it has been observed that SGH data *may* require leveling when different field sampling events have significantly different soil temperature. It has been documented that only when **"soil" samples are taken from "frozen" ground** that data leveling may be required as frozen sample act as a frozen cap to the hydrocarbon flux and may collect a higher concentration of hydrocarbon compounds compared to sampling during seasons where the samples are not frozen. Only two surveys have required leveling in the last 500 SGH interpretations.

The author has taken introductory training in the leveling of geochemical data. If leveling is required, both data sets are reviewed in terms of maximum, minimum and average values for each SGH Pathfinder Class intended for use in the interpretation. Data is sectioned into quartiles and each section is assigned specific leveling factors that are then applied to one data set. It should be noted that any type of data leveling is an approximation.

# APPENDIX "G"

## SGH RATING SYSTEM DESCRIPTION

To date SGH has been found to be successful in the depiction of buried mineralization for 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 Plays. SGH data has developed into a dual exploration tool. From the interpretation, a vertical projection of the predicted location of the target can be made as well as a statement on the rating of the comparability of the identification of the anticipated target type to that from known case studies, as an example: if the client anticipates the target to be a Gold deposit, what is the rating or comparability that the target is similar to the SGH results over a Gold deposit in Nunavut, shear hosted and sediment hosted deposits in Nevada, or Paleochannel Gold mineralization in Western Australia.

- **A rating of "6"** is the highest or best rating, and means that the SGH classes most important to describing a Gold related hydrocarbon signature are all present and consistently vector to the same location with well defined anomalies. To obtain this rating there also needs to be other SGH classes that when mapped lend support to the predicted location.
- **A rating of "5"** means that the SGH classes most important to describing a Gold signature are all present and consistently describe the same location with well defined anomalies. The SGH signatures may not be strong enough to also develop additional supporting classes.
- **A rating of "4"** means that the SGH classes most important to describing a Gold signature are mostly present describing the location with well defined anomalies. Supporting classes may also be present.
- **A rating of "3"** means that the SGH classes most important to describing a Gold signature are mostly present and describe the same location with fairly well defined anomalies. Some supporting classes may or may not be present.
- **A rating of "2"** means that some of the SGH classes most important to describing a Gold signature are present but a predicted location is difficult to determine. Some supporting classes may be present
- **A rating of "1"** is the lowest rating, and means that one of the SGH classes most important to describing a Gold signature is present but a predicted location is difficult to determine. Supporting classes are also not helpful.

The SGH rating is directly and significantly affected by the survey design. Small data sets, especially if significantly <50 sample locations, or transects/surveys that are geographically too short *will automatically receive a lower rating no matter how impressive an SGH anomaly might be.* When there is not enough sample locations to adequately review the SGH class geochromatography, or when the sample spacing is inadequate, or if the spacing is highly variable such that it biases the interpretation of the results, then the confidence in the interpretation of any geochemistry is adversely affected. The SGH rating is not just a rating of the agreement between the SGH pathfinder classes for a particular target type; it is a rating of the overall confidence in the SGH results from this particular survey. The interpretation is only based on the SGH results without any information from other geochemical, geological or geophysical information unless otherwise specified.

## HISTORY & UNDERSTANDING

The subjective SGH rating system has been used since 2004 when Activation Laboratories started providing an SGH Interpretation Report with every submission for SGH analysis to aid our clients in understanding this organic geochemistry and ensuring that they obtain the best results for their

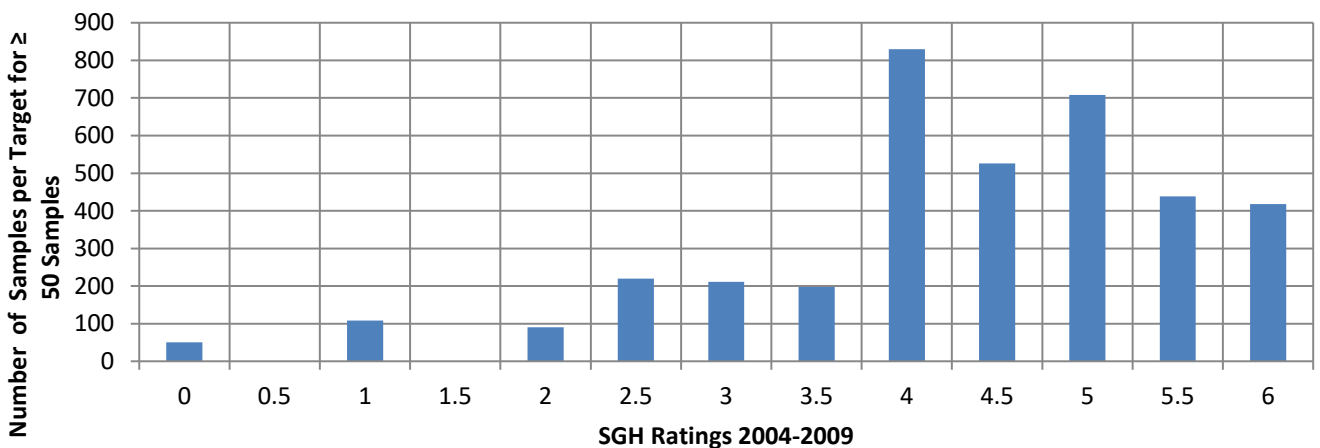
surveys. As explained in the previous section, the SGH rating is not just a rating of how definitive an SGH anomaly is, and it is not based just on the map(s) provided in this report. It is a rating of **“confidence in the interpreted anomaly”** from the combination of:

- (i) are the expected SGH Pathfinder Classes of compounds present from the template for this target type (one Pathfinder Class map is shown in the report, at least three must be present to adequately describe the correct signature for a particular target),
- (ii) how well do these SGH Pathfinder Classes agree in describing a particular area,
- (iii) how well does this agreement compare to SGH case studies over known targets of that type,
- (iv) how well is the interpreted anomaly defined by the survey (i.e. a single transect does not provide the same confidence as a complete grid of samples), and
- (v) is there at least a minimum of 50 sample locations in the survey so that there may be an adequate amount of data to observe the geochromatography of the different SGH Pathfinder Class of compounds.

The question often arises by clients as to the frequency of a rating, e.g. “how often is a rating of 5.0 given in an interpretation”. To better understand this we present this review of the history of the SGH rating program since 2004 and some of the underlying situations that can affect the historical rating charts. Originally it was recommended that a minimum of 35 sample location be used for small target exploration, however it was quite quickly realized that this is often insufficient and at least 50 sample locations were required. In 2007 the rating scale was refined to include increments of 0.5 units rather than just integer values from 0 to 6.

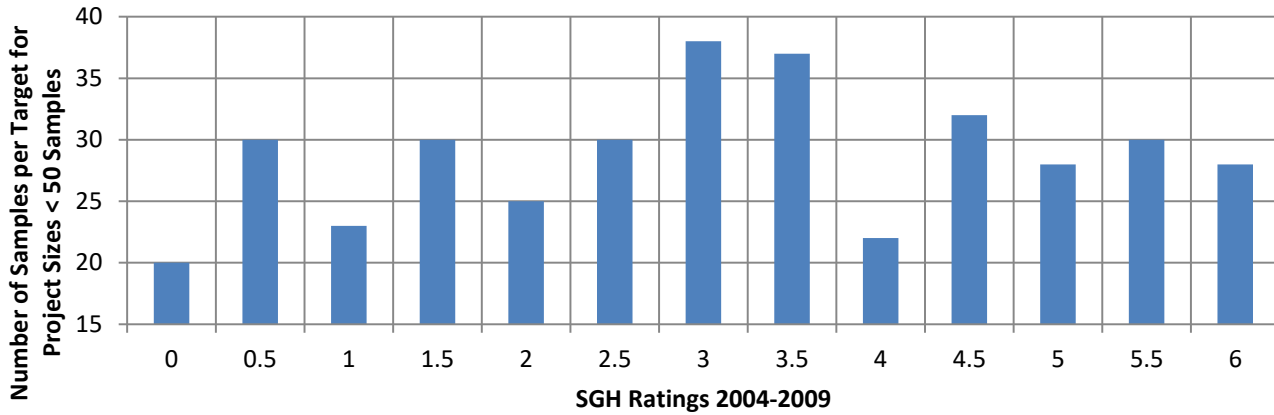
A rating frequency may be biased high as most clients conduct an orientation study over a known target, thus several of these projects result in high ratings. Note that, at this time, the rating is not said to be linked to grade of a deposit or depth to the target. Even in exploration surveys clients tend to submit samples over more promising targets due to knowledge of the geology and prior geochemical or geophysical results. As shown in the following chart, projects with SGH data from 200 or more sample locations have a higher level of confidence in the interpretation as the geochromatography of the SGH Pathfinder Classes of compounds can be more completely observed and reviewed.

### SGH Ratings vs Number of Samples per Target for ≥ 50 Samples



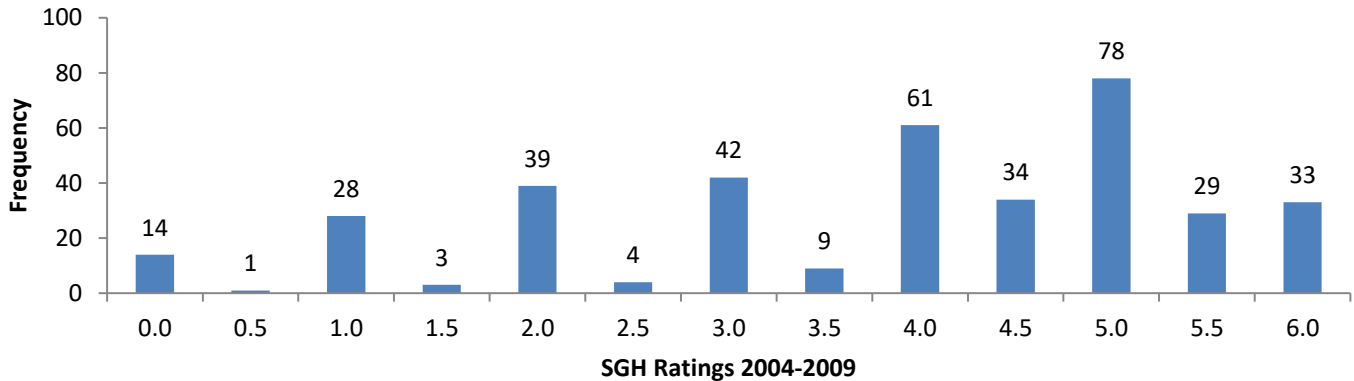
The rating frequency may be biased low as research projects often include a bare minimum of samples to reduce costs. Research projects may also be over targets known to be difficult to depict with geochemistry. Multiple targets in close vicinity in a survey may result in a low bias as the Pathfinder Class geochromatography is more difficult to deconvolute. Ratings may also be biased low if less than the recommended 50 sample locations are submitted as indicated by the following chart. This chart also illustrates that there is no interpretation bias to a particular rating value.

### SGH Ratings vs Number of Samples per Target for < 50 Samples



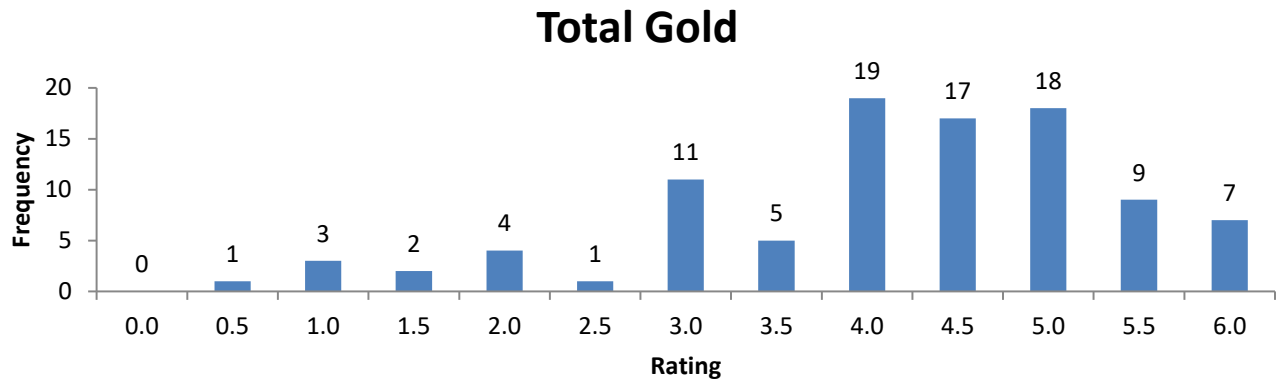
The overall rating frequency for over 400 targets from January 2004 to December 2009 is shown in the chart below illustrating that surveys over more promising targets are most often submitted for best use of research or exploration dollars. It also indicates that the 0.5 increments were less frequent as they started in 2007.

### SGH Rating History





More specific for SGH interpretation for Gold targets, the overall rating frequency for 97 targets from January 2004 to December 2009 is shown in the chart below that also illustrates that surveys over more promising Gold targets are most often submitted for best use of research or exploration dollars.



## APPENDIX "H"

NOTE: THERE IS NEW PRICING FOR THE SGH GEOCHEMISTRY

SAMPLE PREPARATION: CODE S4 - \$4.25 per sample

INTERPRETATION FOR ONE COMMODITY TARGETS: Included in the price of analysis of \$48.00 per sample

INTERPRETATION FOR MULTI-COMMODITY TARGETS: i.e. VMS, SEDEX, Polymetallic, IOCG, IOCGU, Cu-Au-Porphyry, etc. – add additional price of \$500 is applied to cover the additional time in interpretation.

**"ADDITIONAL INTERPRETATIONS": (\$ 500.00)** - if within 60 days after delivery of the report.

The SGH data can be interpreted multiple times in comparison to a variety of SGH templates developed for exploration for different mineral targets or petroleum plays. The samples do not have to be reanalyzed. This can be addressed as a separate section of a report or as a separate report based **on the client's wishes. The price is per survey area, e.g.** if there are two projects in a submission, perhaps a North area and South area, and both survey areas are to be interpreted for say Gold and Copper, the first interpretation is included in the SGH analysis price, the second interpretation for each area would be priced at \$1000 per area, thus a total of \$2000.