ASSESSMENT REPORT OF THE 2020

SGH SOIL SAMPLING PROGRAM

ON THE

OGDEN PROPERTY, TIMMINS

PORCUPINE MINING DISTRICT

NTS 42A/06

Submitted by:

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Summary

This report summarizes the completion of a soil sampling program conducted on the Ogden Property in Timmins Ontario. The sampling program was carried out by MEK personnel between September 16-18, 2020. The program was carried out under supervision of geologist D. Heerema, an employee of Metals Creek Resources, totaling 6 man-field days and a combined total of 235 soil samples. The soils were sent to Actlabs in Thunder Bay to undergo a fairly new Soil Gas Hydrocarbons (SGH) analysis. The SGH system is deep penetrating geochemistry measuring organic compounds and bacteria as opposed to traditional soil sampling measuring metals in the soils. The system has been shown to be effective in areas of great overburden thicknesses and types and has been used effectively by other exploration companies.

Terms of Reference

Map projections are in UTM, North American Datum 83, Zone 17 unless stated otherwise. Contractions are "mm" = millimeter, "cm" = centimeter, "m" = meters, "km" = kilometers, "g" = gram, "kg" = kilogram, "in" = inch, "ft" = foot, "lb" = pound, "oz" = troy ounce, "oz/ton" = troy ounce per short ton, "g/t" is grams per metric tonne, "ddh" = diamond drill hole, "TOZ" = Thomas Ogden Zone, "SZ" = South Zone, "NZ" = North Zone, "PH" = Porphyry Hill, "PDB" = Porcupine Destor Break and "MEK" = Metals Creek Resources.

Land Title/Tenure

The property consists of 44 patent parcels, 2 leases and 53 unpatented single and boundary mining cells (post conversion) that lie within the central portion of Ogden Twp. and the west Deloro Twp., registered in the Porcupine Mining Division. The said patents, leases and unpatented mining cells are part of an option joint venture agreement between Metals Creek Resources Corp. and Goldcorp Canada Inc. and Goldcorp Inc. with MEK having earned a 50% interest in the project and acts as project operator.

Leases

LEA-108841	LEA-19618

Patents

PAT-29049	PAT-29059	PAT-28700	PAT-3678	PAT-3423

PAT-29050	PAT-29060	PAT-2680	PAT-3679	PAT-3424
PAT-29051	PAT-29062	PAT-2681	PAT-3680	PAT-3425
PAT-29052	PAT-29063	PAT-2682	PAT-3681	PAT-3426
PAT-29053	PAT-29064	PAT-2683	PAT-3682	PAT-3427
PAT-29054	PAT-29065	PAT-2684	PAT-3418	
	PAT-29066	PAT-2685	PAT-3419	
PAT-29056	PAT-28697	PAT-3675	PAT-3420	
PAT-29057	PAT-28698	PAT-3676	PAT-3421	
PAT-29058	PAT-28699	PAT-3677	PAT-3422	

Unpatented Mining Cells

| Claim #	Type of cell	Anniversary	Claim #	Type of cell	Anniversary
100724	Boundary Cell Mining Claim	2027-09-26	144031	Boundary Cell Mining Claim	2027-09-26
101375	Boundary Cell Mining Claim	2027-06-23	144032	Boundary Cell Mining Claim	2027-09-26
112817	Boundary Cell Mining Claim	2027-06-23	144062	Single Cell Mining Claim	2027-06-23
114912	Single Cell Mining Claim	2027-06-23	160137	Single Cell Mining Claim	2027-09-26
116694	Single Cell Mining Claim	2027-09-26	160138	Single Cell Mining Claim	2027-09-26
120981	Single Cell Mining Claim	2027-09-26	160139	Single Cell Mining Claim	2027-09-26
120985	Boundary Cell Mining Claim	2027-04-28	160144	Boundary Cell Mining Claim	2027-04-28
126326	Boundary Cell Mining Claim	2027-09-26	162153	Boundary Cell Mining Claim	2027-09-26
126327	Single Cell Mining Claim	2027-09-26	162154	Single Cell Mining Claim	2027-09-26
128588	Boundary Cell Mining Claim	2027-10-23	162155	Boundary Cell Mining Claim	2027-09-26
165533	Single Cell Mining Claim	2027-06-26	225533	Single Cell Mining Claim	2027-09-26
181987	Single Cell Mining Claim	2027-06-23	225556	Single Cell Mining Claim	2027-09-26
194304	Single Cell Mining Claim	2027-06-26	225595	Single Cell Mining Claim	2027-04-28
201446	Boundary Cell Mining Claim	2027-09-26	232349	Boundary Cell Mining Claim	2027-06-23
209520	Single Cell Mining Claim	2027-10-23	232858	Boundary Cell Mining Claim	2027-09-26
213523	Single Cell Mining Claim	2027-09-26	237936	Single Cell Mining Claim	2027-06-23
213559	Single Cell Mining Claim	2027-09-26	253913	Boundary Cell Mining Claim	2027-06-23
217849	Boundary Cell Mining Claim	2027-06-23	257540	Single Cell Mining Claim	2027-09-26
221579	Boundary Cell Mining Claim	2027-09-26	261541	Boundary Cell Mining Claim	2027-04-28
221603	Single Cell Mining Claim	2027-03-25	265976	Boundary Cell Mining Claim	2027-06-23
265977	Single Cell Mining Claim	2027-06-23	322604	Boundary Cell Mining Claim	2027-06-23
276074	Single Cell Mining Claim	2027-06-23	323801	Boundary Cell Mining Claim	2027-10-23
281023	Single Cell Mining Claim	2027-06-23	324225	Boundary Cell Mining Claim	2027-12-10
281033	Boundary Cell Mining Claim	2027-09-26	324226	Boundary Cell Mining Claim	2027-12-10
281580	Single Cell Mining Claim	2027-09-26	339968	Single Cell Mining Claim	2027-09-26
287913	Boundary Cell Mining Claim	2027-10-23	340015	Single Cell Mining Claim	2027-04-28
288148	Single Cell Mining Claim	2027-09-26			
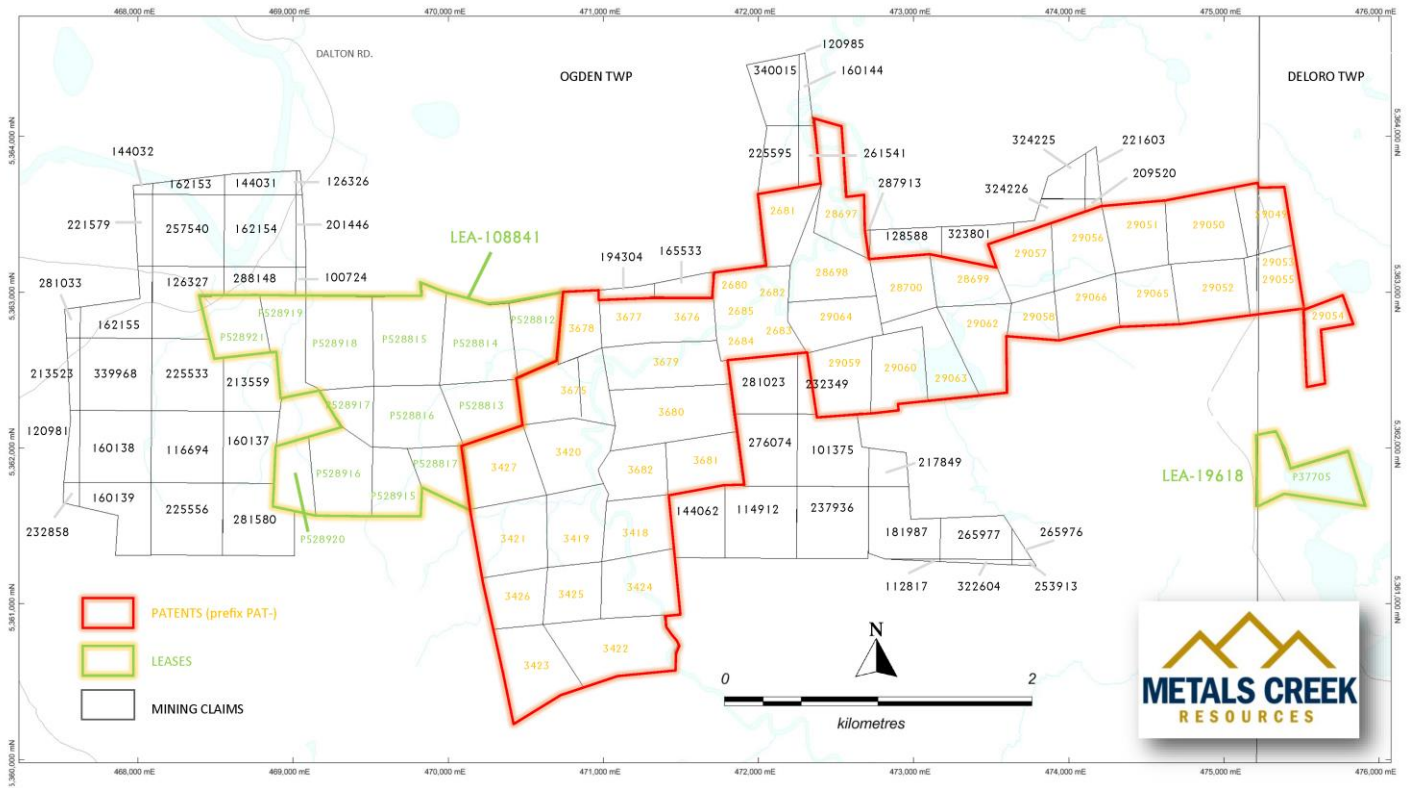
Figure 1: Claim Map

Property Location and Access

The Ogden Property is located only 5 km south of the downtown core of the City of Timmins and is centered on UTM coordinates 471,600mE / 5,362,600mN (NAD83 Zone 17) on NTS 42A/6. The property lies between Goldcorp's Dome Mine and Mine Complex and Lake Shore Gold's West Timmins Mine. See figures 2 and 3.

Access to the property can be done from both the east and west extents of the property. Pine Street South transects the east end of the property and Dalton Road transects the west end of the property. From these major all-season roads, secondary roads and trails are utilized to enter the central portions of the property. Most of the work has been focused on South Zone and Thomas Ogden Zones that are accessed from Pine Street South. To access the main drilling area on Thomas Ogden, one must travel 2.4 kilometers south past the Timmins landfill site to an unmarked gravel road on the west side of Pine South. Follow the well traveled road for approximately 6 kilometers to the powerline and turn left and follow the powerline for 300m. See figures 5 or 7.
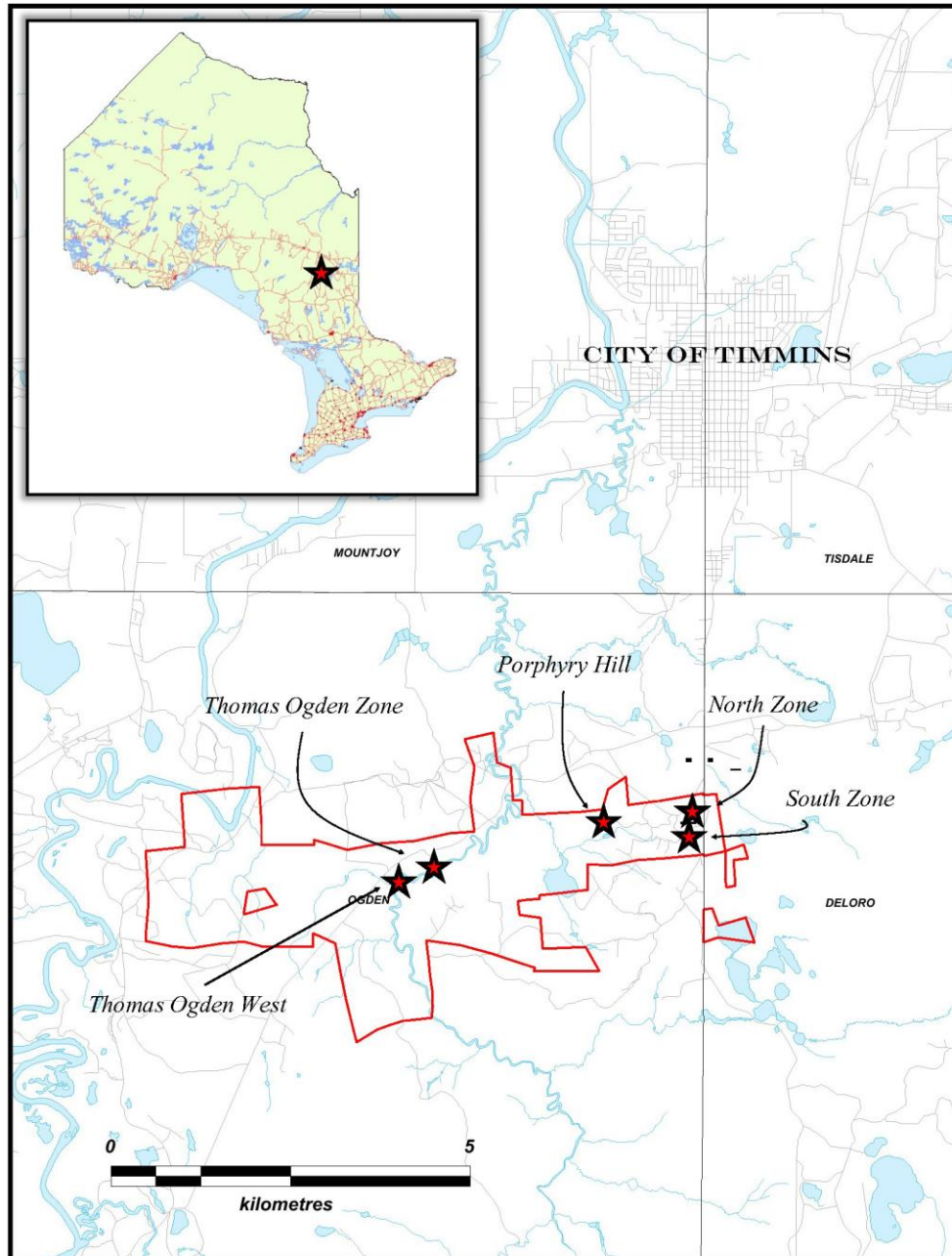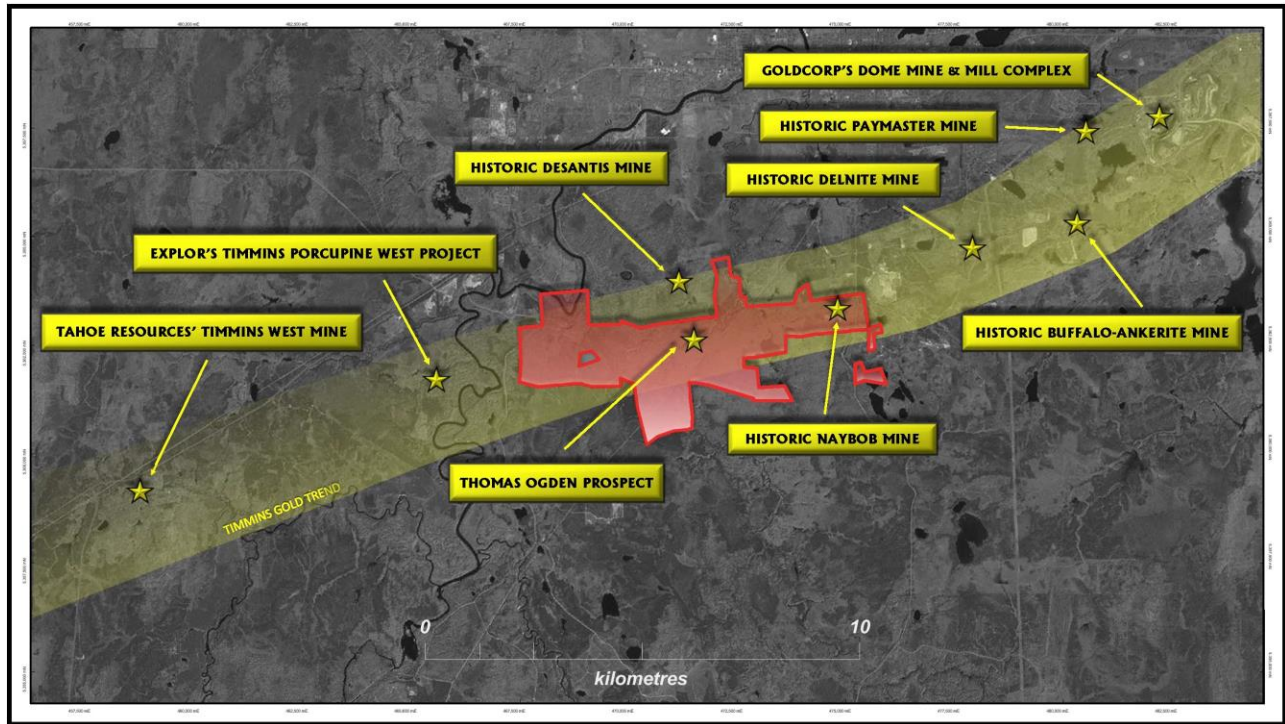
Figure 2: Property Location
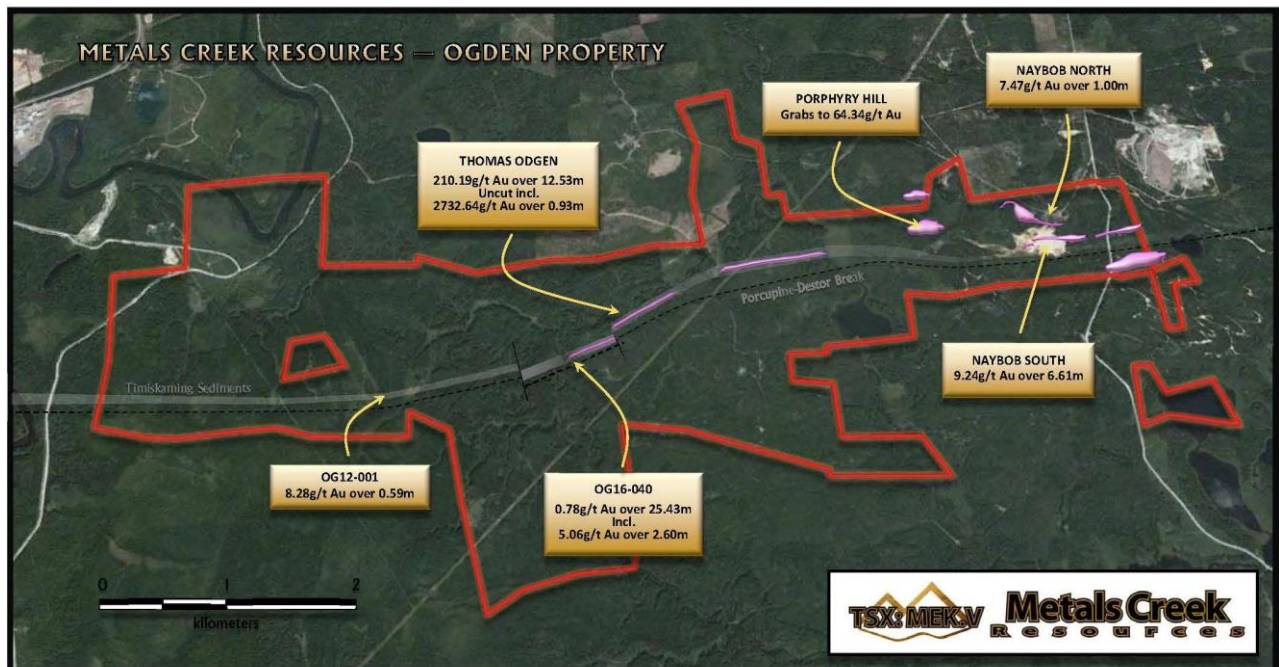
Figure 3: Timmins West Gold Trend

Figure 4: Ogden Historic Property Highlights

Geology

The Ogden Property is located within the Abitibi Sub-province that has to date produced over 150 Million oz of gold. The Timmins area is underlain by late Archean ultramafic to mafic supracrustal rocks which comprise four major assemblages. These are transected by a major regional fault system, the east-west trending Destor-Porcupine fault. Oldest rocks in the camp are mafic, intermediate and felsic volcanic rocks and chemical sediments of the Deloro Assemblage (2730-2725 Ma), which occur to the south of the Destor-Porcupine fault system. These are overlain by dominantly tholeiitic mafic volcanic rocks of the Tisdale Assemblage (2708-2700 Ma) that are present on both sides of the fault. The Tisdale rocks in the central Timmins camp are divided into four formations, which include the Hersey Lake Formation, the Central Formation, and the Gold Center Formation. The Tisdale assemblage is unconformably overlain by a felsic tuff sequence of the Krist Formation, which is developed in western portions of the camp. The Krist tuff unit appears associated with a suite of quartz-plagioclase porphyry (2691-2688 Ma) intrusions that form probable sub-volcanic feeders to the tuffs. Overlying the Krist is the Porcupine Assemblage, a thick sequence of turbiditic greywacke, siltstone and mudstone. Timiskaming Group clastic sediments (2673-2668 Ma, based on detrital zircons) unconformably overlie the Krist and Porcupine sequences and earlier volcanic sequences where the Krist and Porcupine sequences are not present.

The property straddles 8 km of the Porcupine Destor Fault corridor. The Porcupine Destor fault corridor separates the Deloro Group from the Tisdale Group; the latter of which hosts the gold mineralization of the Naybob Mine and Thomas Ogden Zones and the mainly prolific deposits of the Timmins camp. North of the Porcupine-Destor fault, the Tisdale volcanics vary from intermediate to carbonatized ultramafic flows. Sediment packages composed of argillites, greywackes and conglomerates are present of Porcupine and Timiskaming age. Tisdale rocks have been intruded by altered felsic to porphyritic dykes, sills and small stocks. The rocks dip steeply to the north and young south in the North Zone area of Naybob, but generally dip south and young north in the South and Thomas Ogden Zones. It is possible that a large property scale syncline exists with an east-west fold hinge. Deformation zones on the property are associated and in close proximity to the Porcupine-Destor Fault. Alteration and sulphide mineralization are commonly associated with the structures and associated gold mineralization.
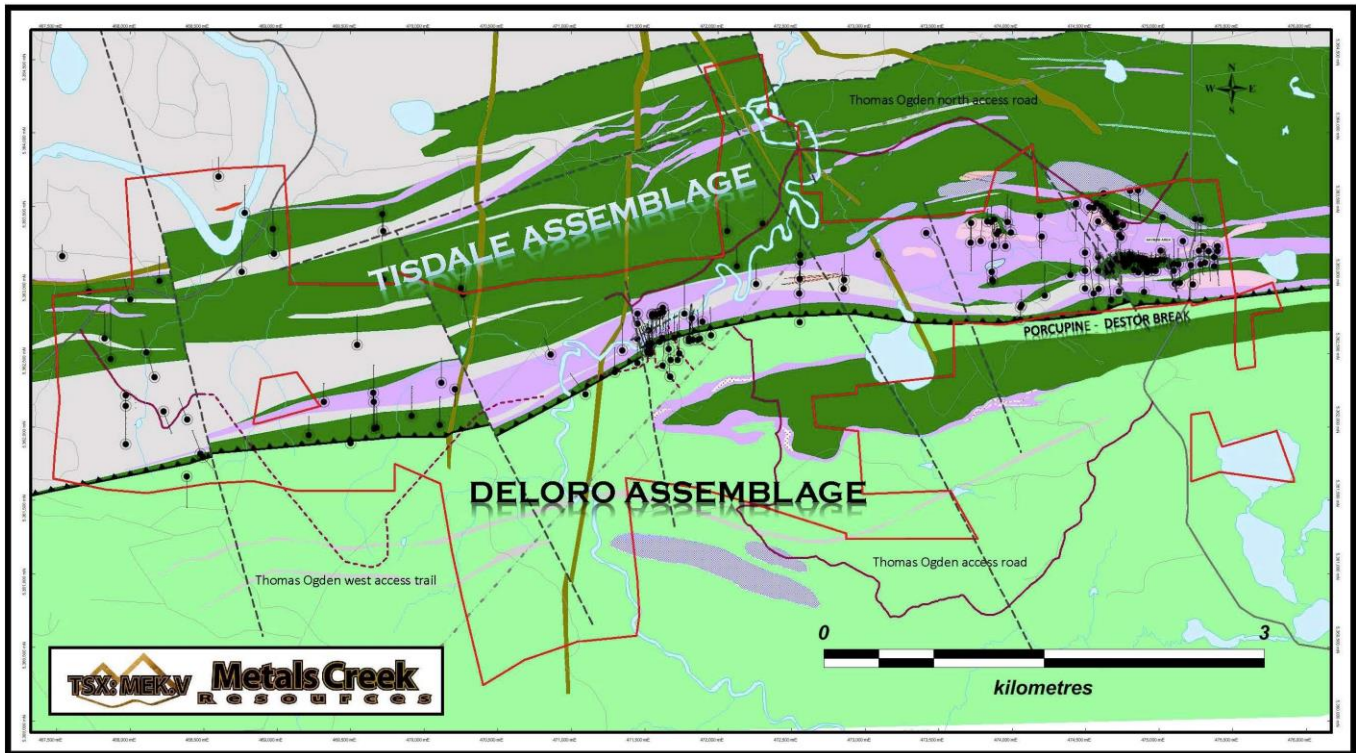
Figure 5: Ogden Property Geology

Below is an interpretation of the Thomas Ogden stratigraphy for which the Thomas Ogden Zone is located in. A transect from south to north can be seen from figure 6; a cross section illustration the stratigraphy.

Thomas Ogden Stratigraphy

From south the north, a felsic to intermediate fragmental/tuffaceous unit represents the top of the older Deloro Assemblage. An extremely strained chlorite schist presents the ductile Porcupine-Destor fault with local areas of strong pyritization. Capping the chlorite schist are highly deformed talc/serpentine/carbonate altered ultramafic volcanics that exhibit tremendous strain and millimeter-scale off-setting structures. Sandwiched between ultramafic volcanics are north younging sediments; an assemblage of conglomerate, greywacke and argillites with highly variable degrees of alteration and sulphide mineralization. Sitting atop the sediments is a younger and less strained package of ultramafics with strong talc alteration and slightly stronger magnetism. Late folding of the stratigraphy is evident and important in the deposition of the gold mineralization. Located in very close proximity to the Porcupine Destor Break like many of the deposits in the Timmins Camp, the host sediments and felsites exhibit folds that tighten and narrow westward. The folds appear to be plunging eastward at approx. 30 degrees with mineralization and diking with higher grade gold mineralization found within the fold noses. All lithologies are folded in this manner.
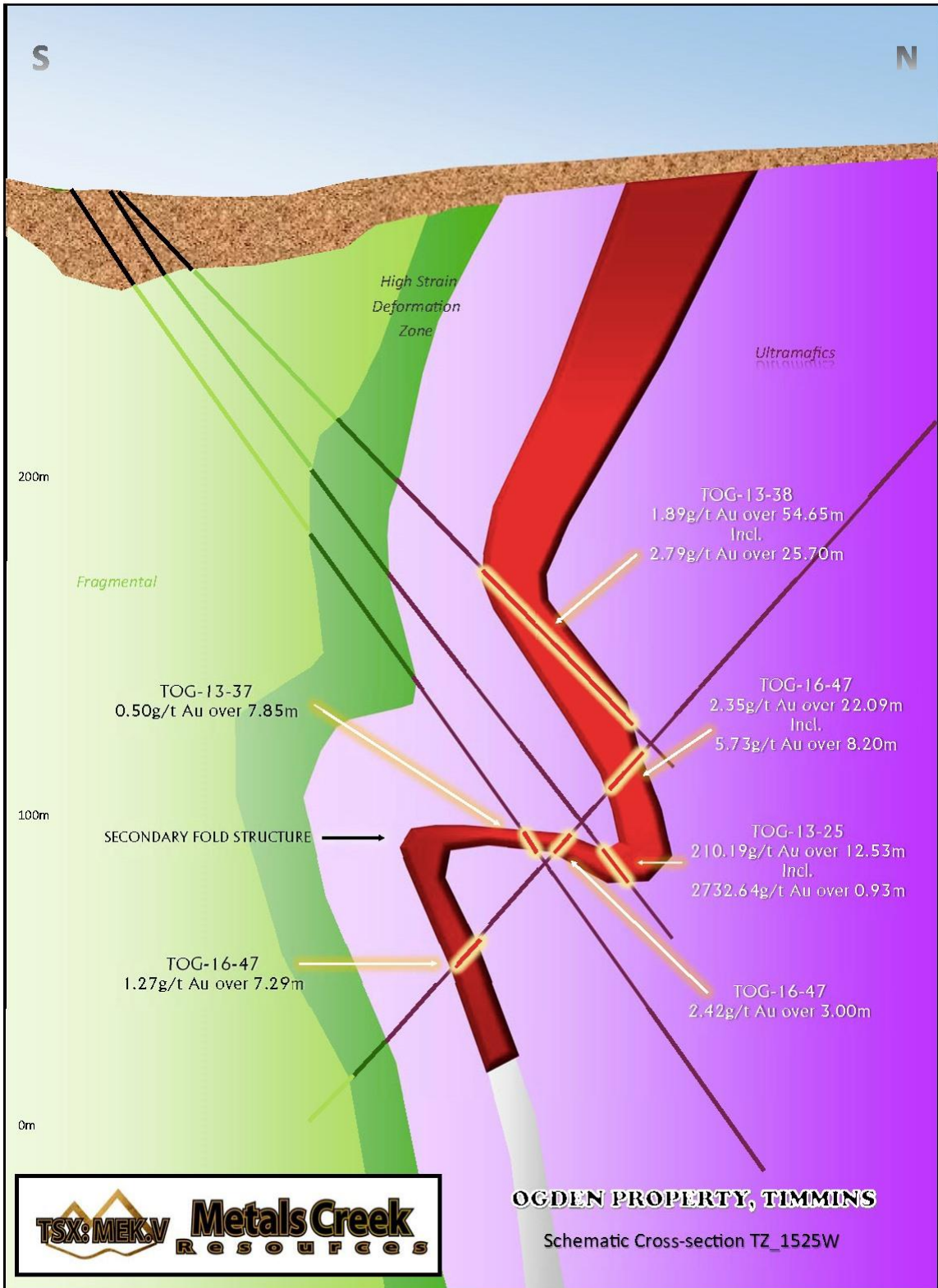
Figure 6: Thomas Ogden Schematic Cross Section

Gold within the Thomas Ogden Zone is commonly encountered in felsic/porphyry dikes and altered pebble conglomerates but can certainly be located in altered wackes and argillites. The felsic dikes are extremely siliceous with clotty beige/peach colored albitization and very little mafic content (<5%) and some local ankerite resulting in rusty patches and fractures. Late quartz stringers and veinlets are often associated with the alteration and free gold.

Alteration observed within the area of Thomas Ogden consists of variable amounts of silicification, albitization, sericitization as well as minor carbonate and fuchsite. The gold bearing sediments appear to be Porcupine sediments, containing occasional cherty jasperitic fragments. The gold bearing sediments are commonly well deformed exhibiting strong elongation of pebbles. Pyrite is the dominant sulphide with occasional arsenopyrite. Visible gold is not uncommon.
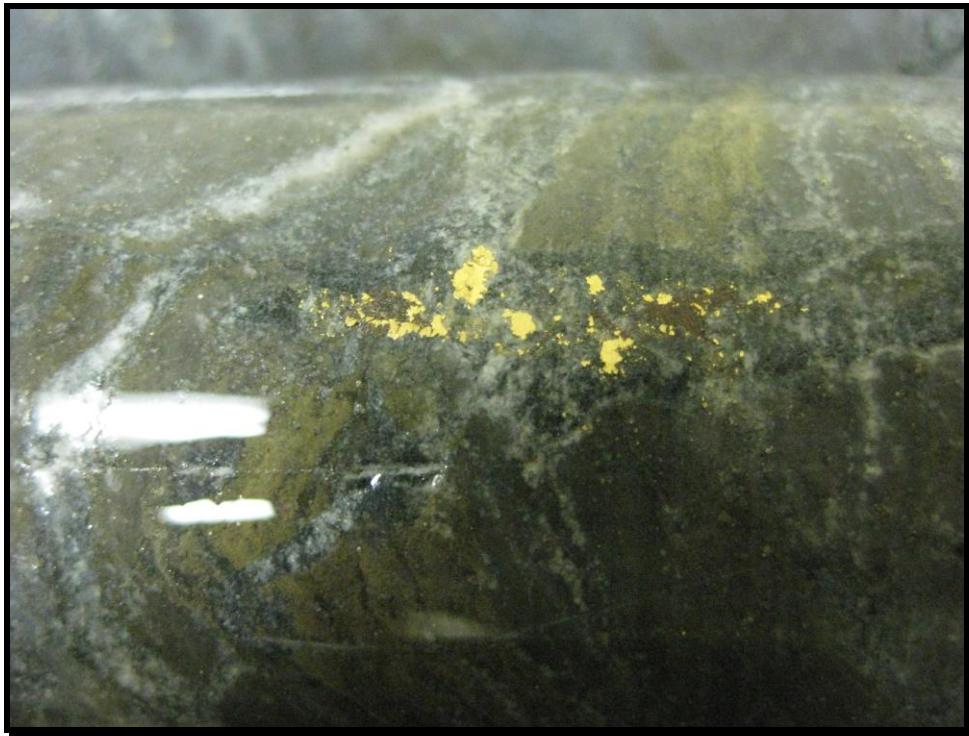
Visible gold in hole TOG-13-25 sample TOG-13-25-018 (2732.64g/t Au)

Visible gold in hole TOG-13-27 sample TOG-13-27-054 (434.77g/t Au)
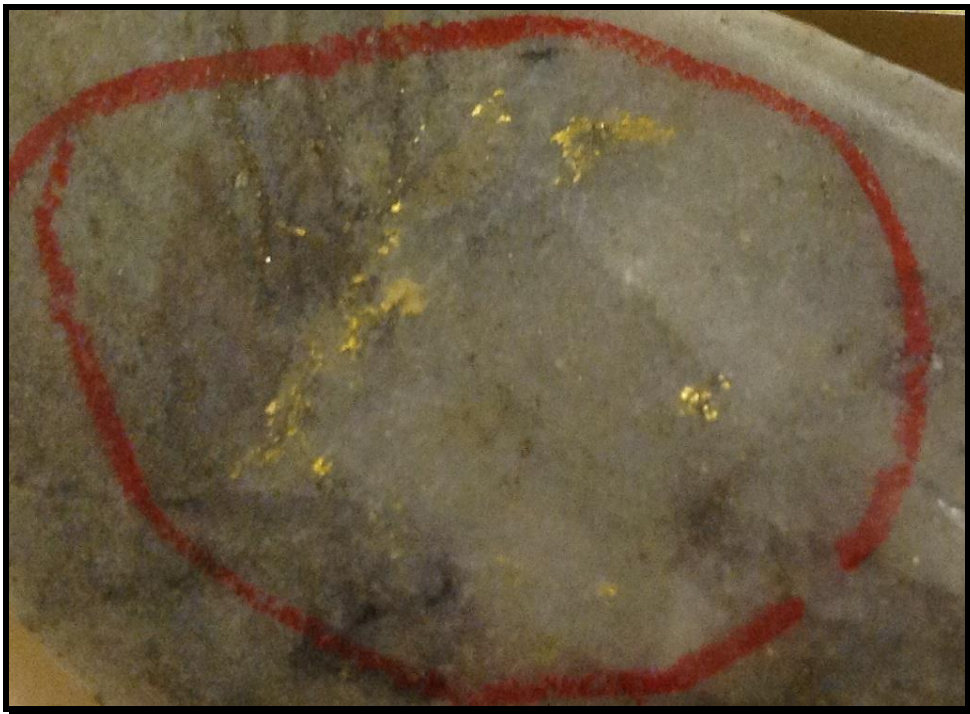
Visible gold in hole TOG-12-07 sample TOG-12-07-029 (111.25g/t Au)

Albite-sericite-carbonate alteration typical of Thomas Ogden Zone

Albite-sericite-carbonate alteration typical of Thomas Ogden Zone with strong pyritization

South Zone

South Zone is the southern of two gold zones that saw limited historic mining and development. The South Zone lies north of and in close proximity to the PDB in weakly to moderately strained dacitic-andesitic pillow lavas and thin interbedded argillites. Numerous hang-wall alteration/mineralized zones to the main zone exist ranging from 0.2 to 4m in width, consisting of albite altered shears with diffuse to moderate contacts. Associated with the albitization is localized brecciation by late quartz stringers and arsenopyrite + pyrite mineralization and some free visible gold. The main targeted zone butts up against porphyry and ultramafics to the north and commonly contains minor fuchsite alteration as well. The gold bearing zones strike approximately 90° and dip steeply south.
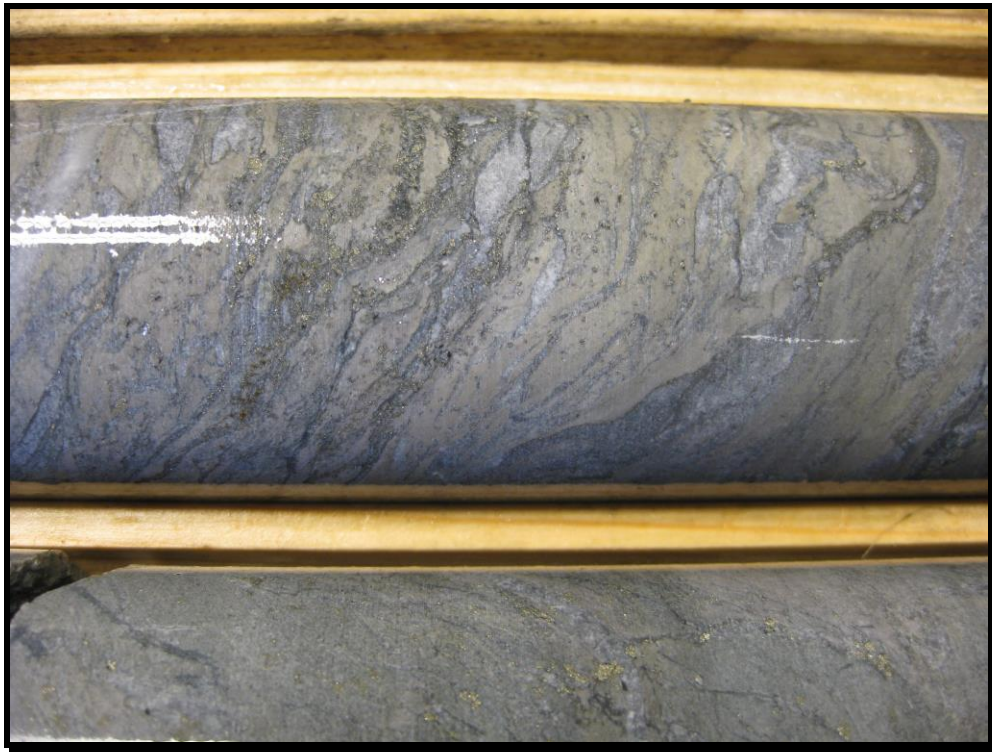
Albite alteration cut by quartz typical of South Zone with pyritization

Albite alteration cut by quartz typical of South Zone with strong arsenopyrite

North Zone

The North Zone is located in highly strained ultramafic volcanic rocks north of the Naybob Porphyry body that formed a dilation zone and a trap for gold deposition. The host rocks of NZ consist of strong green fuchsite and ankerite alteration with lesser albite and silicification. The style of mineralization is disseminated pyrite and free gold, within a quartz vein/stock-work and porphyry dikes, within or adjacent to the heavily deformed carbonate zone. Outside of the carbonate alteration zone, are intensely altered serpentinized/chloritized ultramafics.

Porphyry Hill

This is a feldspar porphyry stock located approximately 1km west of Naybob North that is rather massive and equigranular bound north and south by extremely strained and blocky ultramafic volcanics. A series of loosely spaced gold bearing quartz veins to 0.5m wide cut the intrusion with an east-west strike orientation. Grabs on surface to 64g/t have been attained with disseminated pyrite with trace chalcopyrite. The orientation of the stock is unclear at this time, but it is postulated that it may have an easterly plunge like that of the Naybob stock <1km east. Drilling to the east of the large outcropping has returned gold historically as well as within the 2018 diamond drill hole.

Summary of Previous Work

The Ogden Property has seen work since 1910.

1910: William Hayden discovered gold on surface in what is known as the South Zone.

1912 – 1917: Hayden Gold Mines- Exploration shaft on the North Zone to 97 meters. Property closed in 1917 due to WW1.

1922 – 1933: Hayden Gold Mines- Deepened shaft to 219 meters, conducted underground development. Constructed a small mill in 1932 and mined 30 tonnes prior to bankruptcy.

1933 – 1942: Naybob Gold Mines – Deepened shaft to 410 meters. Started milling ore at the rate of 30 tonnes/day. By 1942 a total of 194,000 tones @ a grade of 7.33 g/t were produced.

1938 – 1939: Diamond Drilling of Thomas Ogden Zone

1939 - Mapping by the Province of Ontario Department of Mines – Map No.47a of the Porcupine Area

1945 – 1948: Naybob Mines – Produced 5,450 tonnes @ a grade of 1.95 g/t in 1948.

1962 – 1964: Kenilworth Mines Ltd. – Bought Coniaurum mill in 1963 and leased DeSantis Mine. Planned to re-process tailings with a reported grade of 4.37 g/t. In-addition mined approximately 45,000 tonnes of unknown grade.

1984: Black River Resources – Optioned property and dewatered shaft. Conducted underground remapping and sampling. No further work completed by Black River Resources.

1985 – 1989: Victoria Porcupine Resources – Dewatered and repaired shaft to 220 meters. Conducted ground geophysical surveys. Drilled 48 holes totaling 7,359 meters, principally on the South Zone.

1990: Tore the plant down and other buildings burnt.

2004: Porcupine Joint Venture acquired property and conducted ground geophysical surveys. Drilled 3,176 meters in 13 holes.

2009 – 2017: Metals Creek Resources conducted 78.85 line kilometers of line-cutting, utilized for ground magnetics and induced polarization surveys. MEK had drilled a total of 33,448 meters in 127 holes on the property; 5 holes on North Zone, 30 holes on South Zone, 8 holes on Porphyry Hill, 76 holes on the Thomas Ogden zone and 8 holes testing other targets. See figure 7 to illustrate the magnetics with overlain induced polarization surveys and diamond drill holes drilled by MEK to date.
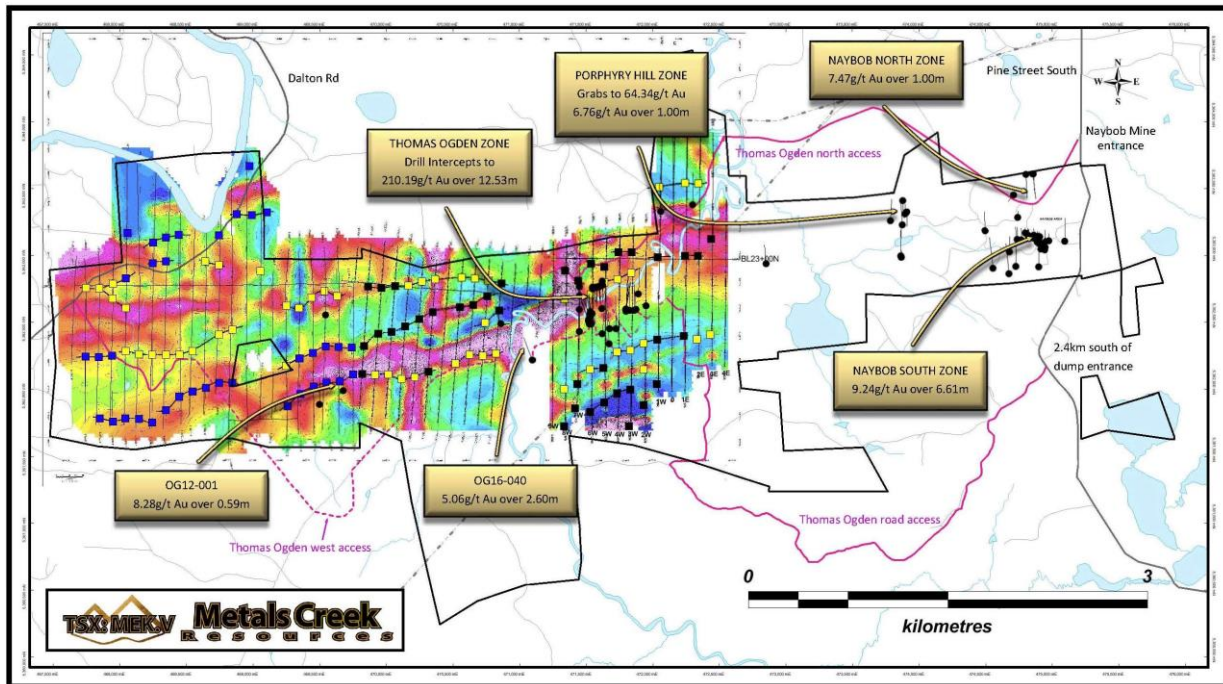
Figure 7: MEK 2009-2017 Ogden Work

2018: Metals Creek conducted a small drone magnetic survey over individual lease number LEA-19618 and 2,382m of diamond drilling was conducted on various zones on the property.

2019: Minor soil sampling and prospecting was carried on said lease LEA-19618. Weak gold and copper anomalies in the soils were generated.

SGH Soil Programs 2020

As an exploration tool to try and see through the extensive overburden and identify gold targets on the property, a spatiotemporal geochemical hydrocarbon (SGH) soil sampling program was initiated. The 2020 program was initially conducted immediately east and west of the Thomas Ogden gold zone as more of a trial run to see that the SGH technology was going to work over fairly extensive overburden of 20+ meters. A total of 235 soils were sent to Actlabs in Thunder Bay for the spatiotemporal geochemical hydrocarbon interpretation. Analysis and interpretation by Actlabs resulted in two gold anomalies. See report in Appendix I.

MEK Sampling, Analytical Techniques

A consistent sampling method was used throughout the program. Recce lines were traversed at 100m spacing, at directions designed to test across stratigraphy and the Porcupine-Destor Break. Samples were taken at 25m spacing at pre-determined sample sites along the lines and GPS'd for accuracy. Samples of sand or occasional clay were consistently collected by soil auger at the humas-sand/clay interface ranging from 0.1 to 0.8m in depth. Approximately one fist sized sample of material was placed into a Ziplock bag and labelled. Labelled flagging was also hung at each sample location in the field for ease of finding the location in the future, should the need arise.
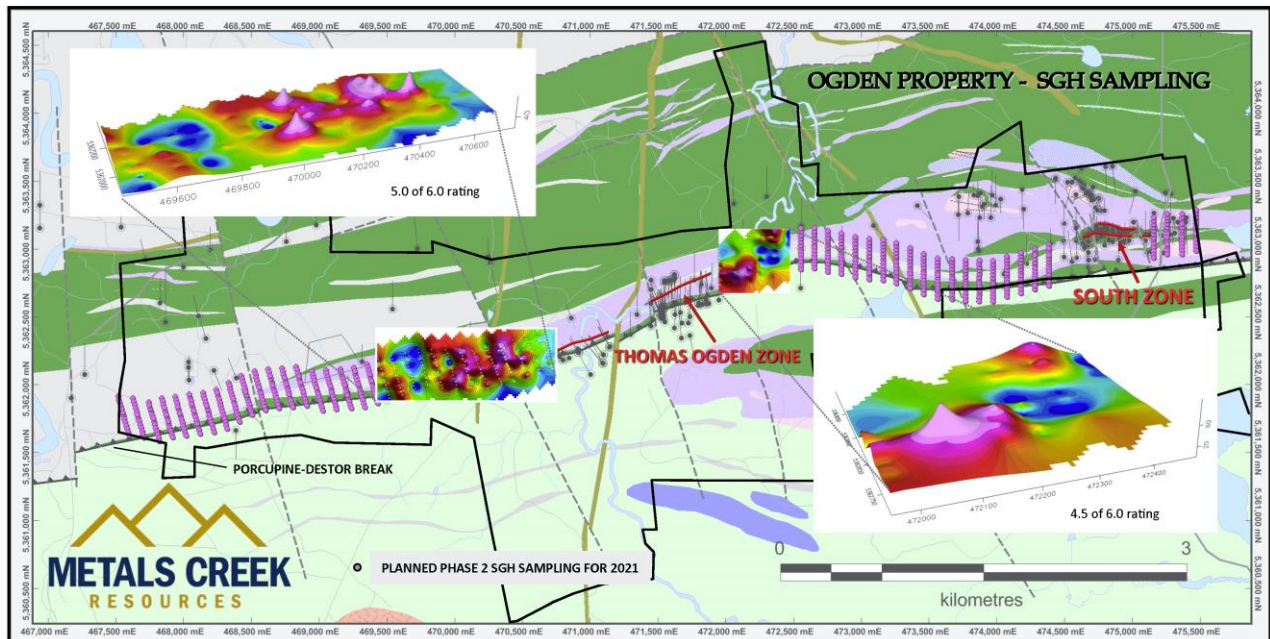
Figure 8: MEK 2020- SGH Results

Conclusions and Recommendations

SGH is a deep penetrating geochemistry that involves testing for specific hydrocarbons which are a result from the decomposition of bacteria and microbes that feed on the target commodities as they require inorganic elements to catalyze the reactions necessary to develop hydrocarbons. These residues subsequently migrated to the surface as a flux of different classes of hydrocarbons. (Actlabs Ogden Report).

With the collection of 235 soil samples, two separate SGH anomalies were identified. Each of the individual anomalies were located straddling the Thomas Ogden Zone. The strongest of the two anomalies is located on the Ogden West grid with a rating of 5.0 out of 6.0 on the Actlabs scale. Please refer to the report in the appendix I for interpretations etc.

The two anomalies at the time of sampling remained untested and it is recommended that these be drill tested to look for gold bearing zones or anomalous alteration zones to help vector towards a new gold discovery.

References

Brown, P.
2005: Porcupine Joint Venture Report on the 2005 Exploration Program Timmins West Project Ogden and Thorneloe Twps. Timmins, Ont.

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1999: Geological Report – The Ogden and Deloro Townships Property, Ontario.

Rhys, D.
2004: Memo to Porcupine Joint Venture on the Timmins West structure.

Rhys, D.
2017: Geological Observations from Site Visits to the Ogden Project, Porcupine Mining District

Statement of Qualifications

I, Don Heerema Jr., hereby certify that:

1. I am a practicing geologist in Thunder Bay, Ontario and reside at 26 Burriss Street, Thunder Bay, Ontario, P7A 3C9.

2. I am a graduate of Lakehead University with a HBSc. in Geology.

3. I am a Canadian Citizen.

4. I have practiced my profession full time since graduation in 2002.

5. I am a practicing member of the Association of Professional Geoscientists of Ontario, registration #1528.
6.
7. I do not have, nor do I expect to receive directly or indirectly, any interest in the properties of Metals Creek Resources.

Signature:

Date: November 21, 2022

APPENDIX I

ACTLABS SGH REPORTS

3D - SGH

"A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

METALS CREEK RESOURCES
OGDEN SURVEYS
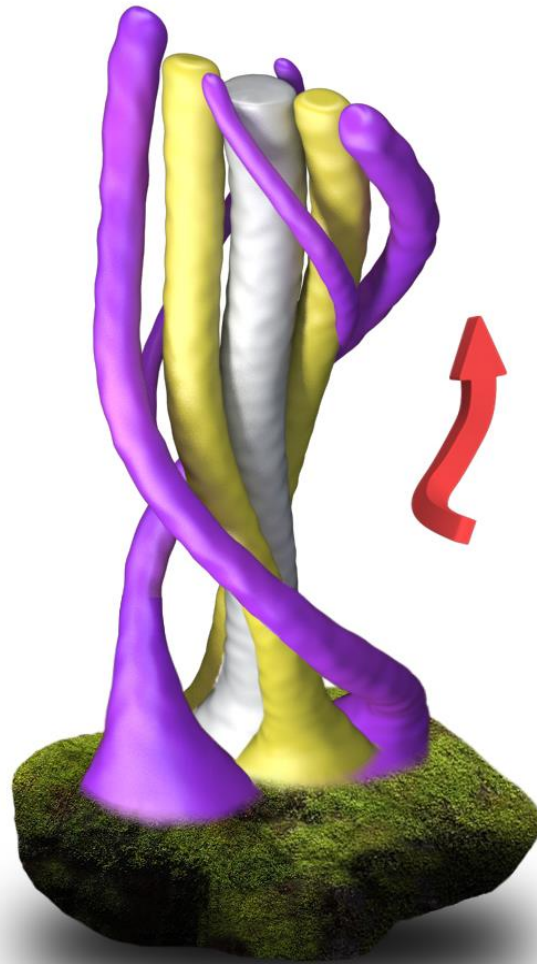
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SGH – SOIL GAS HYDROCARBON
Predictive Geochemistry

for

METALS CREEK RESOURCES

OGDEN SGH SURVEYS

* Jeff Brown,

Activation Laboratories Ltd

(* - author)

Dale Sutherland (- originator)

EVALUATION OF SAMPLE DATA – EXPLORATION FOR:
"GOLD" TARGETS

THE SGH GOLD INTERPRETATION TEMPLATE IS
USED FOR THIS REPORT

Workorder: A20-11894

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 Ogden Surveys starts on page 15. In the author's opinion, the SGH appeared to perform well in terms of response. The grid shape of these surveys helped to identify the possible presence of the corresponding 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 had 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) 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 ±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 tha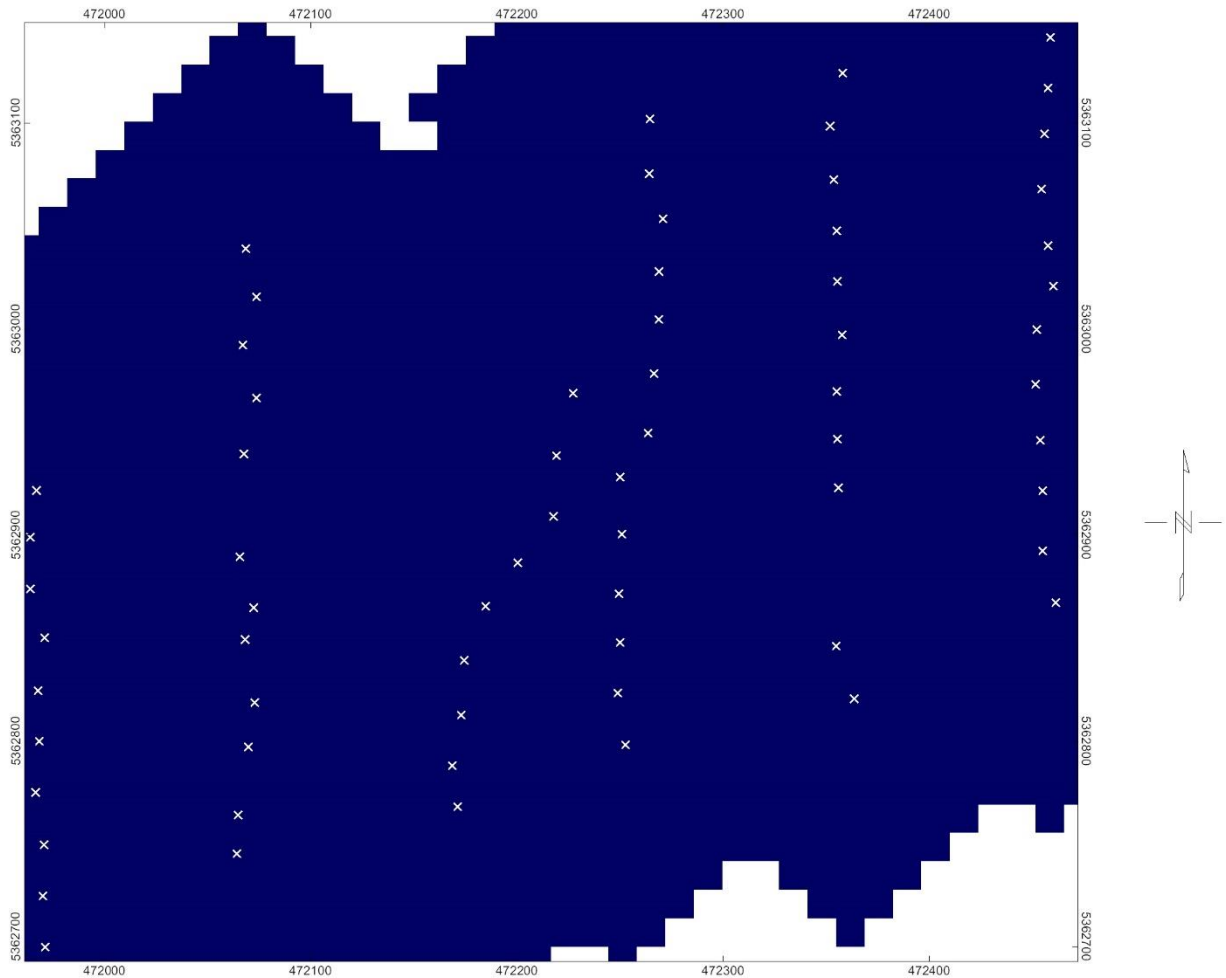t SGH is a Nano-geochemistry. The term "Nano" is not only used to describe the capability in detecting "Nano" quantities of these hydrocarbon based bacterial decomposition products, with the ability to detect 1 nanogram per kilogram (ng/Kg or 1 part-per-trillion), but "Nano" also describes the size of 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
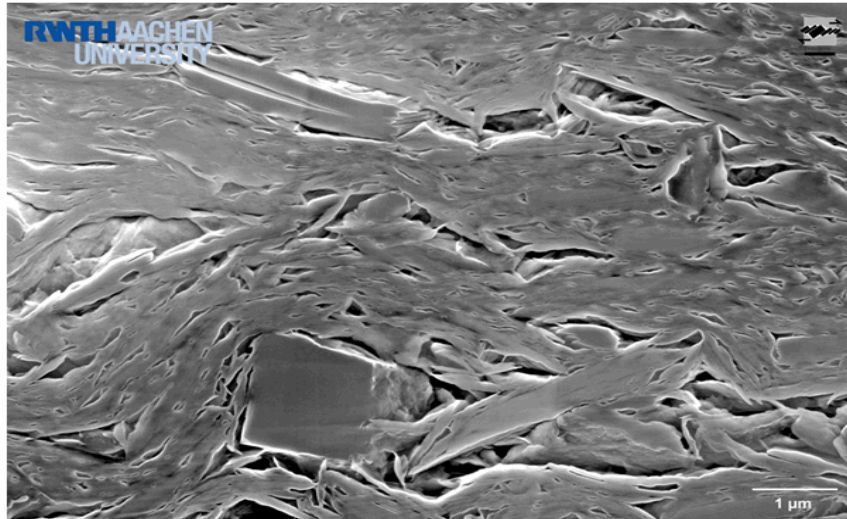
This new understanding of the rationale of why SGH anomalies are so reliable in their vertical projection of the location of mineralization and in the ability to so accurately delineate shallow and deep mineralization has further lead to the ability to use SGH to review different layers of the overburden 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 - A20-11894
METALS CREEK RESOURCES – OGDEN E SURVEY

This report is based on the SGH results from the analysis of a total of 67 soil samples from the Ogden E survey.   The survey can be described as a grid with sample spacing of approximately 25m with approximately 100m line spacing. The samples were shipped to Actlabs Global Headquarters. Sample coordinates were provided for mapping of the SGH results for these samples in UTM format. A sample location map is shown below.

This report is based on the SGH results from the analysis of a total of 168 soil samples from the Ogden W survey.   The survey can be described as a grid with sample spacing of approximately 25m with approximately 100m line spacing. The samples were shipped to Actlabs Global Headquarters. Sample coordinates were provided for mapping of the SGH results for these samples in UTM format. A sample location map is shown below.

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E-mail: SGH@actlabs.com ● Web Site: www.actlabs.com
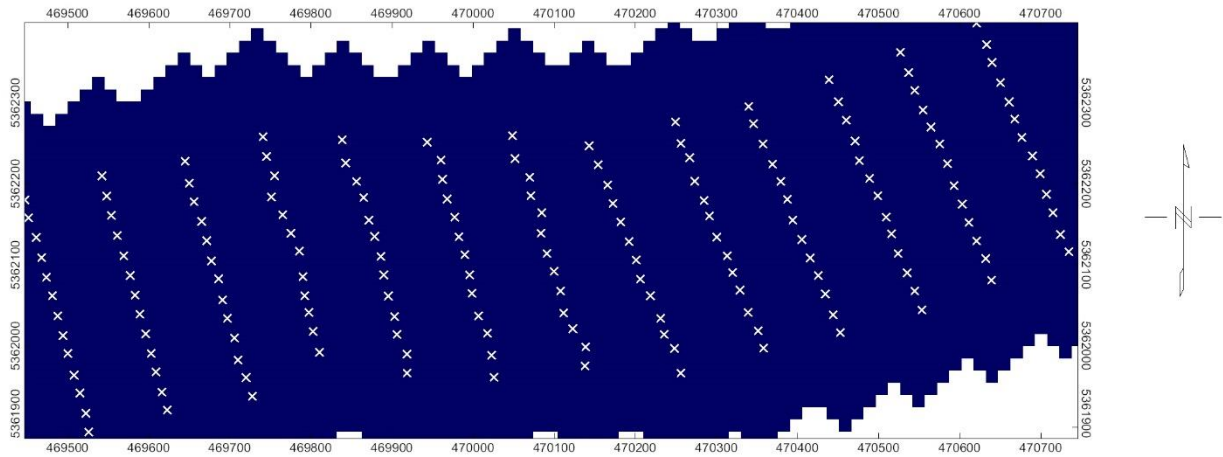
SGH INTERPRETATION - A20-11894 – METALS CREEK RESOURCES
QUALITY ASSURANCE – OGDEN SURVEYS

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. <u>The number of samples submitted for these surveys was adequate to use SGH as an exploration tool</u>. 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 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 2 Surveys from the Ogden project was very good as demonstrated by the samples taken from these surveys 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 these surveys was:

Ogden E – 13.5% from 5 replicates

Ogden W – 9.5% from 10 replicate

Each of these represents a very good level of analytical performance especially at such low parts-per-trillion concentrations.

The location of **Field Duplicate samples was not identified from the Ogden soil surveys.** 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 OGDEN surveys.** A template or group of SGH Pathfinder Classes that have been found to be associated with buried Gold targets was used as the basis for the interpretation of this area. The final interpretation is customized and conducted by the author. Although the term "template" or "signature" appears in this SGH Report, a computerized interpretation is not used.

SGH INTERPRETATION - SGH TARGET PATHFINDER CLASS MAPS

    The maps shown in plan and in 3D views in this report are SGH "Pathfinder Class maps" for targeting various chemical classes of hydrocarbon flux signatures related to Redox conditions and 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 OGDEN survey areas. 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. A legend of the compound classes is in the SGH data spreadsheet.

    The 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 Gold as described. Each pathfinder class map is still just one of the Pathfinder Class maps used in the interpretation template for 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).

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.

A20-11894 – METALS CREEK RESOURCES
OGDEN SURVEYS
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.

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

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

The SGH Class maps are only a portion of the SGH 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, 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 OGDEN surveys also agree with the interpretations shown in the following pages.

This portion of the SGH hydrocarbon signatures is predicted to be associated with 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 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).

Page 24 of this report, and in 3D-view on page 25, shows the anomaly from the most reliable SGH Pathfinder Class in predicting the presence of Gold Mineralization. This map shows an apical anomaly outlined in yellow. We believe that mineralization might exist at this location as a vertical projection beneath this anomaly. Several other SGH Pathfinder Class Maps associated with the presence of Gold mineralization (not shown in this report) support the interpretation of this anomaly at the Ogden E survey.

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

A20-11894 – METALS CREEK RESOURCES – OGDEN E
SGH "GOLD" PATHFINDER CLASS MAP

PREDICTED GOLD MINERALIZATION – YELLOW OUTLINE

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

GEOSOFT.

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Page 27 of this report, and in 3D-view on page 28, shows the anomalies from the most reliable SGH Pathfinder Class in predicting the presence of Gold Mineralization. This map shows the apical anomalies outlined in yellow within what appears to be a Redox Zone. We believe that mineralization might exist at this location as a vertical projection beneath these anomalies. Several other SGH Pathfinder Class Maps associated with the presence of Gold mineralization (not shown in this report) support the interpretation of this anomaly at the Ogden W survey.

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

A20-11894 – METALS CREEK RESOURCES – OGDEN W
SGH "GOLD" PATHFINDER CLASS MAP

Potential Redox Zone
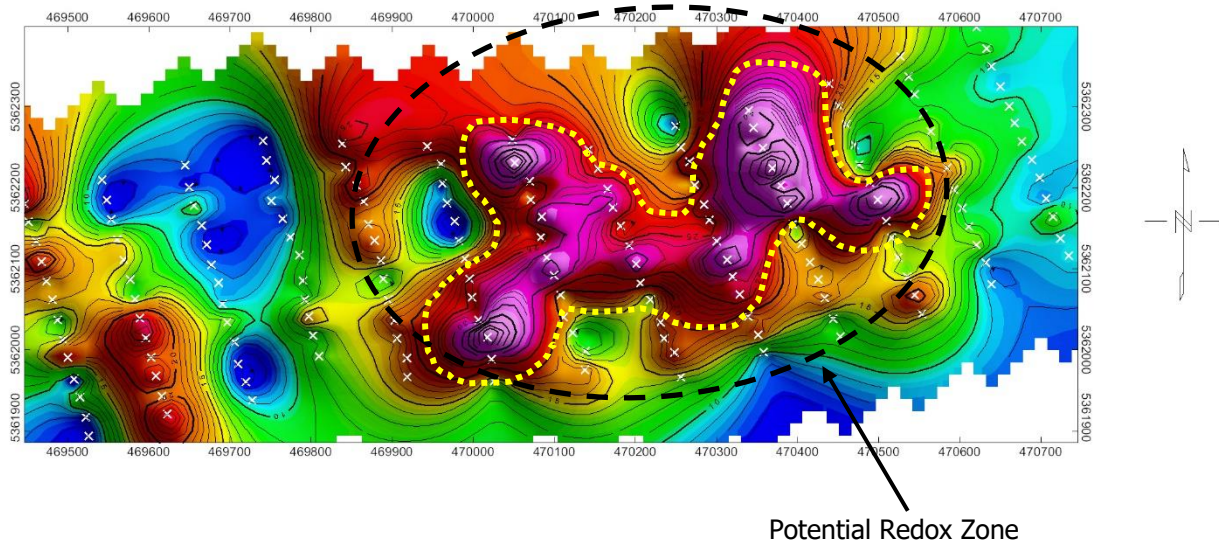
PREDICTED GOLD MINERALIZATION – YELLOW OUTLINE

SGH SIGNATURE RATING RELATIVE TO "GOLD" = 5.0 OF 6.0

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.

A20-11894 – METALS CREEK RESOURCES – OGDEN W
SGH "GOLD" PATHFINDER CLASS MAP
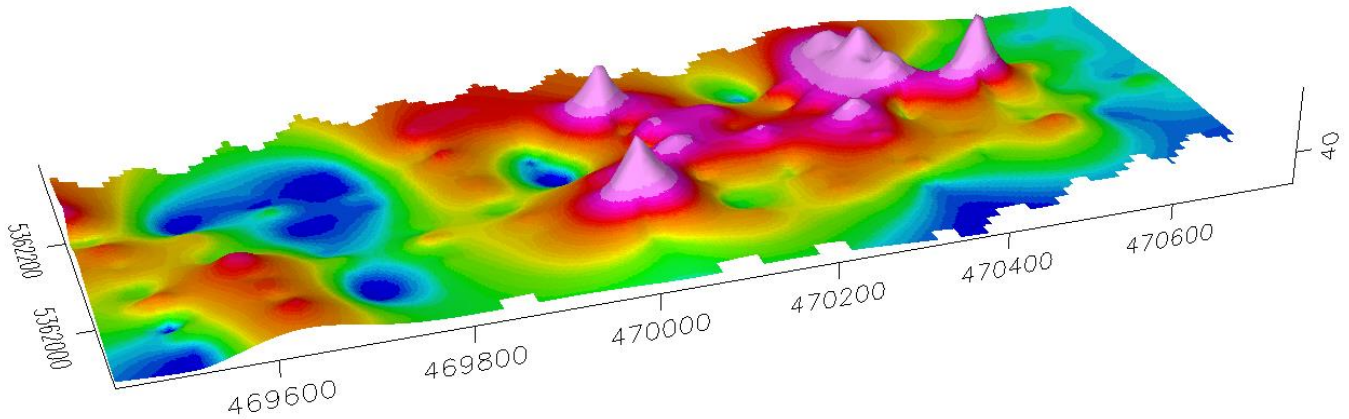
Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

A20-11894 – METALS CREEK RESOURCES
OGDEN SURVEYS - SGH INTERPRETATION FOR THE PRESENCE OF MINERALIZATION

The interpretation of the SGH data on page 24 and 27 relative to the presence of Gold mineralization at the Metals Creek Resources OGDEN surveys may be based on the makeup of SGH signatures with the possible presence of mineralization.

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

The subjective SGH confidence rating for the OGDEN surveys assigned to the anomalies in general on these maps where the anomalies coincide on their location is on average 5.0 on a scale of 6.0. The Rating for the OGDEN surveys 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 (±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 ≥5.0.

The SGH Ratings shown on page 24 and 27 in this and all SGH reports are based on a scale of 6.0, in 0.5 increments, with a value of 6.0 being the best. The SGH Ratings discussed in relation to mineralization represents the similarity of these SGH results with other SGH case studies and orientation studies over known mineralization. Theses SGH signatures or templates have been constantly refined and enhanced since inception and has been proven to be effective and reliable. The SGH templates are based on the interpretation from over 1,100 interpretations of surveys in many different geographical regions and from a wide variety of lithologies. The degree of confidence in the SGH Rating only <u>starts to be "good" at a level of 4.0</u>. 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.

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.

A20-11894 – METALS CREEK RESOURCES
OGDEN SURVEYS - 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 OGDEN surveys. 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 no recommendation for immediate in-fill sampling on these surveys. Additional in-fill samples should be able to be easily added to the current data set without data leveling 90+% of the time. <u>As the interpretation is difficult for surveys having less than 50 sample locations and the corresponding confidence is significantly lower, surveys with less than 50 sample locations may not be accepted and may be returned to the client at their expensive. We believe a survey with less than 50 sample locations is not beneficial or cost effective to the client.</u>

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

In general, if the client decides that in-fill sampling may be warranted, to obtain the best results from additional sampling for SGH it is usually recommended that <u>sample locations from the original survey within, or bordering, the area of interest be re-sampled</u> 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.

METALS CREEK RESOURCES

945 Cobalt Cres

Thunder Bay, ON

P7B 5Z4

Attention: Mike MacIsaac

RE: Your Reference: **OGDEN Surveys**

 Activation Laboratories Workorder: A20-11894

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.

235 Samples were analyzed for this submission.

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

Interpretation relative to 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)

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 underline 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.

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.
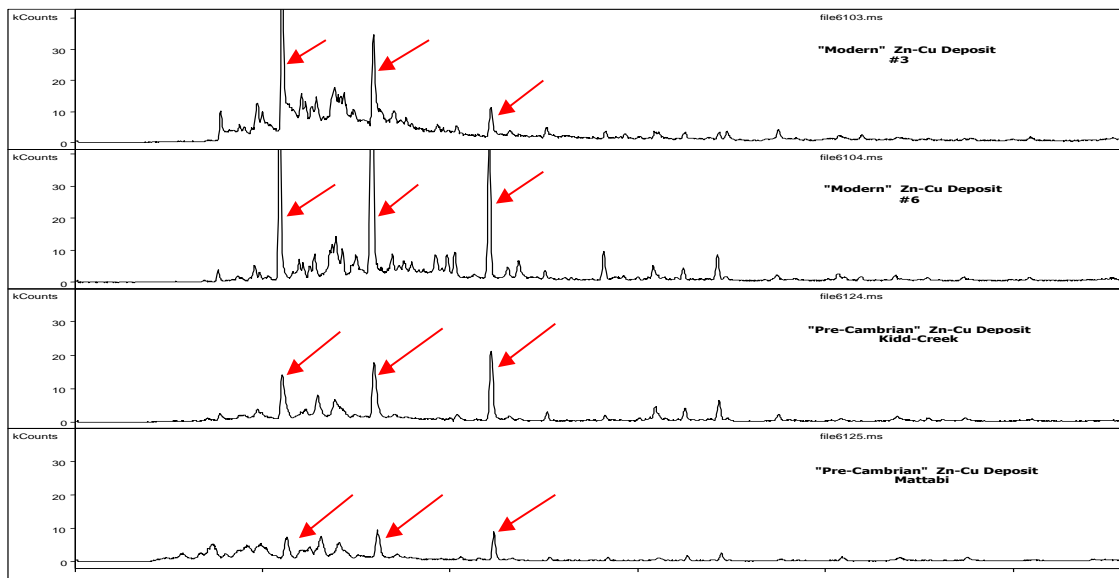
The above profiles are:

- 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:
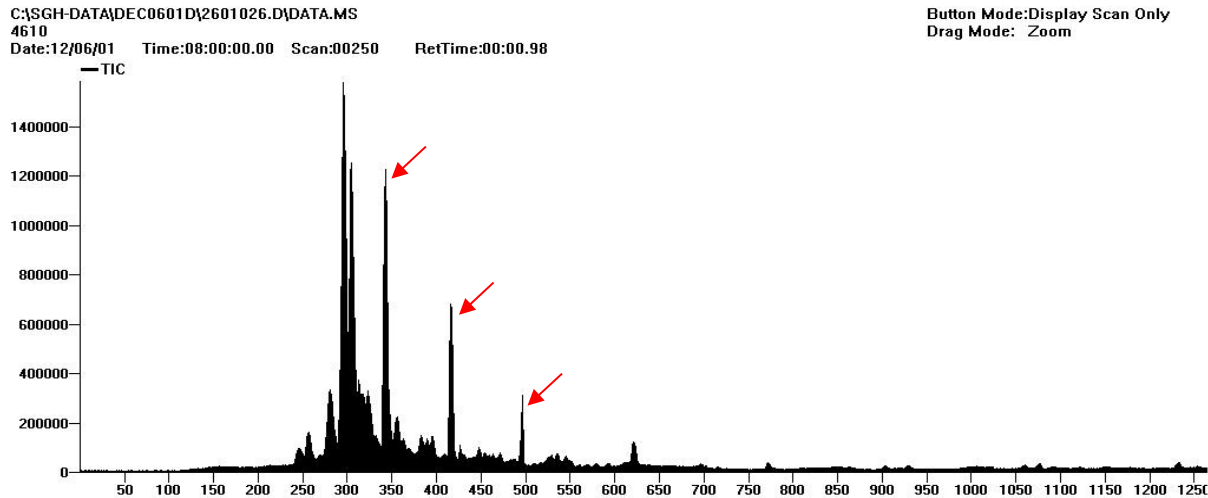
The three compounds indicated by the red arrows represent the same *visible portion* of the VMS signature observed from the modern day black smoker samples and the ore samples taken from the Mattabi and Kidd Creek, even though this soil was taken from over a different VMS deposit in a geographically 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.
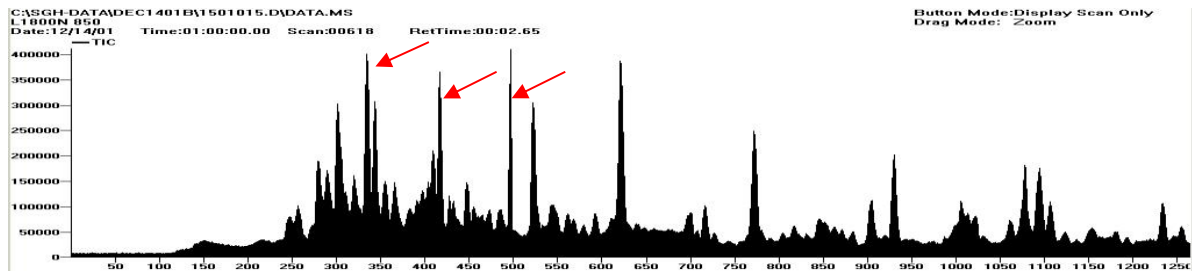
In research conducted by the Ontario Geological Survey, this same portion of the SGH signature was also observed over the VMS deposit at Cross Lake in Ontario. **Note that the visible signature shown as the three compounds indicated by the red arrows is only a small portion of the**

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 hear as the "visible" SGH VMS signature in the GC/MS chromatograms, is again shown by the red arrows.
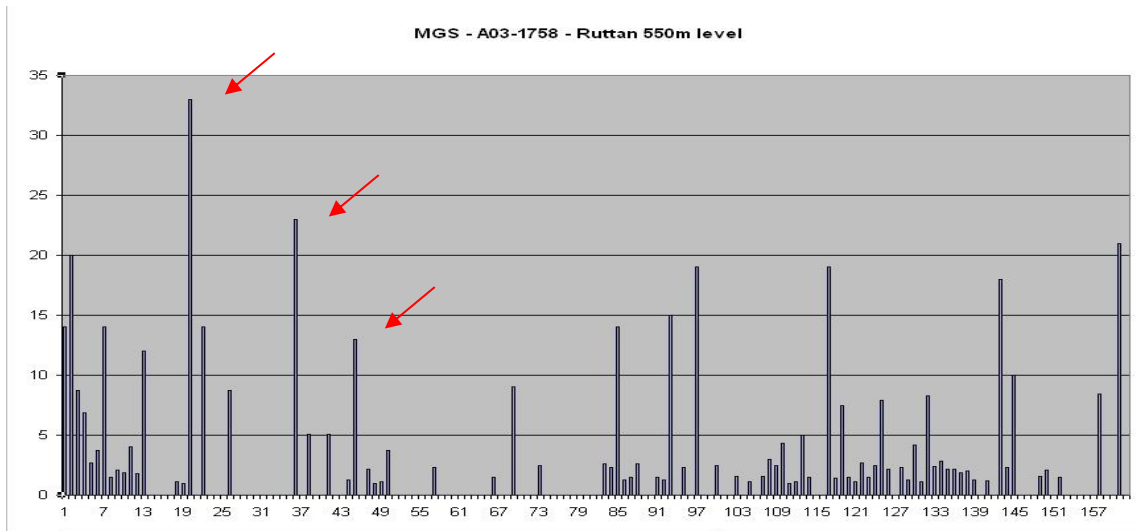
Through the work done in the SGH CAMIRO research projects, it was observed that the hydrocarbon signature produced by the SGH technique appeared to also be able to be used to differentiate barren from ore-bearing conductors. This was explored further through the submission and analysis of specific specimen 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**.
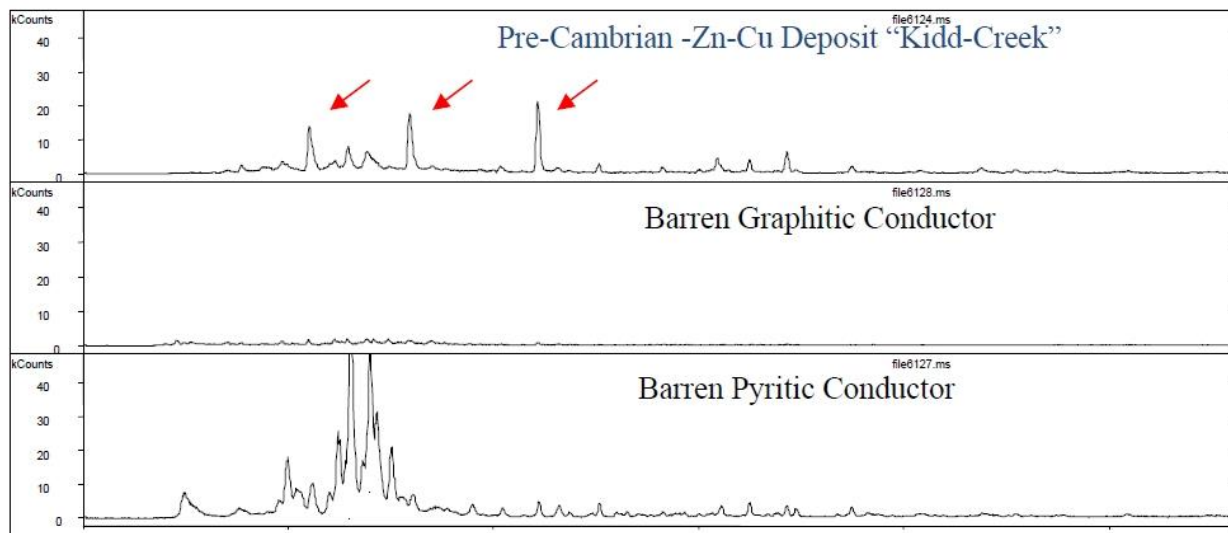
Pre-Cambrian -Zn-Cu Deposit "Kidd-Creek"
file6124.ms

Barren Graphitic Conductor
file6128.ms

Barren Pyritic Conductor
file6127.ms

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 is 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 -60 mesh sieve fraction (<250 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 ≥ 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 <u>instrumental</u> 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

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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 <u>well</u> 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 <u>fairly well</u> 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
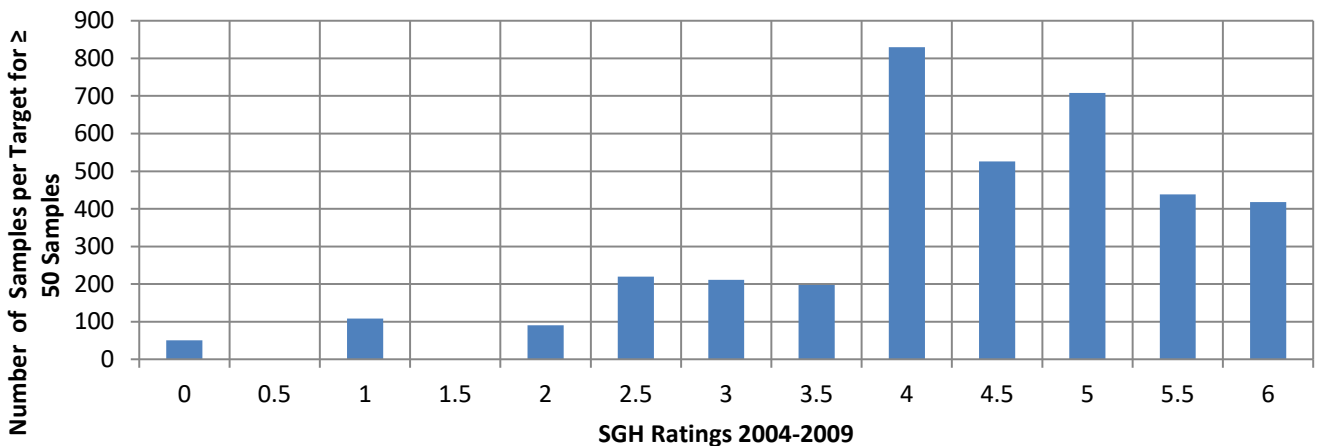
The rating frequency may be biased low as research projects often include a bare minimum of samples to reduce costs. Research projects may also be over targets known to be difficult to depict with geochemistry. Multiple targets in close vicinity in a survey may result in a low bias as the Pathfinder Class geochromatography is more difficult to deconvelute. 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
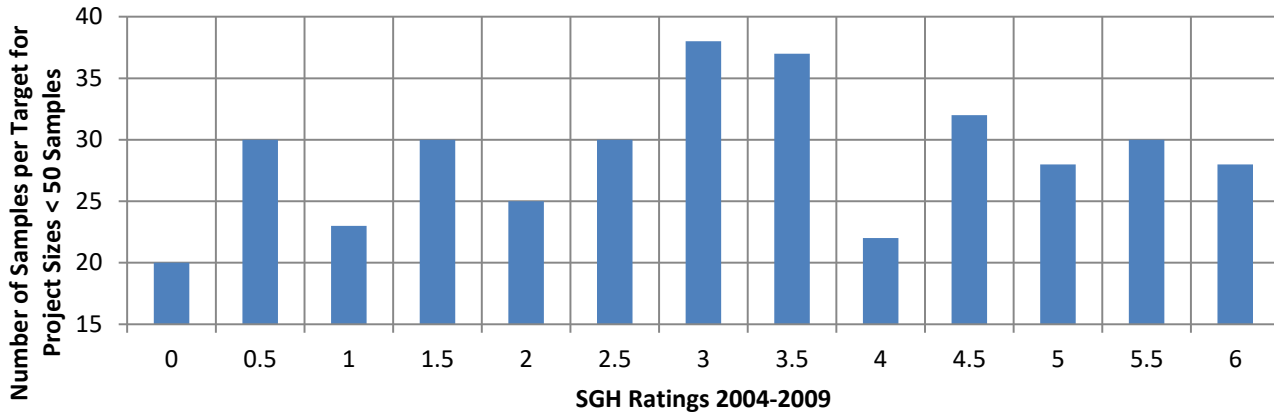
The overall rating frequency for over 400 targets from January 2004 to December 2009 is shown in the chart below illustrating that surveys over more promising targets are most often submitted for best use of research or exploration dollars. It also indicates that the 0.5 increments were less frequent as they started in 2007.

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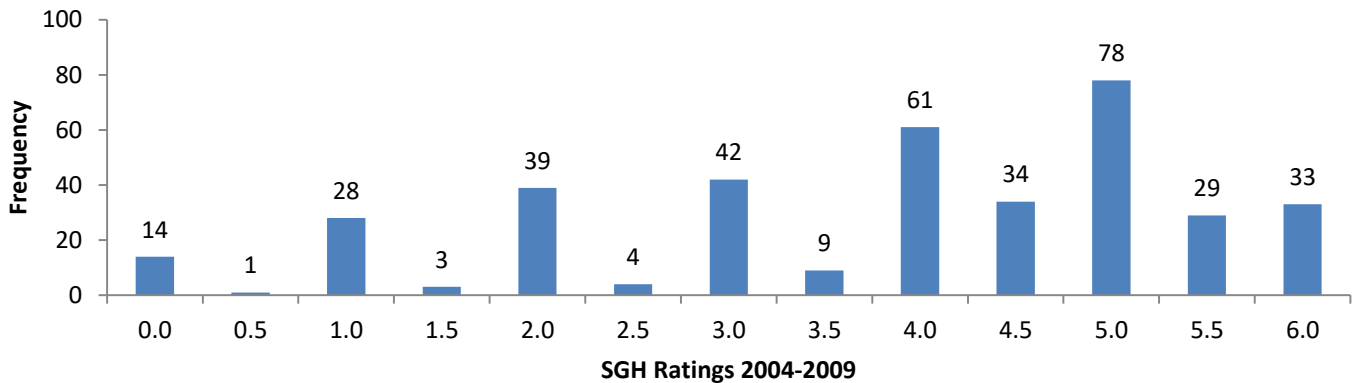
More specific for SGH interpretation for Gold targets, the overall rating frequency for 97 targets from January 2004 to December 2009 is shown in the chart below that also illustrates that surveys over more promising Gold targets are most often submitted for best use of research or exploration dollars.

Total Gold
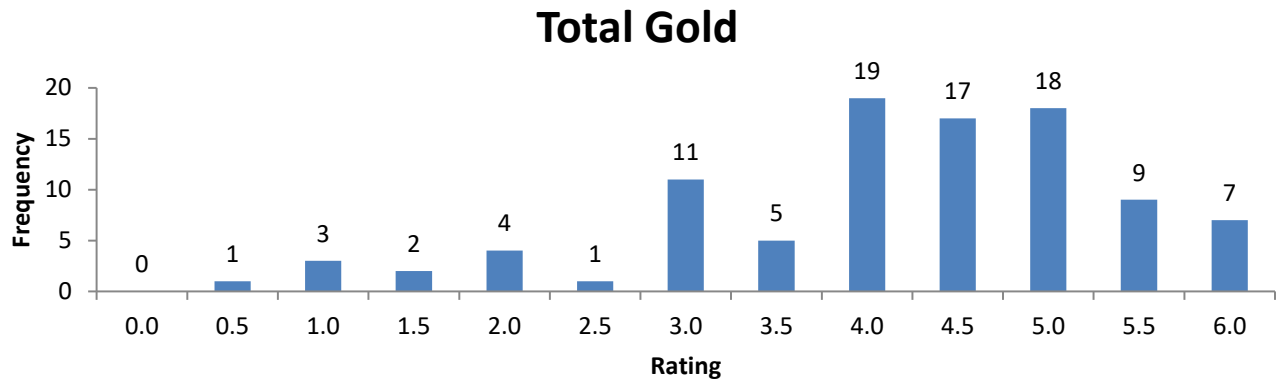
APPENDIX "H"

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.

APPENDIX II

MAPS & SOIL DATA

468,000 mE · 470,000 mE · 472,000 mE · 474,000 mE · 476,000 mE

N

OGDEN TWP

DELORO TWP

120985
340015 · 160144
261541
225595
287913
324225 · 221603
324226 · 209520
PAT-2681 · PAT-28697
PAT-29056 · PAT-29051 · PAT-29050 · PAT-29049
128588 · 323801
PAT-28698
PAT-28700
PAT-29057
PAT-28699
PAT-2680
PAT-2682
PAT-2683
PAT-2684
PAT-2685
PAT-29052
144032 · 144031 · 126326
162153
221579
162154 · 201446
257540
PAT-29065
PAT-29055
PAT-29054
288148 · 100724
194304 · 165533
PAT-3678 · PAT-3677 · PAT-3676
PAT-29064
126327
162155
281033
LEA-108841
PAT-29060 · PAT-29063 · PAT-29062 · PAT-29058 · PAT-29066
339968 · 225533 · 213559
PAT-3679
PAT-29059
213523
PAT-3675
281023
232349
120981
160138
116694 · 160137
PAT-3680
276074 · 101375
217849
232858
PAT-3420
PAT-3427
160139 · 225556 · 281580
PAT-3682 · PAT-3681
144062 · 114912 · 237936
LEA-19618
181987 · 265977 · 265976
PAT-3419 · PAT-3418
PAT-3421
112817 · 322604 · 253913
PAT-3426 · PAT-3425
PAT-3424
PAT-3423 · PAT-3422

Metals Creek Resources

2020 SGH RESULTS

Date: 2022-11-21	
Author: dheer	
Office:	
Drawing:	
Scale: 1:5,000	Projection: UTM NAD83 ZONE 17

0 ————————— 1
kilometers

Metals Creek Resources SGH Units – ppt (Parts-per-trillion)
Ogden SGH Project UTM coordinates - NAD83 Zone 17

Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing
E1	14.0	471971.184	5362699.99	E40	9.7	472252.7323	5362798.101	E74	6.1	472457.7024	5363040.527
E2	13.0	471970.135	5362724.9	E41	7.6	472248.8499	5362823.434	E75	7.2	472454.5052	5363067.045
E3	11.3	471970.742	5362749.689	E42	11.2	472249.9684	5362847.933	E76	7.4	472455.7887	5363094.668
E4	12.7	471966.495	5362775.099	E43	6.4	472249.4023	5362871.657	E77	5.4	472457.5776	5363116.927
E5	7.6	471968.466	5362799.901	E44	7.9	472250.9693	5362900.364	E78	6.8	472458.7699	5363141.509
E6	18.5	471967.843	5362824.519	E45	4.6	472250.1436	5362928.058				
E7	11.7	471971.009	5362850.163	E46	9.5	472263.6817	5362949.477				
E8	8.9	471964.056	5362873.872	E47	5.5	472266.5832	5362978.42				
E9	13.6	471964.125	5362898.999	E48	6.1	472268.9257	5363004.683				
E10	7.1	471966.996	5362921.644	E49	6.5	472268.8845	5363027.929				
E11	8.2	472068.592	5363039.115	E50	7.9	472270.7522	5363053.485				
E12	7.9	472073.804	5363015.703	E51	12.1	472264.0751	5363075.478				
E13	6.8	472066.966	5362992.351	E52	8.0	472264.3965	5363101.872				
E14	7.5	472073.81	5362966.565	E53	11.4	472363.3804	5362820.573				
E15	8.6	472067.499	5362939.493	E54	10.5	472354.8529	5362846.06				
E17	10.0	472065.689	5362889.358	E57	4.0	472355.8603	5362922.883				
E18	11.9	472072.365	5362864.756	E58	7.5	472355.4493	5362946.699				
E19	16.1	472068.096	5362849.283	E59	6.6	472355.2389	5362969.676				
E20	32.0	472072.808	5362818.756	E60	5.8	472357.7853	5362997.13				
E21	16.3	472069.626	5362797.174	E61	8.7	472355.3384	5363023.146				
E22	16.5	472064.83	5362764.123	E62	7.5	472355.1734	5363047.781				
E23	14.9	472064.291	5362745.351	E63	18.6	472353.7929	5363072.469				
E24	11.7	472171.388	5362768.117	E64	6.8	472351.8113	5363098.482				
E25	13.5	472168.659	5362788.19	E65	18.4	472357.9096	5363124.326				
E26	18.7	472172.935	5362812.738	E67	9.5	472461.2695	5362867.195				
E27	14.4	472174.454	5362839.191	E68	8.0	472455.0903	5362892.278				
E28	21.0	472184.748	5362865.582	E69	7.8	472455.0833	5362921.468				
E29	13.5	472200.381	5362886.571	E70	7.6	472453.9063	5362945.978				
E30	14.4	472217.752	5362909.145	E71	7.1	472451.4649	5362973.223				
E31	11.2	472219.272	5362938.505	E72	7.3	472452.0958	5362999.653				
E32	6.7	472227.204	5362968.839	E73	7.0	472460.2672	5363020.837				

Metals Creek Resources SGH Units – ppt (Parts-per-trillion)
Ogden SGH Project UTM coordinates - NAD83 Zone 17

Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing
W1	9.7	470734.665	5362116.211	W31	13.6	470515.8783	5362138.392	W62	12.8	470272.9595	5362203.445
W2	8.9	470723.928	5362137.854	W32	16.2	470509.0142	5362159.13	W63	28.7	470266.7276	5362232.165
W3	12.6	470714.991	5362164.472	W33	79.3	470498.935	5362185.382	W64	13.8	470256.1375	5362250.276
W4	7.4	470706.753	5362187.155	W34	13.4	470488.4572	5362206.558	W65	7.4	470249.6675	5362276.566
W5	9.4	470698.914	5362212.464	W35	10.0	470476.5277	5362228.86	W66	13.7	470256.2095	5361966.498
W6	8.9	470689.357	5362234.436	W36	9.6	470470.6929	5362253.04	W67	20.6	470248.1075	5361997.045
W7	11.2	470676.865	5362257.076	W37	13.7	470459.9519	5362278.411	W68	16.4	470235.5887	5362014.524
W8	9.9	470667.836	5362280.229	W38	17.8	470450.2224	5362301.465	W69	19.2	470230.8667	5362034.292
W9	10.8	470660.847	5362301.014	W39	24.0	470438.7083	5362328.414	W70	11.8	470218.3144	5362061.889
W10	8.8	470650.385	5362325.181	W40	11.8	470452.4663	5362016.799	W71	21.8	470206.2667	5362082.804
W11	9.6	470639.486	5362350.151	W41	11.5	470443.9207	5362038.581	W72	35.4	470201.0224	5362105.836
W12	11.8	470632.925	5362372.024	W42	19.9	470433.992	5362063.975	W73	26.3	470192.4643	5362128.595
W13	10.0	470621.035	5362398.276	W43	14.7	470425.3523	5362086.725	W74	20.7	470181.7499	5362152.941
W14	8.2	470638.985	5362080.938	W44	17.7	470415.4985	5362108.579	W75	30.6	470172.3172	5362175.659
W15	7.6	470631.948	5362107.947	W45	16.4	470405.2341	5362131.394	W76	30.2	470165.7828	5362198.66
W16	14.1	470620.534	5362129.361	W46	8.3	470394.0936	5362155.099	W77	21.0	470154.1163	5362223.561
W17	10.9	470611.206	5362152.292	W47	62.4	470387.4568	5362181.24	W78	24.4	470142.6844	5362247.035
W18	10.3	470602.864	5362175.152	W48	23.4	470379.5128	5362202.925	W79	18.5	470138.0222	5361975.449
W19	13.0	470592.629	5362197.837	W49	71.3	470369.2218	5362224.156	W80	10.8	470138.8777	5361998.923
W20	19.7	470584.807	5362225.083	W50	30.6	470357.1217	5362249.301	W81	11.3	470122.9365	5362021.322
W21	10.0	470575.045	5362249.237	W51	50.8	470345.7479	5362274.544	W82	20.4	470111.508	5362040.808
W22	13.7	470564.572	5362270.133	W52	36.4	470339.9976	5362295.789	W83	14.0	470107.9348	5362067.781
W23	11.2	470554.988	5362291.417	W53	8.2	470358.291	5361997.25	W84	39.4	470099.9064	5362092.113
W24	10.7	470544.599	5362315.397	W54	19.9	470351.5678	5362018.742	W85	34.2	470091.1954	5362114.035
W25	11.7	470536.83	5362337.369	W55	16.2	470339.1755	5362041.485	W86	18.5	470083.5633	5362139.381
W26	15.4	470526.621	5362362.495	W56	30.4	470328.7683	5362068.969	W87	37.9	470084.4524	5362164.476
W27	14.7	470553.003	5362044.33	W57	23.2	470320.1469	5362090.397	W88	12.3	470071.1025	5362185.314
W28	23.0	470544.653	5362068.02	W58	46.7	470313.357	5362110.939	W89	22.3	470069.7581	5362207.934
W29	12.1	470535.061	5362090.282	W59	26.4	470300.082	5362134.422	W90	63.0	470051.1738	5362231.213
W30	14.6	470523.995	5362114.06	W60	22.1	470291.1814	5362160.538	W91	24.3	470048.458	5362259.579
				W61	32.3	470284.513	5362179.384	W92	12.9	470025.6119	5361961.284

Metals Creek Resources SGH Units – ppt (Parts-per-trillion)
Ogden SGH Project UTM coordinates - NAD83 Zone 17

Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing	Sample	SGH-Gold	Easting	Northing
W93	23.1	470022.724	5361988.483	W125	9.8	469775.0166	5362138.949	W156	7.9	469541.7407	5362210.141
W94	73.9	470017.749	5362015.709	W126	6.7	469764.587	5362161.701	W157	6.4	469526.2891	5361893.854
W95	25.1	470006.82	5362036.889	W127	8.9	469751.2727	5362184.338	W158	7.7	469521.5871	5361916.92
W96	26.0	469998.738	5362065.05	W128	6.7	469755.0381	5362209.986	W159	13.8	469514.9722	5361941.823
W97	26.1	469995.509	5362087.792	W129	6.8	469745.3052	5362234.216	W160	4.3	469507.733	5361963.683
W98	17.3	469989.587	5362112.886	W130	6.4	469740.5204	5362258.14	W161	24.3	469500.286	5361990.537
W99	7.1	469982.285	5362134.782	W131	8.8	469728.2779	5361937.838	W162	12.5	469493.8194	5362013.194
W100	3.4	469976.973	5362158.895	W132	5.3	469719.6443	5361961.252	W163	11.6	469488.4899	5362037.177
W101	9.3	469967.794	5362181.388	W133	6.1	469710.4562	5361983.028	W164	17.5	469480.7474	5362062.281
W102	6.8	469962.272	5362205.595	W134	8.5	469705.9155	5362009.699	W165	14.9	469474.4309	5362084.937
W103	15.2	469960.314	5362229.532	W135	14.2	469697.2484	5362033.765	W166	24.7	469467.5747	5362108.732
W104	23.1	469943.162	5362251.471	W136	8.0	469690.5643	5362057.438	W167	15.7	469461.2704	5362133.661
W105	26.4	469838.383	5362254.152	W137	8.7	469685.5712	5362083.012	W168	11.2	469452.4841	5362158.399
W106	14.4	469842.665	5362225.479	W138	7.9	469677.2303	5362105.399	W169	27.1	469446.867	5362179.588
W107	25.6	469856.006	5362203.057	W139	6.5	469671.0439	5362130.485				
W108	18.5	469865.229	5362183.2	W140	7.3	469664.8662	5362153.709				
W109	17.8	469871.149	5362155.553	W141	12.1	469655.6692	5362178.373				
W110	20.3	469878.595	5362135.081	W142	6.0	469649.7073	5362201.344				
W111	17.0	469886.553	5362110.581	W143	8.1	469645.2475	5362227.959				
W112	10.8	469889.478	5362087.804	W144	26.7	469622.9456	5361920.625				
W113	14.8	469895.43	5362061.685	W145	17.2	469616.0547	5361942.725				
W114	20.1	469903.277	5362036.087	W146	25.0	469609.0422	5361967.602				
W115	15.7	469905.873	5362014.429	W147	19.6	469602.5936	5361991.19				
W116	18.3	469918.173	5361989.776	W148	29.6	469595.7515	5362015.441				
W117	17.2	469918.696	5361966.826	W149	27.4	469589.2164	5362039.067				
W119	13.0	469810.254	5361992.064	W150	10.0	469583.2363	5362063.249				
W120	10.9	469802.365	5362017.905	W151	12.9	469576.5859	5362087.341				
W121	18.6	469797.312	5362041.635	W152	15.5	469569.0288	5362111.243				
W122	10.2	469792.37	5362061.805	W153	16.0	469561.1471	5362135.882				
W123	12.3	469790.245	5362085.425	W154	7.0	469554.306	5362161.392				
W124	10.6	469785.718	5362117.165	W155	5.9	469547.8888	5362184.97				

Applicant: **Metals Creek Resources**
Project: **OGDEN**

Category	Invoice #	Invoice Date (mm/dd/yyyy)	Supplier	Description	Total Expenditures
Labour	N/A	N/A	Don Heerema (MEK)	3 days in field soil sampling	$ 1,614.00
	N/A	N/A	Mike MacIsaac (MEK)	3 days in field soil sampling	$ 1,155.00
	N/A	N/A	Don Heerema (MEK)	2 days report and maps	$ 962.00
				Subtotal	**$ 2,769.00**
Assays	A20-11894	10/06/2020	Actlabs	235 SGH samples and interp	$ 12,384.50
				Subtotal	**$ 12,384.50**
Accommodations	2026	09/19/2020	Travelodge Timmins	4 night stay (room 124)	$ 472.36
	2027	09/19/2020	Travelodge Timmins	4 night stay (room 128)	$ 472.36
				Subtotal	**$ 944.72**

Excludes HST   **Total for project**   **$ 16,098.22**