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## Assessment Report

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On the

## Roop Claim Group

Describing the

## 2017 Soil Gas Hydrocarbon Survey

105M 15

Latitude 63.8234N, Longitude 134.8256E

In the

Mayo Mining District

Yukon Territory

By

T. B. Sutherland, M.Sc., P.Geo  
September 30th, 2017

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## **1.0 Introduction**

Mayo Lake Minerals Inc. (MLM) owns six claim groups situated around Mayo Lake in the Yukon Territory: Anderson-Davidson, Carlin, Cascade, Edmonton, Roop and Trail-Minto claim groups (Figure 1). The claim groups host, or are the apparent source for, extensive historical placer gold operations. These placer operations indicate nearby bedrock gold sources. The Keno Hill Mining Camp is located about 20 km. north of Mayo Lake and has produced over 200 million ounces of silver from veins cutting Mississippian quartzite and schist. It is in the northeastern portion of the Tintina Gold Belt, a 2100 km long zone of gold and silver deposits extending across central Alaska and Yukon. Nearby deposits include intrusion related gold Dublin Gulch (6.4Moz Au), Red Mountain (1.3Moz Au) and Marge VMS (Au, Ag, Cu, Pb, and Zn).

This report describes a spatiotemporal geochemical hydrocarbon (SGH) analysis and interpretation completed during early 2017 on samples collected in 2014 from the Roop claim group (Property). Parts of this report, where appropriate, are taken verbatim from Sutherland and Rampton 2015.

Samples were collected in 2014 by personnel working under contract to MLM. Samples were originally processed by Bureau Veritas Commodities Canada Ltd. (Bureau Veritas) in Whitehorse and analyzed by Bureau Veritas in Vancouver B.C. using ICP-MS following an Aqua Regia digestion (ICP-MS). The results of the initial analysis are described in Sutherland and Rampton 2014. In March 2017 MLM submitted the samples from their 2014 program on the Property for SGH analysis to Activation Laboratories Ltd of Ancaster, Ontario. Their report is included as Appendix C.

## 2.0 Location and Access

The Property consists of the 87 claim Roop Claim Group. The total area of the Property is 17.2 sq. km. The Property is located 17km kilometers east of Keno in the Yukon on NTS map sheet 105M/15. The claims are registered in the Mayo Mining district under the name of Mayo Lake Minerals Inc. and are listed in Table 1 below with their location shown on Figures 1.

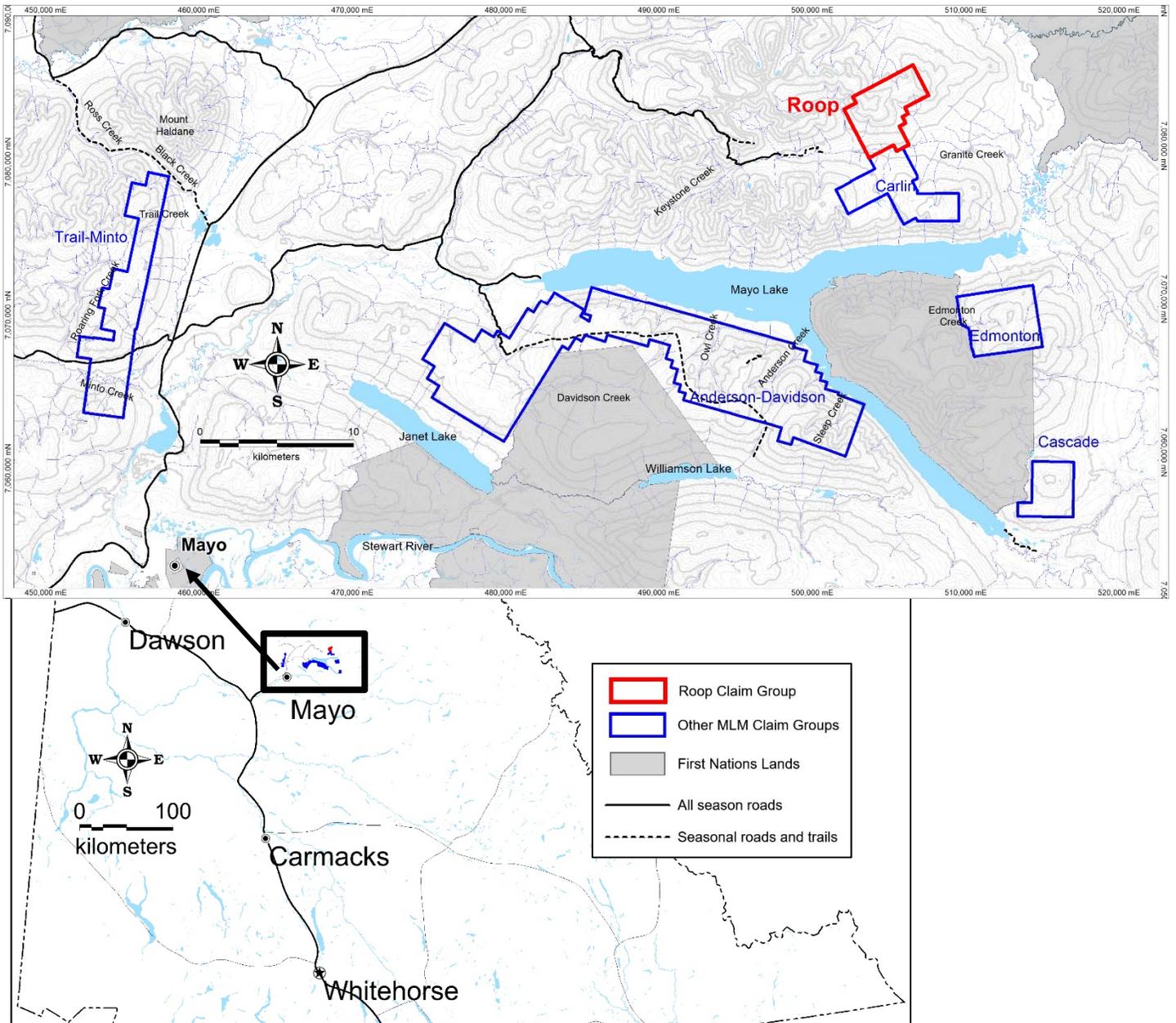


Figure 1: Location of MLM's Properties

Access to the Property is currently provided by helicopter. There is a network of drill roads that connect the Property to the Silver Trail highway at Keno. The Silver Trail connects with the Yukon's paved or chip-sealed highway network at Mayo (Figure 1).

**Table 1 Claims in the Roop Claim group**

GRANT NUMB	CLAIM NAME	Expiry date	CLAIM GROUP
YE24701-YE24704	GR 201-204	20170419	Roop
YE24705-YE24714	GR 205-214	20170419	Roop
YE24735-YE24736	GR 235-236	20170419	Roop
YE24737-YE24739	GR 237-239	20170419	Roop
YE24740-YE24750	GR240-250	20170419	Roop
YE46089-YE46098	GR 89-98	20170419	Roop
YE46113-YE46122	GR 113-122	20170419	Roop
YE46141-YE46152	GR 141-152	20170419	Roop
YE46154	GR 154	20170419	Roop
YE46166-YE46185	GR 166-185	20170419	Roop
YE46197-YE46200	GR 197-200	20170419	Roop

### 3.0 Previous Work

The earliest regional mapping in the Mayo Lake area was undertaken by H.S Bostock in 1947. Early work by Bostock was followed from 1952 to 1965 by numerous workers who published geological maps; these included L.H Green et.al (1972), R.W Boyle (1964), and E.D Kindle (1962) with contributions by C.F Gleeson (Boyle 1964). Mapping was reinitiated in the early 1992 by J.A Hunt et al. (1996), D.C. Murphy et al. (1996) and C.F Roots (1997); in addition to fieldwork they integrated numerous geological publications dating from 1920 to 1996. Roots' work resulted in a regional map at 1:250,000 scale (Roots 1997). Surficial mapping was undertaken by Hughes (1983) in 1964 and 1979 and more recently by Bond (1999).

Operation Keno headed by Dr. C.F. Gleeson of The Geological Survey of Canada ("GSC") was completed in 1968 (Gleeson et al 1965-1968, Gleeson 1980a, Gleeson 1980b). It centered on Keno Hill and consisted of stream sediment, water, heavy-mineral and litho-geochemistry programs. Notably creeks draining in to Mayo Lake were sampled, yielding numerous arsenic, antimony and gold in heavy mineral concentrate anomalies. The area within, and adjacent to, the Property were again sampled during a stream sediment program by the GSC in 1986-87 (Hornbrook 1987) with a low sampling density that yielded few anomalies.

There is evidence for historic placer mining on most of the tributaries to Mayo Lake and the Mayo River. Modern placer mining has been restricted to Lightning, Duncan, Keystone and Granite creeks. Currently only Duncanc, Lightning and Granite creeks are being worked; however, placer claims remain on most of the creeks in the area.

The GSC carried out two geophysical programs in the Mayo Lake area; the first at 1207m spacing in 1968 and a second at 2000m spacing in 1990. These surveys are corroborated by similar results obtained by MLM's geophysical program but with much lower resolution. These surveys delineate the Robert Service Thrust ("RST") and several major lineations likely representing thrust sheet imbrications or lithological marker horizons.

In 2012 MLM had an airborne geophysical survey flown over the Property between February and March by Precision GeoSurveys Inc. that saw the acquisition of high quality magnetic data. The Property was flown using a Bell 206 BIII jet ranger at 150 meter spacing. The average survey flight was 32 meters above ground. The survey data acquisition specifications and coordinates for

the different claim groups can be found in Rampton and Sutherland (2012 a, b, c, d and e). The surveys delineated magnetic lineations and anomalies that were interpreted as faults, intrusions and alteration on the claim group.

In 2012 MLM followed up with a ridge and spur type reconnaissance soil sampling program. This program delineated numerous geochemical targets on each claim group, which determined further sampling. Notable regional anomalies were the NE trending As-Sb-Au anomalies west of the Nelson Arm of Mayo Lake, numerous high Au<sup>±</sup> Sb values near the Roaring Fork Stock, high As+Sb values west of Davidson Creek and north of Janet Lake and high As values near the headwaters of Edmonton Creek.

In 2013 MLM followed up on the ridge and spur soil sampling with targeting soil grids on a soil anomaly on the Anderson Claim Group west of the Nelson Arm of Mayo Lake. This program delineated a 2 km Au-As in soil anomaly between Anderson and Owl Creeks and a 600m Au-As-Sb anomaly above Steep Creek. Both of these anomalies contained Au in soil anomalies in excess of 100ppb and remain open in two directions.

In 2014 MLM pursued several anomalies from the ridge and spur soil sampling program on the Property near Granite Creek. These consisted of targeting soil grids at variable sampling intervals, the grid on the Roop Property from 2014 that was reanalyzed using SGH is discussed in the interpretation section of this report.

## **4.0 Geomorphology**

The Property lies along the northern slope and highlands above the Granite/Keystone valley (Figure 1). Granite Creek drains on the eastern slopes of the Gustavus Range north of valleys occupied by Mayo Lake. Valleys containing Mayo and Janet lakes are broad and U-shaped due to glacier ice being funneled down them from east to west during Pleistocene glaciations. Most tributaries to the large valleys are narrow and confined by moderate to steep slopes. Uplands generally have moderate slopes. Streams draining the property are all part of the Yukon River watershed.

The Property has been subjected to multiple glaciations (Hughes 1983). The youngest Pleistocene glaciation, the McConnell Glaciation, was confined to the trunk valleys occupied by Mayo, Janet

and Williamson lakes (Bond 1999). These valleys were filled with fast flowing ice that scoured their bottoms and sides. The upper limit of the McConnell Glaciation is marked by lateral moraines and kame terraces along the sides of these valleys. Minor lobes penetrated the upper reaches and tributaries of Granite Creek and may have flowed through the valley between Granite and Keystone creeks; here the glaciations former extent is marked by end moraines and kames. The westward limit of the McConnell Glaciation is along the base of the highlands to the west of Halfway Lakes between Mount Haldane and the Minto River. Uplands above the McConnell glacial limit were covered by glacial ice during the earlier Reid glaciation. The ice was probably cold-based and transport of rock and debris was minimal as evidenced by landforms. Some uplands are mapped as a mixture of colluvium and till. Some patches of colluvium and alluvial benches at higher elevations may be representative of the Reid and older glaciations.

Outcrop is uncommon on the Property, generally 10-15% of the area, though the distribution is weight heavily towards upper slopes and highlands. Soil development is immature, except on parts of the terrain above the McConnell glacial limit. Permafrost is likely pervasive on plateaus and north facing slopes but discontinuous on south facing slopes and at high elevations.

Vegetation is predominantly black spruce with willow and alder understorey. Lowlands, north facing slopes and plateaus below the treeline exhibit a thick cover of organic matter, moss and Labrador tea. South facing slopes are similarly vegetated but also include balsam and poplar groves.

## **5.0 Regional Geology and Mineralization**

The Property is located within the Selwyn Basin of the Tintina Gold Belt. Simplified regional geology as shown on Figures 2 and 4 depicts Upper Proterozoic to Lower Cambrian Hyland Group stratigraphy in contact with Paleozoic metasedimentary units of the Ern Group and Keno Hill Quartzite along the Robert Service Thrust (“RST”). Mid-Triassic mafic sills and greenstones are common within the Keno Hill Quartzite and Ern Group, but are rarely encountered in other units. All stratigraphic units have been intruded by the Mid-Cretaceous age Tombstone Plutonic Suite, which host several known gold deposits including Dublin Gulch, which hosts open pit proven and probable reserve of 2.46 million ounces of gold at a grade of 0.67g/t. The 100km<sup>2</sup> Roop Lakes Stock, west of the Keno Hill Camp, is the largest member of the Tombstone Plutonic Suite and

probably drove hydrothermal circulation leading to the mineralization at Keno Hill, as referenced by Roots (1997).

The dominant structural features in the area are a pair of imbricated thrust sheets; the RST and the Tombstone Thrust Sheet (“TTS”) have over 150km of combined NE directed transport of rock masses. The RST Sheet itself contains many internal thrusts that are commonly difficult to distinguish due to subsequent intense folding of faults and contacts and a strong penetrative structural fabric imparted by the later underlying TTS; the area deformed during this event is often referred to as the Tombstone Strain Zone. Intense folding is especially evident in units immediately around Keno Hill. Large open folds, the McQueston Antiform (E-W) and Mayo Lake Antiform (NW-SE), and several inferred brittle faults were developed after the major thrusting events (Roots 1997). A significant WNW geophysical lineation, which parallels the south shore of Mayo Lake, appears to be a regional fault possibly demarcating segments within the RST Sheet.

Mineralization within the Tintina Gold Belt is primarily the result of intrusion related gold systems; these large epizonal systems result in variable deposits that on the surface may appear unrelated. The most distal mineralization associated with these felsic intrusives are polymetallic Ag-Pb-Zn veins similar to the locally developed Keno Hill Type veins. This mineralization represents the furthest extent of hydrothermal influence related to these intrusions and may occur many kilometers from the source stock (Figure 3). Consensus is that Keno Hill Type Veins (“KHTV”) are the product of hydrothermal circulation in reactivated structures driven by the emplacement of the Roop Lakes Stock, up to twenty kilometers away. These veins are generally within the Keno Hill Quartzite, but are inferred to cut through the RST and continue into the overlying Hyland Group. Abundant narrow Cretaceous dykes (Murphy 1997) related to the Tombstone Suite in the vicinity of Keno Hill could be an alternate hydrothermal engine or fluid source there. In addition to Ag, Pb and Zn, other vectors for KHTV include Ba and Cu and in some

cases Sb, Fe and Ca. At intermediate distances from source plutons, As-Sb-Au veins develop and have been the subject of minor exploration around Van Cleaves Hill, west of Mayo Lake.

Proximal mineralization associated with Tombstone intrusives are sheeted gold veins or stockworks within the rim or immediately adjacent to Tombstone Suite plutons. Intrusion related mineralization itself is generally (i) enriched in Au-Bi-Te, possibly W; (i) depleted in base metals and (iii) situated in tensional zones of the stock.

Where hydrothermal circulation contacts carbonate lithologies skarnification is common, such as at the Ray Gulch tungsten skarn near Dublin Gulch. These skarns are generally high in Au-W-Cu-Zn. Skarnification of rocks surrounding Tombstone suite intrusions will result in hydrothermal signatures different from those illustrated in Figure 3.

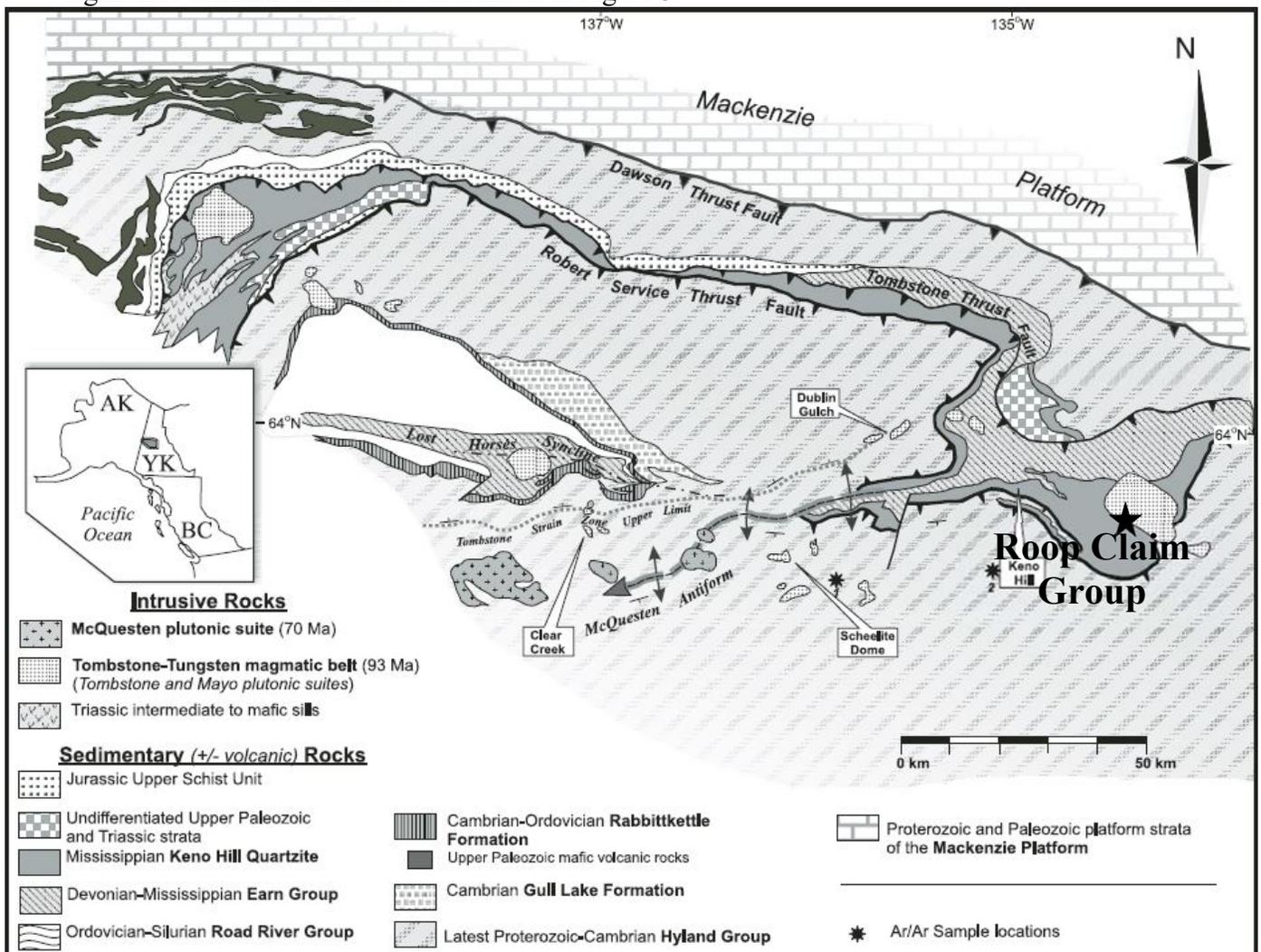
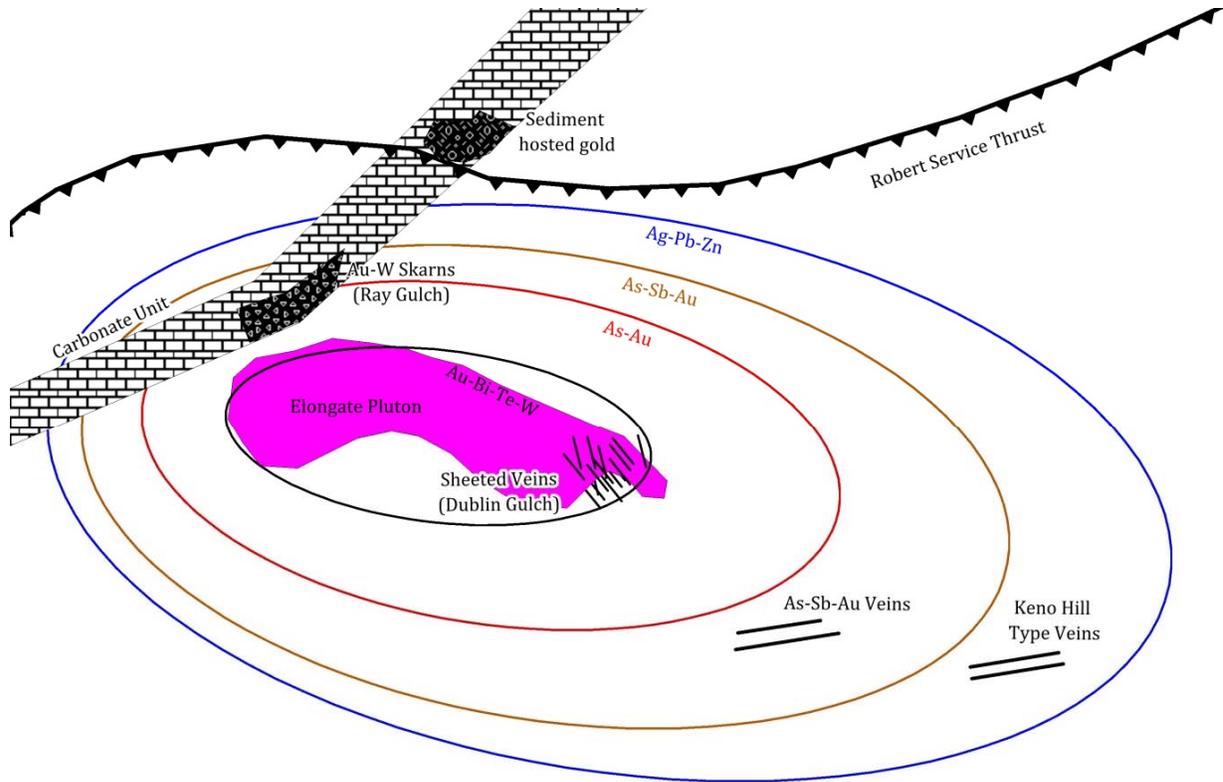


Figure 2: Mayo Lake and Selwyn Basin Geology. From Mair et al. 2006. Labeled star indicates the claim Roon claim group location.

A proximal relationship to crustal scale features appears to be common among deposits in the Tintina Gold Belt. Carlin-type, sediment hosted disseminated gold mineralization is almost exclusively developed proximal to crustal scale faults such as the RST, possibly independent of any intrusive unit. Carlin-type mineralization could be present in any carbonate units within the strata on the Property and would likely show Au-As-Hg-Sb signatures.

The Keno Hill silver camp has produced over two hundred million ounces of silver since 1921. Productive veins occur in the Keno Hill Quartzite and underlying Lower Schist. Although faults with associated mineralization (“mineralized faults”) are believed to cut through the RST and continue into the Hyland Group, no significant silver mineralization has been discovered above the RST. Ore shoots within the veins typically consist of galena, sphalerite and tetrahedrite with siderite or quartz gangue. The mineralized faults trend northeast and dip steeply to the southeast with left lateral offsets ranging from a few metres to over a hundred metres (Boyle 1965). Cross faults offsetting the mineralized faults trend perpendicular to them and dip 20° to 30° to the southwest.

Two major gold occurrences are located within 30 km of the Property. Both are located in the upper plate of the RS Thrust within Hyland Group metasedimentary rocks. Sheeted veins related to the Tombstone Plutonic Suite contain most of the gold at Dublin Gulch and Gold Dome (formerly Scheelite Dome). The most advanced project is the Eagle Deposit where a definitive feasibility study has been completed and development has begun; it hosts an open pit proven and probable reserve containing 2.46 million ounces of gold at a grade of 0.67g/t.



**Figure 3: Idealized hydrothermal model for intrusion related gold systems in the Tintina Gold Belt (modified from Hart et. al 2002)**

## 6.0 Property Geology

The Roop claim group is underlain by KHQ intruded by Triassic greenstones and the Cretaceous Roop Lakes Stock. A contact metamorphic aureole extends away from the stock up to 4km affecting most units underlying the property. Bedding is strongly folded in places with fold axis sub-parallel to the long axis of the Roop Lakes Stock.

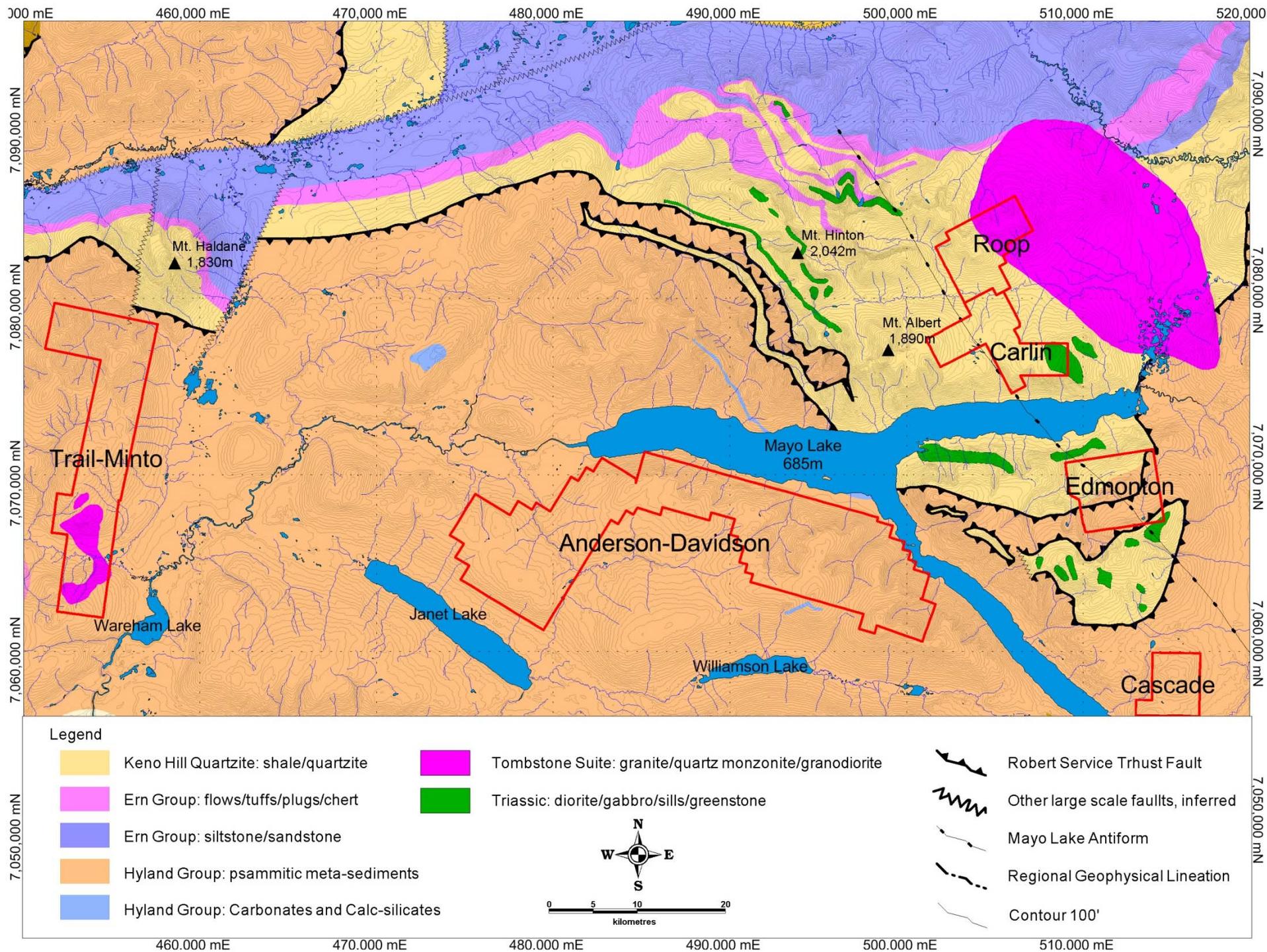


Figure 4: Geology of Mayo Lake showing MLM's claim groups.

## **6.1 Stratigraphy**

The stratigraphy is exclusively Keno Hill Quartzite which is comprised of massive to well foliated lineated quartzite with lesser phyllitic quartzite, chloritic and carbonaceous phyllite (Roots 1997). Locally the Keno Hill quartzite is interbedded with the “Marge sequence” a unit abundant green weathering tuffaceous metavolcanic rocks.

## **6.2 Intrusions**

The Roop Lakes Stock is roughly 100 sq km and centered on the Roop Lakes just east of the Property. The marginal phase is quartz diorite to quartz gabbro with abundant chloritized hornblende. The main phase is medium-grained granodiorite with lesser quartz monzonite with occasional hornblende is up to 15 mm long. The contact locally is a 100m wide zone of aplite and pegmatite dykes (Green, 1971) in quartz phyllite. The metamorphic aureole extends up to 4km beyond the contact grading from sillimanite to biotite schists.

Triassic sills of greenstone and gabbroic composition are common on the Property. They are dark green, foliated, fine to medium grained and weather in a blocky fashion. The main mineral assemblage consists of amphibole, chlorite and plagioclase. Sills are common in the Keno Hill Quartzite and Ern Group, but are also known within the Hyland group.

## **6.3 Structure**

Deformation on the Property is typical of the Tombstone Strain zone, including a strong penetrative fabric and intense large-scale deformation (Roots 1997). Tight isoclinal folding is common, cross cut by later quartz veins breccias and dilation zones. Axial traces of folds are likely responsible for the magnetic lineations sub-parallel to the long axis of the Roop Lakes Stock

## **6.4 Mineralization**

The Property is a prospective host to a variety of deposit styles related to the complex Mesozoic and Cenozoic metamorphic, plutonic and volcanic history associated with the formation of the northern Canadian Cordilleran orogeny. The most attractive of these are:

- Polymetallic veins; mainly Keno Hill Type, which are typically high in silver, lead and zinc and are related to the intrusion of the Tombstone Plutonic Suite and constitute the main ore at Keno Hill.
- Intrusion related gold; such as Dublin Gulch and Fort Knox. These deposits are related to post-orogenic, mid-Cretaceous Tombstone Suite stocks that intruded Selwyn Basin sedimentary rocks.
- Orogenic gold veins; formed after peak metamorphism of the Yukon-Tanana Terrane; their erosion likely contributed to the Klondike placer deposits. These are narrow, high-grade deposits; typical is the Pogo Mine in Alaska with total reserves and resources of 4.9 Moz Au at 12.45 g/t Au. They may be high grade, epithermal or mesothermal, structural end-members of the intrusion related gold model rather than typical orogenic veins.
- Skarns; similar to the Ray Gulch Tungsten Skarn at Dublin Gulch and a small skarn southeast of the Roop Lakes Stock.

## 7.0 Exploration

### 7.1 Targeting grid from 2014

The SGH survey was completed using samples collected in 2014 from a targeting grid on the Property with sample spacing of 120 m x 60 m. Samples were originally processed by Bureau Veritas in Whitehorse and analyzed by Bureau Veritas in Vancouver B.C. using ICP-MS following an Aqua Regia digestion. The highlights of the geochemical results of the initial survey are included here. This is taken verbatim from Sutherland And Rampton 2015. One should be cautioned that the gold values from ICP-MS after aqua-regia digestion are affected if graphite is present in the sampled materials.

*“One hundred and fifteen soil samples were collected eight lines. These lines transected multiple geophysical lineaments within a geochemical anomaly previously identified from 2012.*

*Analysis of submitted duplicates indicates that results were acceptable, although the nugget effect may have influenced the gold analytical results.*

*There are two distinct multi-element geochemical anomalies delineated by the soil grid, described here as R1 and R2 (Figure 5 and 6). Most elements indicate mass movement down slope with anomalies generally stretched to the south.*

*R1 is an oval shaped 350m by 250m zone on the north central portion of the grid. This anomaly is bisected by several boulder falls within which some elements do not show anomalous or enhanced values. There is a linear magnetic low which increases in width within the project area, suggesting a thickening of a lithological unit or area of alteration (Figure 5). R1 is delineated by anomalous or elevated values of Au, Ca, Co, Cu, Na, Ni, Sc, Ti (Figure 5 and 6). Elevated Au and several other elements within and around R1 are associated but are not mutually anomalous, with the Au typically being strongest around the southern edge of R1 and most other elements strongest within the center of R1. The Au anomaly in R1 forms two distinct lobes immediately adjacent to the two strongest Hg anomalies bisected by a boulder fall, the eastern lobe returned values up to 24ppb Au, and the western lobe yielded values up to 21 ppb along the western edge of R1. The western lobe of the Au anomaly extends beyond R1 towards R2 possibly due to mass movement downslope or interaction of R1 and R2; however it does fall within the same mag low as R1. Several elements are also anomalous in a halo around R1 (Mg, Mo, Pb, Hg and K) and/or following the magnetic low southeast from R1 (Al, Co, Hg, Mg, Mn, Pb and Zn). The circular shape of R1 suggests a plug or point source, however lithological control cannot be ruled out as it may appear circular due to masked values within the boulder falls to the southeast. An additional explanation could be a plunging fold axis since such a feature could express with features of both a circular source and linear trend. Further investigation will be required to determine the nature of R1.*

*R2 is a linear trend of elevated Al, Co, Fe, Mg, Mn, Ni, V and Zn values crossing all lines along the western quarter of the grid. Many elements also appear to have truncated anomalies or different backgrounds on either side of this anomaly. Notably there are high Au values up to 9.2ppb along the eastern edge of this anomaly. Al is depleted in samples along the east side of this anomaly coincident with elevated Au. The change in background values and parallel gold anomaly suggest faulting or fracture sets associated with a dyke or bedrock contact. The Au anomaly on the edge of R2 corresponds with a slight magnetic high.”*



Rock Fall  
Geochemical Anomaly



Geophysical Target  
Geochemical Sampling Area

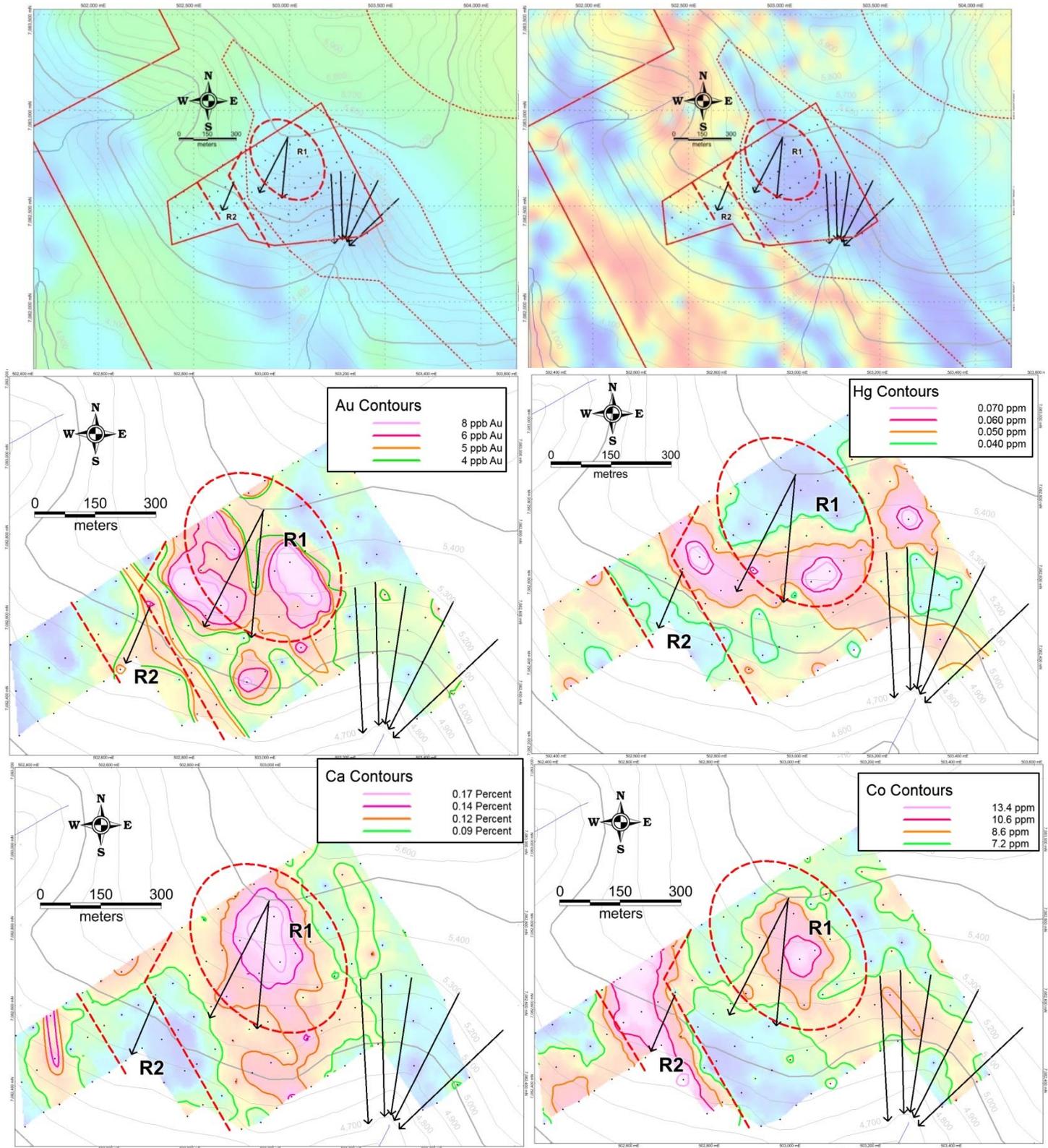


Figure 5: Project area with anomalies on total magnetic intensity plot (top right) and tilt derivative plot (top left) and Au, Hg, Ca, and Co geochemical anomalies in soils

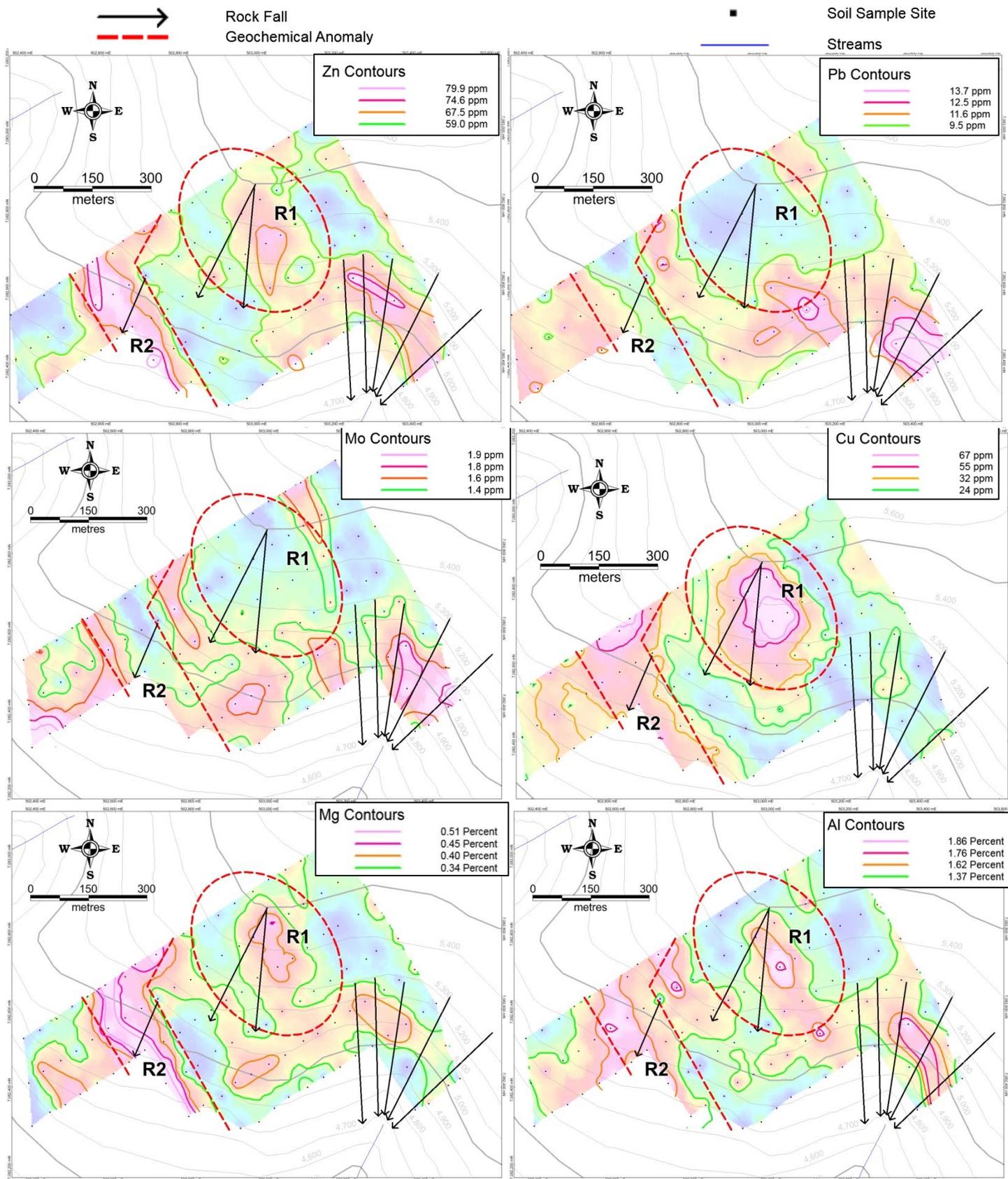


Figure 6: Zn, Pb, Mo, Cu, Mg and Al geochemical anomalies in soils

## **7.2 Soil Sampling**

Soil sampling was undertaken by an MLM geologist and a technician under contract:

Tyrell Sutherland Senior geologist (MLM)

Bradley Sutherland Sampling technician (B. Sutherland Consulting)

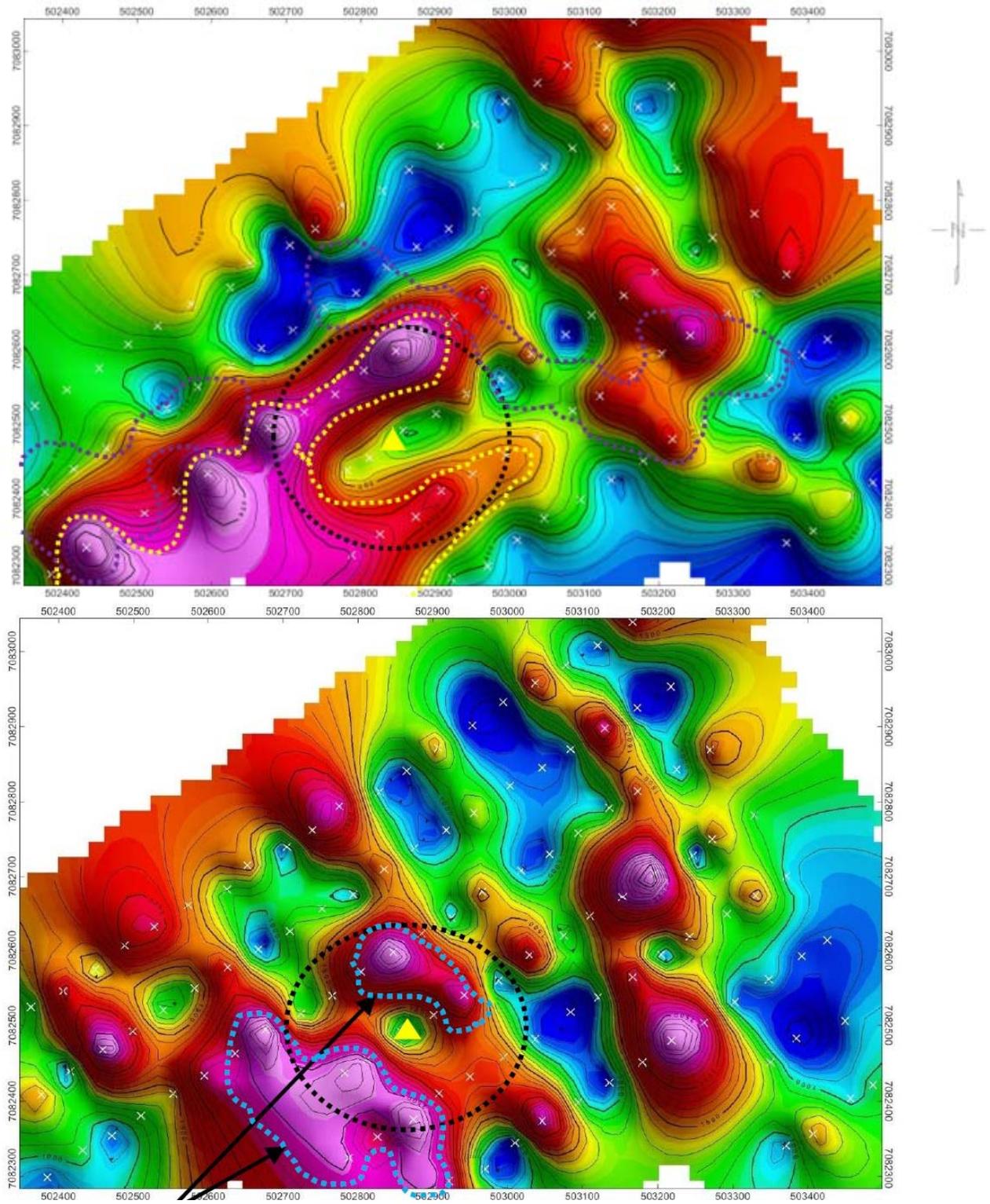
At each sample site the soil and overburden is penetrated by an auger until the C horizon is reached. The next 10-15cms of soil is sampled and placed into a labeled paper sample bag. In areas where C horizon was sparse or nonexistent or frozen, B horizon was collected. Sample sites were located using the Garmin GPS Map 62s and recorded in a field book and sample book. An identification ticket containing the sample number is attached at each sample location. Samplers collected a duplicate sample every 33<sup>rd</sup> samples. Sample data was entered into a database upon returning to camp at the end of each day.

## **8.0 Observations and Results**

The SGH analysis report is included in Appendix C. Interpretations were requested for Gold and Silver mineralizing systems. An interpretation for copper was also included voluntarily due to strong positive pathfinders related to copper mineralization. Copper potential was not recognized prior to this survey.

### **8.1 Summary of Spatio-Temporal Geochemical Hydrocarbon Analysis**

Figure 7 shows the location of an interpreted circular redox cell with zones that are prospective for gold illustrated in yellow, silver outlined in purple and copper outlined in blue. The author provides a rating for potential for each element out of 6, the assigned rating for the elements interpreted are 5.5 for copper, 5.0 for gold and 3.0 for silver. The summary of results from the report are included below. Page references refer to the pages of the report in Appendix C.



**Figure 7: Summary of interpretations of SGH pathfinders for buried mineralization. dotted yellow line (top) indicates high gold potential; dotted purple line (top) indicates high silver potential; dotted blue line (Bottom) indicates high gold potential; dotted black line (both) indicates redox cell outline.**

*“In general, the number of samples was adequate to show what the author believes to be valuable information at the Roop SGH Survey. The use of a regularly spaced survey grid design significantly enhanced the interpretation and reduced the possibility of bias from clustering.*

*The SGH results on page 29 (Appendix C) shows the interpretation for the presence of Gold at the Roop SGH Survey within the dotted yellow outline. The SGH signature for the anomalies within the dotted yellow areas was distinctive however there is really only two transects and thus only a few samples to describe and support this interpretation. Please remember to review the 3D-view on page 30 (Appendix C). This is still one of the most definitive signatures at Roop with many compounds measurements which make up several chemical class maps that have been associated with the presence of Gold. The Gold mineralized fluids may have flowed in a SW direction from the centre of the Redox cell where it is predicted that they fluids originated from (yellow triangle). The SGH class map shown on page 29 and 31 (Appendix C) form the majority of the SGH Gold signature used in the interpretation. With the advent of the development of 3D-SGH in 2012, that interprets the spatial symmetry of anomalous areas, the ultimate rating of confidence as 6.0 on a scale of 6.0 is more difficult to obtain. To observe this symmetry a larger survey is often needed. The SGH results for Gold tend to imply that the mineralization is relatively shallow. This anomaly at the southern end of Roop was focused on as it fit well with the zonation and Redox cells that were interpreted. Other anomalies on page 29 (Appendix C) may be related to Gold mineralization but have a lower level of confidence associated with them.*

*After review of all of the SGH Class maps, the results from this Roop SGH Survey suggests a “rating of 5.0” out of a possible 6.0 (6.0 being the best) for the apical SGH anomalies for gold as shown on page 29 (Appendix C), as the confidence in predicting that Gold mineralization may be present directly beneath this anomaly. The other interpretations and SGH signatures in this report for the Roop survey were rated separately.*

*The SGH results on page 20 (Appendix C) is the interpretation for the presence of Copper at the Roop SGH Survey. The SGH signature for the anomalies within the dotted blue zones was distinctive for the SGH signature of Copper that is within the Redox zone associated with the source of the mineralized fluids. Please remember to review the 3D-view on page 21*

(Appendix C). After review of all of the SGH Class maps, the results from this Roop SGH Survey suggests a “rating of 5.5” out of a possible 6.0 (6.0 being the best) for the two apical SGH anomalies for Copper as shown on page 20 (Appendix C), as the confidence in predicting that Copper mineralization is directly below these anomalies. This is actually a broad rabbit-ear type of anomaly. Such zonation of SGH results and predicted mineralization has been noted for Copper-Gold type target and together with the possible indication of mineralization on page 25 (Appendix C) within the black dotted outline, said to be silver, certainly indicates that mineralization here is polymetallic.”

## 9.0 Discussion

### 9.1 Regional

The Tintina Gold Belt, in which the Property lies, extends for more than 2100 km along the length of the North American Cordillera in Alaska and Yukon. It contains gold and silver deposits that are spatially and temporally associated with Cretaceous age plutonism (Figure 8). In general, bismuth-tungsten-tellurium signatures characterize deposits hosted by granitoid rocks whereas those hosted by sedimentary rocks and dyke systems characteristically have arsenic-antimony

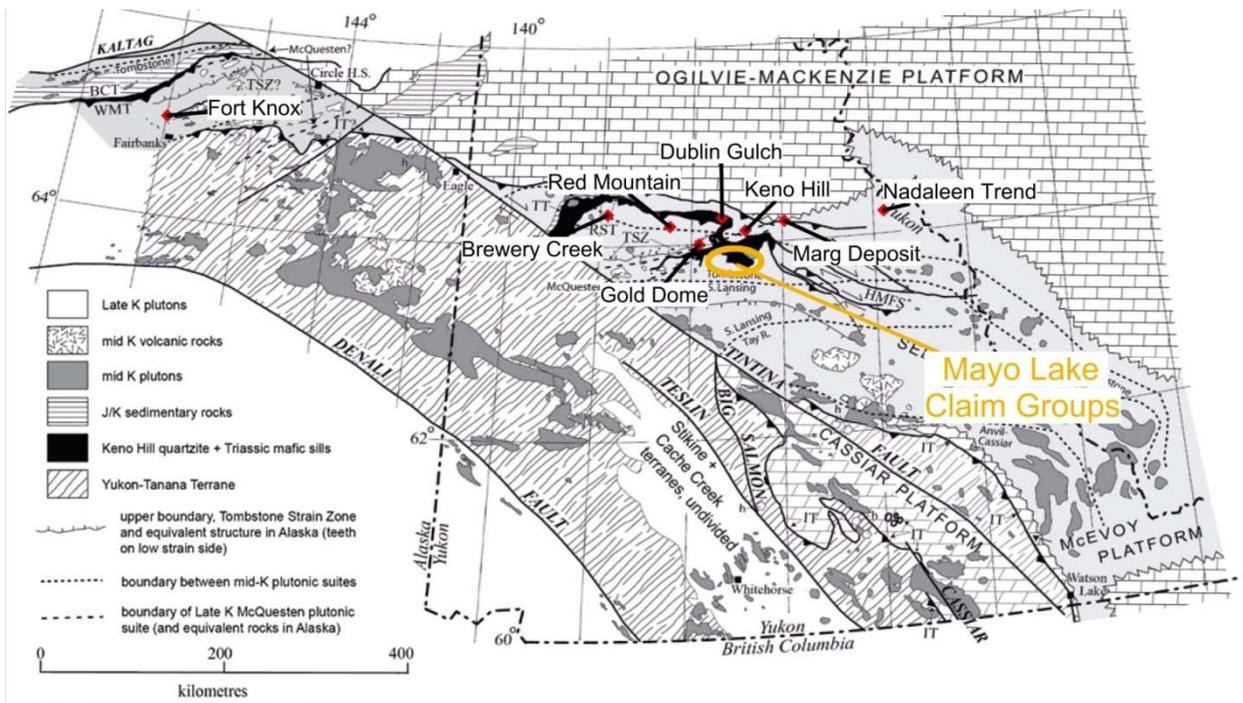


Figure 8: location of significant mines and deposits of the Selwyn basin as related to Fort Knox

signatures (Goldfarb et al. 2000). Significant differences in structural styles, levels of deposit emplacement, ore-fluid chemistry and gold grades suggest that the deposits represent a broad range of emplacement regimes.

The Selwyn Basin within the Tintina Gold Belt offers excellent exploration and mining targets due to its complex geologic and tectonic history producing favourable intrusion for developing world class mineral deposits. Target often have good size potential; The Fort Knox deposit is reported to contain 7 million ounces gold, at a grade of 0.9 g Au/t; POGO deposit contains approximately 4.9 million ounces gold at a grade of 12.45 g Au/t; Dublin Gulch is reported to contain 2.46 million ounces gold at a grade of 0.67 g Au/t and Brewery Creek was reported to contain 825,000 ounces gold at a grade of 1.36 g Au/t prior to production.

## **9.2 Property**

The Property is most likely to host deposits related to the felsic Tombstone Plutonic Suite. In many cases these intrusions may not be visible; dykes or plugs smaller than several square kilometers are commonly not mapped or not included in regional scale maps. Small intrusions may still successfully host or drive mineralization; small exposures could also be indicative of larger unroofed stocks. Economic deposits related to these stocks can be quite varied depending on proximity, host lithology, level of emplacement and regional structures; an idealized model for deposits relating to these intrusions is represented in Figure 3. Orogenic vein type deposits with mineralization from deep seated fluids sources should also be considered. Orogenic veins can occur in a variety of crustal depths which will control the character of mineralization which in some cases will overlap considerably with textures and geochemical signatures of intrusion related deposits.

## **9.3 SGH Interpretation**

The SGH interpretation indicates the pathfinders for gold mineralization at depth are present around a “redox cell” delineated by the SGH compounds. The strongest SGH gold indicator is reflected by geochemical gold anomalies in the soil samples. Some gold in soil geochemical anomalies were not reflected by the SGH analysis however these geochemical anomalies fit reasonably well with the “redox cell” model. The association of both silver and copper with this

redox cell suggests polymetallic mineralization at a shallow depth with a significant degree of certainty.

The redox cell model coincides most clearly with a Ca low in the geochemical plots in figure 6. The SGH interpreted mineralization does not correlate clearly with geochemical anomalies at surface, however this could be a function of varying depth and slope shifting the surface expression of SGH anomalies. The various geochemical base metal anomalies and Au anomalies in soil also suggest polymetallic mineralization.

There are two types of polymetallic mineralization within 30km of the Property. Keno Hill type veins discussed in section five and the Marge VMS deposit. Given the presence of volcanics locally in the KHQ this target could be host to either of these types of mineralization.

## **10.0 Conclusion**

Results to date from the MLM's sampling programs and earlier silt and soil sampling and geophysics provide strong evidence that a significant source of gold mineralization is present on the Property. This conclusion is supported by the presence of because of the placer operations along creeks and the strong gold in heavy mineral concentrates anomalies in streams lying downstream of the Property. The SGH results also support earlier geochemical soil surveys suggesting copper and silver may be present.

Some difficulties remain in obtaining relevant samples from a variety of overburden types. Gold in soil values are probably shifted and patchy because of the variable cryoturbation and steep landforms.

It would appear that major mineralization, including those containing gold, has not been previously recognized because of poor exposure and complex stratification of the overburden. More robust soil sampling and trenching techniques will be needed to better test targets.

## **10.1 Recommended Future Exploration**

Further work in those parts of the Property showing prospectivity from previous geochemical investigation is warranted. Where overburden drainage or permafrost hampers the regular sampling of relevant overburden, it may be necessary to utilize a small mechanized hammer type

drill for soil sampling. Detailed mapping and prospecting is warranted in and around all geochemical in soil anomalies.

Future investigations in lieu of trenching should be completed using a track mounted percussion drill at 0.5 to 1.0m spacings to get samples of bedrock. Shallow scout drilling may be required to properly test anomalies as much of the terrain has been subjected to long periods of weathering under variable climatic regimes, which can lead to near-surface leaching of metals.

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## Appendix A

### Statement of Qualifications

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I, T.B. Sutherland, M.Sc., do hereby certify that

1. I am Vice-President of exploration of Mayo Lake Minerals Inc.
2. I graduated with a B.Sc. Honors Specialization Geology, from the University of Ottawa in 2009. In addition, I have obtained an M.Sc in Geology from Queens University in 2016.
3. I am a member in good standing of the Association of Professional Geoscientists of Ontario.
4. I have worked as a geologist for approximately 8 years, specifically in mineral exploration, in Canada, Australia, Jamaica and China.
5. I fulfill the requirements of a "qualified person" for the purposes of N.I. 43-101.
6. I am the senior co-author and to the best of my knowledge all data used in the preparation of the technical report titled "Assessment Report on the Roop Claim Group Describing the 2017 Soil Gas Hydrocarbon Survey" is correct and of good quality. The technical information contained within the report was collected under my supervision and I was primarily responsible for its interpretation.
7. Certain statements concerning the interpretations and discussion of the data maybe considered forward looking statements in that although conceived from the data as recorded to the best of my knowledge may prove in need of variation or changed to reflect changes or updates to the data.

Dated the 30<sup>th</sup> day of September 2017



---

Tyrell Brodie Sutherland

## Appendix B

### Statement of Expenditures

	Rate	Days/units	Total
Report Preparation			
Vern Rampton - geochemical-SGH synthesis	\$700.00	2	\$1,400.00
Tyrell Sutherland - GIS and recommendations	\$500.00	2	\$1,000.00
SGH Analysis and Interpretation SGH			
Analysis	\$46.10	116	\$5,347.60
additional element interp (Ag)	\$500.00	1	\$500.00
Supplemental SGH Report	\$1,200.00	1	\$1,200.00
<b>Total</b>			<b>\$9,447.60</b>

## **Appendix C**

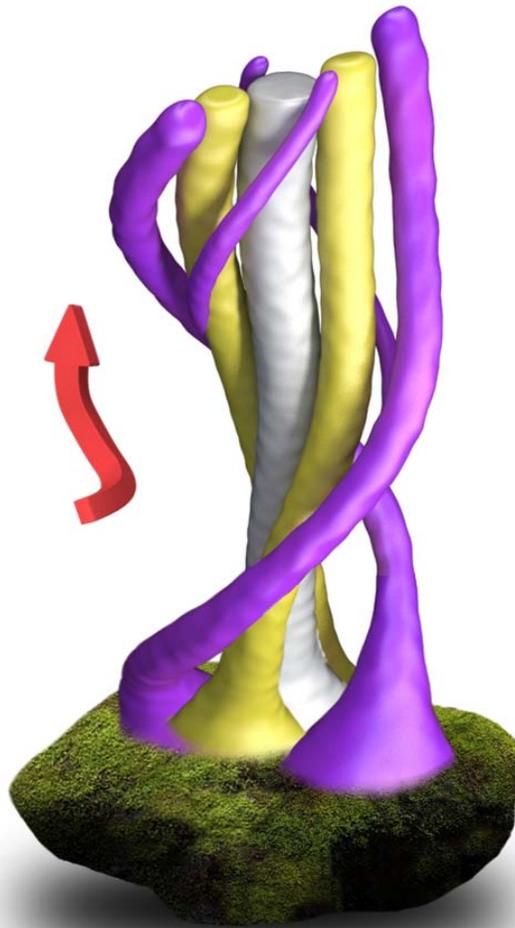
SGH Report

## 3D - SGH

# "A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

for MAYO LAKE RESOURCES INC.

## "ROOP SGH SURVEY"





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## **3D - SGH**

# **"A SPATIOTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"**

**for MAYO LAKE RESOURCES INC.**

## ***"ROOP SGH SURVEY"***

***April 7, 2017***

***\* Dale Sutherland,***

***Activation Laboratories Ltd***

***(\* - author, originator)***

***EVALUATION OF SURFICIAL SAMPLES***

***EXPLORATION FOR: PRIMARILY "GOLD" TARGETS***

***SGH GOLD TEMPLATES ARE USED FOR THIS "EXPANDED" REPORT***

***Workorder: A17-01867***



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## PREFACE

### **THIS SGH INTERPRETATION REPORT:**

The purpose of this Spatio-temporal Geochemical Hydrocarbon (SGH, previously called Soil Gas Hydrocarbons) interpretation report is to provide more insight and knowledge that clients and other potential reviewers of the results have with regard to SGH, an organic, deep penetrating geochemistry. As SGH provides such a large data set and is not interpreted in the same way as inorganic geochemical methods, this interpretation 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 1976 and from the knowledge obtained from the interpretation of SGH data from over a thousand surveys for a wide variety of target types in various lithologies and from many geographical locations. Although referenced today as a "nano-technology" due to its unprecedented sensitivity, the analysis of SGH has not changed since inception. This interpretation and report is mandatory as it is the only known organic geochemistry that, in spite of the previous name, uses non-gaseous semi-volatile organic compounds interpreted using a forensic signature approach. The interpretation is conducted blindly as it is based solely on SGH data and does not include the consideration or interpretation from any other geochemistry (inorganic), geology, or geophysics that may exist related to this survey area. This report can also provide evidence of project maintenance to government assessors. 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 although several other SGH Pathfinder Class maps are used and referenced. A GIS compatible data package of the georeferenced images shown and the associated SGH data is also provided with this report.

The interpretation in this report has used the results from some of the research with SGH in recent years which has focused on the fact that the SGH data is sometimes able to further dissect the relationships between the chemical Redox conditions in the overburden, the development of an electrochemical cell, and its affect in shaping geochemical anomalies. This research 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, 2009). 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**. This model was first 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 truly 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 chemical classes of Spatiotemporal Geochemical Hydrocarbons which migrate through the overburden. This model is used as the latest 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 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 type of geochemical data as a general service. As the author is the originator of the SGH geochemistry, has researched and developed this exploration tool since 1996, and has produced similar interpretations using SGH data for over 1,100 surveys, he is perhaps the best qualified 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. The rating does not imply ore grade and is not to be used in mineral resource estimate calculations. 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 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 reference 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, samples 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 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 minerals and elements, geology requires 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. Organic material requires many minerals and elements, so organic materials can be biomarker of the present of the 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. The hydrocarbons are residues from the decomposition of bacteria and microbe that feed on the target commodity as they require inorganic metallic's to catalyze the reactions necessary to develop hydrocarbons and grow in their life cycle. Specific classes of hydrocarbons (SGH) have been successful for delineating targets found at over 900 metres in depth. Samples of various media have been successfully analyzed such as 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 can be used to analyze for hydrocarbons in sample types other than soil. SGH is also different from 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 to identification. The hydrocarbons in the SGH 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 the 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 the shortest time frame and provide the benefit 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 research surveys, 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 700 targets from clients since January of 2004. In both CAMIRO projects, research surveys over known mineralization 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 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, SGH has recently been very successful in exploration and discovery of unknown targets e.g. Golden Band Resources drilled an SGH anomaly and discovered a significant vein containing "visible" gold. ([www.goldenbandresources.com](http://www.goldenbandresources.com))

## **SGH INTERPRETATION RATING AND CLARIFICATION**

Often the use of 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 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 of an anomaly even if it is only a part of the mineral signature or template requested. The anomaly illustrated in the report may not be representative of the mineralization sought as only a part of the SGH signature is present and thus will have a low rating, but the anomaly may confirm the presence of the geological or geophysical target which may be valuable to the client. 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 the 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 identification Rating.

**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 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, Gold, etc.). No one SGH map can represent the complete signature due to the different amounts of spatial dispersion 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.

**INTERPRETATION OF SGH RESULTS - A17-01867**  
**MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY**

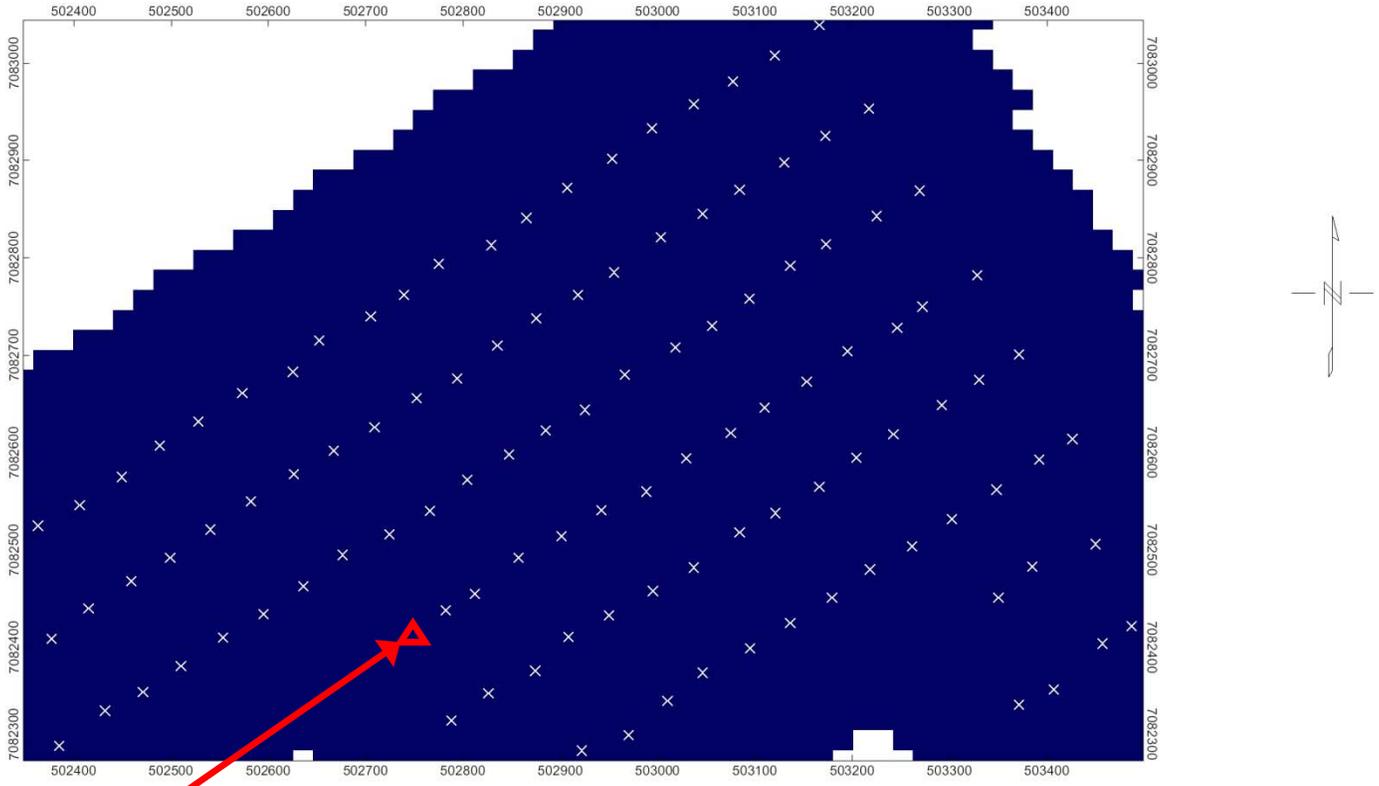
This report is based on the SGH results from the analysis of a total of 116 soil samples from the Roop SGH Survey (one sample envelop was empty). These samples were collected in August 2014 and initially handled and prepared by Bureau Veritas Commodities CDA in Vancouver BC. These samples were not prepared for SGH analysis. The handling and preparation of these samples for typical inorganic analysis adds to the risk that these samples won't perform optimally in the SGH geochemical analysis. The over 1.5 year old pulps were sent to Activation Laboratories Ltd. global headquarters in Ancaster, Ontario, Canada. The age of the pulps also presented a risk however SGH has been successful in the analysis of pulps that were stored on a shelf for 4 years. We are relying on the historically demonstrated specificity and robustness of the SGH geochemical test to hopefully provide useful information at the Roop survey.

The project area covered by these samples were collected in 8 parallel north-easterly trending transects spaced approximately 100 metres apart with samples taken at 50 metre intervals along each transect as shown in the diagram on the next page. The sample coordinates were supplied as UTM coordinates that formed an excellent regularly spaced but irregular shaped grid which significantly aided in the interpretation of the SGH results for this survey as shown on the next page.

The number of samples submitted for this project is adequate to use SGH as an exploration tool. Note that SGH data is only reviewed for the specific target deposit type requested, in this case primarily for the presence of Gold type deposits. In this survey SGH signatures for silver and lead were also reviewed.

This interpretation was conducted under blind conditions as all SGH interpretations are. This means that the author and/or Activation Laboratories Ltd. have no prior knowledge as to where any known mineralization may be in this survey. One or two transect surveys, instead of a grid approach as used here, does not allow for optimal spatial interpretation and the use of the 3D-SGH interpretation approach that can result in an exceptionally high level of confidence in the results. It has been theorized using the 3D-SGH theory that the use of a single transect, even over known mineralization, has nearly a 10% chance of failure if the transect happens to be oriented between the nodes of a segmented halo anomaly in the latest SGH Electrochemical cell theory. Using one or two transects to represent a survey may then result in a false-negative determination.

## INTERPRETATION OF SGH RESULTS - A17-01867 MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY



Empty Sample Envelope – No Sample

## SGH SURVEY INTERPRETATION - A17-01867 MAYO LAKE RESOURCES INC. - ROOP SGH SURVEY

Note that the associated SGH results mapped are presented in a separate Excel spreadsheet. This data must accompany this report. This data is semi-quantitative and is presented in units of pg/g or *parts-per-trillion* (ppt) as the concentration of the sum of a specific hydrocarbon class signature in the sample. The number of samples submitted for this survey is adequate to use SGH as an exploration tool. The recommended minimum number of samples is 50. As SGH is an organic geochemistry it is essentially "blind" to the elemental presence of any inorganic species as actual metallic gold, nickel, silver, uranium, etc. content in each sample analyzed. SGH only detects the hydrocarbon decomposition products that have used the mineralized target as a food source. Note that this geochemistry does not detect all organic hydrocarbons in the samples but only targets relatively rare hydrocarbons that have been proven to be associated with mineralization, in this case for Gold.

**The overall precision of the SGH analysis for the soil samples at the ROOP SGH SURVEY was excellent** as demonstrated by 8 different samples taken from this SGH survey which were used for laboratory replicate analysis. The average Coefficient of Variation (%CV) of the replicate results for the survey samples in this submission was **10.5%** which represents a very good level of analytical performance especially at these low level parts-per-trillion (ppt) concentrations. Field duplicates were not submitted or were not revealed for this survey. It is typically observed that the variability of field duplicates is 5% to 8% CV higher than for laboratory duplicates of random samples taken from the survey.

The method of determination of the estimate of error expressed as a coefficient of variation that is used in SGH reports. With even a small survey of 50 samples, the analysis of 162 compounds in each sample in the SGH geochemistry represents a possible total of 8,100 measurements. Thus a method for the estimate of error had to be applicable to large data sets. Even the use of 3 pairs of different samples from a survey represents 972 measurements. A method of reporting the performance of sample replicates also has to recognize that values are at ultra-trace concentrations of low parts-per-trillion (ppt) values. Thus the method used is by Stanley and Lawie (Geochemistry: Exploration, Environment, Analysis, Vol. 8 2007, pp. 173-182) which was entitled: "Thompson-Howarth error analysis: unbiased alternative to the large sample method for assessing non-normally distributed measurement error in geochemical 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 conducted blindly and is based only on the SGH results from this submission. No other geographical, geochemical or geophysical data was reviewed.** A template or group of SGH Pathfinder Classes that have been found to be associated with buried Gold targets has been used as the basis for the interpretation of the Roop SGH Survey. The final interpretation is customized and conducted by the author. Although the term "template" or "signature" often appears in an SGH Interpretation Report, a computerized interpretation is not used.

## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY** **SGH INTERPRETATION**

As a general comment in regard to the data from the Roop SGH Survey, the interpretation is quite complex. Several interpretations, including that for Gold, are discussed in this report for the Roop SGH Survey. The author believes that together these interpretations form a cohesive story about the mineralization that is predicted to be present, improving the level of confidence in the SGH results.

The SGH anomalies detected were of very good strength and there was no direct evidence of degradation from the sample handling or preparation of these pulps from the previous laboratory or degradation from the age of these samples. However the objective of the SGH geochemistry is not necessarily to obtain values/anomalies with the highest contrast based on a signal:noise interpretation of any one sample, SGH is a more powerful exploration tool by maximizing the overall spatial contrast of the survey to observe specific hydrocarbon signatures that can vector to and identify buried mineralization. This "specificity" is much more powerful than the "sensitivity" in terms of signal:noise. The Roop survey also has enough samples for interpretation. The survey design of one or two transects is often used with SGH, however it does not allow for the full capabilities of 3D-SGH and the symmetry it seeks to provide the optimum confidence in predicting the presence of Gold or other mineralization and the pathfinders that describe the SGH signature for "buried or blind" Gold targets. The grid approach at the Roop survey was instrumental in discovering several signatures that could be spatially linked together with 3D-SGH. The 3D-SGH interpretation approach observed some vital symmetry of the resultant anomalies for a class signature that typically depicts deep structures as it has at the Roop SGH Survey. The 3D-SGH symmetry added to the confidence in the interpretation.

As at the Roof survey, the SGH geochemistry can interpret several different signatures which are of course dependent on the survey results. Some signatures will have more confidence than others. As an example, if you were to write the names of the signatures randomly over each other (as the figure below), some would be easier to read/interpret than others. The word "Gold" is easy. Eliminate that word and Nickel is still easy to read. Rub out Nickel and the words Redox and Silver may be interpreted because we are familiar with these words/signatures but the interpretation is of lower confidence, i.e. Silver could be Silica. Take out these words and you are left with "per" which may be the word Copper but this interpretation is at a further low level of confidence. This essentially is SGH.



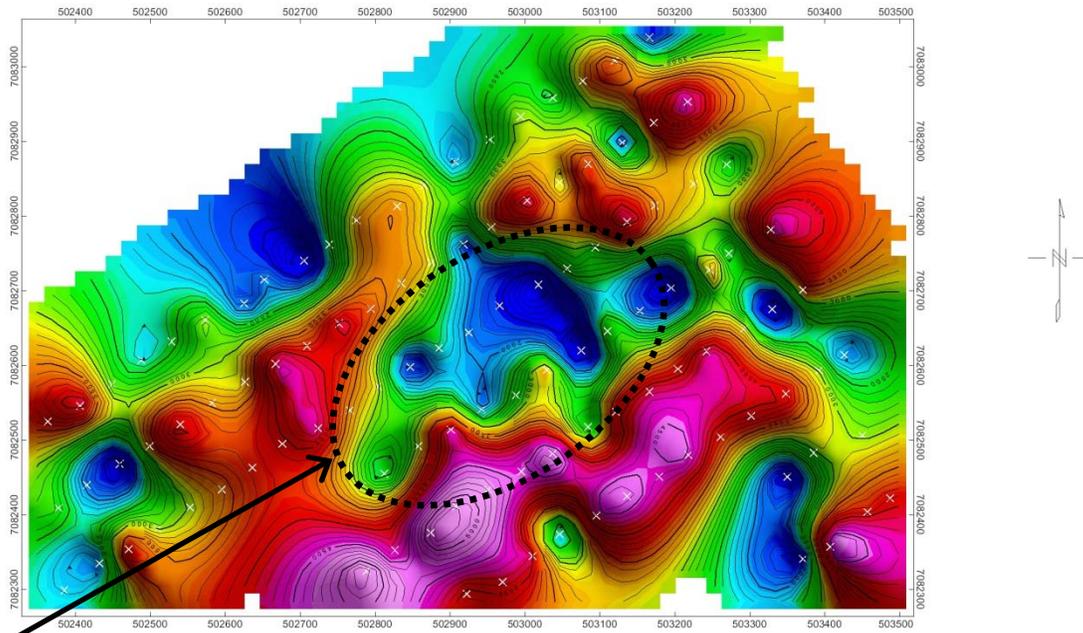
## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH REDOX INTERPRETATION**

Page 17 of this report, and in 3D-view on page 18, shows the SGH anomalies from one of the most reliable SGH Pathfinder Classes in predicting the possible presence of mineralization. This map shows the presence of two overlapping Redox zones. The interpreted dotted black outline on the map on the left-hand side of the page is placed just inside the anomalies that make up this feature. The outline is placed just inside of the anomalies so that it does not hide the view of the anomalies on this map. These anomalies may indicate the presence of sulphides and not necessarily mineralization. Other SGH Pathfinder Class Maps associated with the presence of this Redox zone (not shown in this report) are coincident and support this interpretation at the Roop SGH Survey. The map on the right-hand side shows a smaller, tighter Redox cell with a high molecular weight SGH signature. This symmetrical (yellow lines) nested (yellow triangle)-segmented halo anomaly is what the author believes is the location of the initial up-welling of mineralized fluids.

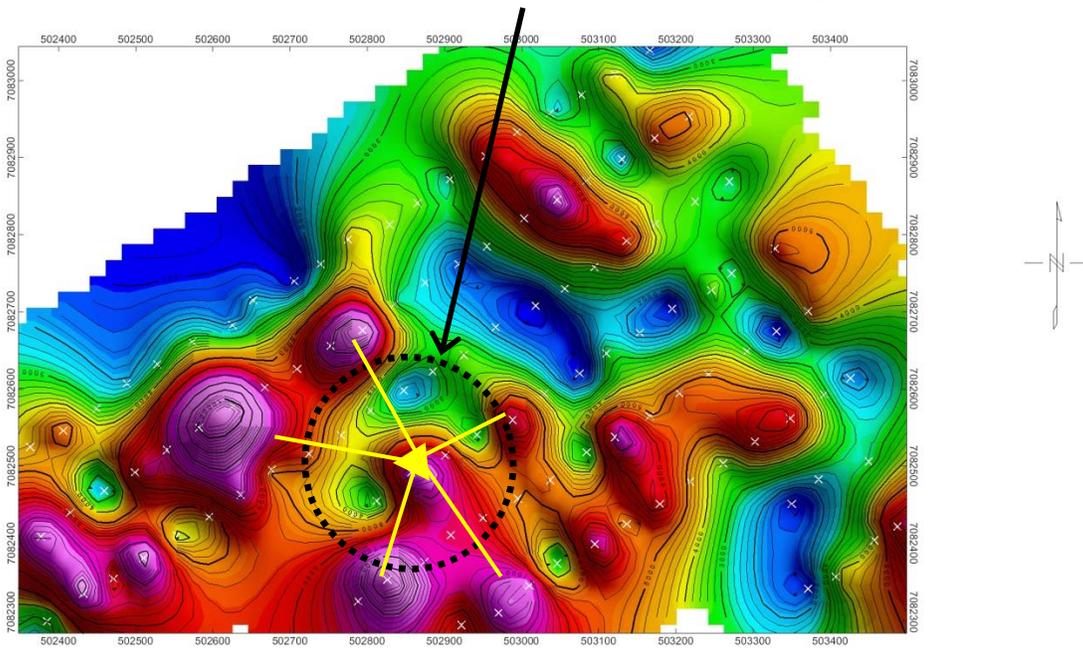
As SGH has been so well researched in the prediction of Gold, and has had so much success for locating Gold mineralization over the last 20 years, this interpretation has quite a high level of confidence at depicting pods or veins of Gold mineralization. Remember that the Kriging algorithm used in the Geosoft mapping program is not customized for the Roop SGH Survey and in particular, anomalies at the edges of the surveys can be artificially enhanced due to this Kriging algorithm. **This is the case particularly at the southern end of the survey at Roop.**

SGH has been described by the Ontario Geological Survey of Canada (OGS) and their research with SGH, 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", "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 or specific target types. In research conducted by the OGS jointly with DeBeers, SGH has been proven to be able to discriminate between the presence of bacteriological activity associated with mineralization and the presence of geological bodies such as Granite Gneiss, Dunite, etc. SGH has also been shown to differentiate between false or mobilized soil anomalies and actually locate the source target deposition. Redox cells are also related to Recently SGH has been shown to be far more sensitive to depicting Redox conditions than any measurements using pH or ORP tests. Thus 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 and other magnetically detected targets, mineralized versus non-mineralized conductors, cultural effects, etc. even in surveys over highly difficult or exotic terrain that very often results in the unavoidable collection of multiple sample types. SGH is a deep-penetrating geochemistry and has been proven to locate Gold and other types of mineralization at several hundred metres below the surface irrespective of the type of overburden. The prediction of these anomalies and the mineralized zones discussed later in this document is only based on SGH. As the interpretations are based on multiple compound measurements, from multiple hydrocarbon classes, that describe specific class signatures, SGH delivers that are significantly more from other geochemical methods.

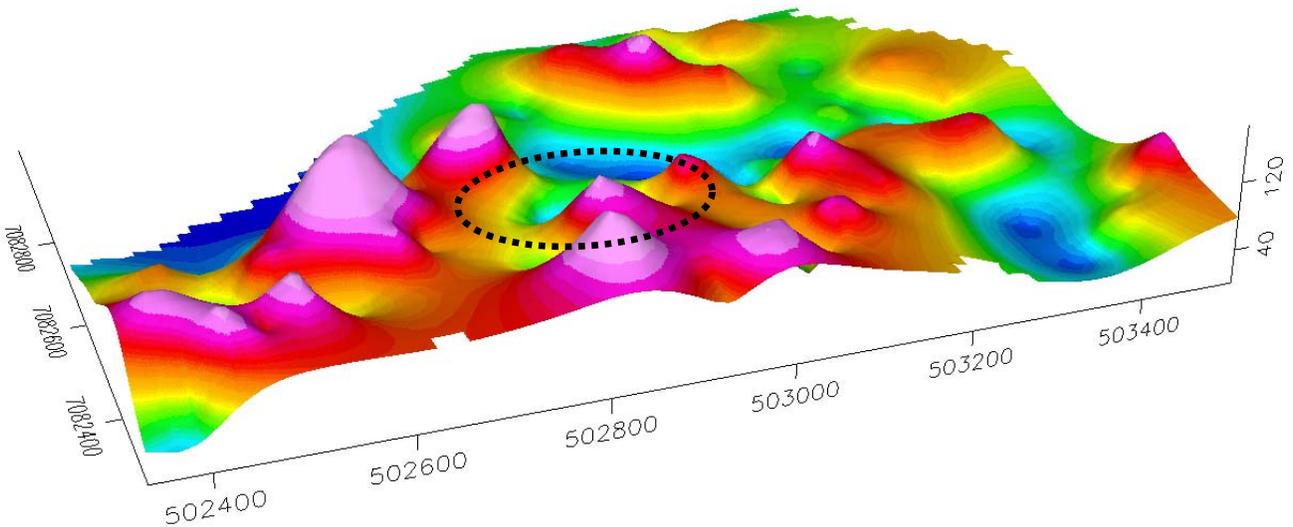
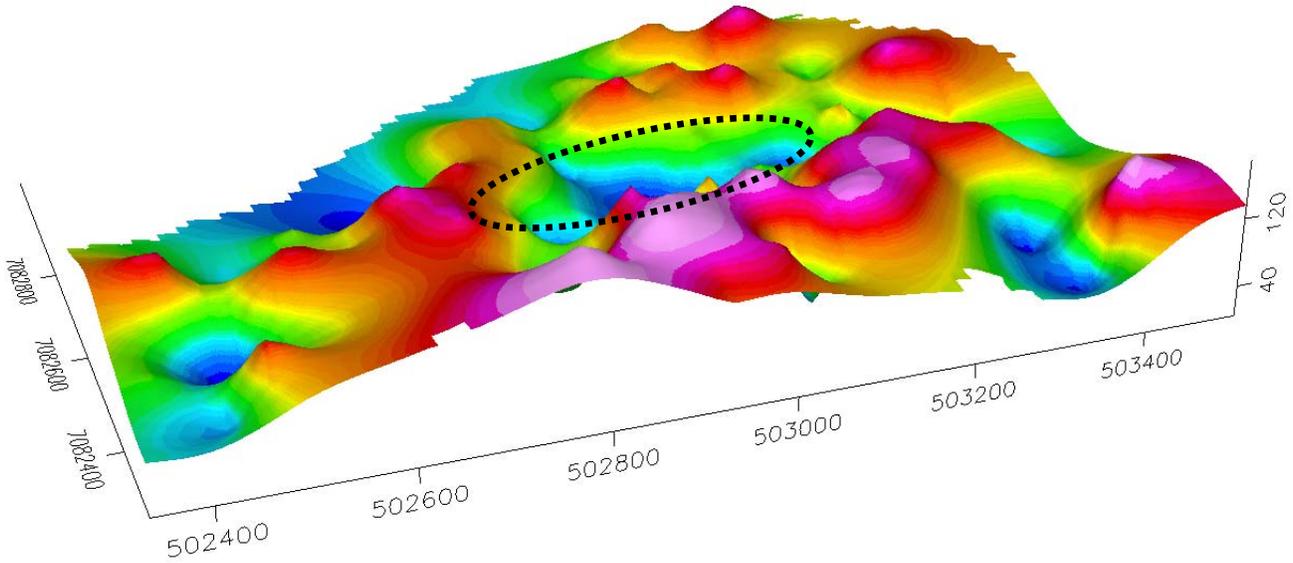
# A13-12531 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH “REDOX” PATHFINDER CLASS MAPS



TWO ANOMALIES DETECTING THE PRESENCE OF OVERLAPPING REDOX ZONES  
HALO ANOMALY AND SYMETRICAL SEGMENTED NESTED-HALO ANOMALY (CONFIDENCE RATINGS=5 OF 6)



**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH  
“REDOX” PATHFINDER CLASS MAPS**



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## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH COPPER INTERPRETATION**

**Although not requested by the client**, page 20 and 22 of this report, and in 3D-view on page 21 and 23, shows two of the most reliable SGH Pathfinder Class Maps relative to predicting the presence of Copper mineralization. The map shown on page 20, together with the other mineralized zones, is an excellent example of the ability of SGH to shown zonation within a mineral deposit.

The map on page 20 illustrates that Copper mineralization is mainly present in two zones, within the light blue dotted outlines. Note that these two zones lie within the Redox zone where the source of mineralized fluids is predicted. The two zones are also fairly symmetrical around the centre, or nested portion of the anomaly of the Redox zone as indicated by the yellow triangle. (Note that the yellow triangle is not to be interpreted as a drill target at Roop).

As the two SGH Copper anomalies are mainly within the Redox zone outline this indicates that there has been little dispersion and thus this Copper mineralization should be at a relatively shallow depth, perhaps in the neighbourhood of 20 metres or less. It must be remembered that the anomalies shown at the southern end of the Roop survey are based on a lower number of samples. Also the bigger southwestern Copper zone may be shown as more intense due to the effect of Kriging and may not have more Copper mineralization that the other smaller Copper zone.

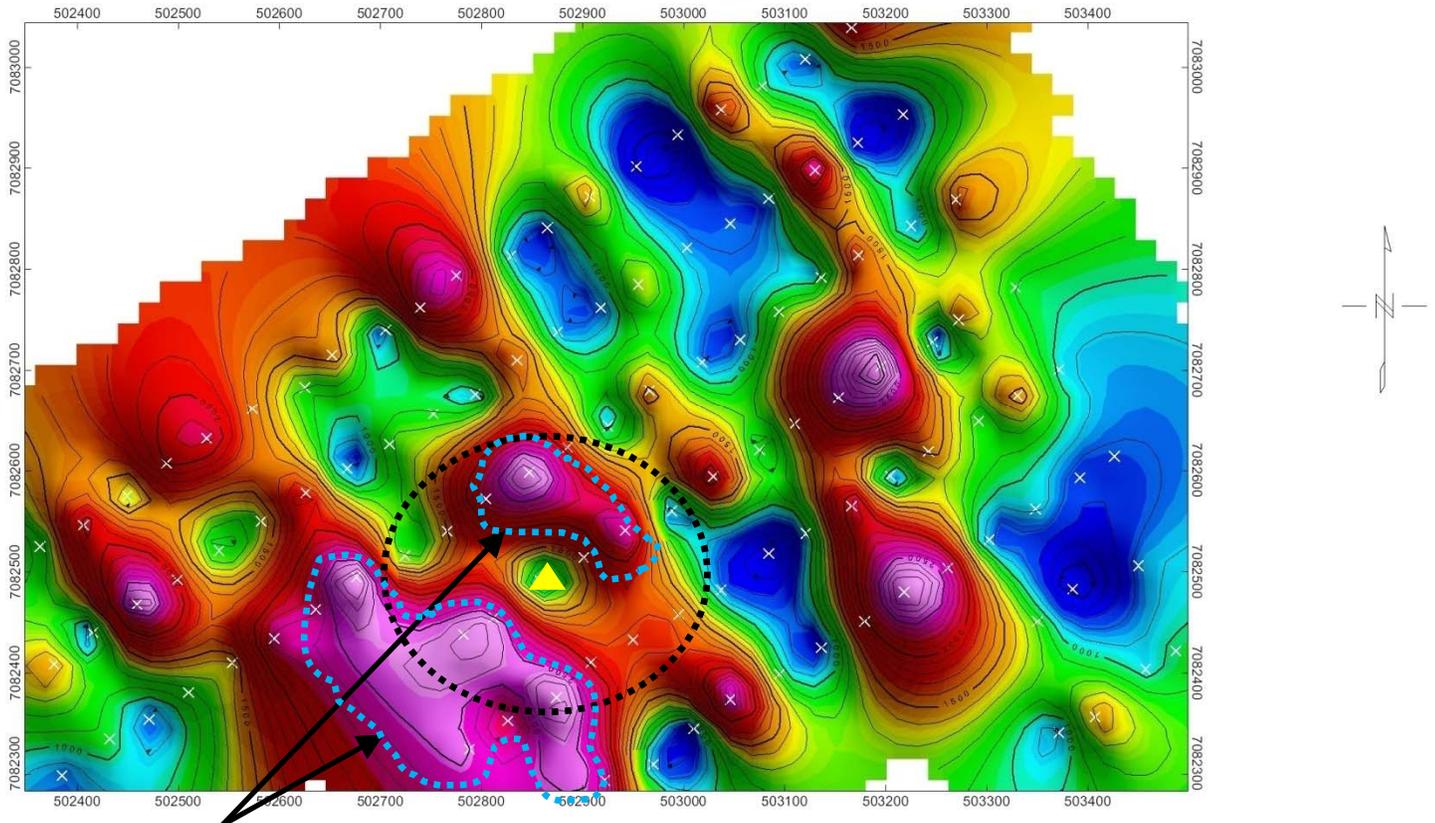
Note that the more northern ridge-like north-westerly trending anomaly in the grid, to the north of this Redox zone, may also be a vein like Copper feature but there is less information to support this.

Note also that the SW defined portion of the apical anomaly for Copper is emphasized. This may indicate shallower deposition; however it again might just be emphasized as it is at the edge of the survey and thus may be enhanced by the Kriging algorithm.

The map shown on page 22 is supportive of the SGH Copper signature map on page 20. The map on page 22 is a heavier molecular weight class of the SGH Copper signature and thus is wider as it is more dispersed as expected. This map supports the position and identification of a Redox Zone which is again illustrated by a symmetrical nested-halo segmented anomaly. This type of support and the correct geochromatographic dispersed signature pattern adds confidence to the SGH interpretation, which results in a higher SGH Confidence Rating. This map does not emphasize the SW edge of the anomaly as the portion of the SGH Copper signature on page 20, and thus does not support that the SW end of the anomaly is a shallower portion of the predicted Copper mineralization.

As in all SGH mineral signature anomalies, the anomalies are a prediction as the direct vertical projection of mineralization.

**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH**  
**“COPPER” PATHFINDER CLASS MAP**

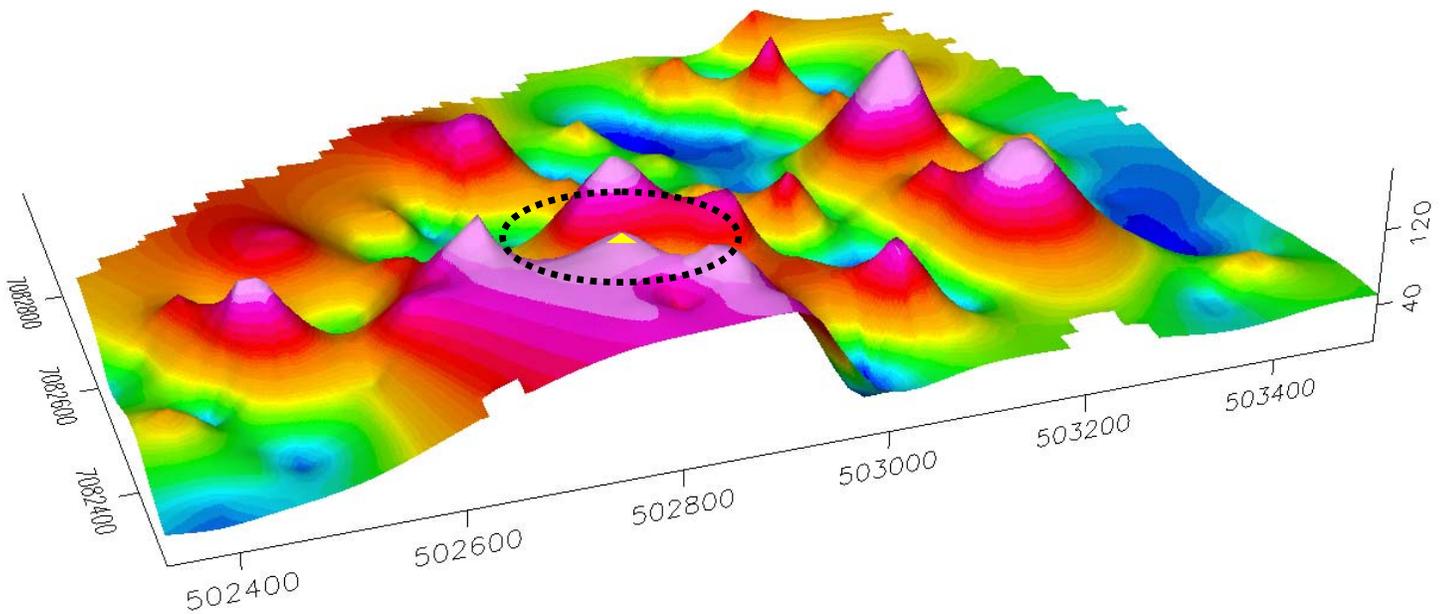


**ANOMALIES HAVING A SGH SIGNATURE ASSOCIATED WITH COPPER MINERALIZATION.  
CONFIDENCE RATING=5.5 OF 6.0**



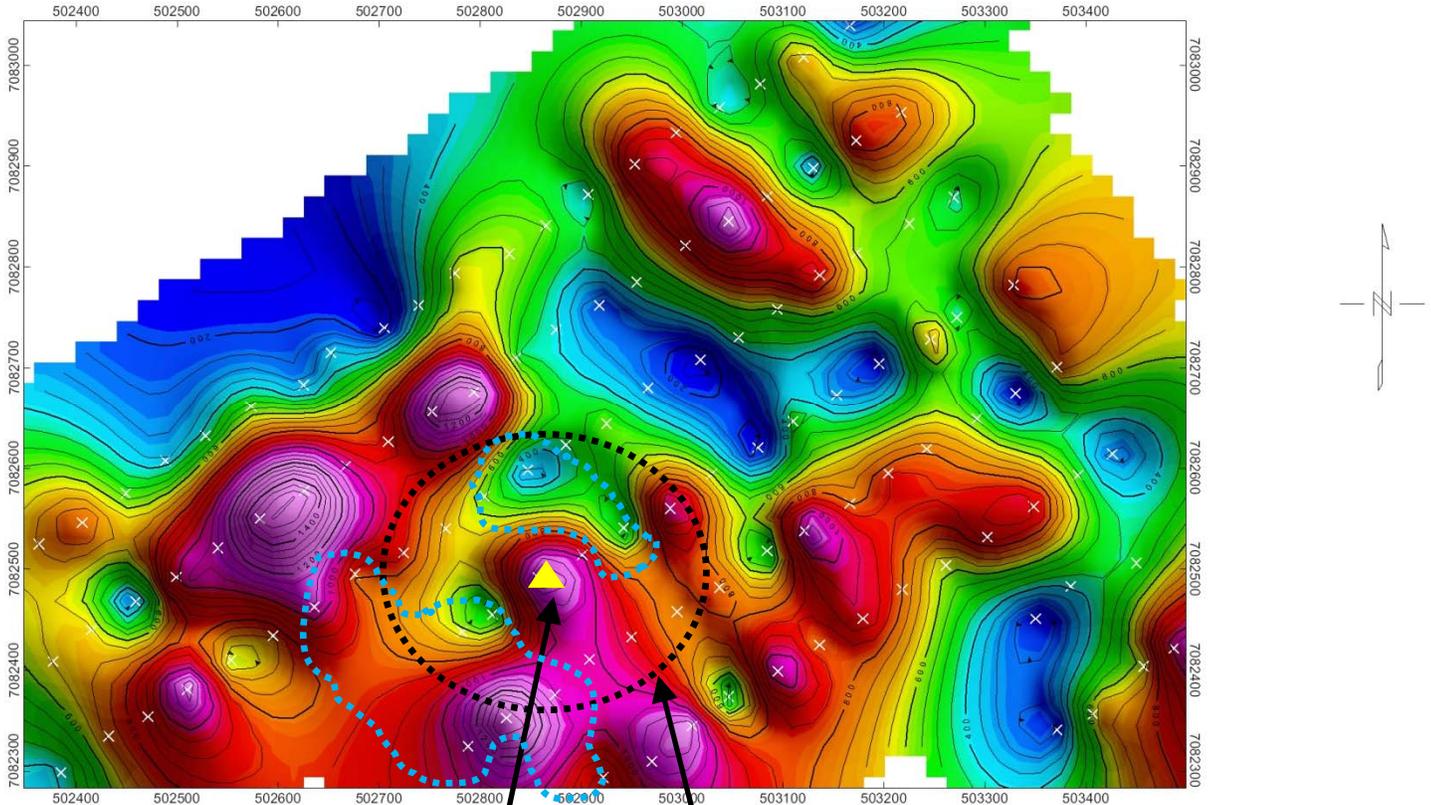
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**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH**  
**“COPPER” PATHFINDER CLASS MAP**



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**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH  
“COPPER” PATHFINDER CLASS MAP**

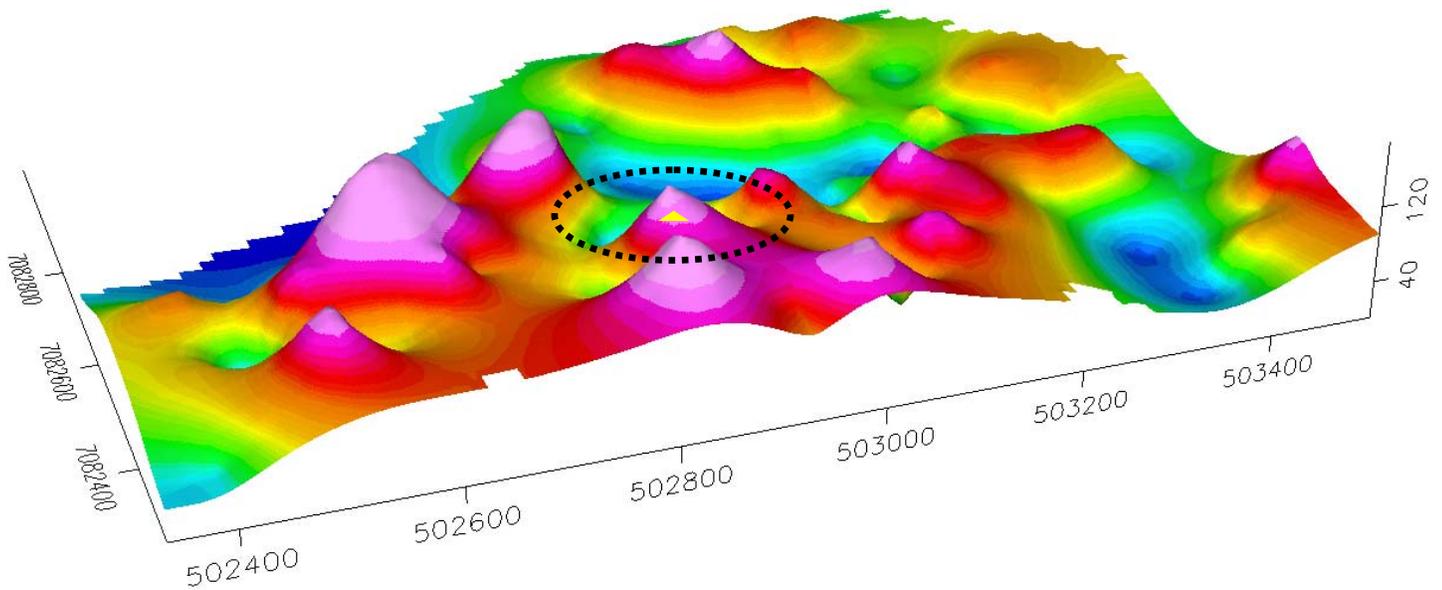


ANOMALIES HAVING AN SGH SIGNATURE ASSOCIATED WITH COPPER MINERALIZATION SHOW ASSOCIATED SEGMENTED NESTED-HALO REDOX CELL. CONFIDENCE RATING=5.5 OF 6.0



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**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH  
“COPPER” PATHFINDER CLASS MAP**



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## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH SILVER INTERPRETATION**

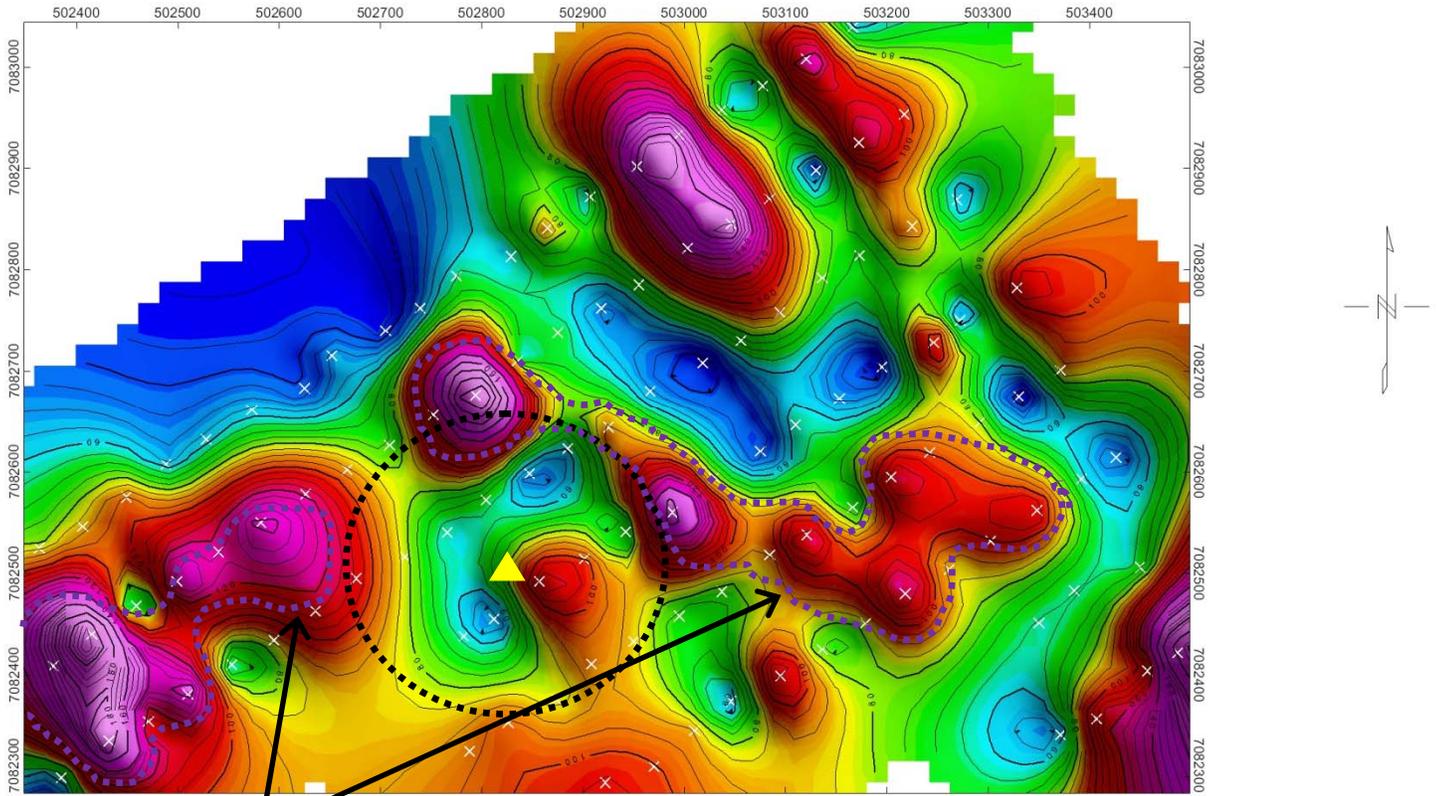
Page 25 of this report, and in 3D-view on page 26, shows the SGH anomalies from a pathfinder class of compounds that signifies part of the SGH signature possibly associated with Silver mineralization. However this is the weakest distinguishable SGH signature at the Roop survey. This SGH Pathfinder Class has similarities with the signature associated with Nickel mineralization and to a lesser extent with base metal type mineralization.

This map shows a general North-South trend of a discontinuous anomaly within the two dotted purple zones that bends around the eastern side of the Redox zone associated with what is believed to be the source of the mineralization. The anomalies are outlined with a dotted purple line. Note that the bending of these anomalies is also further support of the presence of a Redox zone.

This north-south mineralized trend, which could be a vein like feature, is shown to again illustrate the zonation of mineralization at Roop.

Note, that due to this signature being the weakest of the mineralized interpretations at the Roop survey, the identification of Silver is of a lower confidence and this may be another type of mineralization.

**A13-12531 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH**  
**“SILVER” PATHFINDER CLASS MAP**

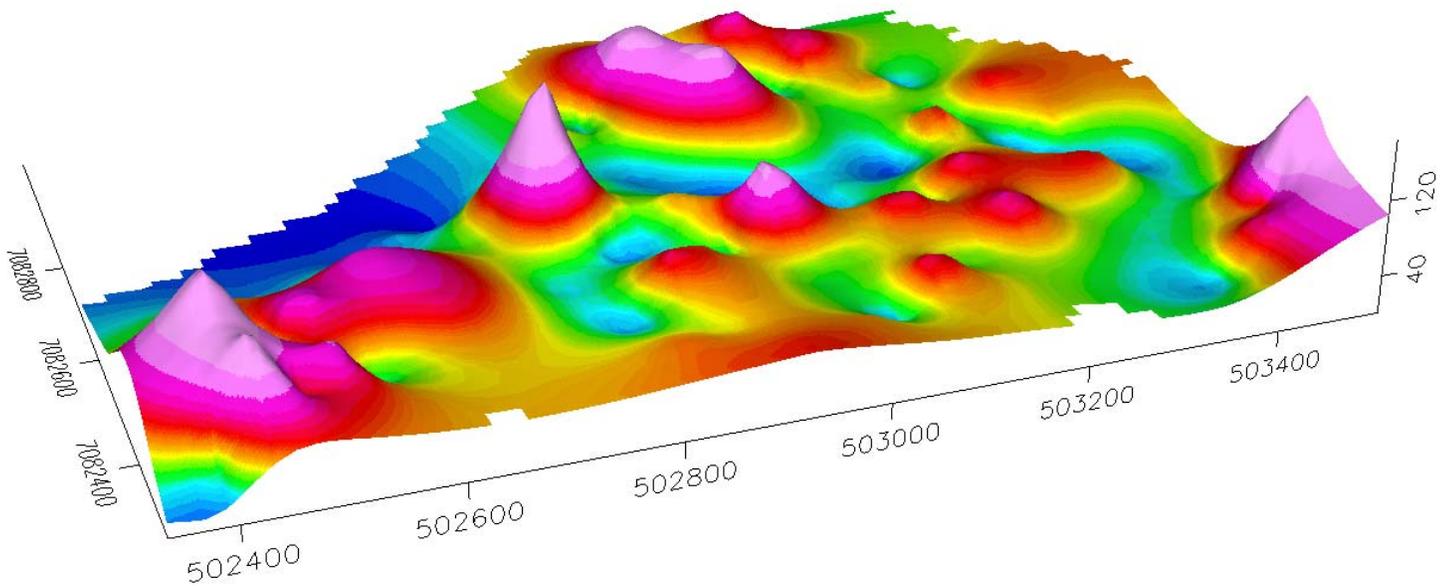


PURPLE DOTTED APICAL OUTLINES OF ANOMALIES HAVING AN SGH SIGNATURE ASSOCIATED WITH SILVER OR OTHER TYPE OF MINERALIZATION (CONFIDENCE RATINGS=3.0 OF 6.0)



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**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY SGH**  
**“SILVER” PATHFINDER CLASS MAP**



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## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY** **SGH INTERPRETATION - GOLD PATHFINDER CLASS MAPS**

The SGH Gold Pathfinder Class shown and other SGH Pathfinder Classes for Gold are able to illustrate the presence of an SGH hydrocarbon signature that has been associated with Gold targets as the detection of those hydrocarbon residues produced by the decomposition of bacteria in the death phase that have been feeding on material containing Gold and that have subsequently migrated to the surface as a flux of different classes of hydrocarbons.

The SGH Gold signature has been extensively researched and has been used with a very high rate of success. The predicted SGH Gold zone at a SGH Survey is expected to be a direct vertical projection of the location of mineralization, unless a situation is encountered such as that of a major fault or shear zone that may result in a "slight" (max. 10 metre) deflection of the path of migration to surface of these specific hydrocarbons.

The Gold template of SGH Pathfinder Classes uses primarily low, medium, and high molecular weight classes of hydrocarbon compounds. At least three Pathfinder Class maps, associated with the SGH signature developed for Gold 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 type mineralization. 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 two additional 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 considered in the interpretation relative to the presence of Gold deposits. Each pathfinder class map shown is still just one of the Pathfinder Class maps and is only part of the SGH Gold signature interpretation template.

## **A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY** **SGH GOLD INTERPRETATION**

Page 29 and 31 of this report, and in 3D-view on page 30 and 32, shows the SGH anomalies from two of the most reliable SGH Pathfinder Classes that make up some of the signature in predicting the presence of Gold mineralization. The SGH signature portion on page 29 has a very good response and is the most definitive signature present at the Roop survey. This is also shown in 3D on page 30.

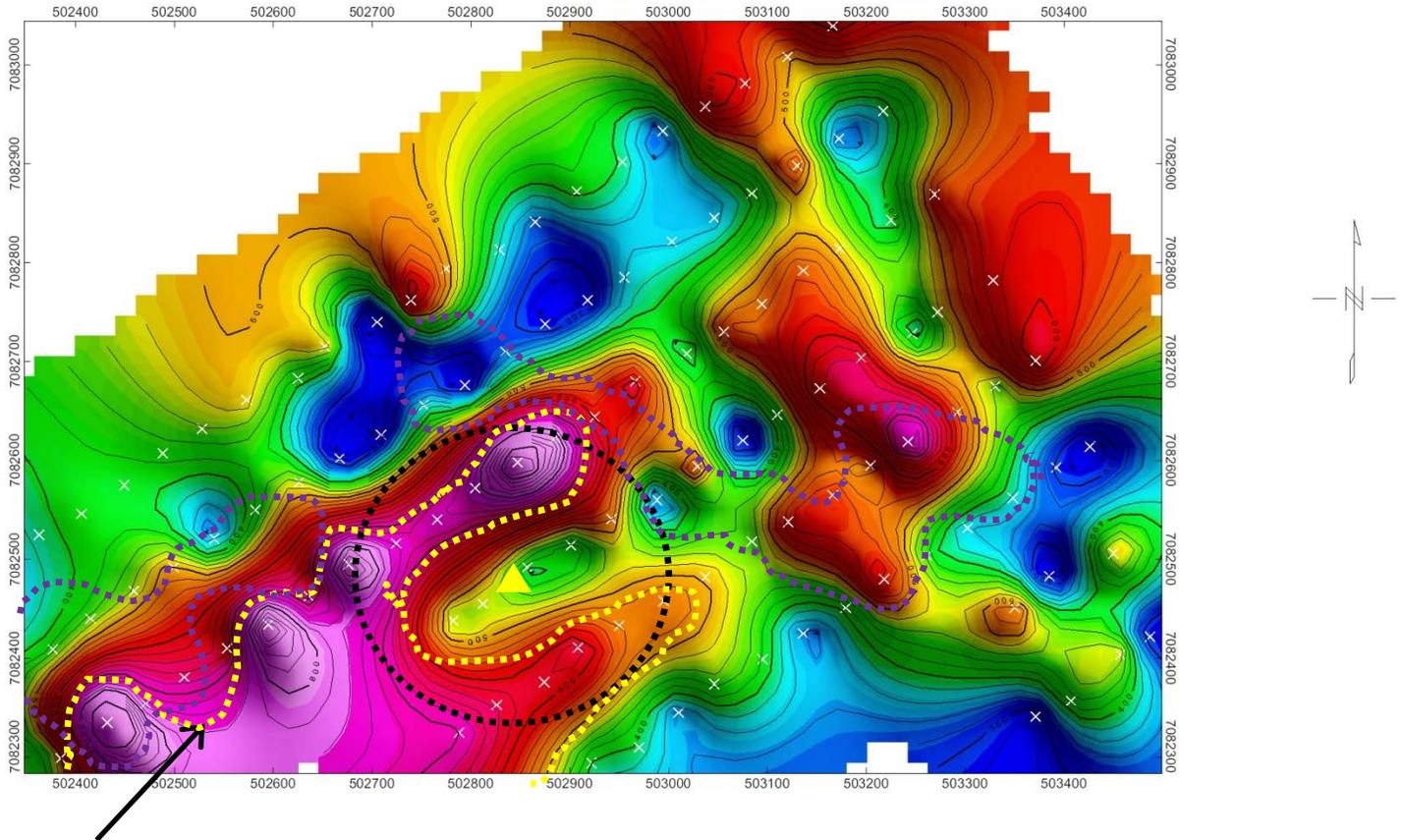
The map shown of page 29 has a large anomaly with very good response occurring within the dotted yellow outline as possible Gold mineralization at the Roop survey. Several other SGH Pathfinder Class Maps associated with the presence of Gold mineralization are coincident and support this interpretation at the Roop SGH Survey. One of these additional maps is shown on page 31 in this report.

As SGH has been so well researched in the prediction of Gold, and has had so much success for locating Gold mineralization over the last 20 years, this interpretation has quite a high level of confidence at depicting the location of Gold irrespective of the type of Gold mineralization. Remember that the Kriging algorithm used in the Geosoft mapping program is not customized for the Roop SGH Survey and in particular, anomalies at the edges of the surveys can be artificially enhanced due to this Kriging algorithm. This is believed to be the case at the SW corner of the Roop survey.

The map shown on page 31 is supportive of the SGH Gold signature map on page 29. The map on page 31 is a heavier molecular weight class of the SGH Gold signature and, just as for the SGH Copper signature, thus SGH pathfinder class is wider as it is more dispersed as expected. This map also supports the position and identification of a Redox Zone which is again illustrated by a symmetrical nested-halo segmented anomaly. This type of support and the correct geochromatographic dispersed signature pattern adds confidence to the SGH interpretation, which results in a higher SGH Confidence Rating. Again, just like for the Copper pathfinder class map on page 22, this map on page 31 does not emphasize the SW edge of the SGH Gold anomaly on page 29, and thus does not support that the SW end of the anomaly is a shallower portion of the predicted Gold mineralization.

The prediction of this anomaly for Gold mineralization, or any other interpretation in this report, is based only on the interpretation of SGH results. These anomalies are actually part of a larger Forensic signature of identification for Gold and thus the prediction, within the dotted yellow outline shown on page 29, is significantly more confident than the results obtained from other geochemical methods.

**A13-12531 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY**  
**SGH “GOLD” PATHFINDER CLASS MAP**

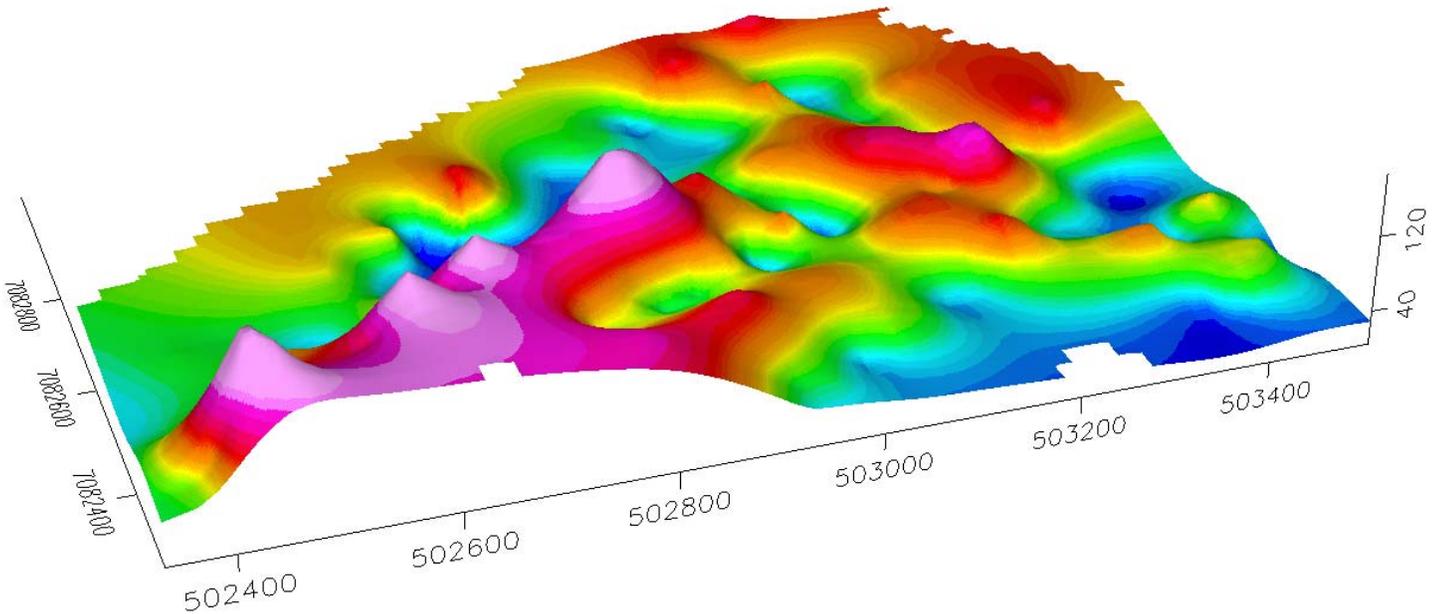


YELLOW DOTTED OUTLINE AROUND APICAL ZONE HAVING AN SGH SIGNATURE ASSOCIATED WITH GOLD CONFIDENCE RATINGS=5.0 OF 6.0



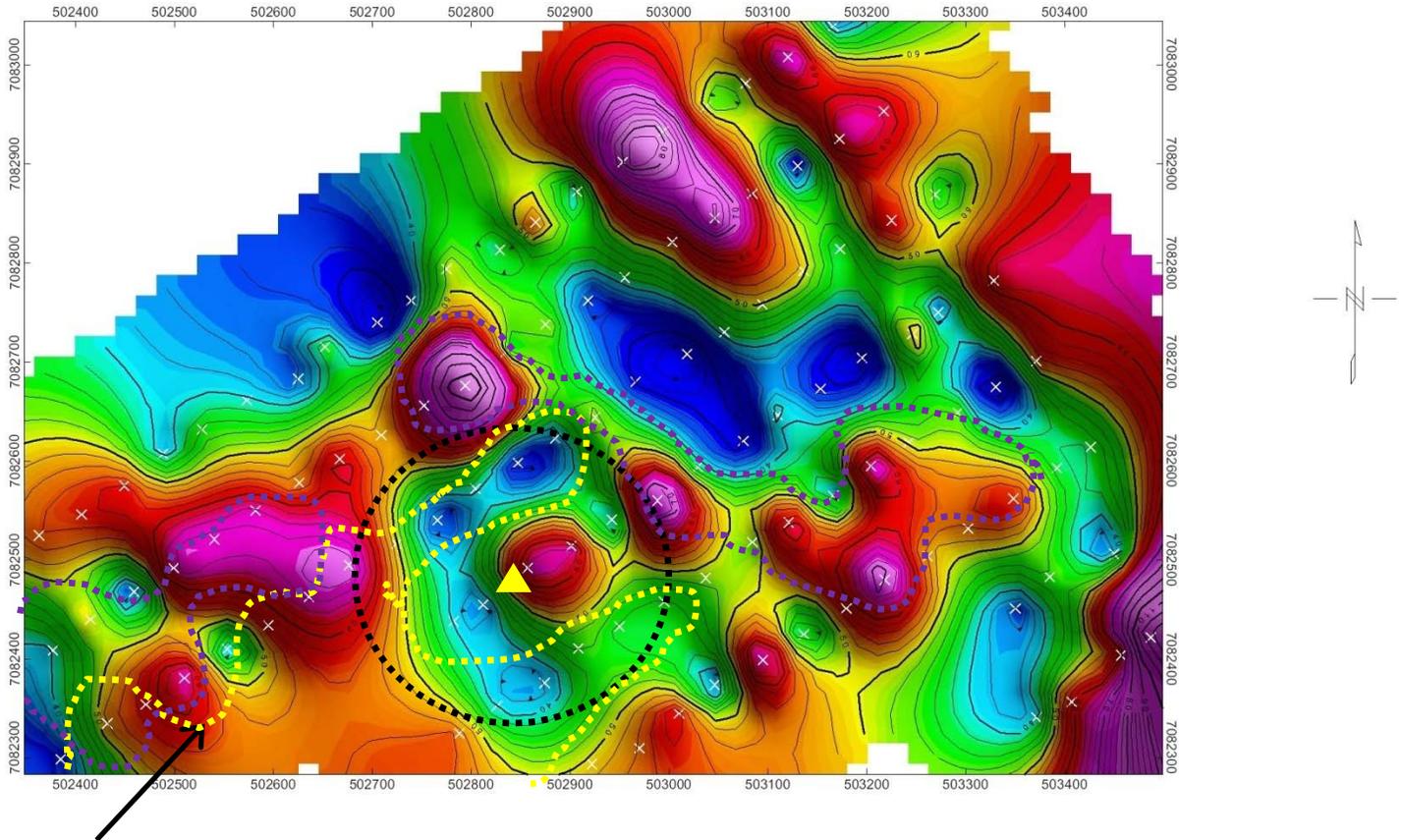
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**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY**  
**SGH “GOLD” PATHFINDER CLASS MAP**



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**A13-12531 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY**  
**SGH “GOLD” PATHFINDER CLASS MAP**

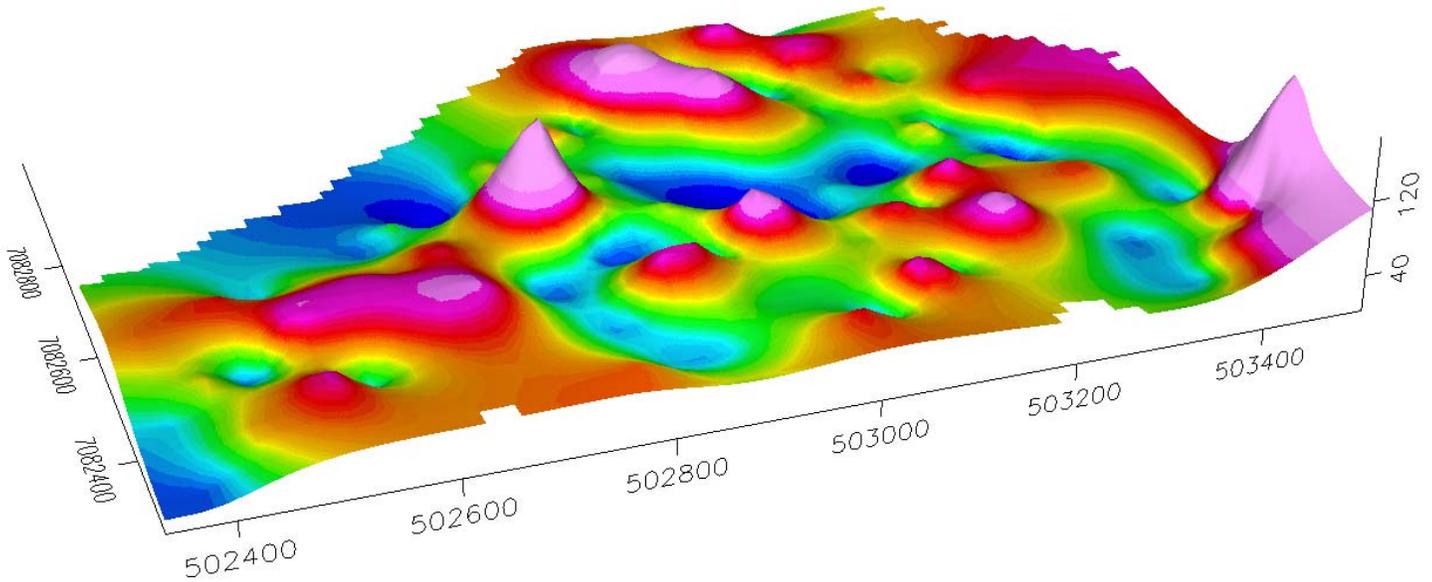


YELLOW DOTTED OUTLINE AROUND APICAL ZONE HAVING AN SGH SIGNATURE ASSOCIATED WITH GOLD  
 THIS SGH SIGNATURE FOR GOLD SHOWS MORE DISPERSION AND THE PRESENCE OF THE REDOX CELL  
 CONFIDENCE RATING=5.0 OF 6.0



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.

**A17-01867 – MAYO LAKE RESOURCES INC. – ROOP SGH SURVEY**  
**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.

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**ROOP SGH SURVEY**

**IMPORTANT NOTE:**

The interpretation of SGH data by the author, the originator of this geochemistry, is not exhaustive. All anomalies present on the SGH maps are not necessarily interpreted and discussed, especially if they occur near the edges of the survey area. The primary purpose of this interpretation is to show the client the clearest, the most significant, and the most confident anomalies for the target type(s) that the client has requested. This is based on the interpretation of SGH data for over 1,100 surveys conducted in the last 20 years. Thus, other anomalies may be valid targets but to consider each and interpret them all would result in a significantly longer turnaround time for results.

However, based on our commitment to continued support, the client is invited to call or meet with the author directly to discuss the SGH results shown and other anomalies that may be coincident with other geochemical or geophysical methods. At this time, after the issuing of the SGH Interpretation Report, the sharing of results between the client and Actlabs is an avenue through which knowledge can be shared and SGH can continue to develop and further improve. Depending on the depth of preparation as a result of a meeting, or development of a presentation, and time required for this support, there may be a modest charge as consulting time.

**A17-01867 – MAYO LAKE RESOURCES INC.**  
**ROOP SGH SURVEY - INTERPRETATION FOR MINERALIZATION**

In general, the number of samples was adequate to show what the author believes to be valuable information at the Roop SGH Survey. The use of a regularly spaced survey grid design significantly enhanced the interpretation and reduced the possibility of bias from clustering.

The SGH results on page 29 shows the interpretation for the presence of Gold at the Roop SGH Survey within the dotted yellow outline. The SGH signature for the anomalies within the dotted yellow areas was distinctive however there is really only two transects and thus only a few samples to describe and support this interpretation. Please remember to review the 3D-view on page 30. This is still one of the most definitive signatures at Roop with many compounds measurements which make up several chemical class maps that have been associated with the presence of Gold. The Gold mineralized fluids may have flowed in a SW direction from the centre of the Redox cell where it is predicted that they fluids originated from (yellow triangle). The SGH class map shown on page 29 and 31 form the majority of the SGH Gold signature used in the interpretation. With the advent of the development of 3D-SGH in 2012, that interprets the spatial symmetry of anomalous areas, the ultimate rating of confidence as 6.0 on a scale of 6.0 is more difficult to obtain. To observe this symmetry a larger survey is often needed. The SGH results for Gold tend to imply that the mineralization is relatively shallow. This anomaly at the southern end of Roop was focused on as it fit well with the zonation and Redox cells that were interpreted. Other anomalies on page 29 may be related to Gold mineralization but have a lower level of confidence associated with them.

After review of all of the SGH Class maps, the results from this Roop SGH Survey suggests a **"rating of 5.0"** out of a possible 6.0 (6.0 being the best) **for the apical SGH anomalies for gold** as shown on page 29, as the confidence in predicting that Gold mineralization may be present directly beneath this anomaly. The other interpretations and SGH signatures in this report for the Roop survey were rated separately.

The SGH results on page 20 is the interpretation for the presence of Copper at the Roop SGH Survey. The SGH signature for the anomalies within the dotted blue zones was distinctive for the SGH signature of Copper that is within the Redox zone associated with the source of the mineralized fluids. Please remember to review the 3D-view on page 21. After review of all of the SGH Class maps, the results from this Roop SGH Survey suggests a **"rating of 5.5"** out of a possible 6.0 (6.0 being the best) **for the two apical SGH anomalies for Copper** as shown on page 20, as the confidence in predicting that Copper mineralization is directly below these anomalies. This is actually a broad rabbit-ear type of anomaly. Such zonation of SGH results and predicted mineralization has been noted for Copper-Gold type target and together with the possible indication of mineralization on page 25 within the black dotted outline, said to be silver, certainly indicates that Roop has a Polymetallic nature to the type of mineralization that appears to be present.

## **A17-01867 – MAYO LAKE RESOURCES INC.** **ROOP SGH SURVEY - SGH SURVEY RECOMMENDATIONS**

The SGH signature or template has been proven effective from the interpretation over many other surveys in many different geographical regions and for different types of Gold targets as well as for Copper mineralization. Again, the degree of confidence in the rating only starts to be "good" at a level of 4.0. A Rating of 4.0 is an indication that the SGH geochemistry predicts that the zones described may warrant more work or more consideration. It must be remembered that there are still many other SGH Class maps used in the interpretation process that are not shown in this report due to turnaround time considerations.

From client feedback in recent years, a few true exploration surveys that have been interpreted with an SGH Confidence Rating of 4.0 ( $\pm 0.5$ ) have been drill tested with successful target intersections. However the frequency of success is much more prevalent for those targets that have had an SGH Rating Scores of  $\geq 5.0$ .

Although a fairly regularly spaced grid was used, additional coverage around the anomalies at the south end of this survey may have improved the confidence rating of these results. The identification of a drill target(s) is not reported for the Roop SGH Survey, however each SGH anomaly may be a vertical projection of Gold, Copper, or some other mineralization and thus there may be a series of drill targets..

With 3D-SGH, this geochemistry is capable of recommending drill locations with the highest associated confidence if symmetrical anomalies are found, and is the only geochemistry known to be able to estimate the depth to mineralization for some projects that achieve a high confidence rating. When a drill target is implied it is to ensure that the reader is aware of the location having the highest confidence of being the location of the vertical projection of the mineralization, based only on SGH data. This would not necessarily be a recommendation for vertical drilling. Vertical drilling may or may not be the best approach to test the SGH anomaly in a project area. 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 many other SGH Class maps not shown in this report have been reviewed to support the interpretation shown. 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 as blind independent research studies have consistently indicated that SGH is by far the most reliable geochemistry regardless of geographical location, sampling terrain, environmental conditions or lithology. The statement to not rely solely on SGH 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.

## **GENERAL RECOMMENDATIONS FOR ADDITIONAL SAMPLING FOR SGH ANALYSIS**

Based on the results of this report, the client may decide that additional sampling may be warranted at the Roop SGH Survey. To obtain the best results from additional sampling it is recommended that the client might collect new samples for SGH that would extend the grid area or dimensions of the survey to better cover the southern portion of the survey. It is suggested that, due to the resultant age difference between the samples used for this report and any new additional samples, that a new set of samples that focuses on more coverage's around the interpreted Gold anomaly be taken rather than relying on data leveling approximations.

Prior to any additional sampling we encourage a discussion with the author of this report with regard to where to take additional samples to best optimize SGH results to show more detail in the best and most confident fashion. Such recommendations are at no cost to the client.

Date Received at Actlabs: February 28, 2017

Date Analysis Completed: March 8, 2017

SGH Interpretation Report: March 24, 2017

Expanded SGH Interpretation Report: April 7, 2017

## **MAYO LAKE RESOURCES INC.**

**107 Falldown Lane**

**Carp, Ontario, Canada**

**K0A 1L0**

**Attention: Vern Rampton, P.Eng., Ph.D. (Geology), President and CEO, Director**

**RE: Your Reference: ROOP SGH SURVEY**

**Activation Laboratories Workorder: A17-01867**

### **CERTIFICATE OF ANALYSIS**

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

117-1(empty envelope)=116 Soil Samples were analyzed for this submission

Sample preparation –Actlabs Ancaster - S4: Drying at 60°C and Sieving with -80 mesh collected

Interpretation relative to primarily Gold and Copper based targets was conducted.

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

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

**REPORT/WORKORDER: A17-01867**

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

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

The author of this SGH Interpretation Report, 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. As an Organic Geochemist he is or has been 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 of British Columbia, the British Organic Geochemical Society, 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. Based on the interpretation of over 1,100 SGH surveys in the last 20 years, he is a geochemist with respect to SGH and OSG only.

CERTIFIED BY:A handwritten signature in black ink that reads "Dale Sutherland". The signature is fluid and cursive.

Dale Sutherland, B.Sc., B.Sc., B.Ed., C.Chem., MCIC

Forensic Scientist, Organics Manager,

Director of Research

Activation Laboratories Ltd.



## APPENDIX

**NOTE: THERE IS NEW STANDARD PRICING FOR THE SGH GEOCHEMISTRY AS OF 2017 (OSG pricing is the same as for SGH as described here)**

**SAMPLE PREPARATION:** CODE S4 - \$4.50 CDN per sample

**SAMPLE DISPOSAL:** For Canadian Samples - \$0.45 CDN per sample

**INTERPRETATION FOR SINGLE COMMODITY TARGETS:** Included in the price of analysis of \$48.00 CDN 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.

**“BASIC OR SUPPLEMENTAL REPORT GIS PACKAGE”:** (Included in the price of analysis)

Those clients that wish to import the SGH results into their GIS software can use the SGH data provided includes the geo-referenced image files that reflect the mapped SGH Pathfinder Class or Classes contained in the report and an Excel CSV file(s) containing the associated SGH Class Sum data.

Soil Sample Collection Data Roop Claim  
Group 2014

Soil Samples WGS84 8N

Sample ID	Site ID	Northing	Easting	Sampler	Date	Project
1556561	174	502377	7082409	BS	30-Aug-14	Roop
1556562	175	502415	7082440	BS	30-Aug-14	Roop
1556563	176	502459	7082468	BS	30-Aug-14	Roop
1556564	177	502499	7082492	BS	30-Aug-14	Roop
1556565	178	502540	7082521	BS	30-Aug-14	Roop
1556566	178	502540	7082521	BS	30-Aug-14	Roop
1556567	179	502582	7082550	BS	30-Aug-14	Roop
1556568	180	502626	7082578	BS	31-Aug-14	Roop
1556569	181	502667	7082602	BS	31-Aug-14	Roop
1556570	182	502709	7082626	BS	31-Aug-14	Roop
1556571	183	502752	7082656	BS	31-Aug-14	Roop
1556572	184	502794	7082676	BS	31-Aug-14	Roop
1556573	185	502835	7082710	BS	31-Aug-14	Roop
1556574	186	502875	7082738	BS	31-Aug-14	Roop
1556575	187	502918	7082762	BS	31-Aug-14	Roop
1556576	188	502955	7082785	BS	31-Aug-14	Roop
1556577	189	503003	7082821	BS	31-Aug-14	Roop
1556578	190	503046	7082845	BS	31-Aug-14	Roop
1556579	191	503084	7082870	BS	31-Aug-14	Roop
1556580	192	503130	7082898	BS	31-Aug-14	Roop
1556581	193	503172	7082925	BS	31-Aug-14	Roop
1556582	194	503217	7082953	BS	31-Aug-14	Roop
1556583	195	503328	7082782	BS	31-Aug-14	Roop
1556584	196	503272	7082750	BS	31-Aug-14	Roop
1556585	197	503246	7082728	BS	31-Aug-14	Roop
1556586	198	503195	7082704	BS	31-Aug-14	Roop
1556587	199	503153	7082673	BS	31-Aug-14	Roop
1556588	200	503110	7082646	BS	31-Aug-14	Roop
1556589	201	503075	7082620	BS	31-Aug-14	Roop
1556590	202	503029	7082594	BS	31-Aug-14	Roop
1556591	203	502988	7082560	BS	31-Aug-14	Roop
1556592	204	502942	7082541	BS	31-Aug-14	Roop
1556593	205	502901	7082514	BS	31-Aug-14	Roop
1556594	206	502857	7082492	BS	31-Aug-14	Roop
1556595	207	502812	7082455	BS	31-Aug-14	Roop
1556596	208	502782	7082438	BS	31-Aug-14	Roop
1556597	209	502730	7082409	BS	31-Aug-14	Roop
1556598	211	502922	7082294	BS	31-Aug-14	Roop
1556599	211	502922	7082294	BS	31-Aug-14	Roop
1556600	212	502970	7082310	BS	31-Aug-14	Roop
1556601	213	503010	7082345	BS	31-Aug-14	Roop
1556602	214	503046	7082374	BS	31-Aug-14	Roop
1556603	215	503095	7082399	BS	31-Aug-14	Roop
1556604	216	503136	7082425	BS	31-Aug-14	Roop
1556605	217	503179	7082451	BS	31-Aug-14	Roop
1556606	218	503218	7082480	BS	31-Aug-14	Roop
1556607	219	503261	7082504	BS	31-Aug-14	Roop
1556608	220	503302	7082532	BS	31-Aug-14	Roop
1556609	221	503348	7082562	BS	31-Aug-14	Roop
1556610	222	503392	7082593	BS	31-Aug-14	Roop
1556611	223	503426	7082614	BS	31-Aug-14	Roop
1556612	224	503487	7082422	BS	31-Aug-14	Roop
1556613	225	503457	7082404	BS	31-Aug-14	Roop

Sample ID	Site ID	Northing	Easting	Sampler	Date	Project
1556614	226	503407	7082357	BS	31-Aug-14	Roop
1556615	227	503371	7082341	BS	31-Aug-14	Roop
1500563	230	502363	7082525	TS	30-Aug-14	Roop
1500564	231	502406	7082546	TS	30-Aug-14	Roop
1500565	232	502449	7082575	TS	30-Aug-14	Roop
1500566	232	502449	7082575	TS	30-Aug-14	Roop
1500567	233	502488	7082607	TS	30-Aug-14	Roop
1500568	234	502528	7082632	TS	30-Aug-14	Roop
1500569	235	502573	7082661	TS	30-Aug-14	Roop
1500570	236	502625	7082683	TS	30-Aug-14	Roop
1500571	237	502652	7082715	TS	30-Aug-14	Roop
1500572	238	502705	7082740	TS	31-Aug-14	Roop
1500573	239	502739	7082762	TS	31-Aug-14	Roop
1500574	240	502775	7082794	TS	31-Aug-14	Roop
1500575	241	502829	7082813	TS	31-Aug-14	Roop
1500576	242	502865	7082841	TS	31-Aug-14	Roop
1500577	243	502907	7082872	TS	31-Aug-14	Roop
1500578	244	502953	7082902	TS	31-Aug-14	Roop
1500579	245	502994	7082933	TS	31-Aug-14	Roop
1500580	246	503037	7082958	TS	31-Aug-14	Roop
1500581	247	503077	7082981	TS	31-Aug-14	Roop
1500582	248	503120	7083008	TS	31-Aug-14	Roop
1500583	249	503166	7083039	TS	31-Aug-14	Roop
1500584	250	503269	7082869	TS	31-Aug-14	Roop
1500585	251	502636	7082463	TS	31-Aug-14	Roop
1500586	252	502595	7082434	TS	31-Aug-14	Roop
1500587	253	502553	7082410	TS	31-Aug-14	Roop
1500588	254	502510	7082381	TS	31-Aug-14	Roop
1500589	255	502471	7082354	TS	31-Aug-14	Roop
1500590	256	502432	7082335	TS	31-Aug-14	Roop
1500591	257	502385	7082299	TS	31-Aug-14	Roop
1500592	258	502676	7082495	TS	31-Aug-14	Roop
1500593	259	502724	7082516	TS	31-Aug-14	Roop
1500594	260	502766	7082540	TS	31-Aug-14	Roop
1500595	261	502804	7082572	TS	31-Aug-14	Roop
1500596	262	502847	7082598	TS	31-Aug-14	Roop
1500597	263	502885	7082623	TS	31-Aug-14	Roop
1500598	264	502925	7082644	TS	31-Aug-14	Roop
1500599	264	502925	7082644	TS	31-Aug-14	Roop
1500600	265	502966	7082680	TS	31-Aug-14	Roop
1500601	266	503018	7082708	TS	31-Aug-14	Roop
1500602	267	503056	7082730	TS	31-Aug-14	Roop
1500603	268	503094	7082758	TS	31-Aug-14	Roop
1500604	269	503136	7082792	TS	31-Aug-14	Roop
1500605	270	503173	7082814	TS	31-Aug-14	Roop
1500606	271	503225	7082843	TS	31-Aug-14	Roop
1500607	272	503371	7082701	TS	31-Aug-14	Roop
1500608	273	503330	7082675	TS	31-Aug-14	Roop
1500609	274	503292	7082649	TS	31-Aug-14	Roop
1500610	275	503242	7082619	TS	31-Aug-14	Roop
1500611	276	503204	7082595	TS	31-Aug-14	Roop
1500612	277	503166	7082565	TS	31-Aug-14	Roop
1500613	278	503121	7082538	TS	31-Aug-14	Roop
1500614	279	503084	7082518	TS	31-Aug-14	Roop
1500615	280	503037	7082482	TS	31-Aug-14	Roop

Sample ID	Site ID	Northing	Easting	Sampler	Date	Project
1500616	281	502995	7082458	TS	31-Aug-14	Roop
1500617	282	502950	7082433	TS	31-Aug-14	Roop
1500618	283	502908	7082411	TS	31-Aug-14	Roop
1500619	284	502874	7082376	TS	31-Aug-14	Roop
1500620	285	502826	7082353	TS	31-Aug-14	Roop
1500621	286	502788	7082325	TS	31-Aug-14	Roop
1500622	287	503350	7082451	TS	31-Aug-14	Roop
1500623	288	503385	7082483	TS	31-Aug-14	Roop
1500624	289	503450	7082506	TS	31-Aug-14	Roop



