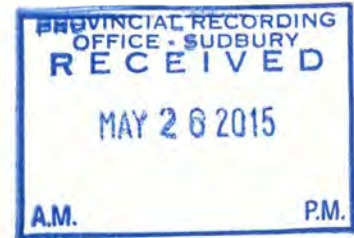




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**Assessment Report**  
**On the**  
**Manitou Gold Inc.**  
**Kenwest Property**  
**2013 Soil Gas Hydrocarbon (SGH) Survey**  
**Kenora Mining Division,**  
**Northwestern Ontario**  
**NTS 52F/07**



## **Summary**

The Kenwest Property is located in northwestern Ontario, Canada, approximately 50 km south of the town of Dryden. It is within the Boyer Lake Area, N.T.S. Sheet 52F/07 NE., at an approximate UTM location of 521746E 5475459N (UTM Nad83 Zone15U). The Kenwest Property is composed of 32 patented mining claims and is accessible by an ATV trail which branches off of highway 502 south from Dryden. The Kenwest Property is adjacent to the Elora Property, centered at approximate UTM location of 521746E 5475459N (UTM Nad83 Zone15U). The Elora Property is composed of 12 patented mining claims which Manitou Gold Inc. optioned from Seafield Resources between 2012 and 2014.

The Kenwest and Elora Properties are located within a historic area known as the Goldrock Mining Camp. The Camp hosts three past producing gold mines which operated in the first quarter of the 20<sup>th</sup> century, as well as numerous gold showings, deposits, and prospects. One of the past producing mines, the Big Master Mine is located on the Kenwest Property. The historic Laurentian and Jubilee mines are located on the Elora Property. Gold exploration began around the Upper Manitou Lake area in the 1890's and has continued sporadically through to the present day. Gold prospecting was very active from 1895 to 1912 and again in the 1930's. The area experienced a period of exploration in the 1950's, 60's and 70's. Total production in the camp, from the three mines, amounts to approximately 376.4 kilograms of gold derived from 43,627 tonnes in the period 1900 to 1943.

Records of work prior to 1970 on the properties are incomplete. The Kenwest Property, previously owned by Gold Corp. Ltd., contains the historic Big Master Mine (Kenwest Mine), the Helena Mine, the Paymaster, the Selby Lake Deposit, and the Gold Rock occurrence. The Big Master was mined from 1902 to 1903, in 1905, and again from 1942 to 1943. It produced a total of 2,565 ounces of gold, from 14,470 tons containing 0.18 oz/t Au.

The Property is situated in the northwestern corner of the Wabigoon granite-greenstone sub-Province. The area is within the middle of the Eagle-Manitou Lakes greenstone belt, and is located mostly on the northwestern side of the southeast dipping Manitou Straits Fault. The property lies mostly within the stratigraphically lower calc-alkaline, predominantly pyroclastic volcanics of the Upper Manitou Lake Group. Part of the Kenwest property contains a sequence of mafic to intermediate volcanic flows and pyroclastics of the Benson Bay Sub-group of the Pincher Lake Group Rocks. The claims are positioned on the southeast side of the Manitou anticline, adjacent to the Manitou Straits Fault. Diabase dikes of Mesoproterozoic age intrude the entire supracrustal sequence of rocks.

Following the option of the adjacent Elora Property in 2012, Manitou Gold Inc. completed a Soil Gas Hydrocarbon (SGH) survey across both the Elora and the Kenwest Properties. Two surveys were completed. The focus of the first was to test this technique over known gold zones, the second was an extension survey designed to build on results from the previous survey and potentially identify areas for further exploration. Three SGH targets were identified by these two surveys, one of which is located under Upper Manitou Lake. A program of diamond drilling testing these targets, with particular focus on the target under the Lake, is recommended.

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## **1.0 Introduction**

In the fall of 2012, Manitou Gold Inc. optioned the Elora Property from Seafield Resources and performed an initial re-interpretation program. This was followed by a trenching, prospecting and geological mapping program in the fall of 2012 and a diamond drill program in the winter of 2013. In the spring/ summer of 2013 Manitou Gold performed a Soil Gas Hydrocarbon (SGH) soil survey over portions of the Elora and Kenwest Properties to test this new technology and potentially aid in identify areas for future exploration. Two soil sample programs were completed. The first was intended to cover areas of known gold mineralization to test the technique and the second, or extension survey was tied into the original and extended the survey area into areas previously untested by any other modern day exploration techniques, such as under the waters of Trafalgar Bay, Upper Manitou Lake. Between the two SGH surveys, three SGH targets were identified, one of them along strike of the Jubilee gold zone. All soil samples collected for SGH analysis were analyzed by Activation Laboratories in Ancaster, ON and all SGH interpretations were completed by Dale Sutherland of Actlabs.

This report summarizes the work that was undertaken during the 2013 SGH soil sampling programs and the results obtained from these exploration programs. Work on the property was carried out by Tamara Taras, Will Zurbrigg and Shawn MacFarlane under the supervision of Todd Keast, P.Geo, President and CEO of Manitou Gold Inc. T. Taras is responsible for the preparation of this report including maps and figures, with the exception of any SGH interpretations. All SGH interpretative maps were taken from the complete SGH reports (Appendix I and Appendix II) completed by Dale Sutherland of Activation Laboratories in Ancaster, ON.

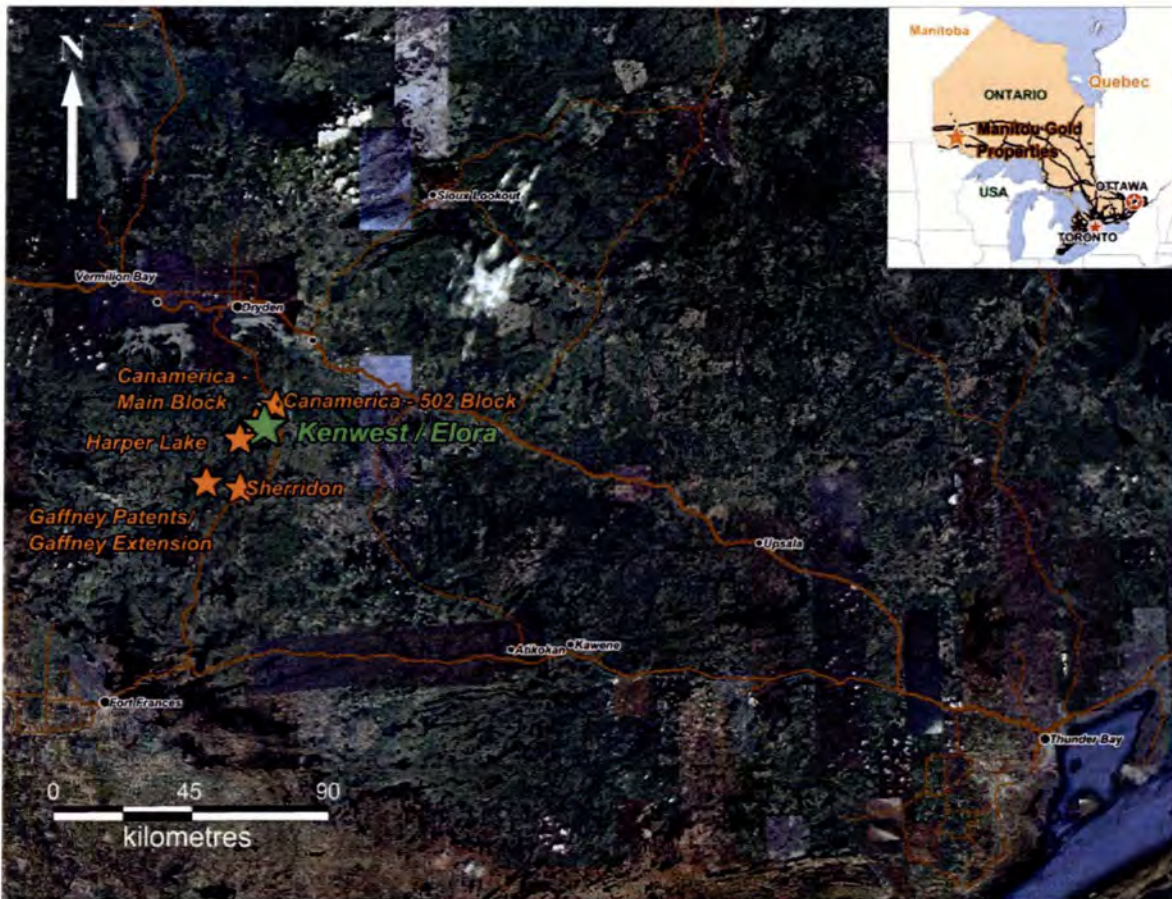


Figure 1.1: Location of Manitou Gold Inc. Kenest Property

## 2.0 Property Description, Location and Access

The Kenest Property of Manitou Gold Inc. consists of 32 patented mining claims, which include 10 mining licenses of occupation (MLO), all currently held 100% by Manitou Gold. They are all located within Boyer Lake Area (Plan G-2572) of Northwestern Ontario. Table 2.1 outlines the patents, their general information, and their size.

The Property is situated in the Boyer Lake Area (Plan G-2572) of the Kenora Mining Division; N.T.S. 52F/07 NE., at an approximate Longitude of  $92^{\circ}41'59''$ W and Latitude of  $49^{\circ}25'53''$ N, and at UTM 521764 E and 5475459N (NAD 83 Zone 15). The claims on the property are contiguous with Manitou Gold's Canamerica Main Block Property (Figure 2.1). The diamond drilling extended over eight of the patents comprising the property. A detailed description of the property claims is included in Table 2.1

The Kenest Property is located in the Kenora mining division and is approximately 50 km south of the city of Dryden on the northeastern end of Upper Manitou Lake (Figure 1.1). The

Property is accessed from Dryden by travelling 6 km west on highway 594, then turning south onto highway 502. Travel highway 502 for approximately 50 km, at which point an ATV trail branches off of the highway, to the west. The trail heads southwest, along the west side of Mud Lake. At a distance of 5.09 km along the trail the main branch continues west to the historic town of Gold Rock, while the south branch accesses the Kenwest Property (Figure 2.1). Other access to the southern or western part of the property would be by boat, float plane, or helicopter.

**Table 2.1: Kenwest Patents**

Claim	Parcel No (all followed by SEC DKF)	Pin No	Township/Area	Type	MLO No.
HP366	5604	42185-0634	Boyer Lake	Patent	
HP367	5605	42185-0635	Boyer Lake	Patent	
HP368	5605	42185-0635	Boyer Lake	Patent	
HP369	5605	42185-0635	Boyer Lake	Patent	
HP373	5605	42185-0636	Boyer Lake	Patent	
HP405	10398	42185-0678	Boyer Lake	Patent	
K4631	19183	42185-0648	Boyer Lake	MLO, Patent	12190
K4632	19184	42185-0649	Boyer Lake	MLO, Patent	12190
K4633	19185	42185-0650	Boyer Lake	Patent	
K4713	19414	42185-0664	Boyer Lake	MLO, Patent	12216
K4714	19186	42185-0651	Boyer Lake	MLO, Patent	12184
K4715	19187	42185-0652	Boyer Lake	Patent	
K4716	19188	42185-0653	Boyer Lake	Patent	
K4717	19189	42185-0654	Boyer Lake	Patent	
K4718	19190	42185-0655	Boyer Lake	MLO, Patent	12187
K4881	19191	42185-0656	Boyer Lake	MLO, Patent	12185
K4882	19192	42185-0657	Boyer Lake	MLO, Patent	12185
K4883	19193	42185-0658	Boyer Lake	MLO, Patent	12185
K5116	19194	42185-0659	Boyer Lake	Patent	
K5117	19758	42185-0666	Boyer Lake	MLO, Patent	12314
K5118	19759	42185-0667	Boyer Lake	Patent	
K5119	19760	42185-0668	Boyer Lake	Patent	
K5120	19761	42185-0669	Boyer Lake	MLO, Patent	12314
K5121	19762	42185-0670	Boyer Lake	MLO, Patent	12314
K5122	19763	42185-0671	Boyer Lake	MLO, Patent	12314
K5123	19415	42185-0665	Boyer Lake	MLO, Patent	12215
K5124	19764	42185-0672	Boyer Lake	Patent	
K5125	19195	42185-0660	Boyer Lake	MLO, Patent	12189
K5126			Boyer Lake	MLO	12314
K5127	19196	42185-0661	Boyer Lake	MLO, Patent	12188
K5128	19765	42185-0673	Boyer Lake	MLO, Patent	12314
K5129	19197	42185-0662	Boyer Lake	MLO, Patent	12186
K5130	19197	42185-0663	Boyer Lake	MLO, Patent	12186
K5131	21183	42185-0681	Boyer Lake	Patent	
S25 (K918&K919)	9856	42185-0677	Boyer Lake	Patent	



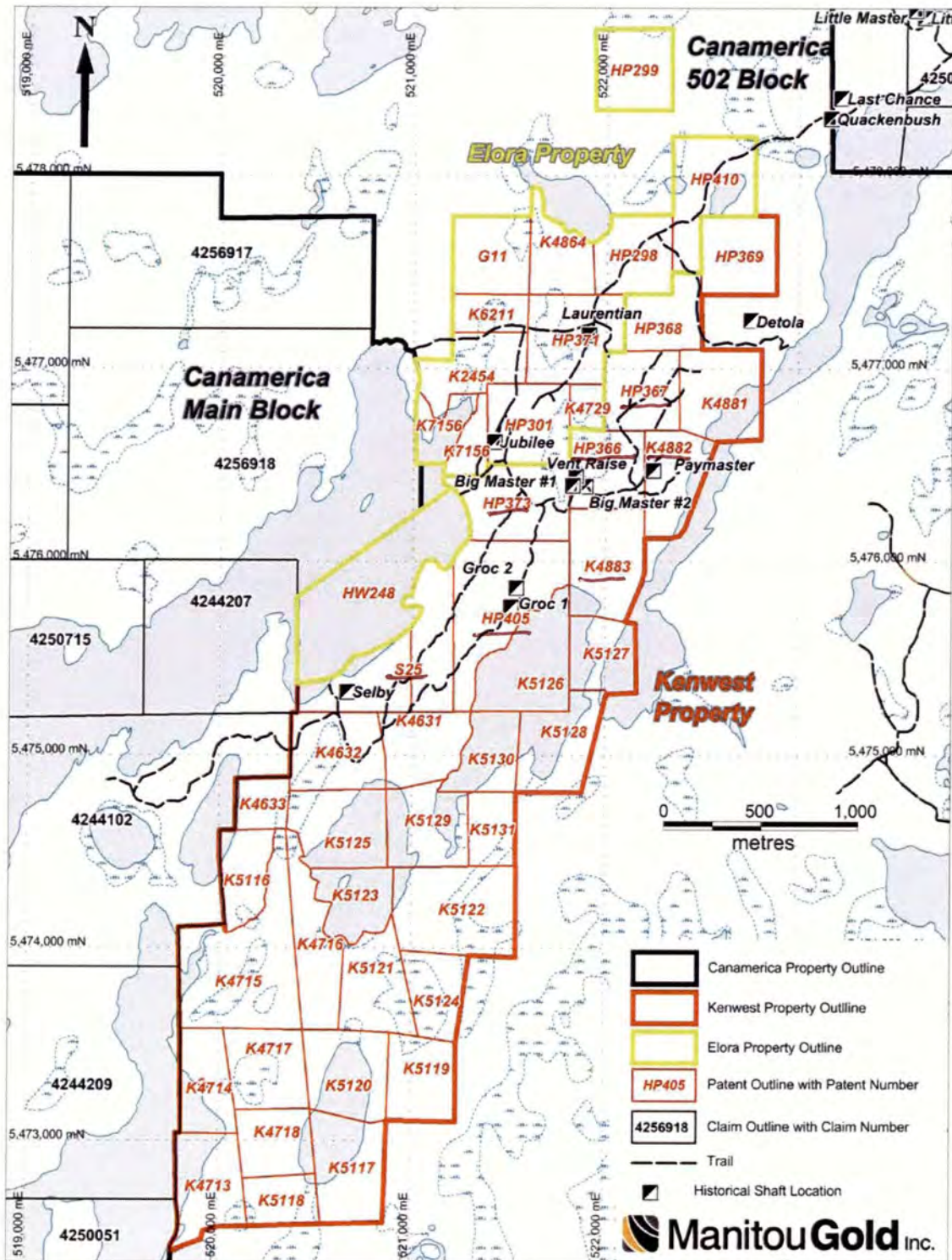


Figure 2.1: Claim Map, Kenwest Property

### **3.0 Climate, Local Resources, Infrastructure and Physiography**

The climate of the Dryden – Manitou Lake area is typically continental in nature, with cold winters (-1°C to -30°C) and warm summers (10°C to 25° C.). Annual precipitation averages 685 mm, about half in the form of snow. Seasonal variations affect exploration to some extent (geological mapping cannot be done in the winter, geophysics and drilling are best done at certain times of the year, etc.), but the climate will not significantly hamper mining operations.

The settlements of Dryden and Fort Frances are relatively close; these all have the necessary equipment and trained personnel to support exploration and mining activities. The property has very good access to infrastructure, as it is located approximately 50 km south of the trans-Canada Highway.

The property has a gently rolling to locally rugged topography with maximum relief on the order of 100 m. Much of the region has been logged so present forests are typically second growth; mixtures of jack pine, spruce, birch and poplar are common.

### **4.0 Exploration History**

Earliest exploration in the Upper Manitou Lake area is known from the 1890's and has continued sporadically through to the present day. Gold prospecting was very active from 1895 to 1912 and again in the 1930's as represented by the many pits, trenches and small shafts throughout the area. The town of Gold Rock, at the north end of Trafalgar Bay in the northeast corner of Upper Manitou Lake, developed in response to this early exploration period and most of the patented claims in this area date back to these time periods. The three producing gold mines in this area (the Laurentian, the Jubilee and the Big Master mines) (Figure 4.1) were active during one or the other of these time periods and produced a total of 12,078 ounces gold and 480 ounces silver between 1900 and 1948 (Blackburn, 1981). The Laurentian and the Jubilee (Elora) Mines are located on the Elora Property, while the Big Master Mine is located on the Kenwest Property. Other developed gold occurrences present on the Kenwest Property include the Paymaster Prospect, the Selby Lake Deposit, the Helena Occurrence, and the Gold Rock Prospect. The Selby Lake Deposit, on the Kenwest patented claim S25, had underground development during the late 1930's, but no production. Several other properties in the area were explored by shallow shafts.

There have been several periods of exploration activity in the general area of the claims. The history of gold occurrences within the property boundary date back at least to the first geological survey in the area (McInnes, 1902). Historical fieldwork was performed between 1896 and 1898. Government work in the form of geological mapping was carried out by the Ontario Department of Mines in 1933 (Thomson, 1933) and by the Ontario Geological Survey by C. Blackburn in 1979 (Blackburn, 1979, 1981). Airborne magnetic and electromagnetic surveys were completed over the area in 1980 and 2001 (OGS 1980, 2001). The following is a summary of exploration work carried out over various prospects on the current Kenwest Property.

The Kenwest Property, previously owned by Gold Corp. Ltd. (Figure 4.1 and 4.2) contains the historic Big Master Mine (Kenwest Mine), which was mined from 1902 to 1903, in 1905, and again from 1942 to 1943. It produced a total of 2,565 ounces of gold, from 14,470 tons containing 0.18 oz/t Au. A total of 3 shafts were developed, the largest going down to 638 feet, with 4,850 feet of lateral development. During this time period, 36,831 feet of underground drilling was completed. Five quartz veins (Figure 4.2) were located on the property, the most productive being the west or No. 3 vein (renamed the Big Master #1 zone by Manitou Gold) and the east or No. 4 Vein (renamed the Big Master #2 zone by Manitou Gold ) (Blackburn, 1981). The No. 3 vein was mainly quartz, while the No. 4 and No. 5 veins consisted of felsite dikes containing quartz stringer and pyrite mineralization (Thomson, 1943). The Helena Shaft (mentioned above) was located over the No. 2 and 3 Veins. The property was re-evaluated in 1967 by Kenwest Mines (at the time owned by Dickenson Mines), who outlined historic probable reserves of 30,000 T of 0.36 oz/t Au from drilling (Blackburn, 1981). As well, at this time they evaluated the amount of gold left in the mine, and indicated that 19,000 T of 0.3 oz/t Au was left in old workings (Blackburn, 1982). None of the reserves mentioned above are NI 43-101 compliant.

The Paymaster (Figure 4.3) was initially developed by Northern Development Co. in 1903. Work included sinking a shaft to 99 m on two northeast trending quartz veins which were 9 m apart on surface (Blackburn, 1981). Work by this company ceased in 1909. In 1935 this prospect was held by Big Master Consolidated Gold Mines Limited, and included the claims around the Big Master Mine. No further work was done by this or succeeding companies.

Two shafts were sunk on the Selby Lake Deposit (Figure 4.3) in 1904 by the Gold Rock Mining and Milling Co. (Thomson, 1942). The prospect was then acquired by Selby Lake Mines Ltd. in 1936 and another shaft was sunk to a depth of 46 m with two levels at 38.1 m and 76 m. Kenwest Gold Mines Ltd. bought the property in 1939, no further work was reported.

The Gold Rock occurrence (GROC) (Figure 4.3) was developed by Gold Rock Mining and Milling Co. in 1904, they sunk two shafts on this occurrence (Blackburn, 1981). This property was subsequently acquired by Kenwest Gold Mines Ltd. in 1939, but no further work was done on the prospect following the acquisition.

Work performed later than 1975 on any of these occurrences noted above are not reported, as they are covered by patents.

Manitou Gold Inc. acquired the Kenwest Patents in 2009 and performed a program of prospecting, sampling and geological mapping across the property. Following this initial exploration program, in 2010 a program of diamond drilling totaling 4774.8 metres was carried out in the summer of 2010. Particular focus was given to surface gold showings at the historical Big Master, Helena, Gold Rock Occurrence and Selby Areas, however, additional IP targets were also tested

Additional diamond drilling, mechanical trenching and channel sampling was performed throughout 2011 and 2012 by Manitou Gold Inc. The work was primarily designed as an evaluation and follow up of gold mineralization identified during the 2010 diamond drill

program on the Big Master #1 and #2 zones. Diamond drilling on the Kenwest Property occurred in three different phases throughout 2011 and 2012 and consisted of a total of 14,670.45 metres in 80 drill holes on various locations across the property.

In 2012, Manitou Gold Inc. optioned the adjacent Elora Property from Seafield Resources and completed exploration programs consisting of re-interpretation/ re-evaluation of previous work, prospecting, mechanical trenching, channel sampling and detailed geological mapping.

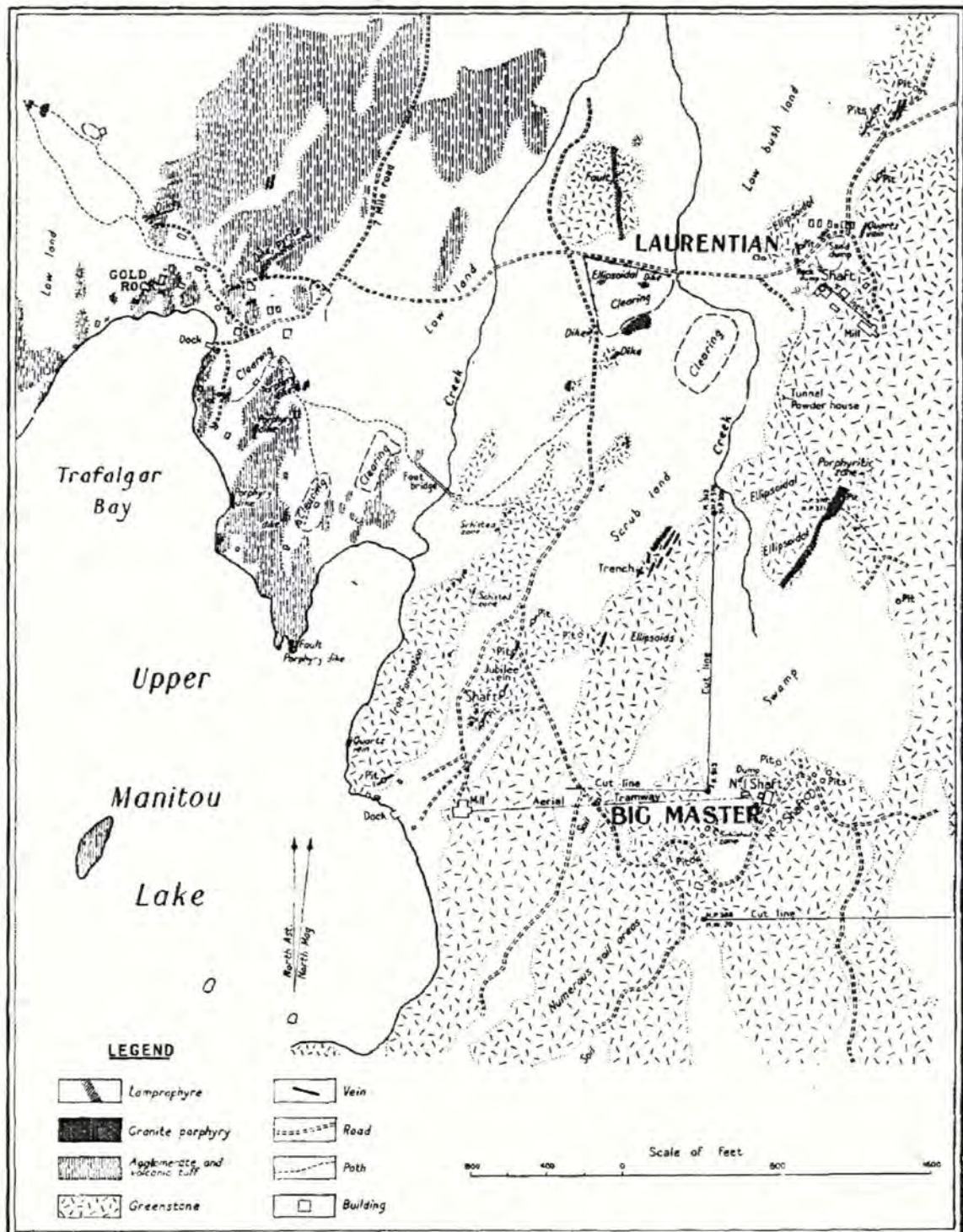


Figure 4.1: Historical Map of the Past Producing Gold Mines in the Goldrock Area, Big Master, Laurentian and Jubilee (Elora) (Thomson, 1934)

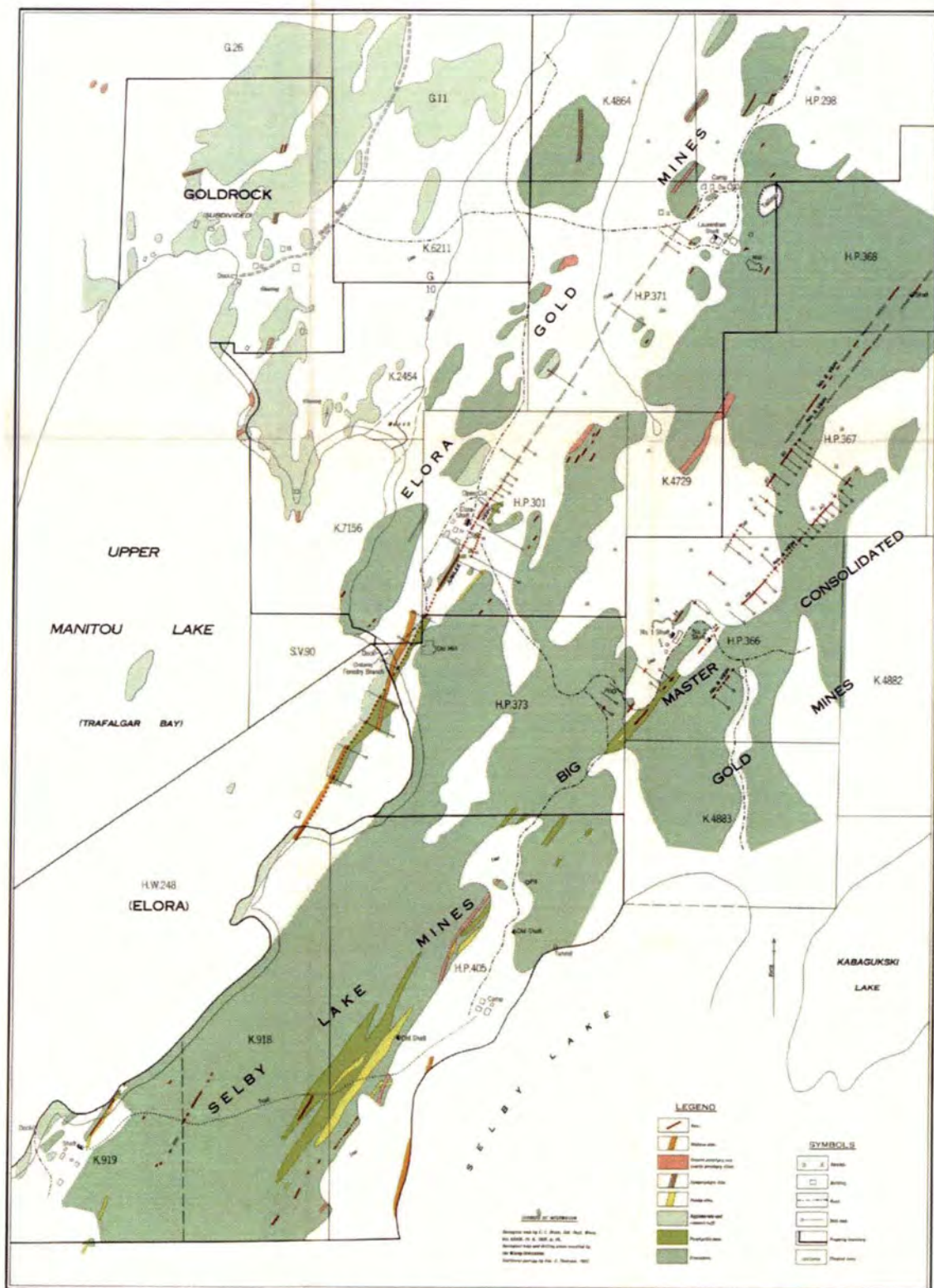


Figure 4.2: Historical Mining Properties near Goldrock (Thomson, 1942)

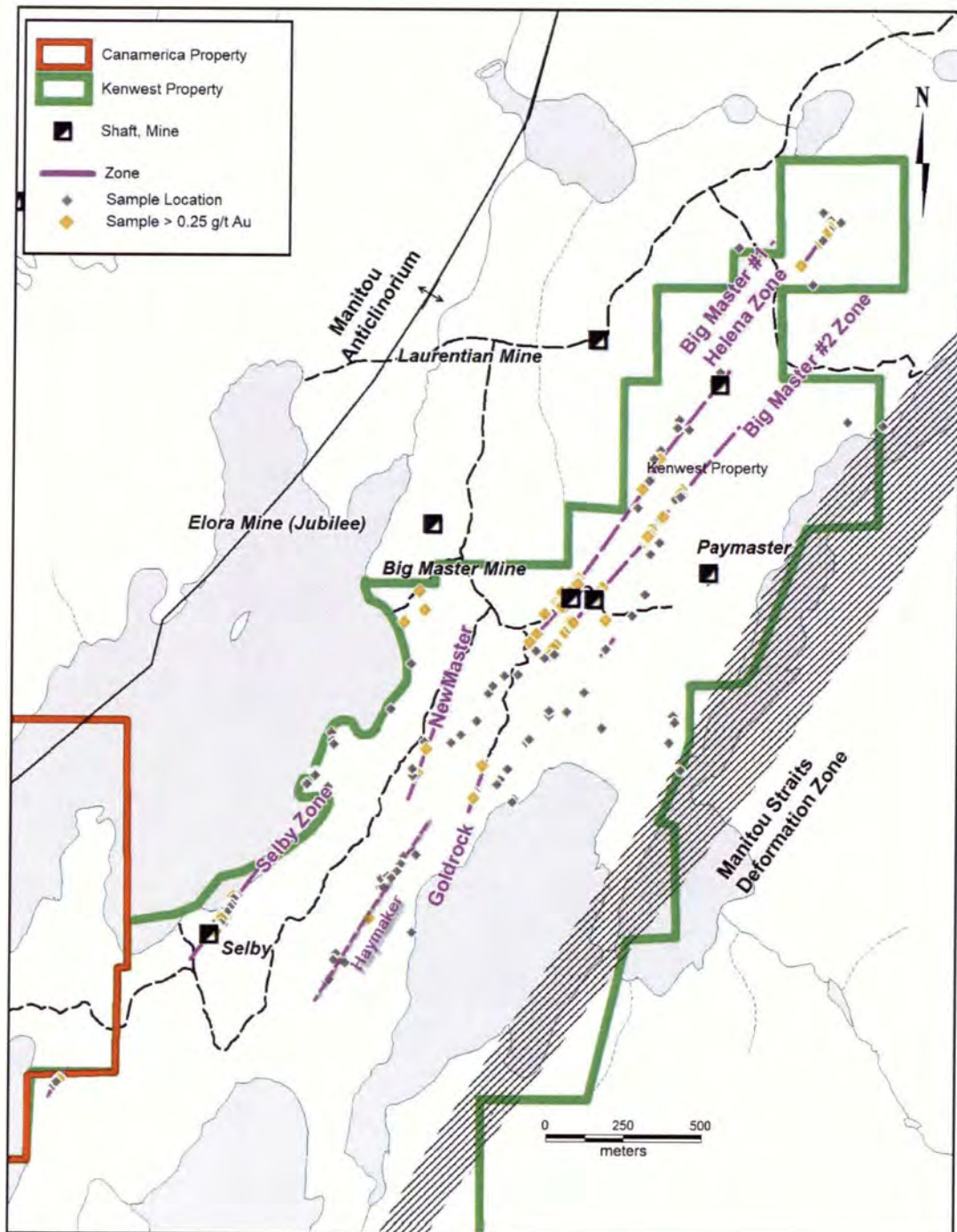


Figure 4.3: Location of gold occurrences on the Kenwest Property, showing Manitou Gold Inc. 2009 grab sample locations

## **5.0 Geological Setting**

### **5.1 Regional Geology**

The Manitou Lakes area was regionally mapped by Thomson in 1932 (Thomson, 1934) and in more detail by the OGS in 1973 (Blackburn, 1979). The following regional description is summarized from this more recent report, "The Geology of the Upper Manitou Lakes Area" (Blackburn, 1979) and the Open file report 5723 "Geology, Gold Mineralization and Property Visits in the Area Investigated by the Dryden - Ignace Economic Geologist, 1984-1987" (Parker, 1989).

The Kenwest Property and surrounding area is located in the northwestern corner of the Wabigoon sub-province of the Superior Province in the Canadian Shield. The sub-province contains several Archean greenstone belts, of which the Eagle-Manitou Lakes greenstone belt (metavolcanic-metasedimentary belt) is pertinent to this report. This greenstone belt trends northeast, is Archean in age, and is bounded by younger Archean granitoid intrusives; to the northwest by the Atikwa granitoid batholith and on the southeast by the Irene-Eltrut Lakes batholith, and the Meggisi granitoid pluton. The greenstone belt consists mainly of a thick sequence of mafic to felsic flows and pyroclastic rocks with minor volcanoclastic rocks and a sequence of sedimentary rocks with lesser mafic to felsic stocks and sills. The northeast-trending, steeply southeast-dipping Manitou Straits Fault ("MSF") has been mapped through the centre of the western portion of the belt for approximately 50 km., and bisects the greenstone belt. It is located just to the east of Upper Manitou Lake, and passes through the eastern portions of the Kenwest Property. This fault is also considered to be the eastern extension of the Pipestone-Cameron Fault, located on the southwestern side of the Atikwa batholith (Figure 5.1). Immediately to the west of the Manitou Straits Fault is the sub-parallel Manitou Anticline, which has been traced for approximately 30 km through the Manitou Lakes are.

The rocks northwest of the Manitou Straits Fault, which encompass the property, are a mixed sequence of coarse pyroclastic rocks and mafic flows with minor felsic flows which pass upward into a thick sequence of mafic flows and pyroclastic rocks, and intermediate pyroclastic rocks. These metavolcanics have been folded tightly about the north-easterly-trending Manitou Anticline whose limbs and axial plane dip steeply to the southeast (Blackburn, 1982).

The Manitou Straits Fault (Figure 5.1) is marked by a barren zone of fissile schist from 100 metres to 400 metres wide (Blackburn, 1979). On either side of the fault, country rock has been strongly sheared over distances of up to 400 metres from the fault, though this effect is more strongly developed northwest of the fault (Blackburn, 1979). This deformation zone northwest of the Manitou Straits Fault is 25 km long and 2 to 5 km in width and hosts the majority of the known gold occurrences (Cullen and Clark, 2007). As well, in this area felsite units or felsic dikes are more prominent, often associated with the gold mineralization. It should be noted that the felsic dikes, termed "felsites" are considered to be felsic volcanics by Blackburn (1982), although recent workers have indicated that they are felsic dikes (Cullen and Clark, 2007; Redden, 1996).



Other major schist zones have been noted in the area, and also are related to folding and faulting paralleling the trend of the synclinorium. These zones of weakness have been the focus of late stage (Kenoran) felsic dikeing, further transcurrent faulting, and have acted as conduits for hydrothermal fluids which have produced intense hydrothermal alteration. Gold deposits in the Manitou Lakes area are closely related to these major structures (Fox, 1987).

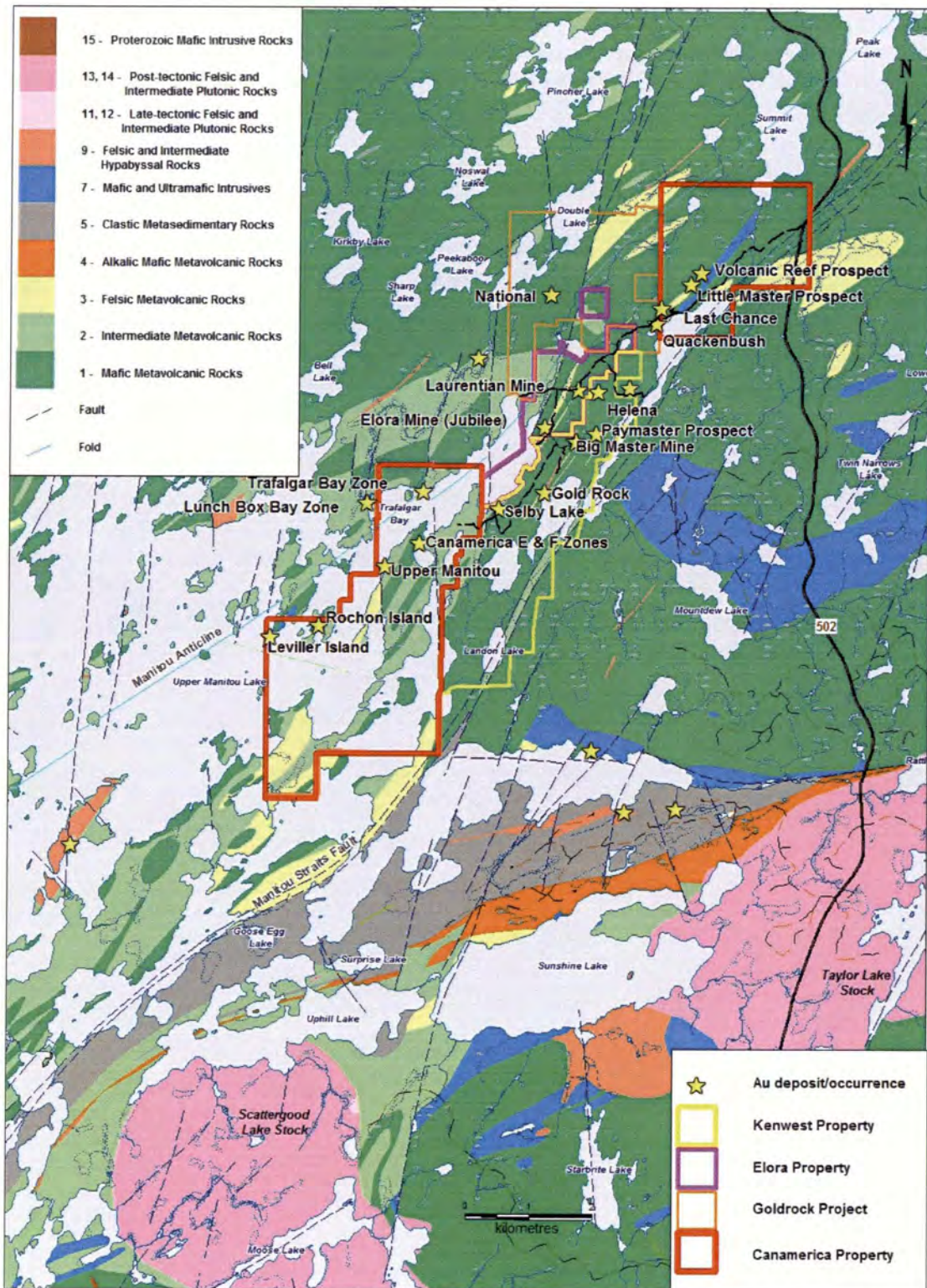


Figure 5.1: Regional Geology of the Kenwest Property

## 5.2 Property Geology

The Kenwest property is underlain by a sequence of mafic to intermediate volcanic flows and pyroclastics of the Benson Bay Sub-group of the Pincher Lake Group Rocks. Volcanic units are intruded by felsic dykes. The former mines and all significant gold prospects and producers northwest of the Manitou Strait Fault are confined to two stratigraphic zones: a sequence of felsic metavolcanics (Upper Manitou Lake group and lower part of the Pincher Lake group) hosting the deposits at Gold Rock and Upper Manitou Lake and subjacent mafic metavolcanics (Blanchard Lake group) hosting deposits between Manitou Island and Rector Lake (Blackburn, 1982).

The Kenwest Property is underlain by a sequence of northeast striking, steeply southeast dipping mafic metavolcanics intercalated with intermediate pyroclastic rocks and felsitic units (Blackburn, 1981). The mafic metavolcanic rocks have been divided by Blackburn (1981) into five different types: massive flow rocks; pillowed flow rocks, brecciated and pillowed flow rocks; feldspar-phyric flow rocks; and carbonated mafic rocks. They appear in an alternating sequence of three basic facies: massive; pillowed and brecciated; and porphyritic (Blackburn, 1981). Intermediate pyroclastic rocks underlying the Kenwest property range from tuff-breccia to tuff. Most of these pyroclastic rocks are coarse-grained, with felsic clasts averaging approximately 15 cm long, contained within a chloritic, tuffaceous matrix (Blackburn, 1981). Intermediate lapilli-tuffs appear to correlate with those present on the CanAmerica Property (Blackburn, 1981). Felsic units, referred to as felsites and mapped as rhyolites by Blackburn (1981), are considered to be felsite dykes by Thomson (1933). Their contacts are sharp with no evidence of chilled margins, although due to the aphanitic nature of these units, the interpretation that they are intrusive remains controversial. Manitou Gold Inc. considers them to be intrusive.

Rock units encountered on the Property include mafic to intermediate lapilli tuffs and fine tuffs, massive or pillowed mafic volcanic flows, chloritic schists, chlorite sericite schists, fine-grained felsic dikes, and feldspar porphyry dikes. The dikes are variably altered; contain quartz veins, veinlets, and quartz stockwork veins. The dikes are thought to provide a rheological contrast conducive to the formation of open spaces within the shear zones (Parker, 1989). Some of the dikes have associated shearing in which the rock has been sericitized and/or chloritized and carbonatized. Trends of the dikes range from 15° to 45° degrees, and they dip from 70° to 80° degrees to the southeast. Foliations range from moderate to strong, trend 50° to 60° degrees, and dip steeply to vertically southeast. Two main trends for shearing are from 30° to 35° degrees and from 50° to 60° degrees. Gold mineralization is predominately associated with sheared and altered mafic volcanic rocks, but also with silicified felsic dikes, with quartz veins within the dikes, with the dike contacts, and with the foliated rocks along the contacts with the dikes.

## **6.0 Mineralization and Model**

The Manitou Lakes area has been the scene of mining exploration for almost a hundred years. In this time numerous gold prospects have been discovered. Gold occurrences in the area are variously in quartz veins, shears, and sulphide zones. Mineralization associated with the gold occurrences is pyrite, chalcopyrite, pyrrhotite, sphalerite, and galena/telluride. Alteration products include iron carbonate, chlorite, calcite, sericite, silica, and anthophyllite (Delisle 1990).

Gold deposits in the area are typical of Archean lode-gold deposits, and work by the OGS has indicated that almost all of the gold deposits in the Manitou Lakes area are controlled by shear and fracture zones which appear to be regionally related to movement along the Manitou Straits Fault. Gold-bearing quartz veins are commonly controlled by northeast- and east-trending shear zones which may be secondary shear bands subparallel to the shear boundaries of the Manitou Straits Fault. Most of the shearing and fracturing was developed after the emplacement of the Atikwa Batholith. However, there are other occurrences of gold mineralization that appear to be stratigraphically controlled, and possibly genetically related to volcanism (Parker, 1989).

Gold-bearing quartz veins are the most common type of mineralization in the area. The veins have wispy to well-layered “crack-seal” textures, with sericite, chlorite, ferroan carbonate, 1-5% sulphides, and occasionally tourmaline along the selvages. Gold is concentrated in the “crack-seal” fractures and in selvages along the quartz vein margins. Calcite filled fractures within quartz veins also carry gold. Narrow gold-bearing semi-massive sulphide filled fractures within fissile zones also contain significant gold values. Pervasive ferroan carbonate alteration, disseminated sulphides, and very small barren quartz veinlets characterize the fissile zones. Sulphides are predominantly pyrite and pyrrhotite with variable amounts of chalcopyrite.

Davis and Smith (1991) indicate that the gold occurring in faults, shears, and tension veins developed in response to a late Archean northwest-directed contraction and emplacement of contemporaneous plutons, such as the Atikwa Batholith. Their work indicated that gold mineralization was closely linked in time to the emplacement of late intrusions and was likely a short-lived event that occurred at about 2709 Ma.

The Kenwest Property is located southeast of the Atikwa Batholith, northwest of the Miggisi Pluton and is proximal to the Manitou Anticline and the Manitou Straits Fault. There is excellent potential for gold mineralization in quartz veins related to shearing and fracturing caused by the emplacement of a late pluton.

## **7.0 Current Program**

From June 8 – July 3, 2013 and from July 17 to September 11, 2013 Soil Gas Hydrocarbon (SGH) soil surveys were carried out in the Dryden – Manitou Lake area of northwestern Ontario (Figure 1.1) by Manitou Gold Inc. A total of 586 soil samples (245 samples from first survey and 341 samples from the second survey) were collected in the two separate phases of sampling

and covered portions of the Elora Property, the Kenwst Property and the Canameria (Main Block) Property. Program planning and supervision was provided by Todd Keast, P. Geo., President and CEO of Manitou Gold Inc. SGH soil sample analysis was completed by Activation Laboratories Ltd. in Ancaster, ON, with SGH interpretation and reporting completed by Dale Sutherland of Activation Laboratories. Assessment Report writing was completed by Tamara Taras. Maps and figures contained within the assessment report were completed by Tamara Taras with the exception of the SGH Gold pathfinder class maps in Figures 8.1 – 8.4 which were taken from or modified from the SGH interpretation report completed by Dale Sutherland.

The soil sampling exploration programs, consisting of two phases of SGH soil sampling, were designed to test the SGH analysis with regards to its ability to identify known gold zones as well as to test areas otherwise unavailable for testing, such as under the waters of Upper Manitou Lake. Soil sampling occurred on Kenwest patents **HP367, HP366, HP373, K4882 and K4883** as well as Elora patents **K7156, K2454, HP301, HP371, and K4729** for the first pass SGH survey and on Kenwest Patents **HP366, HP373, HP405, K4883 and S25**, Canameria claim **4256918** and Elora patents **K2454, HP301, K7156 and HW248** for the second pass SGH survey. For the first pass SGH survey, 139 of the 245 samples (or 56.7%) were taken on the Kenwest Property and the remaining 106 samples (or 43.3%) were taken on the Elora Property. The second pass SGH survey consisted of 341 samples, 148 (or 43.4%) of which were located on the Kenwest Property, 72 samples (or 21.1%) were located on the Canameria Property and the remaining 121 samples (or 35.5%) were located on the Elora Property.

This report documents the work that was undertaken and summarizes the results obtained from this exploration program. For the complete SGH reports and description of the SGH analytical technique used by Activation Laboratories Ltd, see Appendix II (first pass SGH survey) and Appendix III (second pass SGH survey). All soil sample descriptions and their locations can be found in Appendix I. General location maps of soil samples collected for both soil sampling programs can be found in Figures 8.1 to 8.4.

### ***7.1 Sample Collection, Preparation, Analysis, and Security***

Soil samples were collected in the field using shovels. Shovels were cleaned after every sample. Each soil sample was placed into a clean plastic bag and sealed and labelled with a sample number and sample tag. Soil samples were then placed into clean plastic 5 gallon pails with lids marked and labelled for transport to the Actlabs facility in Thunder Bay, ON. From there, samples were transported via Actlabs to the Actlabs facility in Ancaster, ON where the SGH analysis and interpretation was completed.

Samples were dried at 40°C and sieved using a -60 mesh. After initial preparation in the laboratory, approximately 1 g of soil is subjected to an aqueous extraction and analyzed by Gas Chromatograph Mass Spectrometry (GCMS) (Hamilton, 2007). This technique measures 162 hydrocarbon compounds in the C5-C17 carbon series range (Hamilton, 2007). For an in-depth description of the techniques involved in the SGH analysis and interpretation, see the section

titled '*Soil Gas Hydrocarbon (SGH) Geochemistry – Overview*' on pp. 10-11 in both SGH reports (Appendix II and Appendix III).

Samples were analyzed by Activation Laboratories Ltd in Ancaster, ON, and the SGH interpretation was completed by Mr. Dale Sutherland, the creator of the SGH and OSG organic geochemistry's. Field duplicates were collected approximately every 15<sup>th</sup> sample.

## **8.0 Results**

### ***8.1 SGH Soil Sampling***

In the spring and summer of 2013, Manitou Gold Inc. completed a Soil Gas Hydrocarbon (SGH) soil survey over the Kenwest and Elora Properties. Two separate soil sampling programs were completed over the properties, the first pass survey, including lab analysis and interpretation by Actlabs, was completed from June 8 to July 3, 2013 and was focused on covering areas of known gold mineralization (the Jubilee zone on the Elora property and the Big Master #1 and #2 Zones on the Kenwest Property). Results from this original SGH soil survey suggested a target rating of 5.0 out of a possible 6.0 for a zone on the southwest portion of the soil sampling grid. This SGH characteristic signature for gold was identified along strike of the historical Jubilee gold zone. Thus, a second SGH soil survey extension was completed further to the southwest, covering additional portions of the Elora and Kenwest Properties. The second SGH survey, including analysis and interpretation by Actlabs, was completed from July 17 – September 11, 2013. A list of all soil samples collected for both the first and the second SGH soil surveys can be found in Appendix I. For the complete SGH – Soil Gas Hydrocarbon Predictive Geochemistry Report on the first survey on the Kenwest and Elora Properties, see Appendix II. For the complete SGH Report on the extension survey, see Appendix III.

The Actlabs interpretation on the Elora and Kenwest Projects showing the SGH Gold Pathfinder Class Map, from first SGH soil survey can be found in Figure 8.1, and the survey location relative to the Kenwest / Elora property boundary can be found in Figure 8.2. The Actlabs interpretation on the Elora and Kenwest Projects showing the SGH Gold Pathfinder Class Map, from follow-up extension SGH soil survey can be found in Figure 8.3, and the survey location relative to the Kenwest / Elora property boundary can be found in Figure 8.4.

#### **8.1.1 First Pass SGH Soil Survey**

From June 8 to July 3, 2013 a first pass SGH – Soil Gas Hydrocarbon soil survey was completed over the Elora and Kenwest Properties by Manitou Gold Inc. Soil samples were collected in the field from June 8-13, 2013 by Tamara Taras, Will Zurbrigg, Shawn MacFarlane and Clinton Crowe for a total of **24 man days** under the supervision of Todd Keast, President and CEO of Manitou Gold Inc. Lab analysis, interpretation and SGH reporting was completed between June 13 to July 3, 2013 by Activation Laboratories Ltd. in Ancaster, ON. SGH interpretation and reporting was completed by Dale Sutherland of Activation Laboratories Ltd.

This SGH soil survey identified one SGH gold target with a rating of 5.0 out of a possible 6.0. This target was located to the southwest of the Jubilee shaft on strike of the Jubilee gold zone,

but the survey did not extend far enough to get complete coverage of the area. As a result, a follow-up survey was recommended and performed by Manitou Gold Inc.

SGH soil sampling for the initial SGH survey occurred on Kenwest patents **HP367, HP366, HP373, K4882 and K4883** as well as Elora patents **K7156, K2454, HP301, HP371, and K4729**. A total of 245 samples were collected for SGH analysis 139 of the 245 samples (56.7%) were taken on the Kenwest Property and the remaining 106 samples (43.3%) were taken on the Elora Property.

### **8.1.2 Second Pass SGH Soil Survey**

At the recommendation of the initial SGH interpretation, from July 17 to September 11, 2013, a second phase SGH soil survey was completed across portions of the Kenwest, Elora and Canamerica Properties by Manitou Gold Inc.. This second pass SGH survey tied into the original survey and extended the survey area further to the southwest to get additional coverage of SGH targets identified during the original survey as well as to cover areas previously untested by any other method, such as under the waters of Trafalgar Bay on Upper Manitou Lake. Soil samples were collected in the field from July 17 to 19, 2013 (**9 man days**) by Tamara Taras, Will Zurbrigg, and Shawn MacFarlane and from July 23 to August 5, 2013 (**22 man days**) by Will Zurbrigg and Shawn MacFarlane all under the supervision of Todd Keast, President and CEO of Manitou Gold Inc. Lab analysis, interpretation and SGH reporting was completed between August 9 to September 11, 2013 by Activation Laboratories Ltd. in Ancaster, ON. In particular, SGH interpretation and reporting was completed by Dale Sutherland of Activation Laboratories Ltd.

This second pass SGH soil survey identified two SGH gold targets with a rating of 5.5 out of a possible 6.0. One target was located under the waters of Trafalgar Bay on Upper Manitou Lake that was along strike of the Jubilee gold zone. The second was located on the Kenwest Property to the west of the Big Master # 1 shear structure near the Kenwest / Elora Property boundary. A drill hole testing the SGH target under the lake is highly recommended to determine the usefulness of the Soil Gas Hydrocarbon soil sampling technique in the Manitou Lakes area.

SGH soil sampling for this second pass survey occurred on Kenwest patents **HP366, K4883, HP373, HP405 and S25**, Elora patents **K2454, HP301, K7156 and HW248** as well as on Claim **4256918** on the Canamerica Main Block Property. A total of 341 samples were collected for SGH analysis: 148 of the 341 samples (43.4%) were taken on the Kenwest Property, 72 samples (or 21.1%) were taken on the Canamerica Property and the remaining 121 samples (or 35.5%) were taken on the Elora Property.

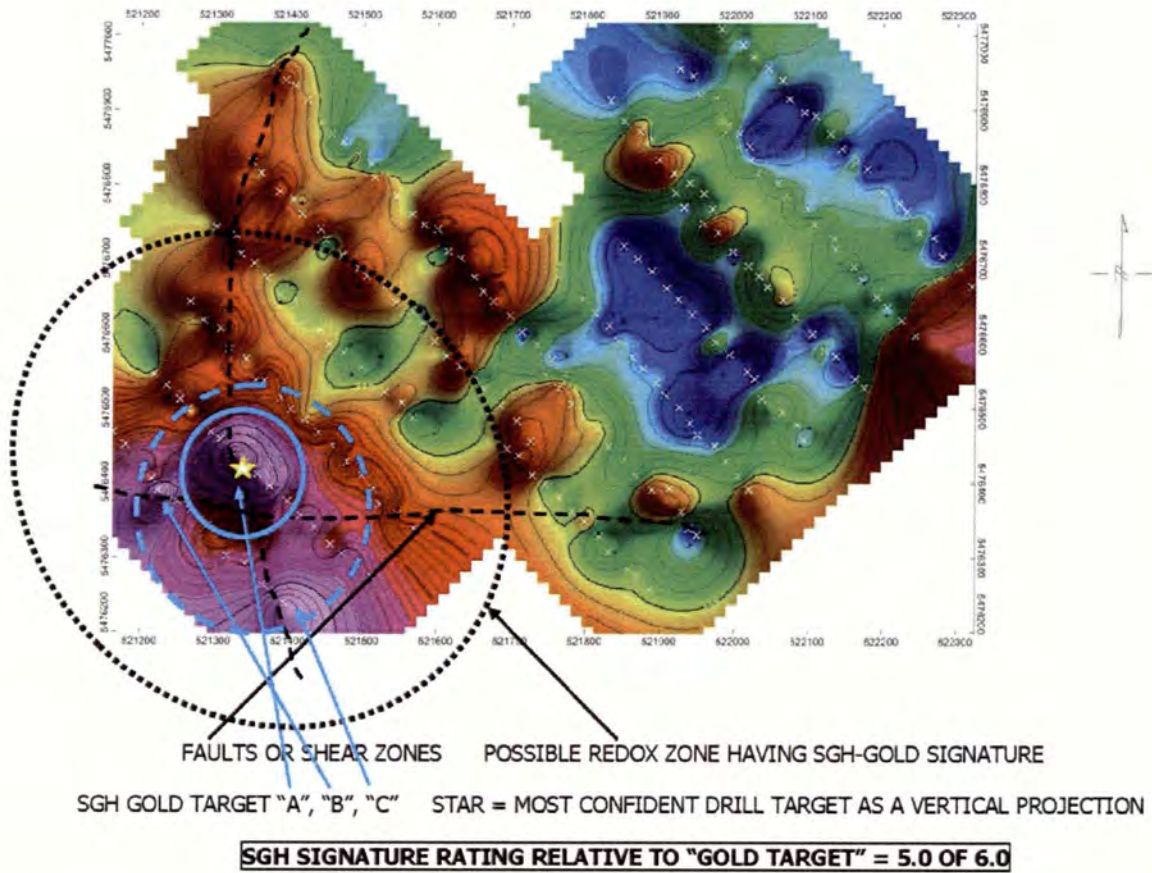


Figure 8.1: Actlabs Interpretation on the Elora and Kenwest Projects - SGH Gold Pathfinder Class Map, from first SGH soil survey (Sutherland, July 3, 2013, p. 26). See Appendix II for complete SGH report. NOTE: white X's are SGH soil sample locations.



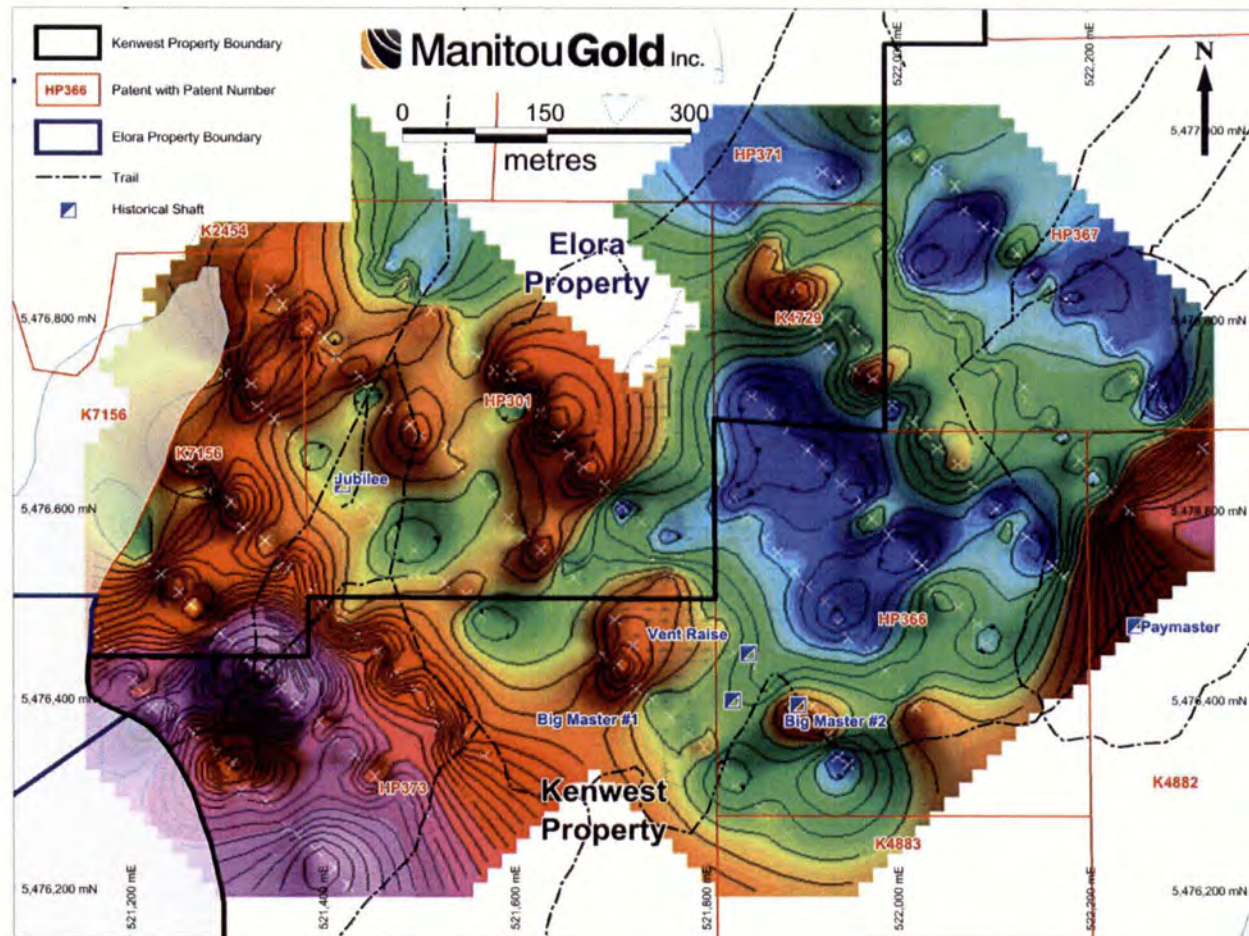


Figure 8.2: Actlabs interpretation on the Elora and Kenwest Projects - SGH Gold Pathfinder Class Map, from first SGH soil survey showing Elora and Kenwest Property Boundary (modified from Sutherland, July 3, 2013, p. 26). See Appendix II for complete SGH report.  
NOTE: White X's are SGH soil sample locations.

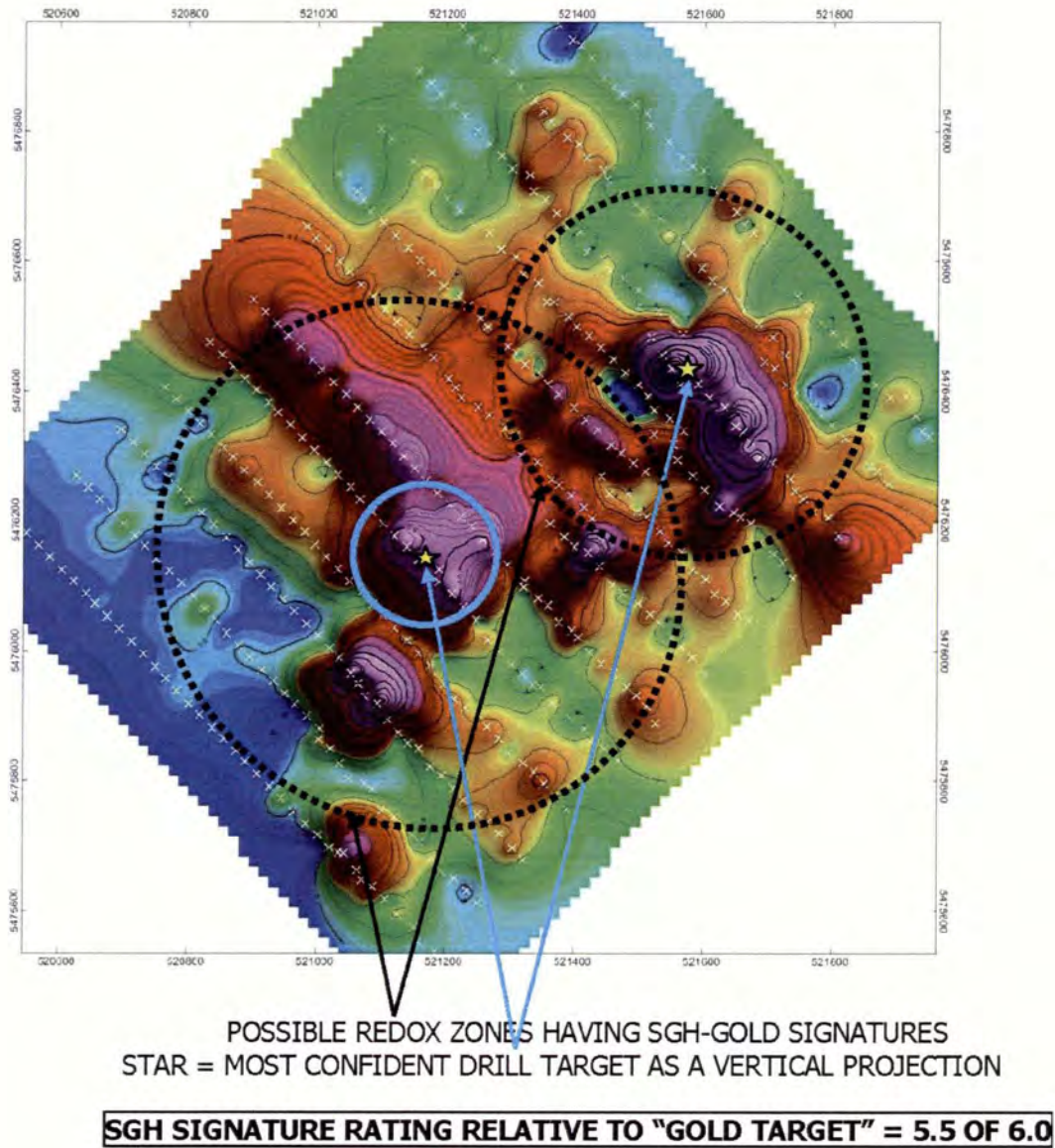


Figure 8.3: Actlabs interpretation on the Elora and Kenwest Projects - SGH Gold Pathfinder Class Map, from second (extension) SGH soil survey (Sutherland, September 11, 2013, p. 29). See Appendix III for complete SGH report. NOTE: White X's are SGH soil sample locations.

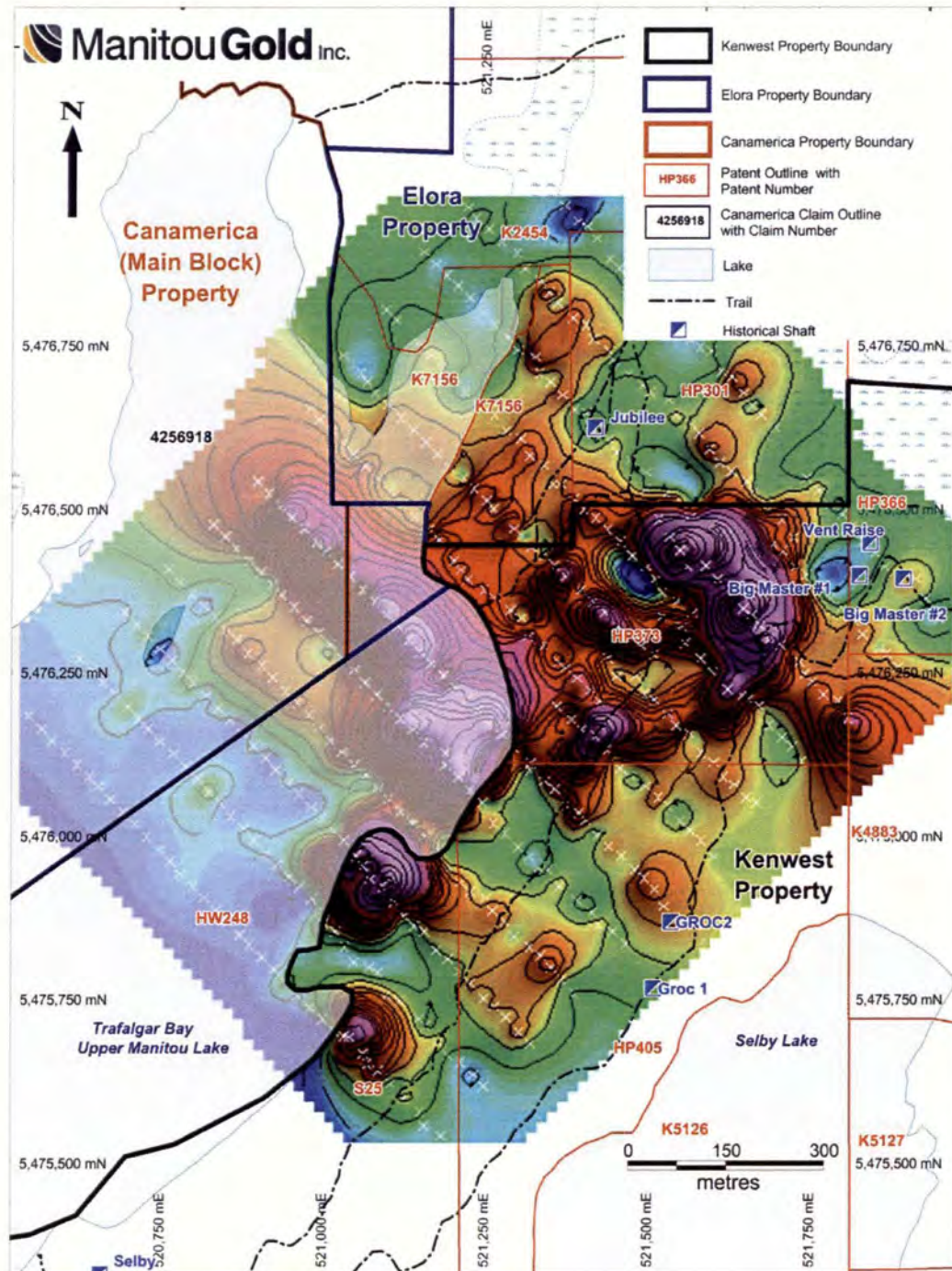


Figure 8.4: Actlabs Interpretation on the Elora and Kenwest Projects - SGH Gold Pathfinder Class Map, from second (extension) SGH soil survey showing Elora, Kenwest and Canamerica Main Block Property Boundaries (modified from Sutherland, September 11, 2013, p. 29). See Appendix III for complete SGH report. NOTE: White X's are SGH soil sample locations.

## **9.0 Recommendations and Conclusions**

The 2013 Soil Gas Hydrocarbon (SGH) soil sampling program was successful in identifying three SGH gold targets on the Kenwest and Elora Properties, one during the initial soil survey, and two during the extension survey. Two of these targets were identified along strike of the Jubilee gold zone on the Elora Property. One target was identified under the water of Upper Manitou Lake.

A program of diamond drilling to test these SGH targets, in particular the one located under the lake is recommended. If this program is successful in identifying significant gold mineralization within the vicinity of the SGH gold target, then it should be noted that the SGH technique may be a useful exploration tool in the Upper Manitou Lake area and additional SGH soil sampling across the property may be warranted.

## 10.0 References

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## Statement of Qualifications

I, Tamara L. Taras, of 517-100 Creek Bend Road, Winnipeg, Manitoba R2N 0G1 do hereby certify that:

- 1) I am a graduate of the University of Manitoba and hold an Honours Bachelor of Science (Geological Sciences) Degree, 2010.
- 2) I am a Canadian Citizen.
- 3) I have been employed by Manitou Gold Inc. since 2009 and have worked in Ontario since that time.

Dated this 19<sup>th</sup> day of December, 2014.



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Tamara L. Taras, BSc.

**APPENDIX I**

**SGH Soil Sample Descriptions and Locations**



Sample Number	UTM Easting	UTM Northing	Depth (cm)	Sample Type	Terrain	Field Duplicate	Comments	Collected	Property	Grid	Claim / Patent #
L021545	521215	5476405	10	soil/humus	outcrop	no	on rock outcrop - quality soil sample difficult	Original Survey	Kenwest Property	Elora	HP373
L021546	521204	5476419	15	soil/humus	outcrop	no	on rock outcrop - quality soil sample difficult	Original Survey	Kenwest Property	Elora	HP373
L021549	521224	5476390	20	soil	side of outcrop	no		Original Survey	Kenwest Property	Elora	HP373
L021550	521250	5476375	30	soil	old trail	no		Original Survey	Kenwest Property	Elora	HP373
L021551	521267	5476363	25	soil	side of trail	no		Original Survey	Kenwest Property	Elora	HP373
L021552	521291	5476343	25	soil	outcrop/bush	no		Original Survey	Kenwest Property	Elora	HP373
L021553	521308	5476331	30	soil	outcrop/bush	no	possible tailings?	Original Survey	Kenwest Property	Elora	HP373
L021554	521317	5476302	15	peat	side of hill/outcrop	no		Original Survey	Kenwest Property	Elora	HP373
L021555	521342	5476291	10	soil/peat	side of hill/outcrop	no		Original Survey	Kenwest Property	Elora	HP373
L021556	521364	5476264	35	soil	hill/outcrop	no		Original Survey	Kenwest Property	Elora	HP373
L021557	521375	5476255	30	soil	outcrop/bush	no		Original Survey	Kenwest Property	Elora	HP373
L021558	521394	5476239	15	soil	bush	no		Original Survey	Kenwest Property	Elora	HP373
L021559	521414	5476221	25	soil	bush	no		Original Survey	Kenwest Property	Elora	HP373
L021560	521427	5476203	20	soil	bush	no		Original Survey	Kenwest Property	Elora	HP373
L021563	521322	5476441	25	soil	bush/lowland	no		Original Survey	Kenwest Property	Elora	HP373
L021564	521344	5476428	20	soil	trailside	yes (sample # L021565)		Original Survey	Kenwest Property	Elora	HP373
L021566	521358	5476411	25	soil	bush	no		Original Survey	Kenwest Property	Elora	HP373
L021567	521374	5476395	20	soil	outcrop/hill top	no		Original Survey	Kenwest Property	Elora	HP373
L021568	521398	5476375	25	soil	bush/hill top	no		Original Survey	Kenwest Property	Elora	HP373
L021569	521416	5476356	10	soil	outcrop	no		Original Survey	Kenwest Property	Elora	HP373
L021570	521435	5476340	15	peat	outcrop	no		Original Survey	Kenwest Property	Elora	HP373

L021571	521456	5476317	10	soil	outcrop	no	Original Survey	Kenwest Property	Elora	HP373
L021572	521472	5476305	15	soil	outcrop	no	Original Survey	Kenwest Property	Elora	HP373
L021573	521491	5476289	15	soil	outcrop	no	Original Survey	Kenwest Property	Elora	HP373
L021574	521510	5476276	20	soil	selby road	no	Original Survey	Kenwest Property	Elora	HP373
L021588	521402	5476499	15	soil	bush near trail	no	Original Survey	Kenwest Property	Elora	HP373
L021589	521421	5476485	10	peat/humus	trench side (pillow trench?)	no	Original Survey	Kenwest Property	Elora	HP373
L021590	521439	5476467	10	soil	bush	no	Original Survey	Kenwest Property	Elora	HP373
L021591	521459	5476449	15	soil	bush	no	Original Survey	Kenwest Property	Elora	HP373
L021592	521478	5476428	10	soil	bush	no	Original Survey	Kenwest Property	Elora	HP373
L021593	521498	5476410	30	soil	bush/lowland	no	Original Survey	Kenwest Property	Elora	HP373
L021594	521514	5476392	25	soil	bush/lowland	no	Original Survey	Kenwest Property	Elora	HP373
L021595	521523	5476371	30	soil	skidder trail	no	Original Survey	Kenwest Property	Elora	HP373
L021596	521547	5476358	25	soil	selby treil	no	Original Survey	Kenwest Property	Elora	HP373
L021597	521569	5476339	20	soil	bush	no	Original Survey	Kenwest Property	Elora	HP373
L021598	521567	5476487	20	soil	bush	no	Original Survey	Kenwest Property	Elora	HP373
L021599	521552	5476508	15	soil	outcrop	no	Original Survey	Kenwest Elora Boundary	Elora	HP373
L021620	521685	5476504	50	soil	swamp	yes (sample # L021621)	Original Survey	Kenwest Property	Elora	HP373
L021622	521707	5476483	45	soil	swamp	no	Original Survey	Kenwest Property	Elora	HP373
L021623	521726	5476455	25	soil	outcrop	no	Original Survey	Kenwest Property	Elora	HP373
L021624	521694	5476445	15	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP373
L021625	521710	5476436	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP373
L021626	521728	5476410	10	soil	outcrop	no	Original Survey	Kenwest	Kenwest	HP373

							Survey	Property		
L021627	521745	5476398	30	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP373
L021628	521765	5476380	30	soil	swamp by tailings	no	Original Survey	Kenwest Property	Kenwest	HP373
L021629	521783	5476362	30	soil	swamp by tailings	no	Original Survey	Kenwest Property	Kenwest	HP373
L021630	521799	5476348	25	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP373
L021631	521819	5476328	10	soil	roadside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021632	521832	5476307	10	soil	drill pad	no	Original Survey	Kenwest Property	Kenwest	HP366
L021633	521858	5476284	10	soil	drill pad	no	Original Survey	Kenwest Property	Kenwest	HP366
L021634	521870	5476277	15	soil	hillside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021635	521887	5476257	15	soil	hillside	no	Original Survey	Kenwest Property	Kenwest	K4883
L021636	521913	5476392	10	soil	roadside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021637	521889	5476390	15	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021638	521867	5476410	20	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021639	521852	5476432	10	soil	roadside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021640	521831	5476448	20	gravel	waste rock	no	Original Survey	Kenwest Property	Kenwest	HP366
L021641	521816	5476472	40	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021642	521800	5476490	20	soil	swamp	Yes sample # L021643	Original Survey	Kenwest Property	Kenwest	HP373
L021644	521782	5476505	30	soil	swamp	no	Original Survey	Kenwest Elora Boundary	Kenwest	HP373
L021647	521929	5476361	10	soil	roadside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021648	521939	5476338	20	soil	trenchside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021649	521950	5476330	20	soil	trenchside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021650	522094	5476457	30	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP366

<b>L021690</b>	522005	5476409	15	soil	bush/ outcrop	no	Error on metal tag on picket (marked 19+00W, but its really 19+25)	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021691</b>	521989	5476429	10	soil	outcrop	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021692</b>	521974	5476449	40	peat	drill pad	no	No picket - destroyed by drill trails/pads	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021693</b>	521950	5476464	40	peat	drill trail/big swamp	no	No picket - destroyed by drill trails/pads	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021694</b>	521940	5476480	40	peat	drill trail/ big swamp	no	No picket - destroyed by drill trails/pads	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021695</b>	521926	5476501	40	peat	drill trail/ big swamp	yes (sample # L021696)	No picket - destroyed by drill trails/pads	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021697</b>	521907	5476517	40	peat	drill trail/ big swamp	no	No picket - destroyed by drill trails/pads	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021698</b>	521894	5476534	40	peat	big swamp	no	Picket reads 21+00W - this picket is corret, East of BL there is a metal tagging error	Original Survey	Kenwest Property	Kenwest	HP366
<b>L021699</b>	521877	5476553	40	peat	big swamp	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021700</b>	521862	5476568	40	peat	big swamp	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021701</b>	521844	5476590	40	peat	big swamp	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021702</b>	521831	5476611	40	peat	big swamp	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021703</b>	521812	5476628	40	peat	big swamp	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021705</b>	522020	5476391	15	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021706</b>	522175	5476528	25	soil	outcrop	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021707</b>	522163	5476540	15	soil	roadside	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021708</b>	522137	5476570	30	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021709</b>	522122	5476578	20	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021710</b>	522105	5476600	15	soil	roadside	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021711</b>	522082	5476623	30	soil	trenchside	no		Original Survey	Kenwest Property	Kenwest	HP366
<b>L021712</b>	522065	5476646	15	soil	trenchside	no		Original Survey	Kenwest Property	Kenwest	HP366

							Survey	Property		
L021713	522044	5476663	30	soil	bush	yes (sample# L021714)	Original Survey	Kenwest Property	Kenwest	HP366
L021715	522032	5476678	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021716	522018	5476691	25	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP367
L021717	521997	5476710	40	peat	swamp	no	Original Survey	Kenwest Property	Kenwest	HP367
L021751	522085	5476478	20	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021752	522065	5476495	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021753	522037	5476513	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP366
L021754	522027	5476540	20	soil	drillpad	no	Original Survey	Kenwest Property	Kenwest	HP366
L021755	522017	5476549	40	soil	drillpad	no	Original Survey	Kenwest Property	Kenwest	HP366
L021756	521993	5476572	40	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021757	521975	5476589	40	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021758	521962	5476609	40	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021759	521943	5476625	30	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021760	521924	5476646	40	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021761	521908	5476661	30	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021762	521888	5476684	20	soil	swamp	no	Original Survey	Kenwest Property	Kenwest	HP366
L021765	522244	5476598	15	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	K4882
L021766	522225	5476619	15	soil	outcrop	yes (sample #L021767)	Original Survey	Kenwest Property	Kenwest	K4882
L021768	522206	5476636	15	soil	hillside	no	Original Survey	Kenwest Property	Kenwest	K4882
L021769	522192	5476650	20	soil	hillside	no	Original Survey	Kenwest Property	Kenwest	HP366
L021770	522173	5476672	20	soil	Drill pad	no	Original Survey	Kenwest Property	Kenwest	HP366

L021771	522161	5476690	20	soil	trench side	no	Original Survey	Kenwest Property	Kenwest	HP367
L021772	522136	5476714	25	Soil	trench side	no	Original Survey	Kenwest Property	Kenwest	HP367
L021773	522134	5476728	30	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021774	522107	5476747	20	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021775	522097	5476767	20	soil	Drill pad	no	Original Survey	Kenwest Property	Kenwest	HP367
L021776	522069	5476786	20	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021777	522058	5476801	20	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021778	522030	5476815	25	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021779	522021	5476833	25	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021780	522004	5476850	25	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021781	521986	5476870	25	soil	hillside	no	Original Survey	Kenwest Elora Boundary	Kenwest	HP367
L021782	522019	5476851	25	soil	bush	no	Original Survey	Kenwest Property	Elora	HP367
L021783	522005	5476868	20	soil	bush	no	Original Survey	Kenwest Property	Elora	HP367
L021784	521991	5476879	25	soil	hillside	no	Original Survey	Kenwest Property	Elora	HP367
L021791	522009	5476987	20	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021792	522024	5476971	15	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021793	522044	5476956	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021794	522063	5476940	30	soil	hillside	no	Original Survey	Kenwest Property	Kenwest	HP367
L021795	522072	5476915	25	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021796	522093	5476897	20	soil	bush	no	Original Survey	Kenwest Property	Kenwest	HP367
L021797	522108	5476892	10	soil	outcrop	no	Original Survey	Kenwest Property	Kenwest	HP367
L021798	522128	5476868	15	soil	outcrop	no	Original	Kenwest	Kenwest	HP367

								Survey	Property		
L021799	522143	5476848	25	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP367
L021800	522162	5476829	20	soil	roadside	no		Original Survey	Kenwest Property	Kenwest	HP367
L021801	522178	5476821	35	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP367
L021802	522198	5476791	35	soil	swamp	no		Original Survey	Kenwest Property	Kenwest	HP367
L021803	522221	5476775	35	soil	swamp	no		Original Survey	Kenwest Property	Kenwest	HP367
L021804	522232	5476764	25	soil	bush	no		Original Survey	Kenwest Property	Kenwest	HP367
L021805	522249	5476736	25	soil	Drill pad	no		Original Survey	Kenwest Property	Kenwest	HP367
L021806	522268	5476729	25	soil	Drill trail	no		Original Survey	Kenwest Property	Kenwest	HP367
L021807	522280	5476704	25	soil	Drill pad	no		Original Survey	Kenwest Property	Kenwest	HP367
L021808	522302	5476690	20	soil	outcrop	no		Original Survey	Kenwest Property	Kenwest	HP367
L021809	522320	5476664	10	soil	outcrop	no		Original Survey	Kenwest Property	Kenwest	K4882
N499201	521810	5476177	20	soil	outcrop/ side of hill	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499202	521794	5476205	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499203	521771	5476214	20	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499204	521755	5476234	30	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499205	521742	5476246	25	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499206	521734	5476265	15	soil	Trail	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499207	521706	5476290	15	soil	top of hill	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499208	521689	5476300	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499209	521673	5476321	10	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499210	521661	5476337	10	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373

N499211	521649	5476346	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499213	521608	5476390	45	soil	lowland	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499214	521591	5476411	10	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499215	521563	5476410	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499216	521550	5476435	25	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499217	521536	5476455	20	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499218	521518	5476483	10	soil	bush/hill	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499219	521523	5476334	25	soil	side of hill	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499220	521553	5476318	10	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499221	521559	5476294	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499222	521583	5476270	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499223	521601	5476248	10	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499224	521625	5476223	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499225	521647	5476213	15	soil	Bush	No	Chaining error on grid; 2050 is only ~10m from 2075W	Extension Survey	Kenwest Property	Kenwest	HP373
N499226	521657	5476206	20	soil	bush/trail side	No		Extension Survey	Kenwest Property	Kenwest	HP373
N499227	521043	5475689	15	Organics	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499228	521054	5475966	15	Organics	Lake Shore	No		Extension Survey	Kenwest Property	Kenwest	S25
N499229	521065	5475950	20	Soil	Outcrop	yes		Extension Survey	Kenwest Property	Kenwest	S25
N499230	521065	5475950					Duplicate of N499229	Extension Survey	Kenwest Property	Kenwest	S25
N499231	521075	5475931	15	Soil	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499232	521095	5475920	10	Soil	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499233	521111	5475895	25	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	S25



N499234	521128	5475875	20	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	S25
N499235	521143	5475858	30	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	S25
N499236	521160	5475850	25	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	S25
N499237	521178	5475822	30	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	S25
N499238	521196	5475809	15	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	S25
N499239	521214	5475789	10	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499240	521230	5475771	15	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499241	521252	5475749	10	soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499242	521267	5475736	20	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499243	521285	5475719	30	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499244	521305	5475697	15	soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499245	521322	5475679	10	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499246	521389	5475756	10	Organics	Near Drill Pad	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499247	521371	5475777	10	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499248	521354	5475796	25	Organics	Swamp	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499249	521338	5475814	30	Organics	Swamp	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499250	521321	5475828	15	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499251	521321	5476098	15	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499252	521323	5476108	15	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499253	521344	5476081	15	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499254	521359	5476070	10	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499255	521376	5476045	20	Soil	Roadside	No	Extension Survey	Kenwest Property	Kenwest	HP405

N499256	521396	5476032	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499257	521406	5476022	35	Soil	Bush	Yes	Extension Survey	Kenwest Property	Kenwest	HP405	
N499258	521406	5476022	0	Duplicate		Duplicate of N499257		Extension Survey	Kenwest Property	Kenwest	HP405
N499259	521424	5475998	25	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499260	521442	5475981	20	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499261	521462	5475967	25	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499262	521482	5475945	25	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499263	521497	5475932	25	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499264	521513	5475915	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499265	521527	5475889	25	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499266	521604	5475965	25	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499267	521584	5475990	15	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499268	521566	5476007	30	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499269	521552	5476021	25	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499270	521534	5476043	25	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499271	521518	5476056	15	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499272	521499	5476073	20	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499273	521475	5476089	25	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499274	521459	5476101	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405	
N499275	521439	5476130	30	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373	
N499276	521421	5476151	10	Organics	Roadside	No	Extension Survey	Kenwest Property	Kenwest	HP373	
N499277	521400	5476160	10	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373	

N499278	521384	5476176	20	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499279	521362	5476196	20	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499280	521441	5476269	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499281	521454	5476242	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499282	521483	5476242	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499283	521497	5476214	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499284	521512	5476206	10	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499285	521533	5476184	20	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499286	521546	5476166	10	Organics	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499287	521566	5476153	15	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499288	521584	5476125	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499289	521604	5476110	15	Soil	Outcrop	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499290	521618	5476087	20	Soil	Roadside	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499291	521635	5476076	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499292	521654	5476056	15	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499293	521670	5476048	10	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405
N499294	521739	5476112	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499295	521724	5476136	15	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499296	521709	5476149	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499297	521689	5476167	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499298	521673	5476197	20	Soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP373
N499299	521298	5475843	20	soil	Bush	No	Extension Survey	Kenwest Property	Kenwest	HP405

N499300	521284	5475865	20	soil	Roadside	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499301	521265	5475883	20	soil	Cedar Bog	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499302	521253	5475902	15	Organics	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499303	521231	5475912	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499304	521214	5475926	20	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499305	521197	5475948	30	soil	Cedar Bog	No		Extension Survey	Kenwest Property	Kenwest	S25
N499306	521266	5476017	20	soil	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499307	521284	5476000	20	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499308	521303	5475980	20	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499309	521320	5475965	15	soil	Bush	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499310	521336	5475947	15	soil	Roadside	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499311	521348	5475945	20	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499312	521366	5475920	15	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499313	521393	5475898	15	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499314	521416	5475880	15	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499315	521426	5475861	20	soil	bush	Yes		Extension Survey	Kenwest Property	Kenwest	HP405
N499316	521426	5475861					Dup of N499315	Extension Survey	Kenwest Property	Kenwest	HP405
N499317	521448	5475850	25	soil	bush	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499318	521470	5475832	20	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499319	521567	5476487	20	soil	bush	no	Resample of L021598	Extension Survey	Kenwest Property	Elora	HP373
N499320	521427	5476203	20	soil	bush	no	Resample of L021560	Extension Survey	Kenwest Property	Elora	HP373
N499321	521510	5476276	20	soil	selby road	no	Resample of L021574	Extension Survey	Kenwest Property	Elora	HP373

N499322	521569	5476339	20	soil	bush	no	Resample of L021597	Extension Survey	Kenwest Property	Elora	HP373
N499323	521224	5476390	20	soil	side of outcrop	no	Resample of L021549	Extension Survey	Kenwest Property	Elora	HP373
N499347	521248	5476048	15	Organics	Outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499351	521004	5475864	10	soil/peat	side of lake/hill	No	schistose gravel	Extension Survey	Kenwest Property	Kenwest	S25
N499352	521022	5475850	15	soil/peat	bush/outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499353	521037	5475827	20	soil	bush/outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499354	521051	5475804	25	soil	old camp	No		Extension Survey	Kenwest Property	Kenwest	S25
N499355	521076	5475796	55	peat	bog	No		Extension Survey	Kenwest Property	Kenwest	S25
N499356	521088	5475788	20	soil	bush (cedar)	No		Extension Survey	Kenwest Property	Kenwest	S25
N499357	521102	5475754	15	soil	hilltop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499358	521123	5475745	25	soil	hilltop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499359	521151	5475717	15	soil	hilltop/outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499360	521162	5475706	10	soil/peat	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499361	521181	5475681	10	soil	trail	No		Extension Survey	Kenwest Property	Kenwest	S25
N499362	521196	5475661	15	soil	bush	No		Extension Survey	Kenwest Property	Kenwest	S25
N499363	521216	5475650	12	soil	bush/outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499364	521235	5475631	20	soil	bush	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499365	521252	5475613	10	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	HP405
N499366	521186	5475537	15	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499367	521160	5475553	10	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499368	521153	5475575	15	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499369	521127	5475595	35	soil	swamp	No		Extension Survey	Kenwest Property	Kenwest	S25

N499370	521108	5475618	15	soil	bush (jack pine)	yes		Extension Survey	Kenwest Property	Kenwest	S25
N499372	521088	5475638	10	soil	bush (cedar)	No		Extension Survey	Kenwest Property	Kenwest	S25
N499373	521071	5475648	10	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499374	521064	5475663	10	soil	outcrop	No		Extension Survey	Kenwest Property	Kenwest	S25
N499375	521035	5475690	15	Organics	lakeside; cedar bush	No		Extension Survey	Kenwest Property	Kenwest	S25
N499422	521296	5476133	15	Soil	Lake Bottom	No	1m	Extension Survey	Kenwest Property	Kenwest	HP373
N499324	521164	5476468	15	soil/humus	outcrop	no	Resample of L021548	Extension Survey	Canamerica Property	Elora	4256918
N499389	521142	5476487	0	Organics	Lake Bottom	No	3.5m	Extension Survey	Canamerica Property	Elora	4256918
N499390	521124	5476506	0	Organics	Lake Bottom	No	4m	Extension Survey	Canamerica Property	Elora	4256918
N499396	521016	5476618	40	Soil	Lake Bottom	No	7.5m	Extension Survey	Canamerica Property	Elora	4256918
N499397	520997	5476635	50	Soil	Lake Bottom	No	7m	Extension Survey	Canamerica Property	Elora	4256918
N499398	520983	5476653	40	Soil	Lake Bottom	No	6.5m	Extension Survey	Canamerica Property	Elora	4256918
N499399	520901	5476541	50	Soil	Lake Bottom	No	7.5m	Extension Survey	Canamerica Property	Kenwest	4256918
N499400	520919	5476522	40	Soil	Lake Bottom	No	7.5m	Extension Survey	Canamerica Property	Kenwest	4256918
N499401	520937	5476504	60	Soil	Lake Bottom	No	6m	Extension Survey	Canamerica Property	Kenwest	4256918
N499402	520955	5476485	55	Soil	Lake Bottom	No	8m	Extension Survey	Canamerica Property	Kenwest	4256918
N499403	520974	5476468	30	Soil	Lake Bottom	No	9m	Extension Survey	Canamerica Property	Kenwest	4256918
N499404	520992	5476448	45	Soil	Lake Bottom	No	9m	Extension Survey	Canamerica Property	Kenwest	4256918
N499405	521007	5476433	55	Soil	Lake Bottom	No	9m	Extension Survey	Canamerica Property	Kenwest	4256918
N499406	521025	5476414	40	Soil	Lake Bottom	No	3.5m	Extension Survey	Canamerica Property	Kenwest	4256918
N499407	521045	5476395	30	Soil	Lake Bottom	No		3.5 Extension Survey	Canamerica Property	Kenwest	4256918
N499408	521063	5476375	35	Soil	Lake Bottom	No		4 Extension Survey	Canamerica Property	Kenwest	4256918

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## **APPENDIX II**

**Complete Actlabs Report on the First Pass SGH Soil Survey**

## 3D - SGH

# "A SPATIALTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

***MANITOU GOLD INC.***

***ELORA AND KENWEST PROJECTS***





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**SGH – SOIL GAS HYDROCARBON  
Predictive Geochemistry**  
*for*  
**MANITOU GOLD INC.**  
**ELORA AND KENWEST PROJECTS**

*July 3, 2013*

*\* Dale Sutherland,  
Activation Laboratories Ltd  
(\* - author, originator)*

**EVALUATION OF SAMPLES  
DATA EXPLORATION FOR: "GOLD" TARGETS  
SGH GOLD TEMPLATE USED FOR THIS REPORT**

**Workorder: A13-06619**

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## PREFACE

### THIS "STANDARD" SGH INTERPRETATION REPORT:

The purpose of this Soil Gas Hydrocarbon (SGH) interpretation "Standard Report" is to ensure that clients and other potential reviewers of the results have a good understanding of this organic, deep penetrating geochemistry. As SGH provides such a large data set and is not interpreted in the same way as inorganic geochemistries, this interpretation and report enables the user to realize the results in a timely fashion and capitalizes on years of research and development since the inception of SGH in 1976 combined with the knowledge obtained by Activation Laboratories through the interpretation of SGH data from over hundreds of surveys for a wide variety of target types in various lithologies from many geographical locations. Although referenced today as a "nano-technology", the analysis of SGH has not changed since inception. The report is compulsory as it is the only known organic geochemistry that, in spite of the name, uses non-gaseous semi-volatile organic compounds interpreted using a forensic signature approach. 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(s). This report can also provide evidence of project maintenance. To keep the price to a minimum and to provide as short a turnaround time as practically possible, usually only one SGH Pathfinder Class map is illustrated in a "Standard Report" with an applied interpretation although several other SGH Pathfinder Class maps are used and referenced. Definitions of certain terms or phrases used in this report can be found in Appendix A. A Supplemental Report and/or interpretations for other target types are available. A GIS package of georeferenced images is also available. (See Appendix H)

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





## DISCLAIMER

This "SGH Interpretation Report" has been prepared to assist the user in understanding the development and capabilities of this Organic based Geochemistry. The interpretation of the Soil Gas Hydrocarbon (SGH) data is in reference to a template or group of SGH classes of compounds specific to a type of mineralization or target that is chosen by the client (i.e. the template for 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 15+ 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 close to 1,000 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 other geochemistries, 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 geochemistries, the implied rating and 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 microbes 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 15+ 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 projects the sponsors have included (in no order): Western Mining Corporation, BHP-Billiton, Inco, Noranda, Outokumpu, Xstrata, Cameco, Cominco, Rio Algom, Alberta Geological Survey, Ontario Geological Survey, Manitoba Geological Survey and OMET. Further, beyond this research, Activation Laboratories Ltd. has interpreted the SGH data for over 700 targets from clients since January of 2004. In both CAMIRO research projects 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 geochemistries 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))

## **SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING**

**Summary:** See Appendix C for more details

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

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

## **SAMPLE PREPARATION AND SGH ANALYSIS**

**Summary:** See Appendix D for more details

Upon receipt at Activation Laboratories:

- The samples are air-dried at a relatively low temperature of 40°C.
- The samples are then sieved and the -60 mesh sieve fraction (<250 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected.
- The collected "pulp" is packaged in a Kraft paper envelope and transported from our sample preparation department to our analytical building also located in the industrial park in Ancaster Ontario.
- Each sample is then extracted, compounds separated by gas chromatography and detected by mass spectrometry at a *Reporting Limit* of one part-per-trillion (ppt).
- The results of the SGH analysis is reported in raw data form in an Excel spreadsheet as "semi-quantitative" concentrations without any additional statistical modification.

## SGH DATA QUALITY

**Summary:** See Appendix E for more details

### Reporting Limit:

- The Excel spreadsheet of concentrations for each of the 162 compounds monitored is in units of ppt as "parts-per-trillion" which is equivalent to nanograms/kilogram (ng/Kg). The reporting limit of 1 ppt represents a value of approximately 5 times the standard deviation of low level analysis. Essentially all background noise has already been eliminated. All data reported should be used in geochemical mapping. Actual detectable levels can be significantly < 1 ppt.

### Laboratory Replicate Analysis:

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

### Historical SGH Precision:

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

### Laboratory Materials Blank (LMB-QA):

- The LMB-QA values are only an early warning as a quality assurance procedure to indicate the relative cleanliness of laboratory glassware, vials, caps, and the laboratory water supply at the ppt concentration level.
- The LMB-QA values should not be subtracted from any SGH data as any background or noise characteristics have already been removed through the use of a Reporting Limit.

## SGH DATA INTERPRETATION

**Summary:** See Appendix F for more details

SGH Interpretation and Report:

- Due to the very large data set provided by the SGH analysis, this interpretation report is provided to offer guidance in regard to the results of this geochemistry for their survey.
- In our interpretation procedure, we separate the 162 compound results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, Thiophenes, aromatic, and polyaromatic compounds. The concentrations of the individual hydrocarbons within a class are simply summed. None of these compounds are gaseous at room temperature.
- At this time the magnitude of the hydrocarbon class data has not been proven to imply a higher grade or quantity of the mineralization if present.
- A "geochemical anomaly threshold value" should not be calculated for SGH data as any background or noise has already been filtered out through the use of a Reporting Limit instead of some type of detection limit.
- SGH hydrocarbons data should never be interpreted individually. Interpretation must always be by compound class.
- Multiple SGH Classes are compared. Multiple SGH Classes that have been associated with the presence of specific mineralization are called SGH Pathfinder Classes that together represent the forensic signature or fingerprint identification for a specific type of mineralization or petroleum play.
- The anomalies of each class are compared as to their geochromatographic dispersion and ability to vector to a common location that may be referenced as a potential drill target.
- The agreement and behaviour between SGH Pathfinder Classes for a type of target, as a template of Classes, is compared against SGH research and orientation studies. The quality of agreement is expressed as an SGH Rating of confidence that the SGH anomalies of the survey being interpreted are similar to the behaviour of these classes over known mineralization.
- The interpretation is customized for the project survey by the Author. The SGH Rating and Interpretation is thus subjective and based on the experience of close to 1,000 SGH survey interpretations. The interpretation is not conducted by any computerized process.





## SGH CHARACTERISTICS

**Summary:** See Appendix G for more details

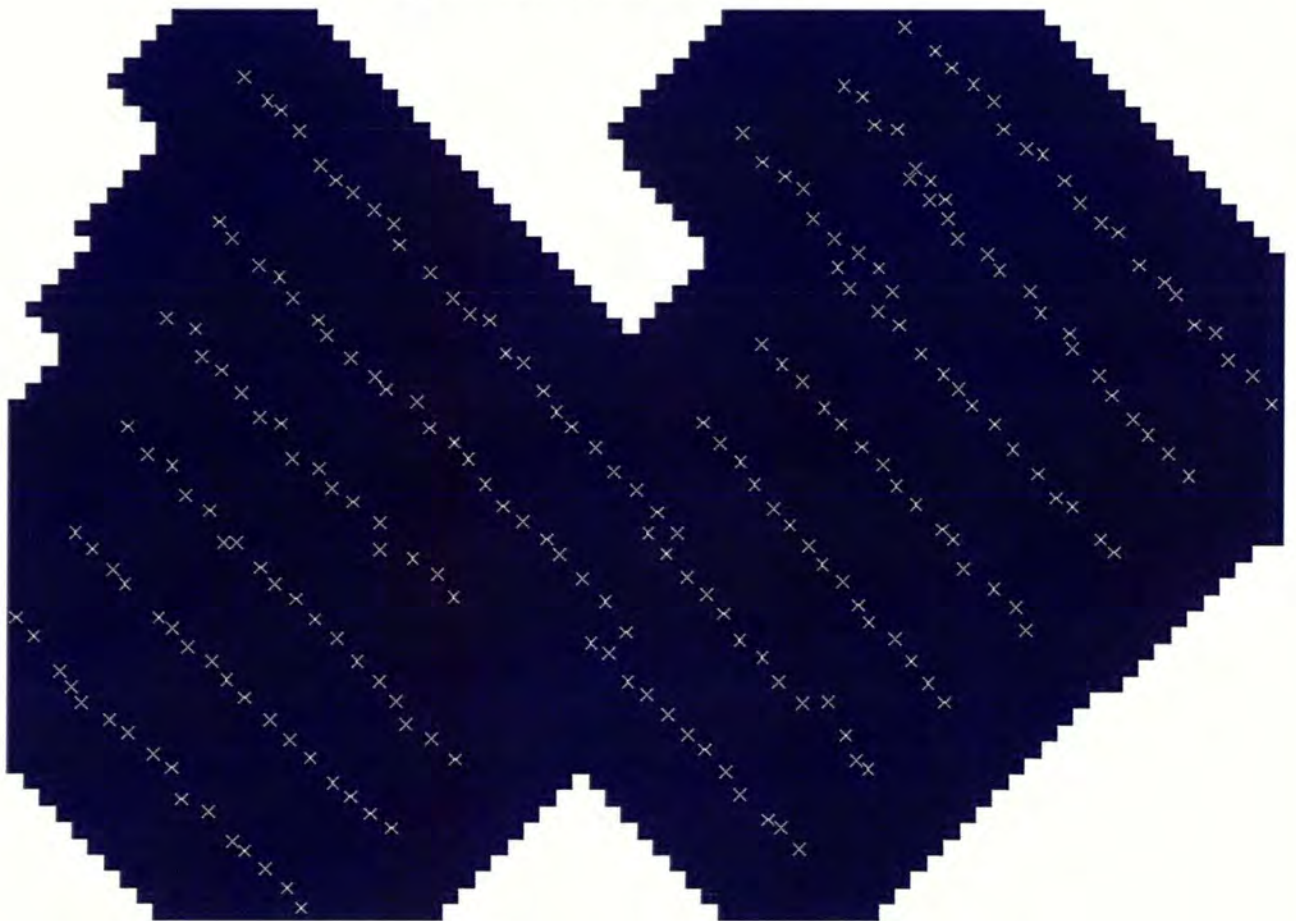
SGH Characteristics:

- The pattern of SGH anomalies are usually of high contrast and easily observed.
- SGH is able to illustrate exceptionally symmetrical anomalies in spite of exotic overburden and barriers such as permafrost, shale and basalt caps, previously thought to be impenetrable.
- Inorganic geochemistry can illustrate anomalies of metals that have been mobilized by surficial physical processes. As SGH is essentially "blind" to the inorganic content of a sample, SGH anomalies illustrate the true source of mineralization.
- AS SGH hydrocarbons are essentially non-polar, highly symmetrical anomalies are observed. As such symmetry is rare this provides a quality control to the interpretation resulting in higher confidence that is reflected by a higher SGH Rating Score in comparison to known case studies.
- SGH can be analyzed on samples collected in different seasons or adjacent years. The combined data rarely require any data leveling.

**INTERPRETATION OF SGH RESULTS**  
**A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS**  
**SAMPLE SURVEY INTERPRETATION**

This report is based on the SGH results from the analysis of a total of 245 samples. The Elora and Kenwest Projects area is described by a survey containing eleven parallel northwesterly trending transects that are about 100 metres apart with samples spaced at about 25 metres along each transect. Sample coordinates were provided for mapping of the SGH results for these samples as UTM NAD 83 Zone 15U coordinates. A sample location map is shown below.

**SGH SURVEY- SGH ELORA AND KENWEST PROJECTS**  
**SAMPLE LOCATION MAP**



## SGH SURVEY INTERPRETATION

### A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS

Note that the associated SGH results are presented in a separate Excel spreadsheet. This data is semi-quantitative and is presented in units of pg/g or *parts-per-trillion* (ppt) as the concentration of specific hydrocarbons in the sample. The number of samples submitted for this survey is adequate to use SGH as an exploration tool. As SGH is an organic geochemistry it is essentially "blind" to the elemental presence of any inorganic species as actual metallic gold, silver, uranium, etc. content in the each sample analyzed. SGH has been proven to discriminate between false or mobilized soil anomalies and is able to actually locate the source target deposition. SGH is a deep-penetrating geochemistry and has been proven to locate Gold and other types of mineralization at several hundred metres below the surface irrespective of the type of overburden. Note that the SGH data is only reviewed for the particular target deposit type requested, in this case for the presence of gold targets. It is also initially assumed that there is only one potential target. If known, in surveys with several complex geophysical targets, to obtain the best interpretation the client should indicate that there are possibly multiple targets. The possibility of multiple geophysical targets should be known due to potential overlap and the increased complexity of resulting geochromatographic anomalies, which could alter the interpretation as to which targets are mineralized and which ones are not.

**The overall precision of the SGH analysis for the samples at the Elora and Kenwest Projects was excellent** as demonstrated by 17 different samples taken from this 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 6.1% which represents an excellent level of analytical performance especially at such low parts-per-trillion concentrations.

**The performance of 10 field duplicates** identified in this survey was 9.9% CV. This is representative of the average value usually observed for field duplicates in the SGH analysis. It is typically observed that the variability of field duplicates are 5% to 8% CV higher than for laboratory duplicates of random samples taken from the survey. In comparison to other geochemistry's this is excellent performance. The typical excellent level of performance is due to the specificity of the SGH geochemistry as the method only targets relatively rare hydrocarbons that have been proven to be associated with mineralization, in this case for VMS. The SGH geochemistry does not detect all organic hydrocarbons present in the samples.

No other statistics were used on the data for this report for mapping or interpretation purposes aside from the use of a Kriging trending algorithm in the GeoSoft Oasis Montaj mapping software. **This interpretation is based only on the SGH results from this submission for the Elora and Kenwest Projects.** A template or group of SGH Pathfinder Classes that have been found to be associated with buried gold targets are used as the basis for the interpretation of the Elora and Kenwest Projects. 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.

## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH INTERPRETATION - SGH GOLD PATHFINDER CLASS MAP**

The maps shown in plan and in 3D views in this report are SGH "Pathfinder Class maps" for targeting various hydrocarbon flux signatures related to gold targets. These maps represent the simple summation of several individual hydrocarbon compound concentrations that are grouped from within the same organic chemical class. SGH Pathfinder Class maps have been shown to be robust as they are each described using from 4 to 14 (unless otherwise stated) chemically related SGH compounds which are simply summed to create each class map. Thus each map has a higher level of confidence as it is not illustrating just one compound measurement. A legend of the compound classes appears at the bottom of the SGH data spreadsheet.

The Gold template of SGH Pathfinder Classes use low and medium 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 relative to the presence of Gold. Each pathfinder class map is still just one of the Pathfinder Class maps used in each of the interpretation templates (other SGH Pathfinder Class maps are usually not shown at this price point and report turnaround time except at the discretion of the Author). Additional interpretation information which may contain additional SGH Pathfinder Class maps is available as a Supplementary Report at an additional price (see Appendix H).

SGH has been described by the Ontario Geological Survey of Canada (OGS) as a "Redox cell locator". Many SGH surveys for gold and other mineral targets can result in multiple types of anomalies, depending on the class of SGH compounds, even over the same target and in the same set of samples. Thus "Apical", "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. Redox cells are also related to the presence of bacteriological activity and the presence of geological bodies such as Granite Gneiss, Dunite, etc. Recently SGH has been shown to be far more sensitive to depicting Redox conditions than any measurements using pH or ORP tests. Thus it is important to understand that; not only is SGH a Redox cell locator, 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 results in the collection of multiple sample types.



## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH INTERPRETATION SGH GOLD PATHFINDER CLASS MAP**

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

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

## A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS

### 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, 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 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, Nickel, 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.

## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS**

### **SAMPLING LOG REVIEW**

The sampling logs were very good for the purposes of this SGH geochemistry. Sampling depth was from 10-50 cm with an average of 23.5 cm. Most of the samples were described as either light to dark brown or light to dark grey. The sample types were mostly clay and silt, however there were many notations of sand, mud, gravel, peat, humus and organic sample types. Most samples were described as damp. Some samples were described as wet to very wet. The location of these samples varied from rock outcrop to bush, trail-side, hill-side, and alder/cedar swamp areas. Such descriptions are typical for the Northern Ontario region.

Due to the detail of the sample logs provided this represented an opportunity to review the performance of SGH in relation to encountering some types of samples that are well known to give problems in the interpretation of other geochemistries. The findings were as follows:

Swamp samples on L5200N – There was no clear trend from review of all the SGH Pathfinder Class maps (n=20) to indicate that the taking of swamp samples resulted in high signals or low signals. This agrees with other projects where SGH continually displays that swamp samples do not affect results. The one "swamp sample by tailings" on line KWL4900N also did not show any clear trend and did not have the SGH signature associated with Gold. The nearby "Waste Rock" sample on line KWL5000N also did not have any appreciable SGH signature associated with Gold but did potentially indicate the presence of bacteria with the SGH signature associated with Sulphides. The "Tailings" sample on L4700N has perhaps, only a slight bias, to report a higher signal. This could be due to enough gold mineralization left in the tailings to support bacterial growth. This may possibly be observed as a slimy area that is actual degraded biofilms containing the hydrocarbons that may be associated with Gold mineralization. It was noted that this sample was "orangy-red brown" in colour. The slight positive signal bias may also be due to the nearness of this sample to the area with the highest SGH signature related to Gold. Approximately 19 samples had a location description containing the words "drill pad". On the west side of this survey (assumed from line descriptions to be the Elora side) there is no clear cut trend to indicate whether sampling at or near a drill pad would result in a higher SGH signal. For six of these samples that were on the east side of the survey (assumed from line descriptions to be the Kenwest side) there is a clear indication that there was no tendency to report a higher SGH signal at or near a drill pad. This agrees with historical results and research that indicates that SGH is unaffected by cultural activity.

## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS**

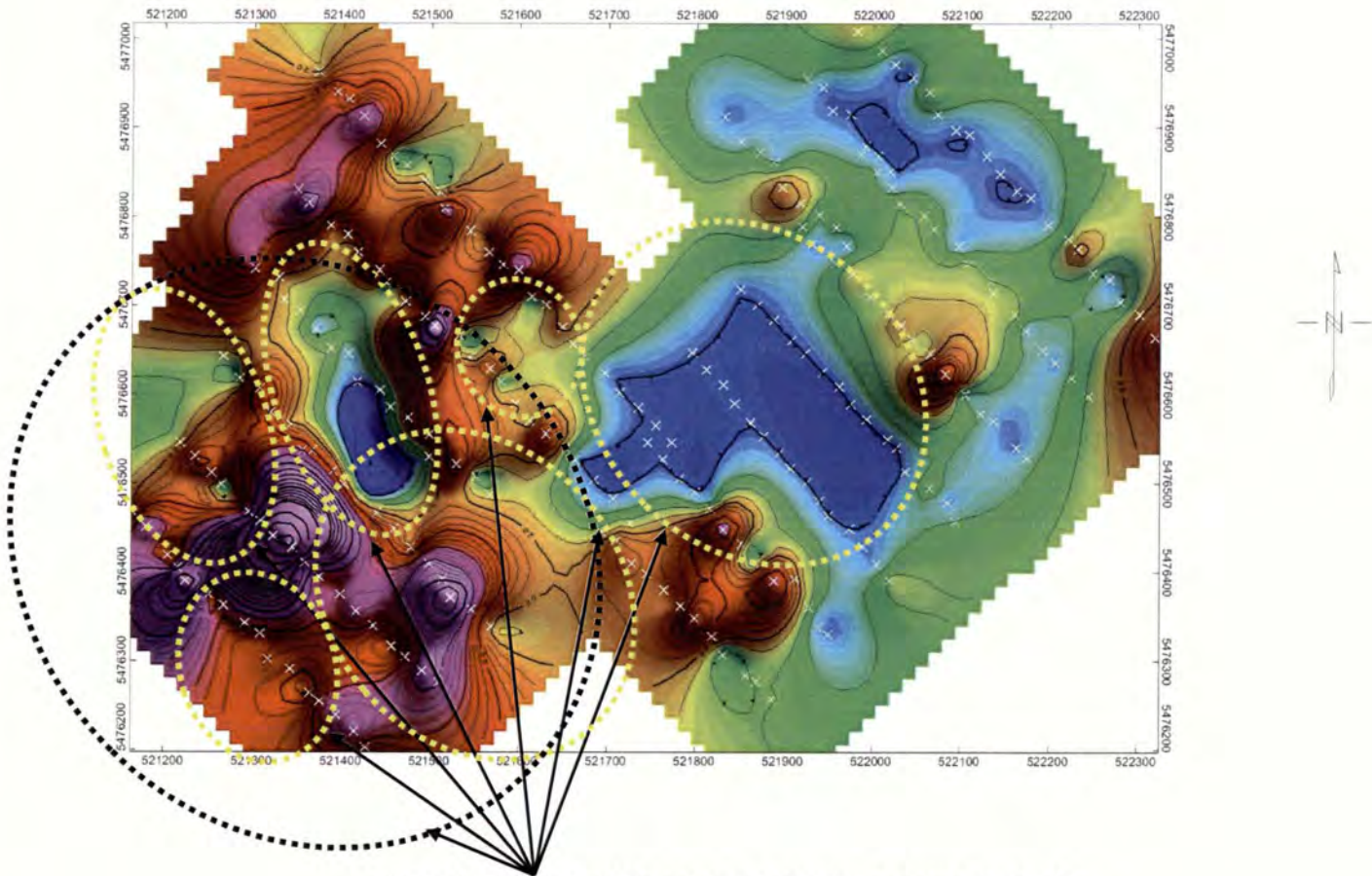
### **SGH REDOX INTERPRETATION**

As a general comment in regard to the SGH results at this Elora and Kenwest Projects, the interpretation was definitive. The SGH anomalies detected were of good strength and contrast for each SGH Class maps and were of typical strength for Northern Ontario. This enabled good comparison of those SGH hydrocarbon classes that have been proven to be pathfinders relative to the presence of Redox cells and the pathfinders that describe the SGH signature for "buried or blind" gold targets. The SGH gold Pathfinder Classes shown and other SGH Classes can illustrate the presence of an SGH hydrocarbon signature that has usually 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 gold type material and that have subsequently migrated to the surface as a flux of different classes of hydrocarbons. During migration to the surface, dispersion away from the mineralization is expected and the distance of dispersion is dependent more on the average molecular weight of the class, or the depth of the target, than the complexity of the overburden unless a situation is encountered such as that of a fault or shear zone that may result in a slight deflection of this path.

This report illustrates an SGH Pathfinder Class map on page 23 in plan view and on page 24 in 3D view that represents a very reliable illustration of a portion of the SGH signature that is used to define Redox conditions in the overburden. The segmented-halo anomalies are then reviewed with other SGH Gold Pathfinder Class maps to discriminate and determine whether an SGH Gold signature is associated with any of the Redox cells. The dotted yellow oval interpretations on page 23 are an approximation of the number and extent of the Redox conditions in the overburden. SGH is well known as a "Redox Cell locator", especially from independent studies conducted by the Ontario Geological Survey (OGS) and in research in cooperation with DeBeers Canada. Again this is only one part of the signature of identification which is provided by the use of multiple pathfinder SGH classes. Utilizing this forensic type signature of identification, SGH has been very successful at differentiating Redox conditions due to the presence of mineralization from those due to non-mineralized geological bodies such as Dunite, Granite Gneiss, and non-mineralized conductors. SGH has thus been able to confidently discriminate magnetic targets that are due to the presence of gold from those that do not have the correct forensic signature of identification and are thus magnetic anomalies of no interest. The SGH Class map on page 23 certainly indicates the lack of Redox conditions and thus a lack of interest in the west side of this survey (Kenwest). The interpretation of Redox conditions on the east side of the survey (Elora) is complexed by the lack of samples to the west and south of this area that would potentially provide a more confident interpretation of the Redox conditions and extent of SGH findings relative to Gold. Due to the lack of a complete survey of samples in the southwest end of this survey it is unsure whether the anomalies interpreted for Redox on page 23 (and in other SGH Classes) describe several individual Redox zones or are together the lower signal portions in a much larger segmented "nested"-halo anomalies described by the dotted black oval on page 23. The SGH Pathfinder Classes specifically associated with Gold may help to answer this question which is discussed on page 25.



### A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH "REDOX" PATHFINDER CLASS MAP

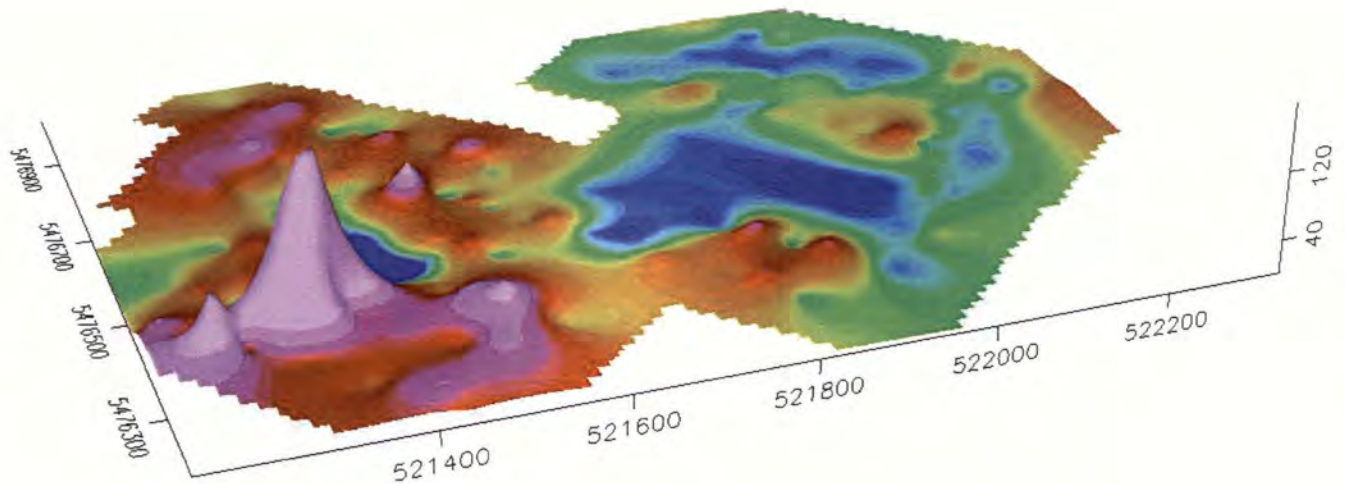


POSSIBLE REDOX ZONES AS SEGMENTED HALO ANOMALIES



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**A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS  
SGH "REDOX" PATHFINDER CLASS MAP**



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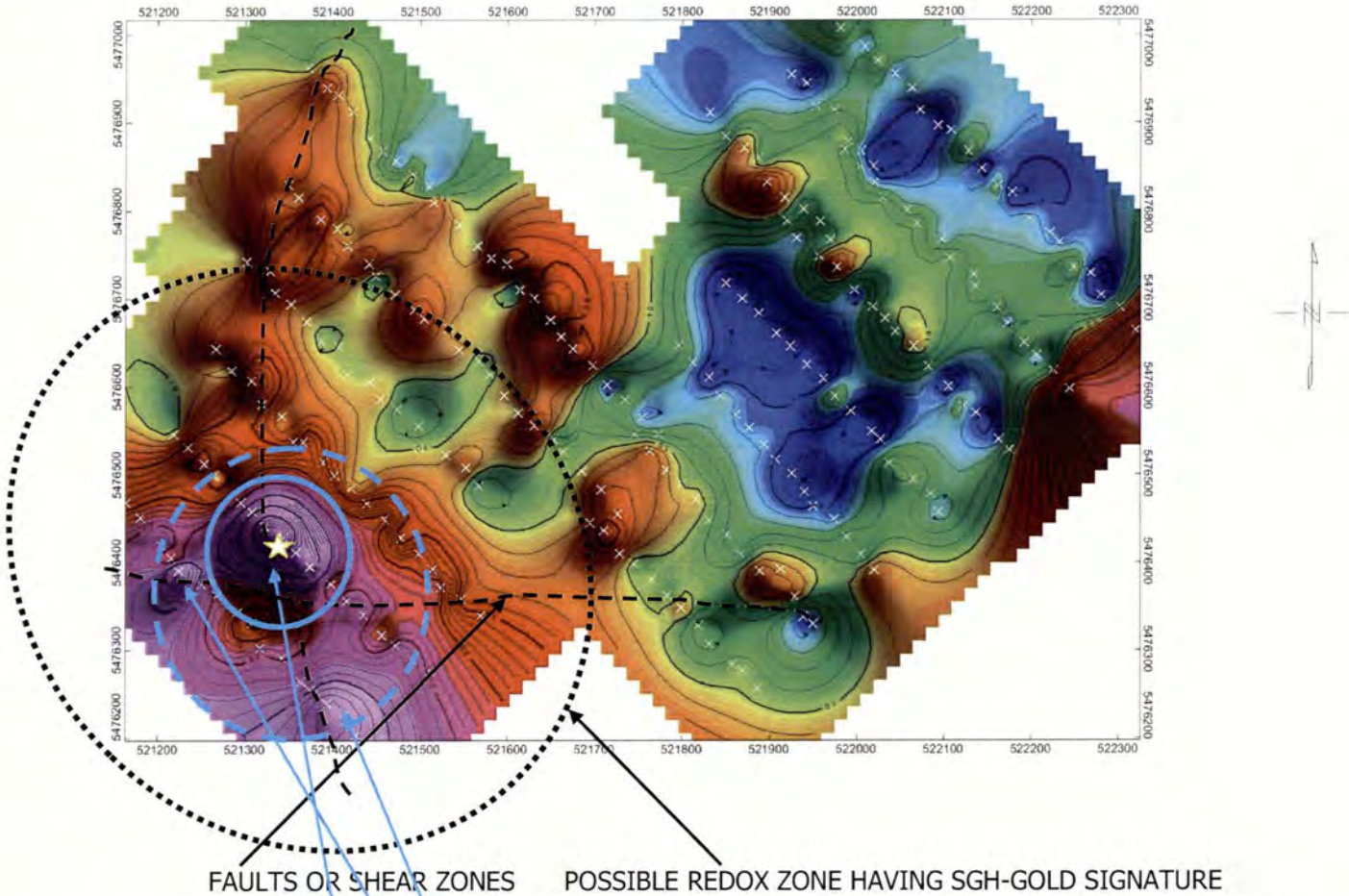
## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS**

### **SGH GOLD INTERPRETATION**

As a general comment in regard to the SGH results at this Elora and Kenwest Projects, the interpretation was definitive. The SGH anomalies detected were of good strength and contrast for each SGH Class maps and were of typical strength for Northern Ontario. This enabled good comparison of those SGH hydrocarbon classes that have been proven to be pathfinders relative to the presence of Redox cells and the pathfinders that describe the SGH signature for "buried or blind" gold targets. The SGH Gold Pathfinder Classes shown and other SGH Classes can illustrate the presence of an SGH hydrocarbon signature that has usually 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 gold type material and that have subsequently migrated to the surface as a flux of different classes of hydrocarbons. During migration to the surface, dispersion away from the mineralization is expected and the distance of dispersion is dependent more on the average molecular weight of the class, or the depth of the target, than the complexity of the overburden unless a situation is encountered such as that of a fault or shear zone that may result in a slight deflection of this path.

This report illustrates an SGH Gold Pathfinder Class map on page 26 in plan view and on page 27 in 3D view that is a portion of the SGH signature associated with Gold and is one of the most reliable at depicting Gold mineralization. In the interpretation of this class we are typically looking for an apical response that fits within a Redox cell response previously interpreted on page 23. As observed on the 3D map on page 27, there are some outstanding apical anomalies in the southwest corner of the survey which guides our interpretation focus. To obtain more confirmation and confidence in this area we refer to other SGH Pathfinder Classes associated with Gold as well as the 3D response on page 24 for Redox. The large apical response on page 24 absolutely agrees with the apical response on page 27 for the SGH Gold Pathfinder Class thus providing a significant level of confidence. SGH anomalies have been seen to be independent of the complexity of the overburden and using the 3D-SGH interpretation model based on the presence of an electrochemical cell that develops within a Redox zone, we observe that there are several small anomalies on page 27 that define the northeast portion of the Redox cell interpreted by the dotted black oval interpretation. This Redox cell interpretation fits with the apical anomaly on page 27 as a geometric central location in this Redox zone. Due to the lack of a complete survey of samples in the southwest end of this survey at least 70% of the area that could better determine the extent of the Redox conditions as the black dotted oval, does not have data and is only extrapolated based on the 3D-SGH model. The lack of samples to essentially define the dispersal halo of this class has resulted in a lowering of the SGH Rating in the confidence of predicting the presence of Gold mineralization, even though the SGH signature for the apical anomalies, especially for the highest signal on page 27, is excellent. Again the two SGH Classes shown in this report represent only a portion of the SGH signature of identification associated with Redox conditions in the overburden and those associated with Gold mineralization.

### A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH "GOLD" PATHFINDER CLASS MAP



FAULTS OR SHEAR ZONES      POSSIBLE REDOX ZONE HAVING SGH-GOLD SIGNATURE

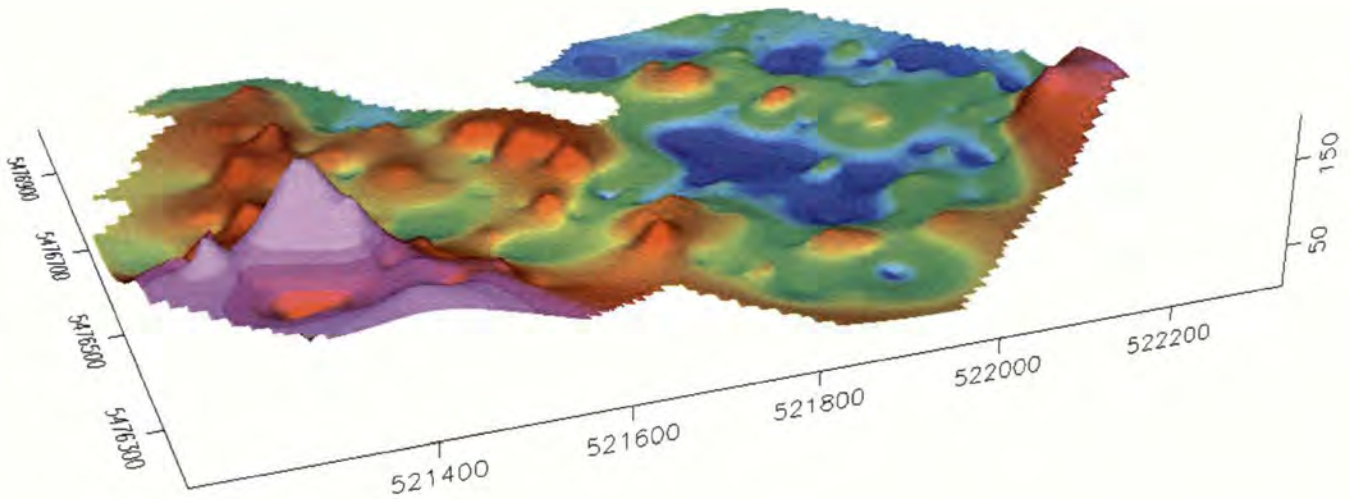
SGH GOLD TARGET "A", "B", "C"      STAR = MOST CONFIDENT DRILL TARGET AS A VERTICAL PROJECTION

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



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**A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS  
SGH "GOLD" PATHFINDER CLASS MAP**



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## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH INTERPRETATION FOR GOLD**

The interpretation of the SGH data relative to the presence of gold targets at the Elora and Kenwest Projects area is described by what appears to be the presence of a large Redox cell approximated by the dotted black oval that has the SGH characteristic signature of identification for Gold mineralization. Other SGH Class maps (not shown) also potentially illustrate basement trends. These trends appear to indicate structural features that may represent shear zones or faults that are predicted to be along the dashed black lines shown on page 26. Thus all three apical anomalies on page 26 appear to intersect or be very close to these structures.

As the largest apical response on page 27 appears to be close to the geometric centre of the predicted Redox cell, this anomaly is predicted to be the best drill target in this survey associated with Gold mineralization. Thus the location of the best drill target would be at the yellow star on page 26 as a vertical projection to the target at depth. Note, this apical anomaly is not the geometric centre of the dotted black oval representing the Redox conditions, thus this survey design is not of high enough resolution to predict the very best drill target. In-fill sampling mentioned in the Recommendations section on page 29 should also include two additional transects, parallel to transects in this survey, to the northeast and southwest of the apical anomaly with the yellow star as drill target "A". This SGH Gold Pathfinder Class also predicts that the apical anomalies as targets "B" and "C", which are also near to or intersect potential faults, should also be considered as drill targets for Gold mineralization but are of slightly less confidence in interpretation. Thus, based on this survey design, SGH predicts the dashed blue oval on page 26 to be a gold mineralized zone.

After review of all of the SGH Class maps, the SGH results from Elora and Kenwest Projects suggests a **"rating of 5.0"** out of a possible 6.0 (6.0 being the best) for the zone described by the dashed blue oval, as the confidence in predicting that gold targets may be present. The following points have reduced the SGH rating from a possible maximum of 6.0 in the confidence of predicting the gold target described by the dashed blue oval applied to the SGH Gold Pathfinder Class maps in this report. Although there is very good confirmation and support of the SGH signature for gold, a value of 1.0 was subtracted due to the lack of samples in the southwestern portion of the survey to better describe the complete picture of the Redox zone predicted to be within the dotted black oval.

The rating shown in this and all SGH reports are based on a scale of 6.0, in 0.5 increments, with a value of 6.0 being the best. The rating discussed in relation to gold targets represents the similarity of these SGH results with other SGH case studies over known gold targets. The SGH signature or template has since been further enhanced since inception and has been proven effective from the interpretation over many other surveys in many different geographical regions and for a wide variety of lithologies of gold. 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 zone described may warrant more work or more consideration. It must be remembered that there are still many other SGH Class maps not shown in this report due to turnaround time considerations that have been reviewed to support the interpretations shown.

## **A13-06619 – MANITOU GOLD INC. - ELORA AND KENWEST PROJECTS SGH SURVEY RECOMMENDATIONS**

Additional infill sampling to add to the survey area to the west, southwest, and south of the west side of this area (Elora) by lengthening the two most southwesterly transects by at least 10 samples at each end of each transect at the 25 metre spacing already used and by adding at least three more transects to the southwest would provide a better interpretation and would be expected to improve the SGH Rating as a rating of confidence in the interpretation. This additional sampling may also better illustrate the extent of the SGH anomalies, potentially provide enough information to comment on the depth to the target, and would potentially lead to a better decision on whether drill testing of this anomaly is warranted. Please refer to the general recommendations for additional or in-fill sampling for SGH in the next section if this is considered.

The identification of a drill target is not an explicit recommendation by Activation Laboratories Ltd. to drill test the associated location or SGH anomaly. A drill target is implied to ensure that the reader is aware of the location having the highest confidence of being the location of the vertical projection of the mineralization, based only on SGH data. This is also not a recommendation for vertical drilling. Vertical drilling may not be the best approach to test the SGH anomaly in this area. 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. This statement is made to recognize the proper use and interpretation of any scientific data. Whenever possible, multiple methods should always be employed so that any decisions do not rely on any one technique.

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

Based on the results of this report and/or other information, the client may decide that in-fill sampling may be warranted. To obtain the best results from additional sampling for SGH it is recommended that sample locations from the original survey within, or bordering, the area of interest be re-sampled rather than just combining new sample results with the sample data from the initial survey. Although several SGH surveys have previously been easily and directly, combined without data leveling, it cannot be guaranteed that data leveling will not be required. It has been found that data leveling is more apt to be required should the new samples be collected under significantly different environmental conditions than during the initial sample survey, i.e. summer collection versus winter collection. The process of data leveling adds a minimum of 3 to 5 days of work to conduct the additional data evaluation, develop additional plots of the results, conduct new interpretations, and in additional report descriptions. Results from data leveling is also always considered "an approximation", thus the confidence in a combined interpretation will be lower than the interpretation from samples collected during one excursion to the field and submitted as one survey. An additional cost will be invoiced should data leveling operations be required if the client requests that two SGH data sets be interpreted and reported together. Thus re-sampling a few of the original sample locations will provide a faster turnaround time for results and provide more accurate and confident surveys for evaluation and aid in deciding specific drill targets.





Date Received at Actlabs Thunder Bay: June 13, 2013

Date Received at Actlabs Ancaster: June 17, 2013

Date Analyzed: June 21 - 24, 2013

Interpretation Report: July 3, 2013

## **MANITOU GOLD INC.**

101-957 Cambrian Heights Drive  
Sudbury ON P3C 5S5

Attention: Todd Keast, P.Geo

**RE: Your Reference: ELORA AND KENWEST PROJECTS**

Activation Laboratories Workorder: A13-06619

### **CERTIFICATE OF ANALYSIS**

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

245 Samples were analyzed for this submission.

Sample preparation – Code S4 – Drying at 40°C and Sieving with -60 mesh collected

Interpretation relative to Gold targets was requested.

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

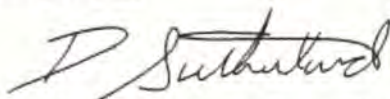
Analysis Code SGH – Soil Gas Hydrocarbon Geochemistry using High Resolution Gas Chromatography/Mass Spectrometry (HRGC/MS)

**REPORT/WORKORDER: A13-06619**

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 geochemistry's. He is a Chartered Chemist (C.Chem.) and Forensic Scientist specializing in organic chemistry. He is a member of the Association of the Chemical Profession of Ontario, the Association of Applied Geochemists, the International Association of GeoChemistry, the Ontario Prospectors Association, the Association for Mineral Exploration British Columbia, the Geochemical Society Association, and the Ontario Petroleum institute as well as having memberships in several national and international Forensic associations. He is not a professional geologist.

**CERTIFIED BY:**A handwritten signature in black ink, appearing to read "D Sutherland".

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

Forensic Scientist, Organics Manager,

Director of Research

Activation Laboratories Ltd.



## APPENDIX "A"

### List of terms

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

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

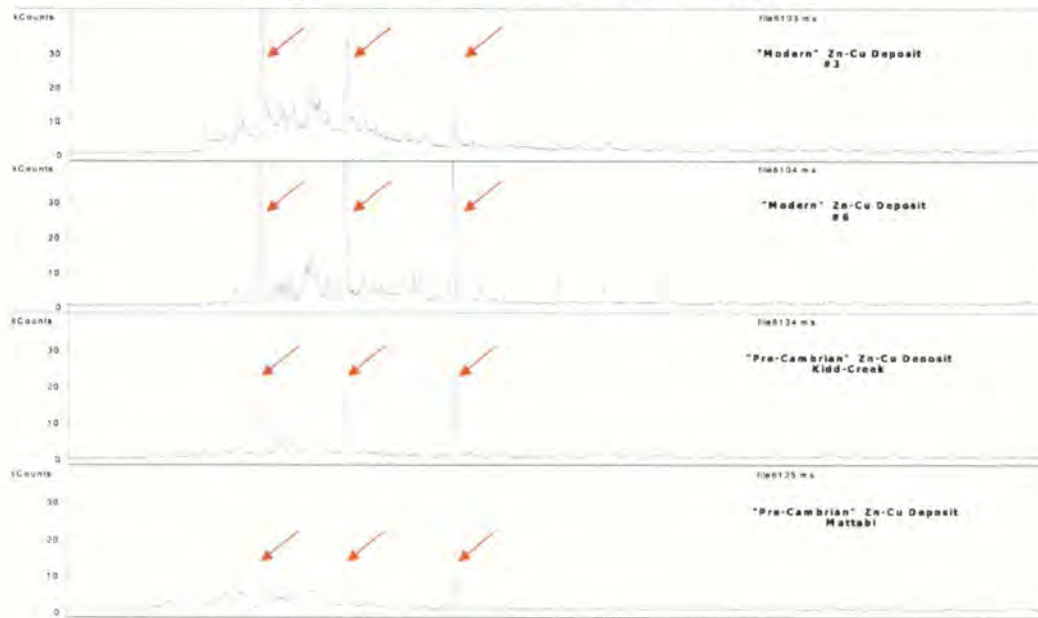
39. **SGH template** – a set of hydrocarbon classes that together form a geochemical signature that has been associated with the presence of a particular type of mineralization the majority of the time
40. **Surficial bound hydrocarbons** –
41. **Surficial samples**- a sample from near the earth's surface.
42. **Survey**- the area, position, or boundaries of a region to be analyzed, as set out by the client.
43. **Project**- a planned undertaking
44. **Transect**- A straight line or narrow section through an object or across a section of land.
45. **Target**- Target refers to the ore body of interest  
**Target signature:** the unique characteristics that identify the target.  
**Target type:**  
i.e. Gold, Nickel, Copper, Uranium, SEDEX, VMS, Lithium Pegmatites, IOCG, Silver, Ni-Cu-PGE, Tungsten, Polymetallic, Kimberlite as well as Coal, Oil and Gas.
46. **Threshold**- level or point at which data is accepted as significant or true.
47. **Total measurement error**- An estimate of the error in a measurement. Based on either limitation of the measuring instruments or from statistical fluctuations in the quantity being measured.  
**Visible (in terms of signature)**- the portion shown in a chart or map

## APPENDIX "B"

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

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

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



The above profiles are:

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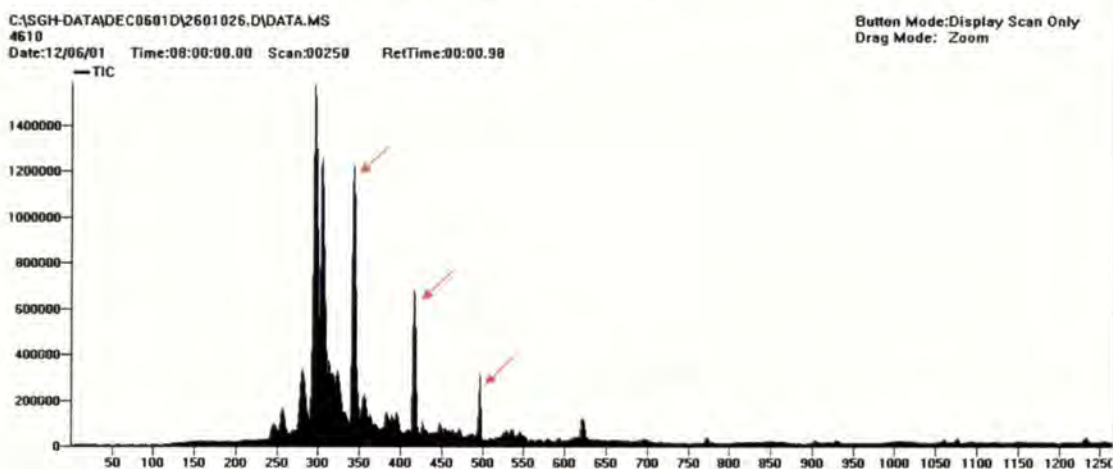
A13-06619

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

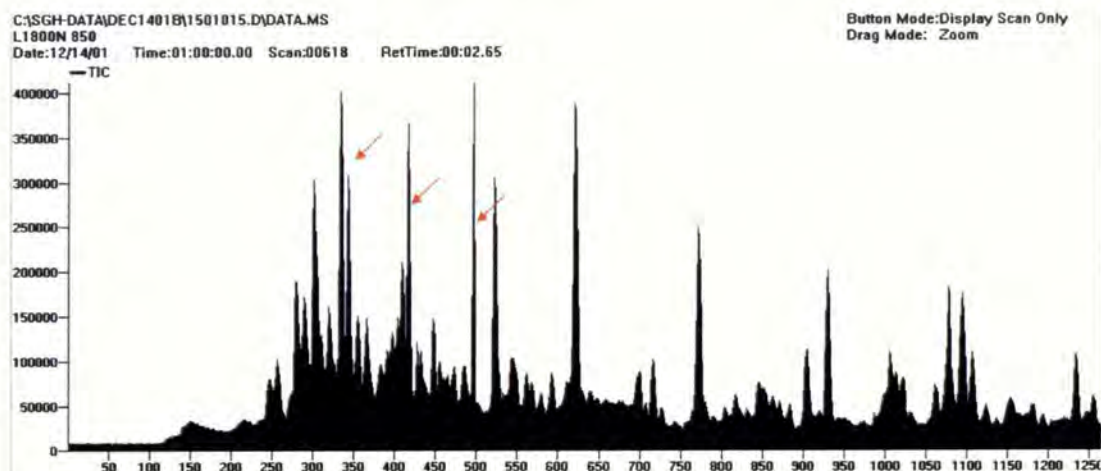
The red arrows point to three compounds that are a *portion* of the SGH signature for VMS type deposits. This visible portion of the VMS signature of hydrocarbons can easily be seen in the analysis of each of these four samples.

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



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

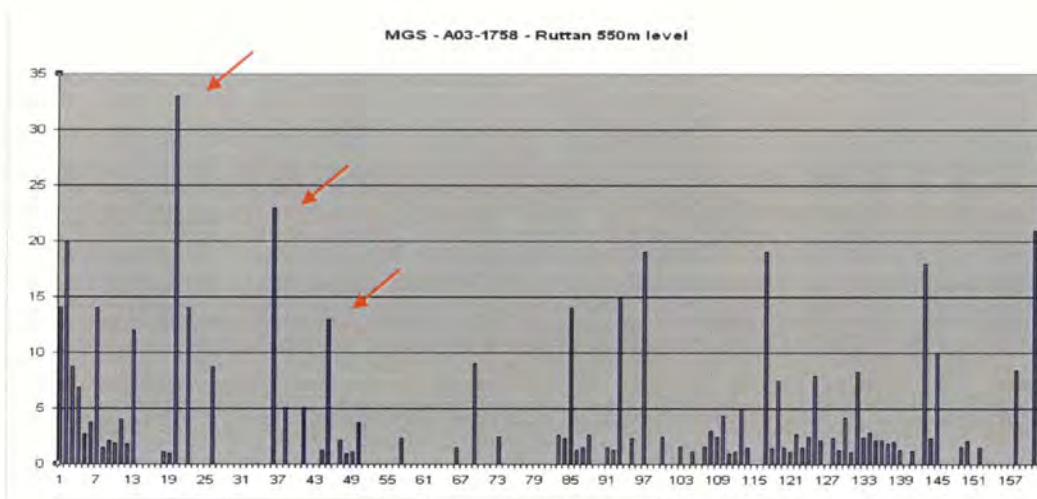
Another soil sample was obtained from Noranda's Gilmour South base-metal occurrence in the Bathurst Mining camp in northern New Brunswick. As shown below, this sample contained a very complex SGH signature, however the visible portion of the VMS signature as indicated by the red arrows is still observed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



In research conducted by the Ontario Geological Survey, this same portion of the SGH signature was also observed over the VMS deposit at Cross Lake in Ontario. **Note that the visible signature shown as the three compounds indicated by the red arrows is only a small portion of the complete SGH VMS signature.** The full VMS signature is made up of at least three groups, as three organic chemical classes, that together contain at least 35 of the individual SGH hydrocarbons.

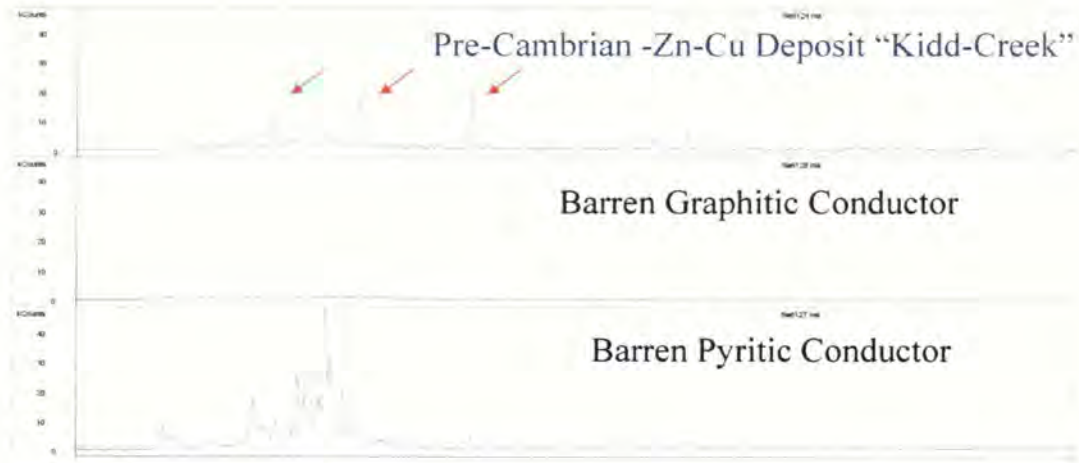
The chromatograms shown on the preceding page from the GC/MS analysis are not used directly in the interpretation of SGH data. As we are only interested in a specific list of 162 hydrocarbons, the mass spectrometer and associated software programs specifically identifies the hydrocarbons of interest,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





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

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



SGH has been described by the Ontario Geological Survey of Canada (OGS) as a "REDOX cell locator". Many SGH surveys for Gold and other mineral targets can result in multiple types of anomalies, depending on the class of SGH compounds, even over the same target and in the same set of samples. Thus "Apical", "Nested-Halo", and "Rabbit-Ear" or "Halo" type SGH anomalies are all typically observed from the effect of REDOX cells that have developed over deposits. REDOX cells are also related to the presence of bacteriological activity.

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

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

## APPENDIX "C"

### **SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING**

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

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

- Fist sized samples are usually retrieved from a shallow dug hole in the 15 to 40 cm range of depth.
- Different sample types can be taken even "within" the same survey or transect, data leveling is rarely ever required. SGH is highly effective in areas of very difficult terrain. The Golden Rule is to always take a sample.
- Samples should be evenly spaced in a grid or a series of transects with sample lines spaced at a ratio of up to 4:1 (line spacing: sample spacing).



- A minimum of 50 sample "locations" is recommended with one-third over the target and one-third on each side of the target into background if this can be predicted. This provides the opportunity of optimal data contrast.
- If very wet, samples can be drip dried in the field.
- No special preservation is required for shipping.

## **APPENDIX "D"**

### **SAMPLE PREPARATION AND ANALYSIS**

Upon receipt at Activation Laboratories the samples are air-dried in isolated and dedicated environmentally controlled rooms set to 40°C. The dried samples are then sieved. In the sieving process, it is important that compressed air is not used to clean the sieves between samples as trace amounts of compressor oils "may" poison the samples and significantly affect some target signatures. At Activation Laboratories a vacuum is used to clean the sieve between each sample. The -60 mesh sieve fraction (<250 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected and packaged in a Kraft paper envelope and transported from our sample preparation building to our analytical building on the same street in Ancaster Ontario. Each sample is then extracted, separated by gas chromatography and analyzed by mass spectrometry using customized parameters enabling the highly specific detection of the 162 targeted hydrocarbons at a *reporting limit* of one part-per-trillion (ppt). This trace level limit of reporting is critical to the detection of these hydrocarbons that, through research, have been found to be related at least in part to the breakdown and release of hydrocarbons from the death phase of microbes directly interacting with a deposit at depth. The hydrocarbon signatures are directly linked to the deposit type, which is used as a food source. The hydrocarbons that are mobilized and metabolized by the microbes are released in the death phase of each successive generation. Very few of the hydrocarbons measured are actually due to microbe cell structure, or hydrocarbons present or formed in the genesis of the deposit or from anthropogenic contamination. The results of the SGH analysis is reported in raw data form in an Excel spreadsheet as "semi-quantitative" concentrations without any additional statistical modification.

## APPENDIX "E" SGH DATA QUALITY

### Reporting Limit

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

### Laboratory Replicate Analysis

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

units of concentration cancel out in the formation of the coefficient of variation ratio. For SGH, the %CV is calculated on all values  $\geq 2$  ppt. These values are averaged and represent a value for each pair of replicate analysis of the sample. All of the %CV values for the replicates are then averaged to report one %CV value to represent the overall estimate of the relative error in the laboratory sub-sampling from the prepared samples, and any instrumental variability, in the SGH data set for the survey. Actlabs' has successfully addressed the analytical challenge to minimize analytical variability for such a large list of compounds. Thus as SGH is also interpreted as a signature and is solely used for exploration and not assay measurement, the data from SGH is "fit for purpose" as a geochemical exploration tool.

### Historical SGH Precision

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

### Laboratory Materials Blank – Quality Assurance (LMB-QA)

The Laboratory Materials Blank Quality Assurance measurements (LMB-QA) shown in the SGH spreadsheet of results are matrix free blanks analyzed for SGH. These blanks are not standard laboratory blanks as they do not accurately reflect an amount expected to be from laboratory handling or laboratory conditions that may be present and affect the sample analysis result. The LMB-QA measurements are a pre-warning system to only detect any contamination originating from laboratory glassware, vials or caps. As there is no substrate to emulate the sample matrix, the full solvating power of the SGH leaching solution, effectively a water leach, is fully directed at the small surface area of the glassware, vials or caps. In a sample analysis the solvating power of the SGH leaching solution is distributed between the large sample surface area (from soil, humus, sediments, peat, till, etc.) and the relatively small contribution from the laboratory materials surfaces. The sample matrix also buffers the solvating or leaching effect in the sample versus the more vigorous leaching of the laboratory



materials which do not experience this buffering effect. Thus the level of the LMB-QA reported is biased high relative to the sample concentration and the actual contribution of the laboratory reagents, equipment, handling, etc. to the values in samples is significantly lower. This situation in organic laboratory analysis only occurs at such extremely low part-per-trillion (ppt) measurement levels. This is one of the reasons that SGH uses a reporting limit and not a detection limit. The 1 ppt reporting limit used in the SGH spreadsheet of raw concentration data is 3 to 5 times greater than a detection limit. The reporting limit automatically filters out analytical noise, the actual LMB-QA, and most of the sample survey site background. This has been proven as SGH values of 1 to 3 parts-per-trillion (ppt) have very often illustrated the outline of anomalies directly related to mineral targets. **Thus all SGH values greater than or equal to 1 or 2 ppt should be used as reliable values for interpretations.**

The LMB-QA values thus should not be used to background subtract any SGH data. The LMB-QA values are only an early warning as a quality assurance procedure to indicate the relative cleanliness of laboratory glassware, vials, caps, and the laboratory water supply at the ppt concentration level. *Do not subtract the LMB-QA values from SGH sample data.*

## APPENDIX "F" SGH DATA INTERPRETATION

### SGH Interpretation Report

All SGH submissions must be accompanied by relative or UTM coordinates so that we may ensure that the sample survey design is appropriate for use with SGH, and to provide an SGH interpretation with the results. In our interpretation procedure, we separate the results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, thiophenes, aromatic, and polyaromatic compounds. Note that none of the SGH hydrocarbons are "gaseous" at room temperature and pressure. The classes are then evaluated in terms of their geochromatography and for coincident compound class anomalies that are unique to different types of mineralization. Actlabs uses a six point scale in assigning a subjective rating of similarity of the SGH signatures found in the submitted survey to signatures previously reviewed and researched from known case studies over the same commodity type. Also factored into this rating is the appropriateness of the survey and amount of data/sample locations that is available for interpretation. This rating scale is described in detail in the following section.

### SGH PATHFINDER CLASS MAGNITUDE

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

### GEOCHEMICAL ANOMALY THRESHOLD VALUE

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



hand selected due to their lower probability of being found in general surface soils. Further, only those classes where the majority of the compounds are detected above the Reporting Limit are considered in the interpretation. This defines the SGH geochemistry as having less geochemical noise due to the use of a reporting limit and as having higher confidence in the use of groups (classes) of data instead of individual compounds. However the most important aspect of interpretation is the use of a forensic signature. At least three specific "Pathfinder" classes, based on the combinations or template of classes we have developed, must be present to define the hydrocarbon signature to confidently predict the presence of a specific type of mineral target. *Do not calculate another Threshold value.* **Fact:** It has been proven many times that important SGH anomalies that depict mineralization at depth can exist even with data at 3 ppt.

### **Mobilized Inorganic Geochemical Anomalies**

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

### **The Nugget Effect**

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

## SGH DATA LEVELING

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

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

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

## APPENDIX "G"

### SGH RATING SYSTEM DESCRIPTION

To date SGH has been found to be successful in the depiction of buried mineralization for Gold, Nickel, VMS, SEDEX, Uranium, Cu-Ni-PGE, IOCG, Base Metal, Tungsten, Lithium, Polymetallic, and Copper, as well as for Kimberlites, Coal Seam, Wet Gas and Oil Plays. SGH data has developed into a dual exploration tool. From the interpretation, a vertical projection of the predicted location of the target can be made as well as a statement on the rating of the comparability of the identification of the anticipated target type to that from known case studies, as an example: if the client anticipates the target to be a Gold deposit, what is the rating or comparability that the target is similar to the SGH results over a Gold deposit in Nunavut, shear hosted and sediment hosted deposits in Nevada, or Paleochannel Gold mineralization in Western Australia.

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

The SGH rating is directly and significantly affected by the survey design. Small data sets, especially if significantly <50 sample locations, or transects/surveys that are geographically too short *will automatically receive a lower rating no matter how impressive an SGH anomaly might be*. When there is not enough sample locations to adequately review the SGH class geochromatography, or when the sample spacing is inadequate, or if the spacing is highly variable such that it biases the interpretation of the results, then the confidence in the interpretation of any geochemistry is adversely

affected. The SGH rating is not just a rating of the agreement between the SGH pathfinder classes for a particular target type; it is a rating of the overall confidence in the SGH results from this particular survey. The interpretation is only based on the SGH results without any information from other geochemical, geological or geophysical information unless otherwise specified.

## HISTORY & UNDERSTANDING

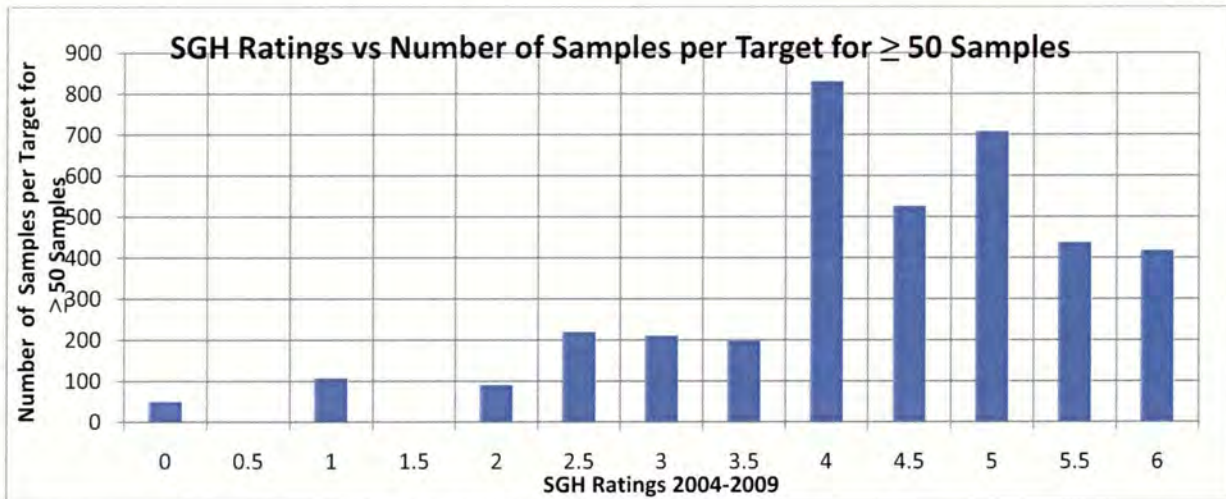
The subjective SGH rating system has been used since 2004 when Activation Laboratories started providing an SGH Interpretation Report with every submission for SGH analysis to aid our clients in understanding this organic geochemistry and ensuring that they obtain the best results for their surveys. As explained in the previous section, the SGH rating is not just a rating of how definitive an SGH anomaly is, and it is not based just on the map(s) provided in this report. It is a rating of "confidence in the interpreted anomaly" from the combination of:

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

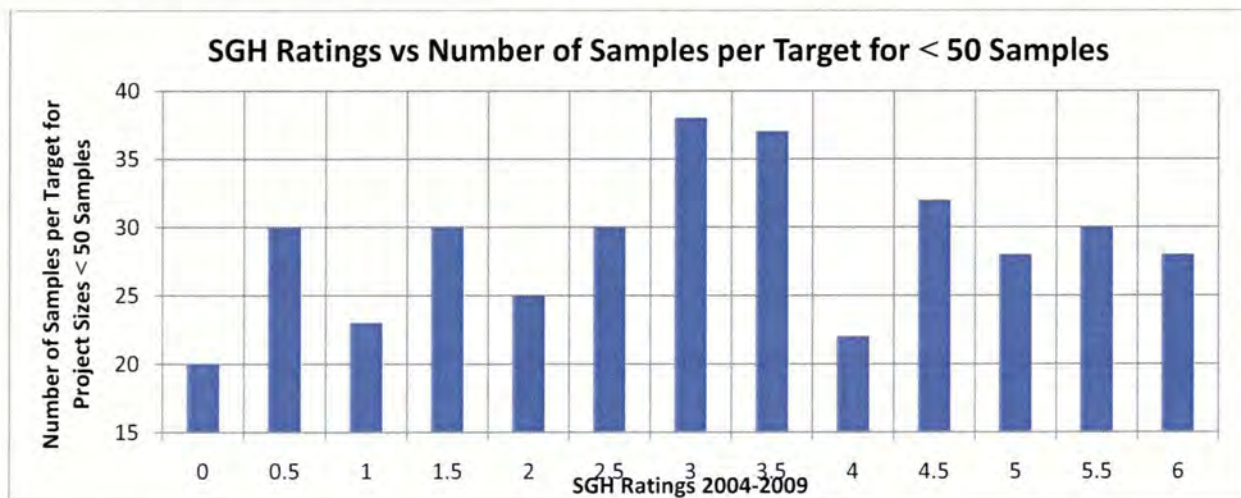
The question often arises by clients as to the frequency of a rating, e.g. "how often is a rating of 5.0 given in an interpretation". To better understand this we present this review of the history of the SGH rating program since 2004 and some of the underlying situations that can affect the historical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

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

geochromatography of the SGH Pathfinder Classes of compounds can be more completely observed and reviewed.



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

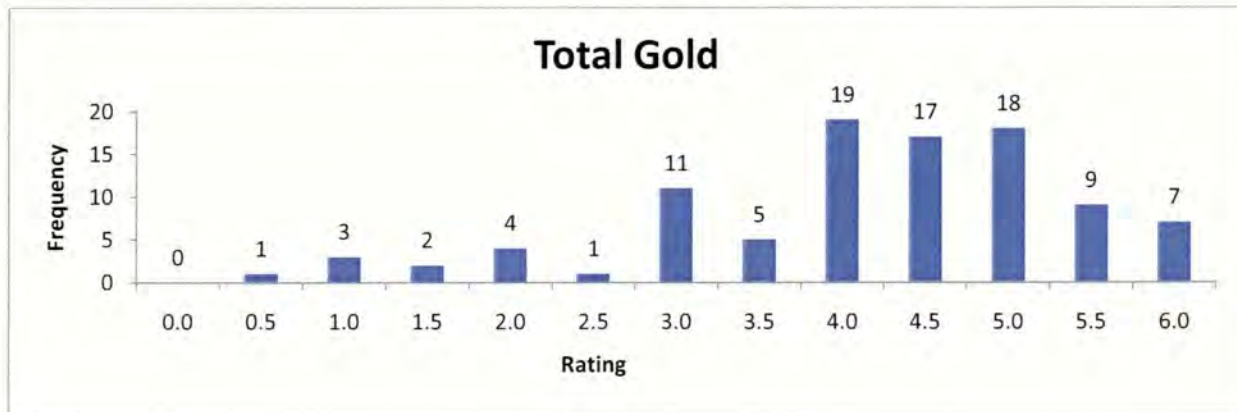




The overall rating frequency for over 400 targets from January 2004 to December 2009 is shown in the chart below illustrating that surveys over more promising targets are most often submitted for best use of research or exploration dollars. It also indicates that the 0.5 increments were less frequent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



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





## APPENDIX "H"

### **"SUPPLEMENTAL REPORT": (\$ 1,800.00)**

Those clients who have determined that these SGH results will add an important aspect to their exploration effort can request a "Supplemental Report". This report contains the additional SGH Pathfinder Classes and an explanation of their use in the SGH interpretation that supports the initial applied "Rating" for the survey as a relative comparison to the results previously obtained in case studies that were used to create the SGH template for the general target type.

### **"ADDITIONAL INTERPRETATION": (\$ 1,800.00)**

The SGH data can be interpreted multiple times in comparison to a variety of SGH templates developed for exploration for different mineral targets or petroleum plays. The samples do not have to be reanalyzed. This can be addressed as a separate section of a report or as a separate report based on the client's wishes. The price is per survey area, e.g. if there are two projects in a submission, perhaps a North area and South area, and both survey areas are to be interpreted for say Gold and Copper, the first interpretation is included in the SGH analysis price, the second interpretation for each area would be priced at \$1,800 per area, thus a total of \$3,600.

### **"BASIC OR SUPPLEMENTAL REPORT GIS PACKAGE": (\$ 200.00)**

Those clients that wish to import the SGH results into their GIS software can request a "GIS Package", which will include the geo-referenced image files that reflect the mapped SGH Pathfinder Class or Classes contained in the Standard or Supplemental Report and an Excel CSV file(s) containing the associated Class Sum data.

## **APPENDIX III**

**Complete Actlabs Report on the Second Pass SGH Soil Survey**



## 3D - SGH

# "A SPATIALTEMPORAL GEOCHEMICAL HYDROCARBON INTERPRETATION"

***MANITOU GOLD INC.***

***EL PROJECT - KENWEST EXTENSION***





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**SGH – SOIL GAS HYDROCARBON  
Predictive Geochemistry**  
*for*  
**MANITOU GOLD INC.**  
**EL PROJECT - KENWEST EXTENSION**

*September 11, 2013*

*\* Dale Sutherland,  
Activation Laboratories Ltd  
(\* - author, originator)*

**EVALUATION OF SAMPLES  
DATA EXPLORATION FOR: "GOLD" TARGETS  
SGH GOLD TEMPLATE USED FOR THIS REPORT**

**Workorder: A13-09260**



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## PREFACE

### THIS "STANDARD" SGH INTERPRETATION REPORT:

The purpose of this Soil Gas Hydrocarbon (SGH) interpretation "Standard Report" is to ensure that clients and other potential reviewers of the results have a good understanding of this organic, deep penetrating geochemistry. As SGH provides such a large data set and is not interpreted in the same way as inorganic geochemistries, this interpretation and report enables the user to realize the results in a timely fashion and capitalizes on years of research and development since the inception of SGH in 1976 combined with the knowledge obtained by Activation Laboratories through the interpretation of SGH data from over hundreds of surveys for a wide variety of target types in various lithologies from many geographical locations. Although referenced today as a "nano-technology", the analysis of SGH has not changed since inception. The report is compulsory as it is the only known organic geochemistry that, in spite of the name, uses non-gaseous semi-volatile organic compounds interpreted using a forensic signature approach. 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(s). This report can also provide evidence of project maintenance. To keep the price to a minimum and to provide as short a turnaround time as practically possible, usually only one SGH Pathfinder Class map is illustrated in a "Standard Report" with an applied interpretation although several other SGH Pathfinder Class maps are used and referenced. Definitions of certain terms or phrases used in this report can be found in Appendix A. A Supplemental Report and/or interpretations for other target types are available. A GIS package of georeferenced images is also available. (See Appendix H)

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



## DISCLAIMER

This "SGH Interpretation Report" has been prepared to assist the user in understanding the development and capabilities of this Organic based Geochemistry. The interpretation of the Soil Gas Hydrocarbon (SGH) data is in reference to a template or group of SGH classes of compounds specific to a type of mineralization or target that is chosen by the client (i.e. the template for 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 15+ 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 close to 1,000 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 other geochemistries, 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 geochemistries, the implied rating and 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 15+ 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 projects the sponsors have included (in no order): Western Mining Corporation, BHP-Billiton, Inco, Noranda, Outokumpu, Xstrata, Cameco, Cominco, Rio Algom, Alberta Geological Survey, Ontario Geological Survey, Manitoba Geological Survey and OMET. Further, beyond this research, Activation Laboratories Ltd. has interpreted the SGH data for over 700 targets from clients since January of 2004. In both CAMIRO research projects 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 geochemistries 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))

## **SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING**

**Summary:** See Appendix C for more details

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

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

## **SAMPLE PREPARATION AND SGH ANALYSIS**

**Summary:** See Appendix D for more details

Upon receipt at Activation Laboratories:

- The samples are air-dried at a relatively low temperature of 40°C.
- The samples are then sieved and the -60 mesh sieve fraction (<250 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected.
- The collected "pulp" is packaged in a Kraft paper envelope and transported from our sample preparation department to our analytical building also located in the industrial park in Ancaster Ontario.
- Each sample is then extracted, compounds separated by gas chromatography and detected by mass spectrometry at a *Reporting Limit* of one part-per-trillion (ppt).
- The results of the SGH analysis is reported in raw data form in an Excel spreadsheet as "semi-quantitative" concentrations without any additional statistical modification.



## SGH DATA QUALITY

**Summary:** See Appendix E for more details

### Reporting Limit:

- The Excel spreadsheet of concentrations for each of the 162 compounds monitored is in units of ppt as "parts-per-trillion" which is equivalent to nanograms/kilogram (ng/Kg). The reporting limit of 1 ppt represents a value of approximately 5 times the standard deviation of low level analysis. Essentially all background noise has already been eliminated. All data reported should be used in geochemical mapping. Actual detectable levels can be significantly < 1 ppt.

### Laboratory Replicate Analysis:

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

### Historical SGH Precision:

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

### Laboratory Materials Blank (LMB-QA):

- The LMB-QA values are only an early warning as a quality assurance procedure to indicate the relative cleanliness of laboratory glassware, vials, caps, and the laboratory water supply at the ppt concentration level.
- The LMB-QA values should not be subtracted from any SGH data as any background or noise characteristics have already been removed through the use of a Reporting Limit.

## SGH DATA INTERPRETATION

**Summary:** See Appendix F for more details

SGH Interpretation and Report:

- Due to the very large data set provided by the SGH analysis, this interpretation report is provide to offer guidance in regard to the results of this geochemistry for their survey.
- In our interpretation procedure, we separate the 162 compound results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, Thiophenes, aromatic, and polyaromatic compounds. The concentrations of the individual hydrocarbons within a class are simply summed. None of these compounds are gaseous at room temperature.
- At this time the magnitude of the hydrocarbon class data has not been proven to imply a higher grade or quantity of the mineralization if present.
- A "geochemical anomaly threshold value" should not be calculated for SGH data as any background or noise has already been filtered out through the use of a Reporting Limit instead of some type of detection limit.
- SGH hydrocarbons data should never be interpreted individually. Interpretation must always be by compound class.
- Multiple SGH Classes are compared. Multiple SGH Classes that have been associated with the presence of specific mineralization are called SGH Pathfinder Classes that together represent the forensic signature or fingerprint identification for a specific type of mineralization or petroleum play.
- The anomalies of each class are compared as to their geochromatographic dispersion and ability to vector to a common location that may be referenced as a potential drill target.
- The agreement and behaviour between SGH Pathfinder Classes for a type of target, as a template of Classes, is compared against SGH research and orientation studies. The quality of agreement is expressed as an SGH Rating of confidence that the SGH anomalies of the survey being interpreted are similar to the behaviour of these classes over known mineralization.
- The interpretation is customized for the project survey by the Author. The SGH Rating and Interpretation is thus subjective and based on the experience of close to 1,000 SGH survey interpretations. The interpretation is not conducted by any computerized process.



## SGH CHARACTERISTICS

**Summary:** See Appendix G for more details

SGH Characteristics:

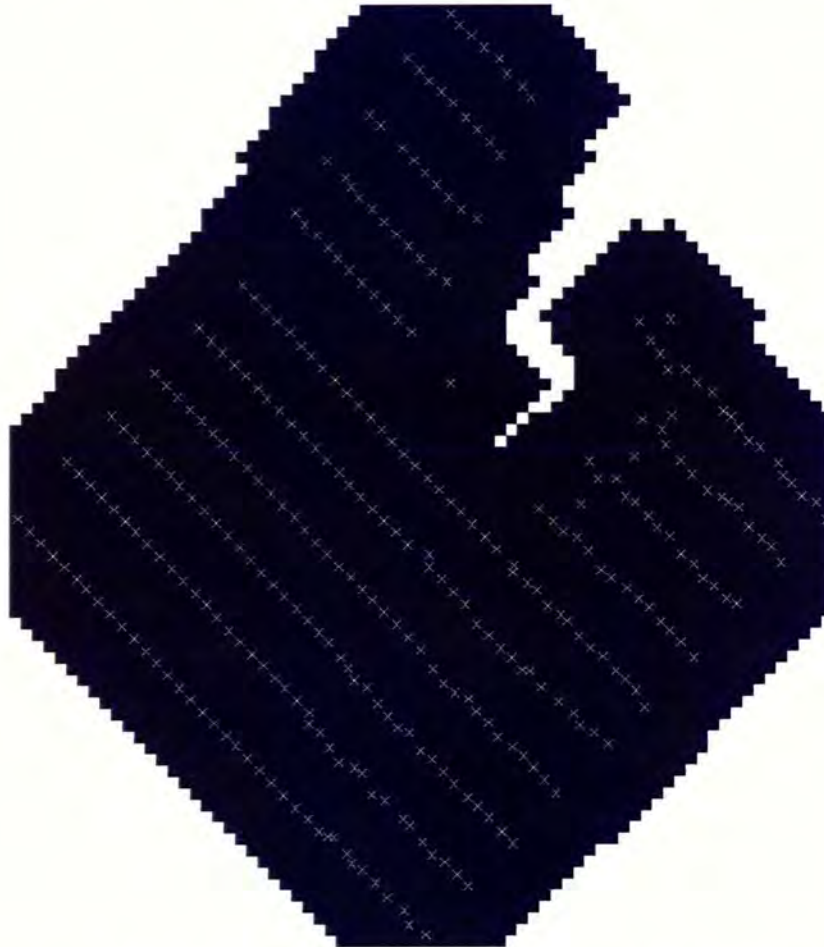
- The pattern of SGH anomalies are usually of high contrast and easily observed.
- SGH is able to illustrate exceptionally symmetrical anomalies in spite of exotic overburden and barriers such as permafrost, shale and basalt caps, previously thought to be impenetrable.
- Inorganic geochemistry can illustrate anomalies of metals that have been mobilized by surficial physical processes. As SGH is essentially "blind" to the inorganic content of a sample, SGH anomalies illustrate the true source of mineralization.
- AS SGH hydrocarbons are essentially non-polar, highly symmetrical anomalies are observed. As such symmetry is rare this provides a quality control to the interpretation resulting in higher confidence that is reflected by a higher SGH Rating Score in comparison to known case studies.
- SGH can be analyzed on samples collected in different seasons or adjacent years. The combined data rarely require any data leveling.

**INTERPRETATION OF SGH RESULTS  
A13-09260 – MANITOU GOLD INC. - EL PROJECT - KENWEST  
EXTENSION**

**SAMPLE SURVEY INTERPRETATION**

This report is based on the SGH results from the analysis of a total of 341 samples. The El Project - Kenwest Extension area is described by a survey containing eleven parallel northwesterly trending transects that are about 100 metres apart with samples spaced at about 25 metres along each transect. Sample coordinates were provided for mapping of the SGH results for these samples as UTM NAD 83 Zone 15U coordinates. A sample location map is shown below.

**SGH SURVEY- SGH EL PROJECT - KENWEST EXTENSION SAMPLE  
LOCATION MAP**





## SGH SURVEY INTERPRETATION

### A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION

Note that the associated SGH results are presented in a separate Excel spreadsheet. This data is semi-quantitative and is presented in units of pg/g or *parts-per-trillion* (ppt) as the concentration of specific hydrocarbons in the sample. The number of samples submitted for this survey is adequate to use SGH as an exploration tool. As SGH is an organic geochemistry it is essentially "blind" to the elemental presence of any inorganic species as actual metallic gold, silver, uranium, etc. content in the each sample analyzed. SGH has been proven to discriminate between false or mobilized soil anomalies and is able to actually locate the source target deposition. SGH is a deep-penetrating geochemistry and has been proven to locate Gold and other types of mineralization at several hundred metres below the surface irrespective of the type of overburden. Note that the SGH data is only reviewed for the particular target deposit type requested, in this case for the presence of gold targets. It is also initially assumed that there is only one potential target. If known, in surveys with several complex geophysical targets, to obtain the best interpretation the client should indicate that there are possibly multiple targets. The possibility of multiple geophysical targets should be known due to potential overlap and the increased complexity of resulting geochromatographic anomalies, which could alter the interpretation as to which targets are mineralized and which ones are not.

**The overall precision of the SGH analysis for the samples at the El Project - Kenwest Extension was excellent** as demonstrated by 23 different samples taken from this 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 7.0% which represents an excellent level of analytical performance especially at such low parts-per-trillion concentrations.

**The performance of 9 field duplicates** identified in this survey was 8.7% CV. This is an excellent observation for the precision of field duplicates in the SGH analysis. It is typically observed that the variability of field duplicates are 5% to 8% CV higher than for laboratory duplicates of random samples taken from the survey. In comparison to other geochemistry's this is excellent performance. The typical excellent level of performance is due to the specificity of the SGH geochemistry as the method only targets relatively rare hydrocarbons that have been proven to be associated with mineralization, in this case for gold. The SGH geochemistry does not detect all organic hydrocarbons present in the samples.

No other statistics were used on the data for this report for mapping or interpretation purposes aside from the use of a Kriging trending algorithm in the GeoSoft Oasis Montaj mapping software. **This interpretation is based only on the SGH results from this submission for the El Project - Kenwest Extension and sample description logs. It also references a previous SGH report for the Elora-Kenwest area of July 3, 2013 (A13-06619).** A template or group of SGH Pathfinder Classes that have been found to be associated with buried gold targets are used as the basis for the interpretation of the El Project - Kenwest Extension. 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.

## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION SGH INTERPRETATION - SGH GOLD PATHFINDER CLASS MAP**

The maps shown in plan and in 3D views in this report are SGH "Pathfinder Class maps" for targeting various hydrocarbon flux signatures related to gold targets. These maps represent the simple summation of several individual hydrocarbon compound concentrations that are grouped from within the same organic chemical class. SGH Pathfinder Class maps have been shown to be robust as they are each described using from 4 to 14 (unless otherwise stated) chemically related SGH compounds which are simply summed to create each class map. Thus each map has a higher level of confidence as it is not illustrating just one compound measurement. A legend of the compound classes appears at the bottom of the SGH data spreadsheet.

The Gold template of SGH Pathfinder Classes use low and medium 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 relative to the presence of Gold. Each pathfinder class map is still just one of the Pathfinder Class maps used in each of the interpretation templates (other SGH Pathfinder Class maps are usually not shown at this price point and report turnaround time except at the discretion of the Author). Additional interpretation information which may contain additional SGH Pathfinder Class maps is available as a Supplementary Report at an additional price (see Appendix H).

SGH has been described by the Ontario Geological Survey of Canada (OGS) as a "Redox cell locator". Many SGH surveys for gold and other mineral targets can result in multiple types of anomalies, depending on the class of SGH compounds, even over the same target and in the same set of samples. Thus "Apical", "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. Redox cells are also related to the presence of bacteriological activity and the presence of geological bodies such as Granite Gneiss, Dunite, etc. Recently SGH has been shown to be far more sensitive to depicting Redox conditions than any measurements using pH or ORP tests. Thus it is important to understand that; not only is SGH a Redox cell locator, 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 results in the collection of multiple sample types.

## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION SGH INTERPRETATION SGH GOLD PATHFINDER CLASS MAP**

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

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

One of the less known characteristics of this SGH geochemistry is that the anomalies have been shown several times to be unaffected by physical processes that usually cause drift to anomalies or sometimes called transported anomalies. As the SGH hydrocarbons are relatively neutral in charge or polarity, and are heavier in molecular weight (i.e. as they are not gases), they are unaffected by the slope of the terrain, effects of water table, etc. Only the lightest molecular weight SGH classes have shown any sign of deflection from illustrating a vertical projection when there is a major fault present. Although this may deflect the bulls-eye effect of these classes, the high amount of symmetry of heavier and thus none deflected classes can geometrically find the bulls-eye vertical projection of mineralization that can aid in decisions of drill targeting. Most importantly, in northern climates like that found in Canada, SGH has been shown to be completely resistant to transport by glacial drift.

Note, under no circumstances should SGH results be confused with assays. SGH is an excellent geochemistry to vector to, locate and identify the presence of blind mineralization. However, it is logical that the better identified and delineated a mineralized area is, the higher the possibility of finding some significant quantity of mineralization. Also, it is expected that well defined and identified mineralization is most likely to be at a relatively shallow depth. This varies with the SGH mineralization template used.

## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION**

### **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, 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 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, Nickel, 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.



## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION**

### **SAMPLING LOG REVIEW**

The sampling logs were very good for the purposes of this SGH geochemistry. Samples were taken from either surface terrain or lake-bottom. Sampling depth from these surfaces was from 10-70 cm with an average of 33 cm. Sample descriptions varied widely from light to dark brown, light to dark grey, light reddish to reddish brown, to black. Lake bottom sediments were also described as banded grey and bluish grey. The sample types were also widely varied as silt, silty peat, peat, sand, clay, humus, gravel, organic sample types. About half of the samples were from terrain that was mostly bush with some samples from outcrop, road side, and trail side, near camps or from outcrops. These samples were from dry to damp conditions with only a few samples as wet from swampy areas. The other half of the samples were taken from Lake Bottom from water at depths from 1.5 to 10.5 metres, with an average depth of 5.5 metres. The lake-bottom samples were taken from about 45 cm below the lake-bottom surface which is slightly deeper than from the above water terrain surface. Such descriptions are typical for the Northern Ontario region.

Just as in the previous submission of samples (A13-06619 that included the easterly Elora grid, report of July 3, 2013), the data agreed with historical results and research that indicates that SGH is very robust to sample type, exotic terrain and unaffected by cultural activity.

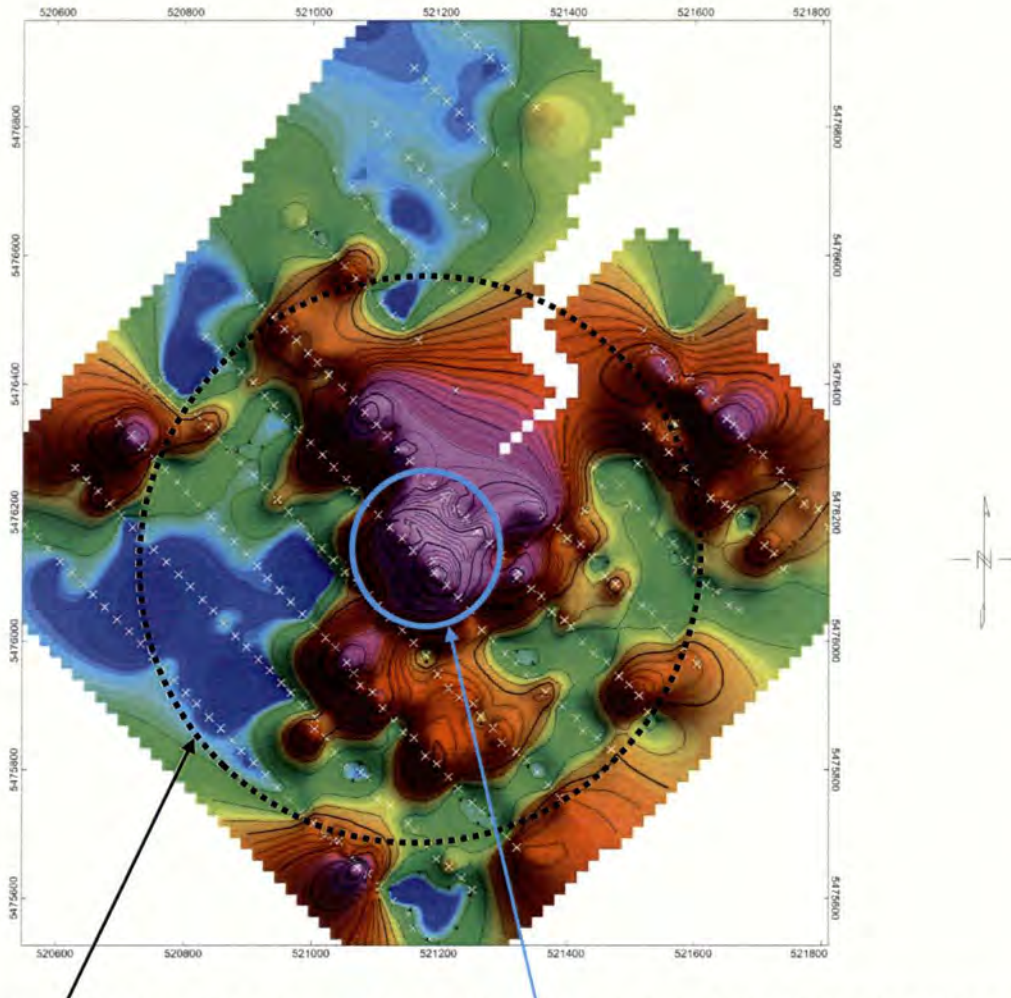
## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION**

### **SGH REDOX INTERPRETATION**

As a general comment in regard to the SGH results at this El Project - Kenwest Extension, the interpretation was very definitive. The SGH anomalies detected were of good strength and contrast for each SGH Class maps and were of typical strength for Northern Ontario. This enabled good comparison of those SGH hydrocarbon classes that have been proven to be pathfinders relative to the presence of Redox cells and the pathfinders that describe the SGH signature for "buried or blind" gold targets. The SGH gold Pathfinder Classes shown and other SGH Classes can illustrate the presence of an SGH hydrocarbon signature that has usually 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 gold type material and that have subsequently migrated to the surface as a flux of different classes of hydrocarbons. During migration to the surface, dispersion away from the mineralization is expected and the distance of dispersion is dependent more on the average molecular weight of the class, or the depth of the target, than the complexity of the overburden unless a situation is encountered such as that of a fault or shear zone that may result in a slight deflection of this path.

This report illustrates an SGH Pathfinder Class map on page 23 in plan view and on page 24 in 3D view that represents a very reliable illustration of a portion of the SGH signature that is used to define Redox conditions in the overburden. The large segmented-halo anomaly found at this Kenwest extension is reviewed with other SGH Gold Pathfinder Class maps to discriminate and determine whether an SGH Gold signature is associated with any of the Redox cells. This is actually a "nested-halo" type anomaly with a large central or nested apical anomaly. A large number of SGH Pathfinder classes supported the significance of the central apical anomaly within the small blue circle which is well centred within the predicted Redox cell. SGH is well known as a "Redox Cell locator", especially from independent studies conducted by the Ontario Geological Survey (OGS) and in research in cooperation with DeBeers Canada. Again this is only one part of the signature of identification which is provided by the use of multiple pathfinder SGH classes. Utilizing this forensic type signature of identification, SGH has been very successful at differentiating Redox conditions due to the presence of mineralization from those due to non-mineralized geological bodies such as Dunite, Granite Gneiss, and non-mineralized conductors. SGH has thus been able to confidently discriminate magnetic targets that are due to the presence of gold from those that do not have the correct forensic signature of identification and are thus magnetic anomalies of no interest. The SGH Class map on page 23 certainly indicates one significant location. Such confirmation is also observed in another SGH Pathfinder Class map on page 25 that has been highly correlated with Gold mineralization. A yellow star is placed on this map as an obvious drill location for consideration. The previous results for the Elora and Kenwest grids from the July 3, 2013 report have been shown on page 27 for easy reference. To better review the complete Kenwest grid, the western grid of data from the July 3, 2013 report has been leveled using the re-sampled locations, and combined with the 341 samples from this submission to produce the combined and complete Kenwest grid on page 29. This map illustrates the prediction of two overlapping Redox cells with two perfectly centred large apical anomalies that are presented as excellent drill targets for consideration.

**A13-09260 – MANITOU GOLD INC.- EL PROJECT-KENWEST EXTENSION  
SGH "REDOX" PATHFINDER CLASS MAP**



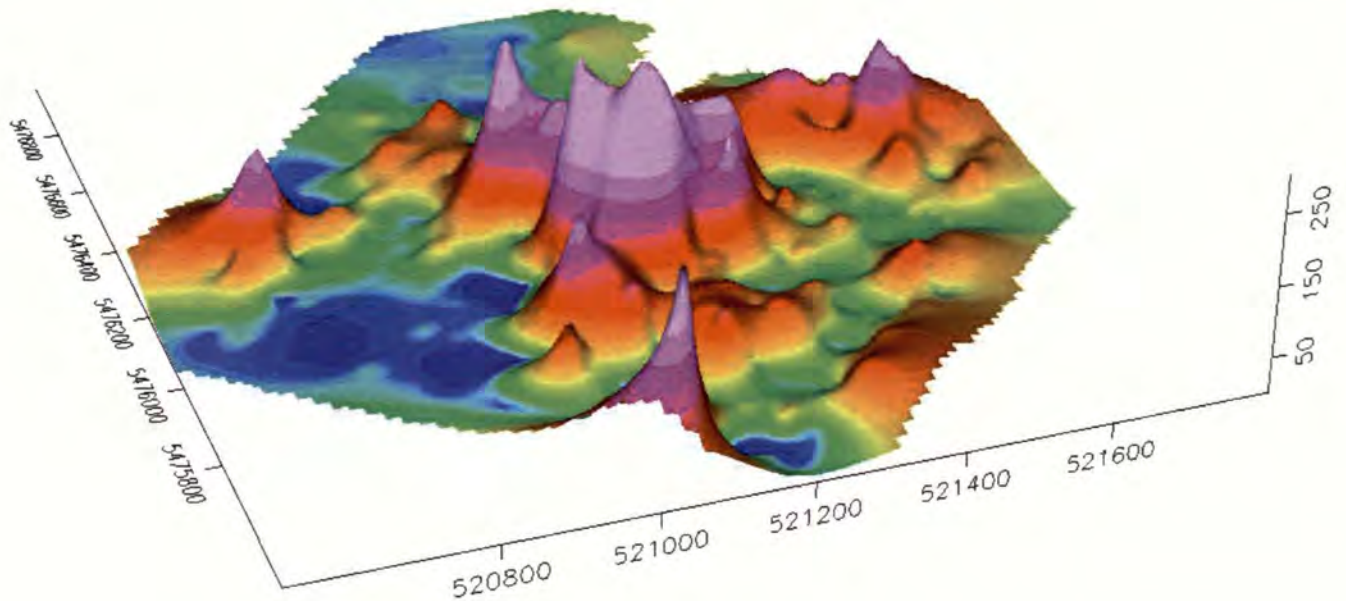
POSSIBLE REDOX ZONE SURROUNDING CENTRA APICAL ANOMALY HAVING SGH-GOLD SIGNATURE

**SGH SIGNATURE RATING RELATIVE TO "GOLD TARGET" = 5.5 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.

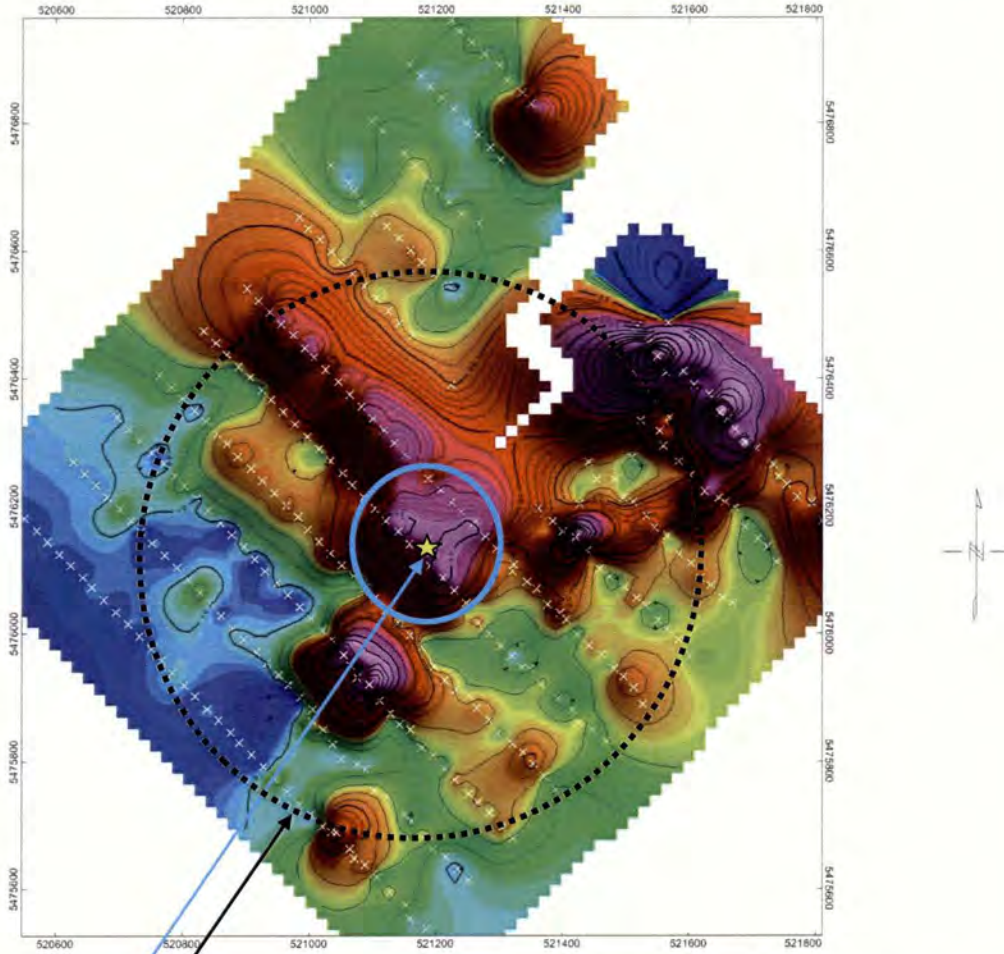
**A13-09260 – MANITOU GOLD INC.- EL PROJECT-KENWEST EXTENSION  
SGH "GOLD" PATHFINDER CLASS MAP**



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### A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION SGH "GOLD" PATHFINDER CLASS MAP



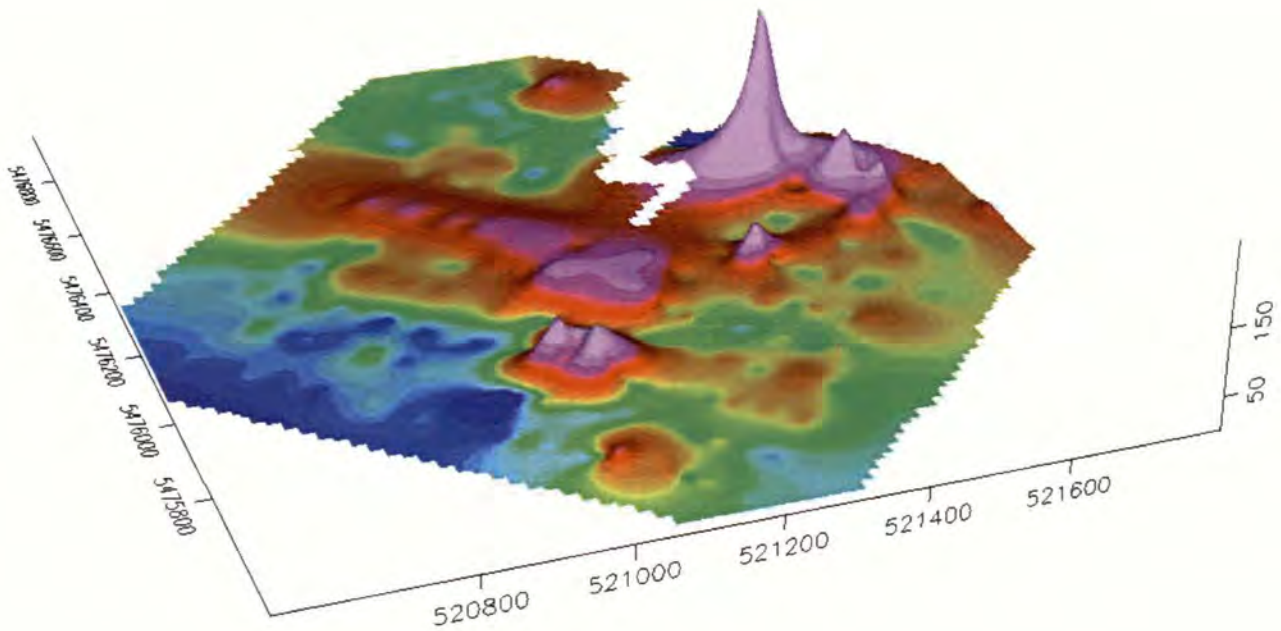
POSSIBLE REDOX ZONE HAVING SGH-GOLD SIGNATURE SGH GOLD TARGET "A", "B", "C"  
 STAR = MOST CONFIDENT DRILL TARGET AS A VERTICAL PROJECTION

**SGH SIGNATURE RATING RELATIVE TO "GOLD TARGET" = 5.5 OF 6.0**



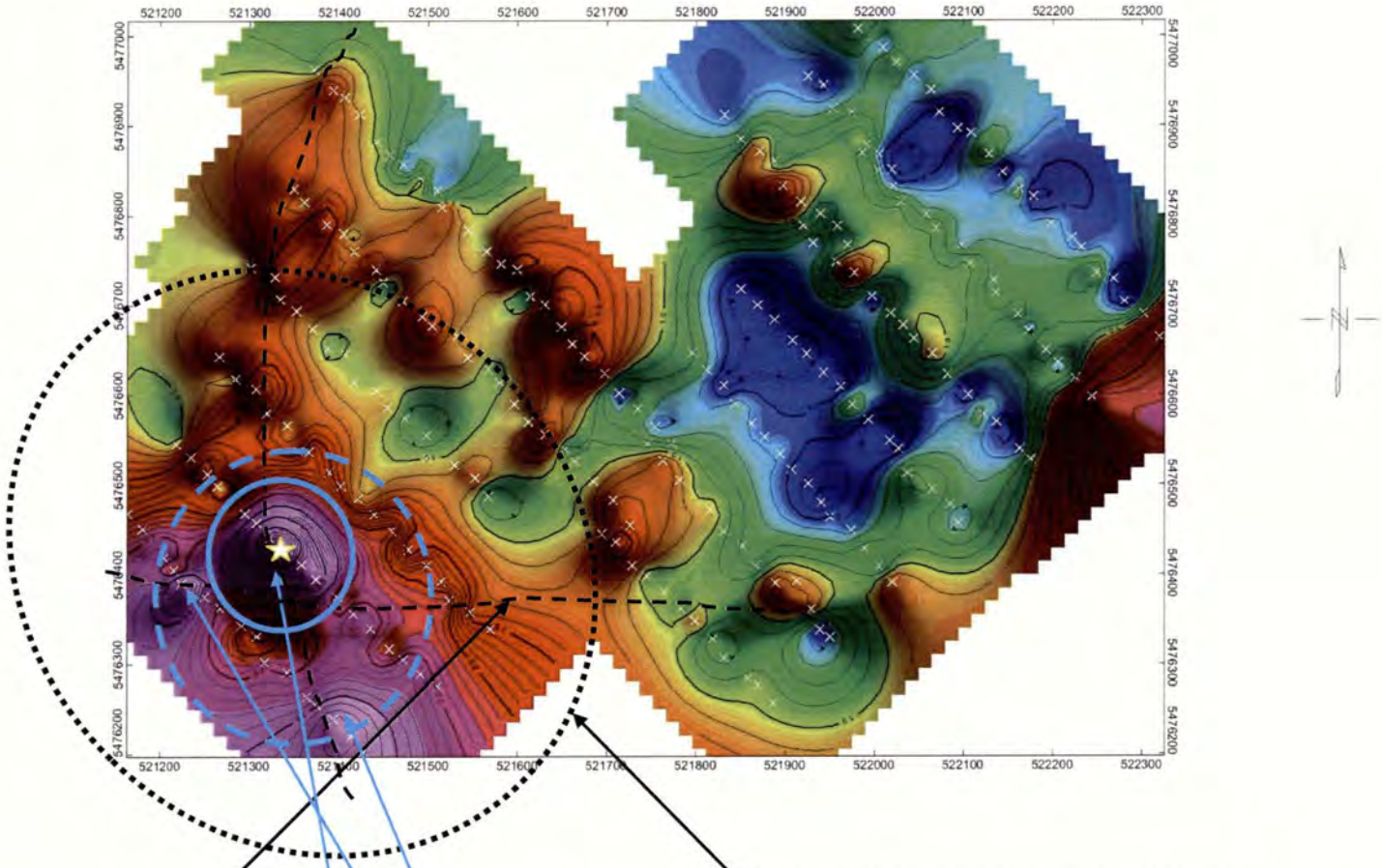
Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

**A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION  
SGH "GOLD" PATHFINDER CLASS MAP**



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**A13-09260 – MANITOU GOLD INC. ELORA – KENWEST GRIDS  
SGH "GOLD" PATHFINDER CLASS MAP**



FAULTS OR SHEAR ZONES      POSSIBLE REDOX ZONE HAVING SGH-GOLD SIGNATURE

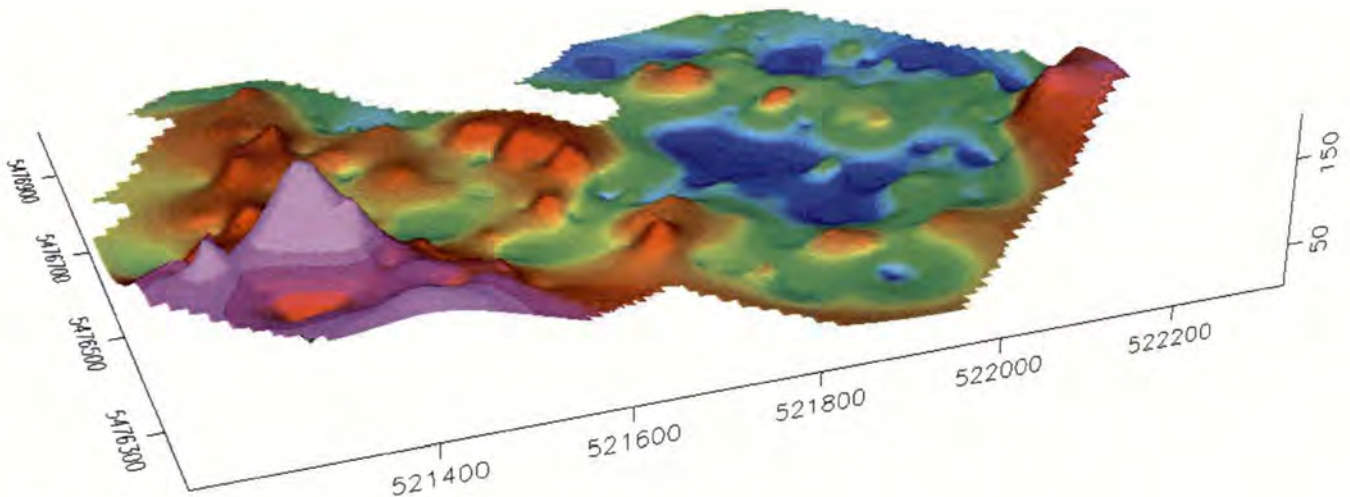
SGH GOLD TARGET "A", "B", "C"      STAR = MOST CONFIDENT DRILL TARGET AS A VERTICAL PROJECTION

**SGH SIGNATURE RATING RELATIVE TO "GOLD TARGET" = 5.5 OF 6.0**



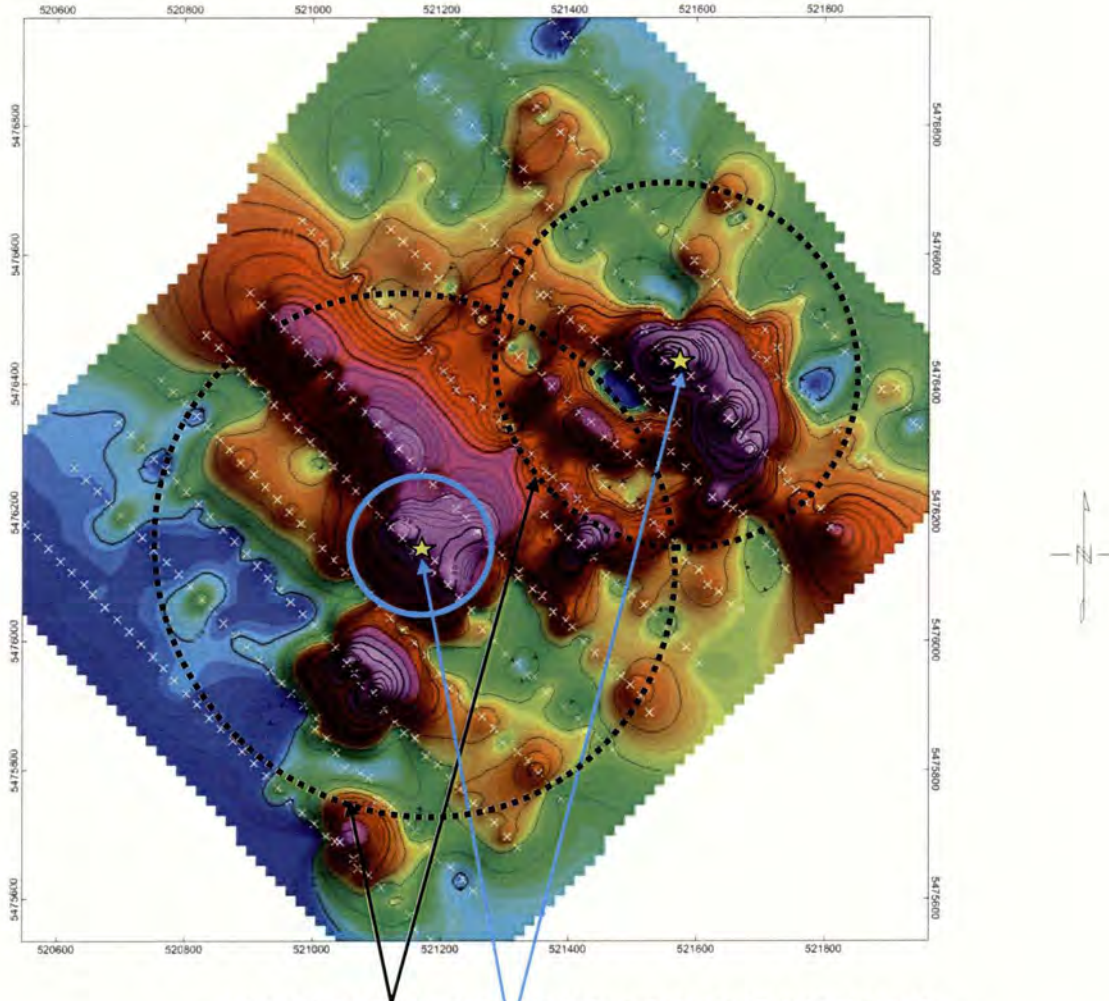
Results represent only the material tested. Actlabs is not liable for any claim/damage from the use of this report in excess of the test cost. Samples are discarded in 90 days unless requested otherwise. This report is only to be reproduced in full.

**A13-09260 – MANITOU GOLD INC. ELORA – KENWEST GRIDS  
SGH "GOLD" PATHFINDER CLASS MAP**



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### A13-09260 – MANITOU GOLD INC.-EL PROJECT- FULL KENWEST GRID SGH "GOLD" PATHFINDER CLASS MAP



POSSIBLE REDOX ZONES HAVING SGH-GOLD SIGNATURES  
STAR = MOST CONFIDENT DRILL TARGET AS A VERTICAL PROJECTION

**SGH SIGNATURE RATING RELATIVE TO "GOLD TARGET" = 5.5 OF 6.0**



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September 11, 2013

Activation Laboratories Ltd.

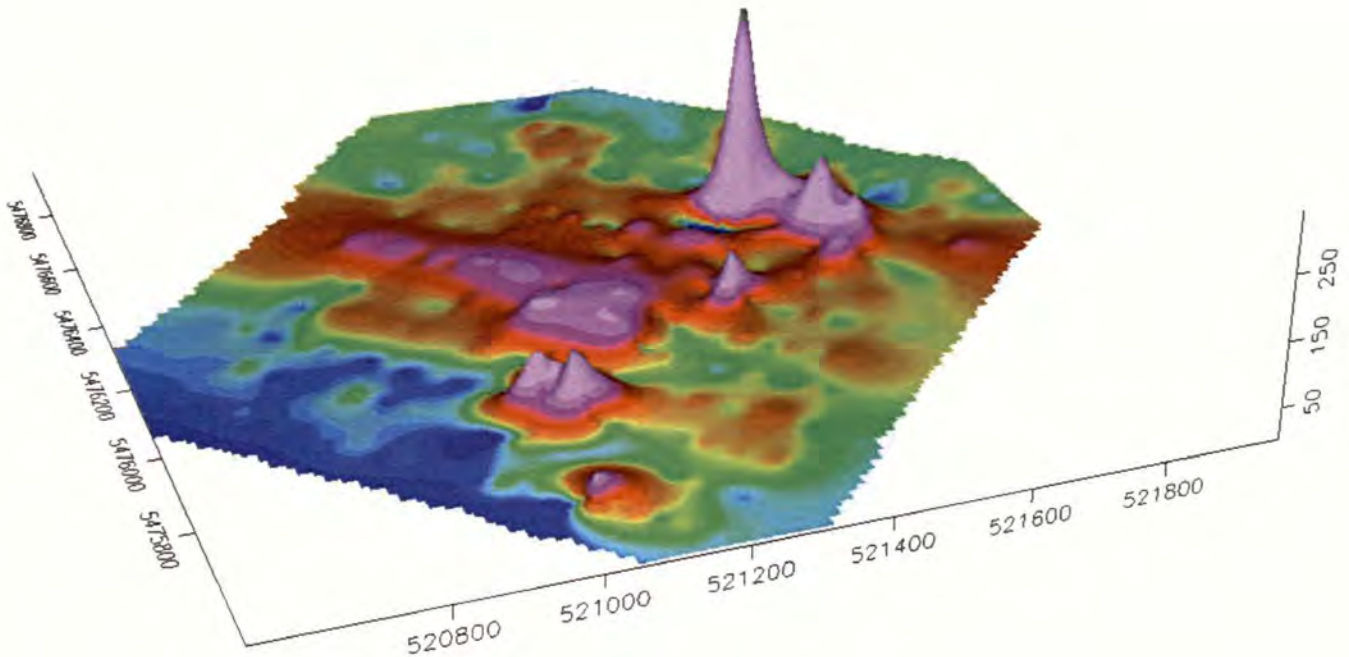
A13-09260

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**A13-09260 – MANITOU GOLD INC. - EL PROJECT- FULL KENWEST GRID  
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.

## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION SGH INTERPRETATION FOR GOLD**

The interpretation of the SGH data relative to the presence of gold targets at the El Project - Kenwest Extension area is described by what appears to be the presence of two large Redox cells approximated by the dotted black ovals that have the SGH characteristic signature of identification for Gold mineralization. Other SGH Class maps (not shown) also provide excellent support to this interpretation. This additional sampling has made the interpretation from the previous July 3, 2013 report more clear and has identified another potential drill target as shown on page 29.

As the largest apical responses on page 29 appears to be close to the geometric centre of the predicted and associated Redox cells, this anomalies predict two possible drill targets that are associated with Gold mineralization. Thus the location of the best drill target would be at the two yellow stars on page 29 as vertical projections to the target at depth. Note, these apical anomalies are the geometric centres of the dotted black ovals representing the Redox conditions. The additional sampling recommended has provided significantly more confidence to the interpretations and has led to the identification of potentially two targets in this survey shown by the yellow stars.

After review of all of the SGH Class maps from the additional sampling, combined with the original Kenwest Grid data, the SGH results from EL Project - Kenwest Extension suggests a **"rating of 5.5"** out of a possible 6.0 (6.0 being the best) for the zone described by the dashed blue oval, as the confidence in predicting that gold targets may be present. The following points have reduced the SGH rating from a possible maximum of 6.0 in the confidence of predicting the gold target described by the dashed blue oval applied to the SGH Gold Pathfinder Class maps in this report. Although there is now even more confirmation and evidence to support the interpretation of the SGH signature for gold, a value of 0.5 was subtracted due to the lack of samples due to the prediction of relatively deep mineralization. It is logical that the deeper the predicted target is, the less confidence there is in the interpretation. The SGH predicts that the two possible drill targets on page 29 could both be approximately 150 metres to the top of the mineralization.

The rating shown in this and all SGH reports are based on a scale of 6.0, in 0.5 increments, with a value of 6.0 being the best. The rating discussed in relation to gold targets represents the similarity of these SGH results with other SGH case studies over known gold targets. The SGH signature or template has since been further enhanced since inception and has been proven effective from the interpretation over many other surveys in many different geographical regions and for a wide variety of lithologies of gold. 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 zone described may warrant more work or more consideration. It must be remembered that there are still many other SGH Class maps not shown in this report due to turnaround time considerations that have been reviewed to support the interpretations shown.

## **A13-09260 – MANITOU GOLD INC.-EL PROJECT- KENWEST EXTENSION SGH SURVEY RECOMMENDATIONS**

This submission provided additional samples to the Kenwest survey area to the west, southwest, and south of the west side of the original pair of grids reported on July 3, 2013. This additional sampling illustrated a better understanding of the extent and significance of the SGH anomalies from the original submission. The additional samples did provide enough information to comment on the depth to the target, and was critical in the finding of two possible drill targets for consideration. No further additional sampling is recommended at this time. Ten sample locations from the initial Kenwest grid were re-sampled and resubmitted. These samples proved to be vital to data leveling efforts. Should further sampling be considered please review the section on the next page.

The identification of a drill target is not an explicit recommendation by Activation Laboratories Ltd. to drill test the associated location or SGH anomaly. A drill target is implied to ensure that the reader is aware of the location having the highest confidence of being the location of the vertical projection of the mineralization, based only on SGH data. This is also not a recommendation for vertical drilling. Vertical drilling may not be the best approach to test the SGH anomaly in this area. 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. This statement is made to recognize the proper use and interpretation of any scientific data. Whenever possible, multiple methods should always be employed so that any decisions do not rely on any one technique.





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

Based on the results of this report and/or other information, the client may decide that in-fill sampling may be warranted. To obtain the best results from additional sampling for SGH it is recommended that sample locations from the original survey within, or bordering, the area of interest be re-sampled rather than just combining new sample results with the sample data from the initial survey. Although several SGH surveys have previously been easily and directly, combined without data leveling, it cannot be guaranteed that data leveling will not be required. It has been found that data leveling is more apt to be required should the new samples be collected under significantly different environmental conditions than during the initial sample survey, i.e. summer collection versus winter collection. The process of data leveling adds a minimum of 3 to 5 days of work to conduct the additional data evaluation, develop additional plots of the results, conduct new interpretations, and in additional report descriptions. Results from data leveling is also always considered "an approximation", thus the confidence in a combined interpretation will be lower than the interpretation from samples collected during one excursion to the field and submitted as one survey. An additional cost will be invoiced should data leveling operations be required if the client requests that two SGH data sets be interpreted and reported together. Thus re-sampling a few of the original sample locations will provide a faster turnaround time for results and provide more accurate and confident surveys for evaluation and aid in deciding specific drill targets.



Date Received at Actlabs Thunder Bay: August 9, 2013

Date Received at Actlabs Ancaster: August 19, 2013

Date Analyzed: August 28-30, 2013

Interpretation Report: September 11, 2013

## **MANITOU GOLD INC.**

**101-957 Cambrian Heights Drive  
Sudbury ON P3C 5S5**

**Attention: Todd Keast, P.Geo**

**RE: Your Reference: EL PROJECT - KENWEST EXTENSION**

**Activation Laboratories Workorder: A13-09260**

### **CERTIFICATE OF ANALYSIS**

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

341 Samples were analyzed for this submission.

Sample preparation – Code S4 – Drying at 40°C and Sieving with -60 mesh collected

Interpretation relative to Gold targets was requested.

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

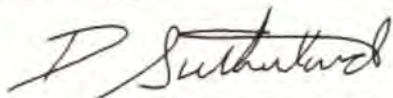
Analysis Code SGH – Soil Gas Hydrocarbon Geochemistry using High Resolution Gas Chromatography/Mass Spectrometry (HRGC/MS)

**REPORT/WORKORDER: A13-09260**

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 geochemistry's. He is a Chartered Chemist (C.Chem.) and Forensic Scientist specializing in organic chemistry. He is a member of the Association of the Chemical Profession of Ontario, the Association of Applied Geochemists, the International Association of GeoChemistry, the Ontario Prospectors Association, the Association for Mineral Exploration British Columbia, the Geochemical Society Association, and the Ontario Petroleum institute as well as having memberships in several national and international Forensic associations. He is not a professional geologist.

**CERTIFIED BY:**A handwritten signature in black ink, appearing to read "Dale Sutherland". The signature is fluid and cursive, written over a white background.

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

Forensic Scientist, Organics Manager,

Director of Research

Activation Laboratories Ltd.



## APPENDIX "A"

### List of terms

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

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

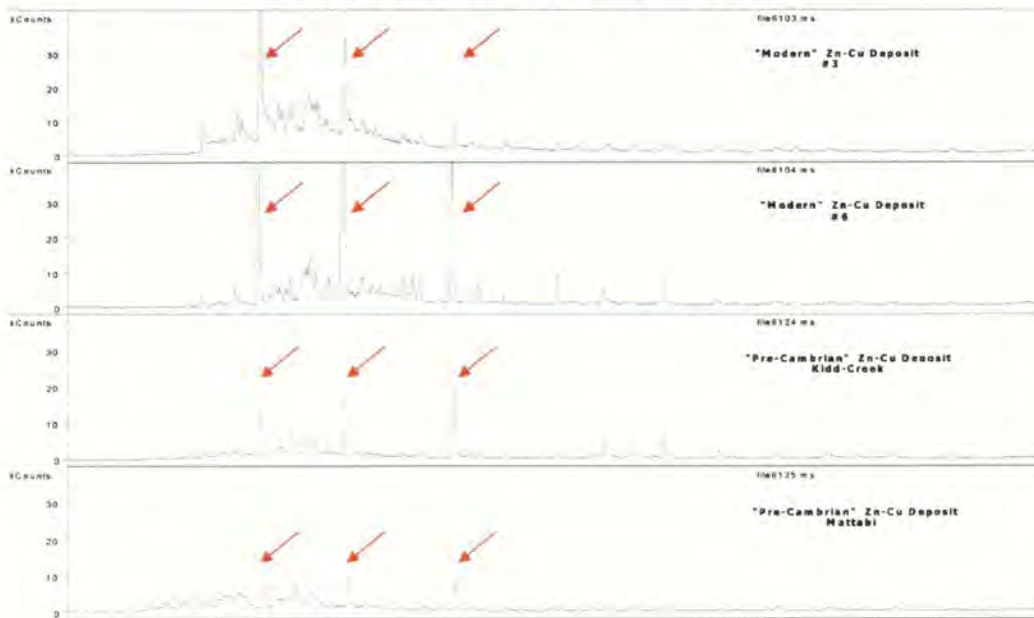
39. **SGH template** – a set of hydrocarbon classes that together form a geochemical signature that has been associated with the presence of a particular type of mineralization the majority of the time
40. **Surficial bound hydrocarbons** –
41. **Surficial samples**- a sample from near the earth's surface.
42. **Survey**- the area, position, or boundaries of a region to be analyzed, as set out by the client.
43. **Project**- a planned undertaking
44. **Transect**- A straight line or narrow section through an object or across a section of land.
45. **Target**- Target refers to the ore body of interest  
**Target signature:** the unique characteristics that identify the target.  
**Target type:**  
i.e. Gold, Nickel, Copper, Uranium, SEDEX, VMS, Lithium Pegmatites, IOCG, Silver, Ni-Cu-PGE, Tungsten, Polymetallic, Kimberlite as well as Coal, Oil and Gas.
46. **Threshold**- level or point at which data is accepted as significant or true.
47. **Total measurement error**- An estimate of the error in a measurement. Based on either limitation of the measuring instruments or from statistical fluctuations in the quantity being measured.  
**Visible (in terms of signature)**- the portion shown in a chart or map

## APPENDIX "B"

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

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

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



The above profiles are:

September 11, 2013

Activation Laboratories Ltd.

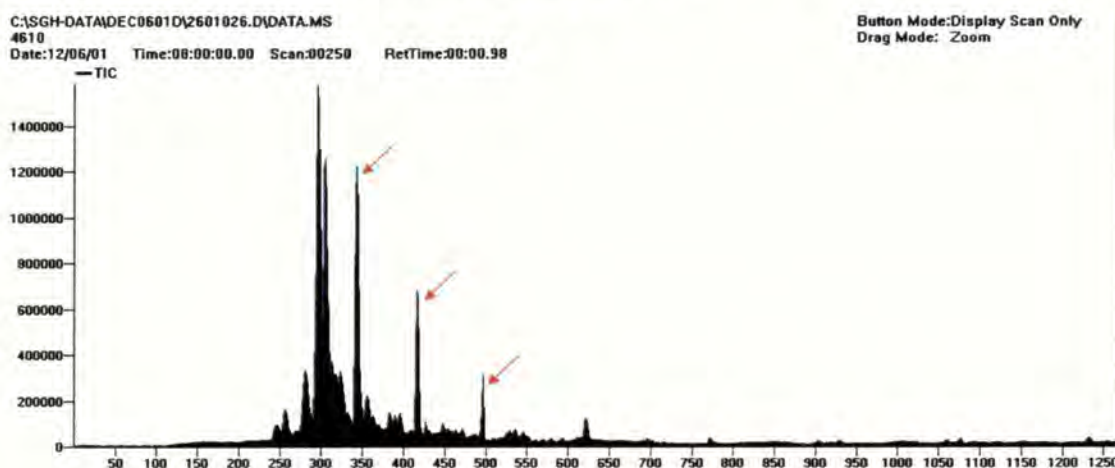
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- First profile: Samples from modern day "black smokers"
- Second profile: Samples from modern day "black smokers"
- Third profile: Samples from Pre-Cambrian Zn-Cu Kidd Creek deposit
- Fourth profile: Samples from Mattabi deposit

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

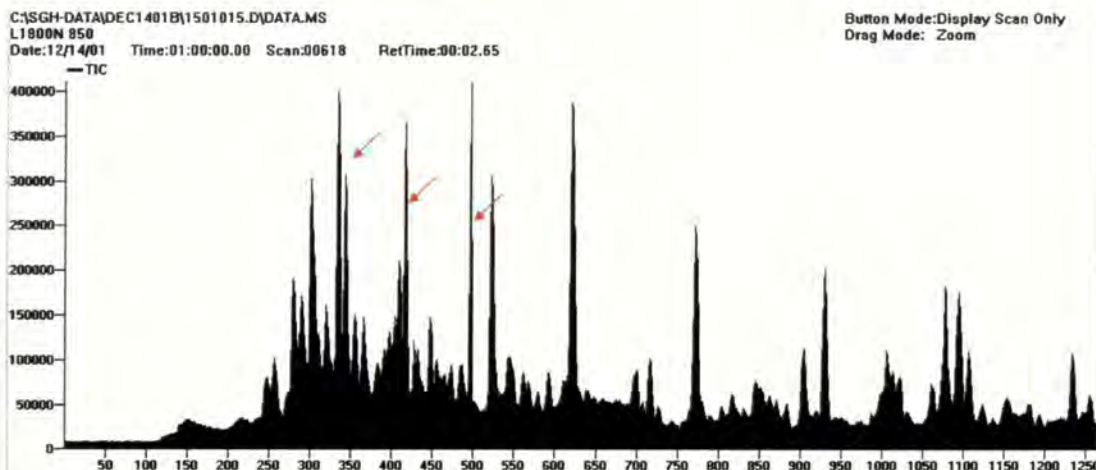
The next question in our early objectives was to see if this SGH signature could also be observed in *surficial soil samples* that had been taken over VMS deposits. Through our research projects, soil samples were obtained from over the Ruttan Cu-Zn VMS deposit near Leaf Rapids, Manitoba and located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



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

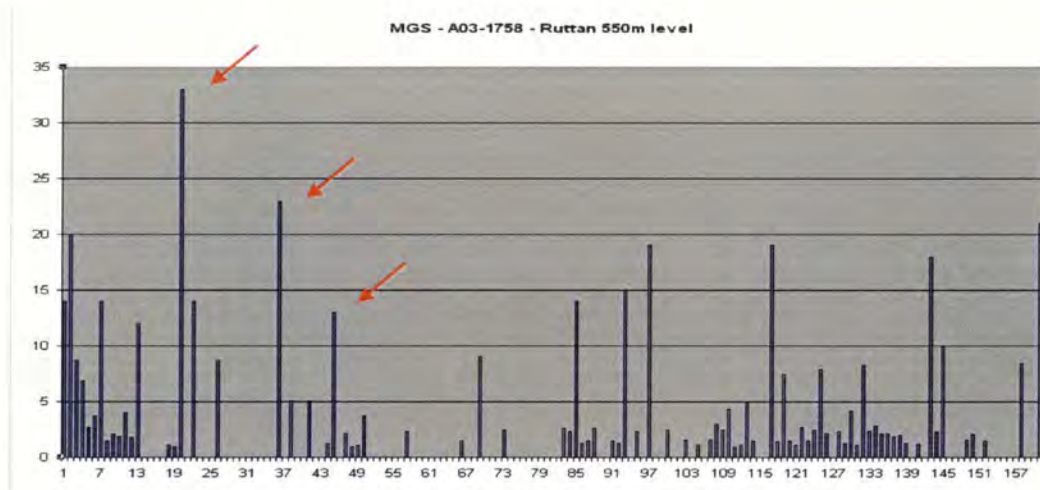
Another soil sample was obtained from Noranda's Gilmour South base-metal occurrence in the Bathurst Mining camp in northern New Brunswick. As shown below, this sample contained a very complex SGH signature, however the visible portion of the VMS signature as indicated by the red arrows is still observed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





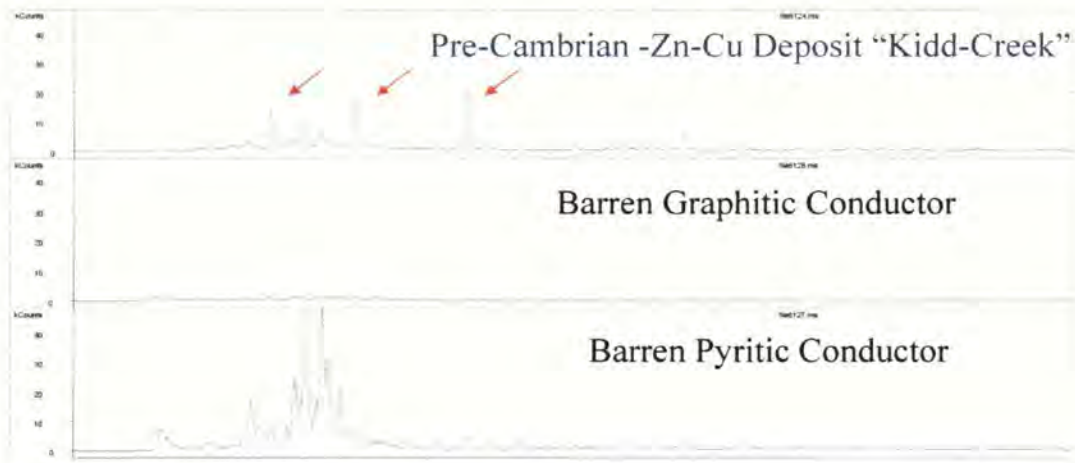
In research conducted by the Ontario Geological Survey, this same portion of the SGH signature was also observed over the VMS deposit at Cross Lake in Ontario. **Note that the visible signature shown as the three compounds indicated by the red arrows is only a small portion of the complete SGH VMS signature.** The full VMS signature is made up of at least three groups, as three organic chemical classes, that together contain at least 35 of the individual SGH hydrocarbons.

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



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

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



SGH has been described by the Ontario Geological Survey of Canada (OGS) as a "REDOX cell locator". Many SGH surveys for Gold and other mineral targets can result in multiple types of anomalies, depending on the class of SGH compounds, even over the same target and in the same set of samples. Thus "Apical", "Nested-Halo", and "Rabbit-Ear" or "Halo" type SGH anomalies are all typically observed from the effect of REDOX cells that have developed over deposits. REDOX cells are also related to the presence of bacteriological activity.

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

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

## APPENDIX "C"

### **SOIL GAS HYDROCARBON SURVEY DESIGN AND SAMPLING**

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

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

- Fist sized samples are usually retrieved from a shallow dug hole in the 15 to 40 cm range of depth.
- Different sample types can be taken even "within" the same survey or transect, data leveling is rarely ever required. SGH is highly effective in areas of very difficult terrain. The Golden Rule is to always take a sample.
- Samples should be evenly spaced in a grid or a series of transects with sample lines spaced at a ratio of up to 4:1 (line spacing: sample spacing).



- A minimum of 50 sample "locations" is recommended with one-third over the target and one-third on each side of the target into background if this can be predicted. This provides the opportunity of optimal data contrast.
- If very wet, samples can be drip dried in the field.
- No special preservation is required for shipping.

## **APPENDIX "D"**

### **SAMPLE PREPARATION AND ANALYSIS**

Upon receipt at Activation Laboratories the samples are air-dried in isolated and dedicated environmentally controlled rooms set to 40°C. The dried samples are then sieved. In the sieving process, it is important that compressed air is not used to clean the sieves between samples as trace amounts of compressor oils "may" poison the samples and significantly affect some target signatures. At Activation Laboratories a vacuum is used to clean the sieve between each sample. The -60 mesh sieve fraction (<250 microns, although different mesh sizes can be used at the preference of the exploration geologist) is collected and packaged in a Kraft paper envelope and transported from our sample preparation building to our analytical building on the same street in Ancaster Ontario. Each sample is then extracted, separated by gas chromatography and analyzed by mass spectrometry using customized parameters enabling the highly specific detection of the 162 targeted hydrocarbons at a *reporting limit* of one part-per-trillion (ppt). This trace level limit of reporting is critical to the detection of these hydrocarbons that, through research, have been found to be related at least in part to the breakdown and release of hydrocarbons from the death phase of microbes directly interacting with a deposit at depth. The hydrocarbon signatures are directly linked to the deposit type, which is used as a food source. The hydrocarbons that are mobilized and metabolized by the microbes are released in the death phase of each successive generation. Very few of the hydrocarbons measured are actually due to microbe cell structure, or hydrocarbons present or formed in the genesis of the deposit or from anthropogenic contamination. The results of the SGH analysis is reported in raw data form in an Excel spreadsheet as "semi-quantitative" concentrations without any additional statistical modification.



## APPENDIX "E" SGH DATA QUALITY

### Reporting Limit

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

### Laboratory Replicate Analysis

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

units of concentration cancel out in the formation of the coefficient of variation ratio. For SGH, the %CV is calculated on all values  $\geq 2$  ppt. These values are averaged and represent a value for each pair of replicate analysis of the sample. All of the %CV values for the replicates are then averaged to report one %CV value to represent the overall estimate of the relative error in the laboratory sub-sampling from the prepared samples, and any instrumental variability, in the SGH data set for the survey. Actlabs' has successfully addressed the analytical challenge to minimize analytical variability for such a large list of compounds. Thus as SGH is also interpreted as a signature and is solely used for exploration and not assay measurement, the data from SGH is "fit for purpose" as a geochemical exploration tool.

### Historical SGH Precision

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

### Laboratory Materials Blank – Quality Assurance (LMB-QA)

The Laboratory Materials Blank Quality Assurance measurements (LMB-QA) shown in the SGH spreadsheet of results are matrix free blanks analyzed for SGH. These blanks are not standard laboratory blanks as they do not accurately reflect an amount expected to be from laboratory handling or laboratory conditions that may be present and affect the sample analysis result. The LMB-QA measurements are a pre-warning system to only detect any contamination originating from laboratory glassware, vials or caps. As there is no substrate to emulate the sample matrix, the full solvating power of the SGH leaching solution, effectively a water leach, is fully directed at the small surface area of the glassware, vials or caps. In a sample analysis the solvating power of the SGH leaching solution is distributed between the large sample surface area (from soil, humus, sediments, peat, till, etc.) and the relatively small contribution from the laboratory materials surfaces. The sample matrix also buffers the solvating or leaching effect in the sample versus the more vigorous leaching of the laboratory



materials which do not experience this buffering effect. Thus the level of the LMB-QA reported is biased high relative to the sample concentration and the actual contribution of the laboratory reagents, equipment, handling, etc. to the values in samples is significantly lower. This situation in organic laboratory analysis only occurs at such extremely low part-per-trillion (ppt) measurement levels. This is one of the reasons that SGH uses a reporting limit and not a detection limit. The 1 ppt reporting limit used in the SGH spreadsheet of raw concentration data is 3 to 5 times greater than a detection limit. The reporting limit automatically filters out analytical noise, the actual LMB-QA, and most of the sample survey site background. This has been proven as SGH values of 1 to 3 parts-per-trillion (ppt) have very often illustrated the outline of anomalies directly related to mineral targets. **Thus all SGH values greater than or equal to 1 or 2 ppt should be used as reliable values for interpretations.**

The LMB-QA values thus should not be used to background subtract any SGH data. The LMB-QA values are only an early warning as a quality assurance procedure to indicate the relative cleanliness of laboratory glassware, vials, caps, and the laboratory water supply at the ppt concentration level. *Do not subtract the LMB-QA values from SGH sample data.*



## APPENDIX "F" SGH DATA INTERPRETATION

### SGH Interpretation Report

All SGH submissions must be accompanied by relative or UTM coordinates so that we may ensure that the sample survey design is appropriate for use with SGH, and to provide an SGH interpretation with the results. In our interpretation procedure, we separate the results into 19 SGH sub-classes. These classes include specific alkanes, alkenes, thiophenes, aromatic, and polyaromatic compounds. Note that none of the SGH hydrocarbons are "gaseous" at room temperature and pressure. The classes are then evaluated in terms of their geochromatography and for coincident compound class anomalies that are unique to different types of mineralization. Actlabs uses a six point scale in assigning a subjective rating of similarity of the SGH signatures found in the submitted survey to signatures previously reviewed and researched from known case studies over the same commodity type. Also factored into this rating is the appropriateness of the survey and amount of data/sample locations that is available for interpretation. This rating scale is described in detail in the following section.

### SGH PATHFINDER CLASS MAGNITUDE

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

### GEOCHEMICAL ANOMALY THRESHOLD VALUE

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

hand selected due to their lower probability of being found in general surface soils. Further, only those classes where the majority of the compounds are detected above the Reporting Limit are considered in the interpretation. This defines the SGH geochemistry as having less geochemical noise due to the use of a reporting limit and as having higher confidence in the use of groups (classes) of data instead of individual compounds. However the most important aspect of interpretation is the use of a forensic signature. At least three specific "Pathfinder" classes, based on the combinations or template of classes we have developed, must be present to define the hydrocarbon signature to confidently predict the presence of a specific type of mineral target. *Do not calculate another Threshold value.* **Fact:** It has been proven many times that important SGH anomalies that depict mineralization at depth can exist even with data at 3 ppt.

### **Mobilized Inorganic Geochemical Anomalies**

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

### **The Nugget Effect**

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



## SGH DATA LEVELING

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

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

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

## APPENDIX "G"

### SGH RATING SYSTEM DESCRIPTION

To date SGH has been found to be successful in the depiction of buried mineralization for Gold, Nickel, VMS, SEDEX, Uranium, Cu-Ni-PGE, IOCG, Base Metal, Tungsten, Lithium, Polymetallic, and Copper, as well as for Kimberlites, Coal Seam, Wet Gas and Oil Plays. SGH data has developed into a dual exploration tool. From the interpretation, a vertical projection of the predicted location of the target can be made as well as a statement on the rating of the comparability of the identification of the anticipated target type to that from known case studies, as an example: if the client anticipates the target to be a Gold deposit, what is the rating or comparability that the target is similar to the SGH results over a Gold deposit in Nunavut, shear hosted and sediment hosted deposits in Nevada, or Paleochannel Gold mineralization in Western Australia.

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

The SGH rating is directly and significantly affected by the survey design. Small data sets, especially if significantly <50 sample locations, or transects/surveys that are geographically too short *will automatically receive a lower rating no matter how impressive an SGH anomaly might be*. When there is not enough sample locations to adequately review the SGH class geochromatography, or when the sample spacing is inadequate, or if the spacing is highly variable such that it biases the interpretation of the results, then the confidence in the interpretation of any geochemistry is adversely

affected. The SGH rating is not just a rating of the agreement between the SGH pathfinder classes for a particular target type; it is a rating of the overall confidence in the SGH results from this particular survey. The interpretation is only based on the SGH results without any information from other geochemical, geological or geophysical information unless otherwise specified.

## HISTORY & UNDERSTANDING

The subjective SGH rating system has been used since 2004 when Activation Laboratories started providing an SGH Interpretation Report with every submission for SGH analysis to aid our clients in understanding this organic geochemistry and ensuring that they obtain the best results for their surveys. As explained in the previous section, the SGH rating is not just a rating of how definitive an SGH anomaly is, and it is not based just on the map(s) provided in this report. It is a rating of "confidence in the interpreted anomaly" from the combination of:

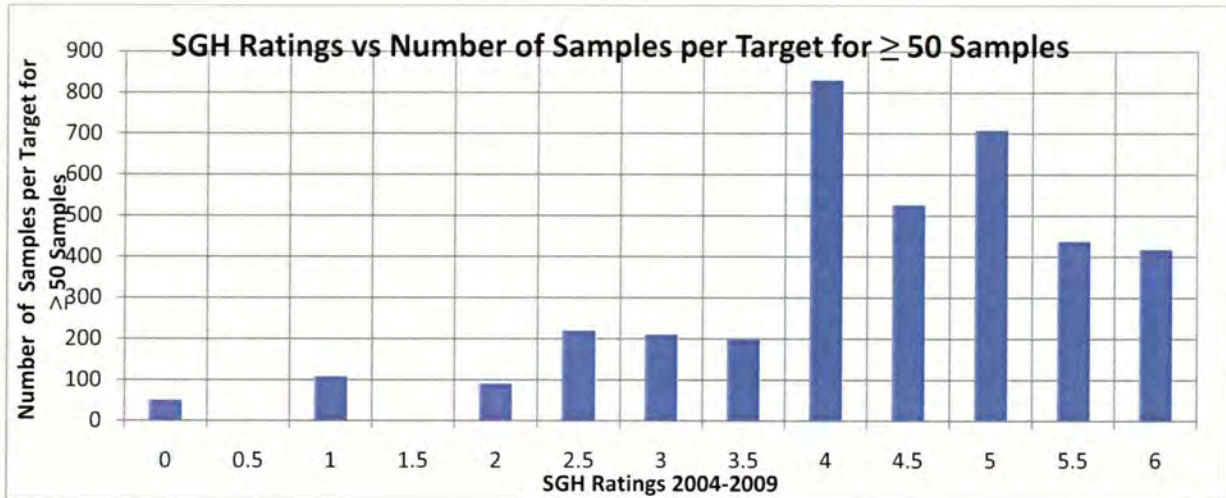
- (i) are the expected SGH Pathfinder Classes of compounds present from the template for this target type (one Pathfinder Class map is shown in the report, at least three must be present to adequately describe the correct signature for a particular target),
- (ii) how well do these SGH Pathfinder Classes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

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

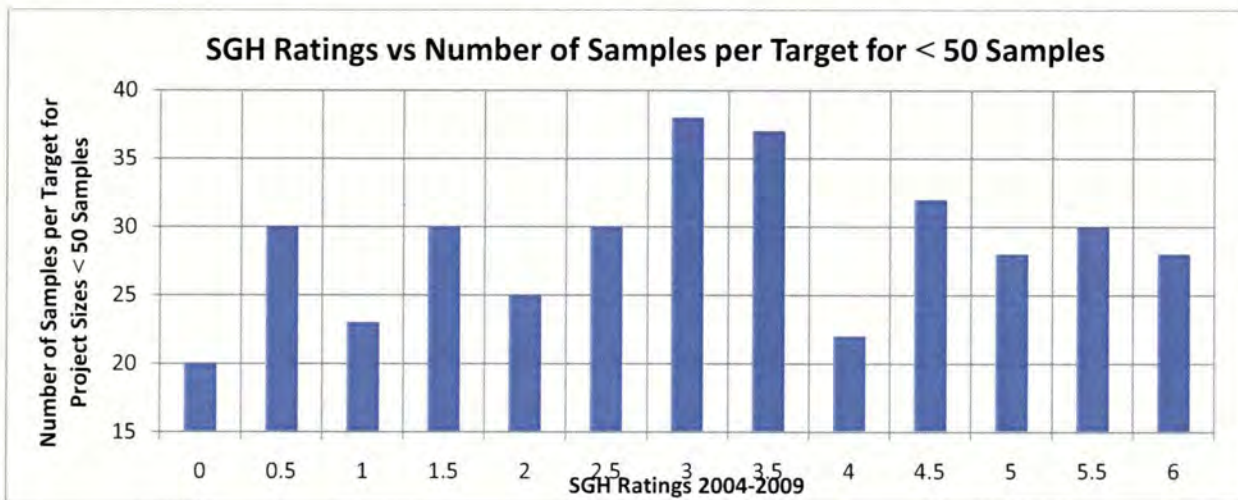
A rating frequency may be biased high as most clients conduct an orientation study over a known target, thus several of these projects result in high ratings. Note that, at this time, the rating is not said to be linked to grade of a deposit or depth to the target. Even in exploration surveys clients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



geochromatography of the SGH Pathfinder Classes of compounds can be more completely observed and reviewed.



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

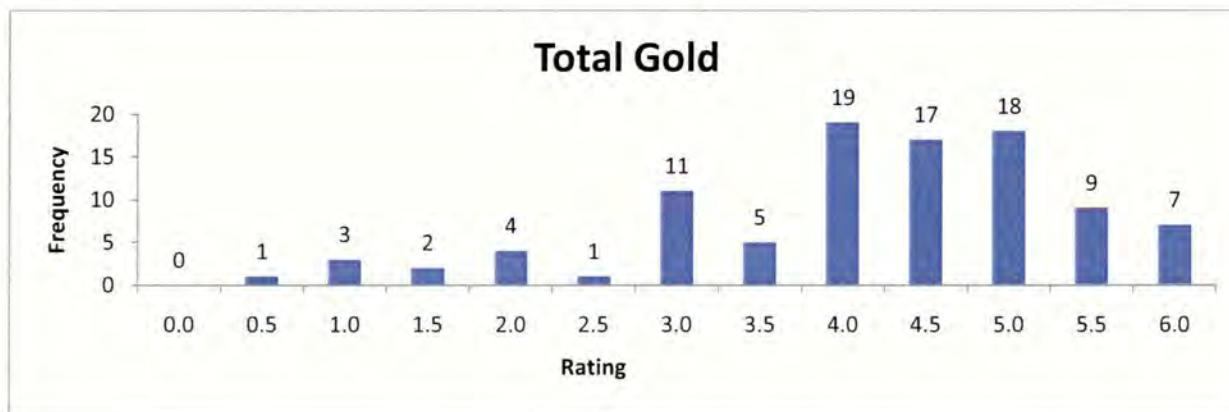




The overall rating frequency for over 400 targets from January 2004 to December 2009 is shown in the chart below illustrating that surveys over more promising targets are most often submitted for best use of research or exploration dollars. It also indicates that the 0.5 increments were less frequent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



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





## APPENDIX "H"

### **"SUPPLEMENTAL REPORT": (\$ 1,800.00)**

Those clients who have determined that these SGH results will add an important aspect to their exploration effort can request a "Supplemental Report". This report contains the additional SGH Pathfinder Classes and an explanation of their use in the SGH interpretation that supports the initial applied "Rating" for the survey as a relative comparison to the results previously obtained in case studies that were used to create the SGH template for the general target type.

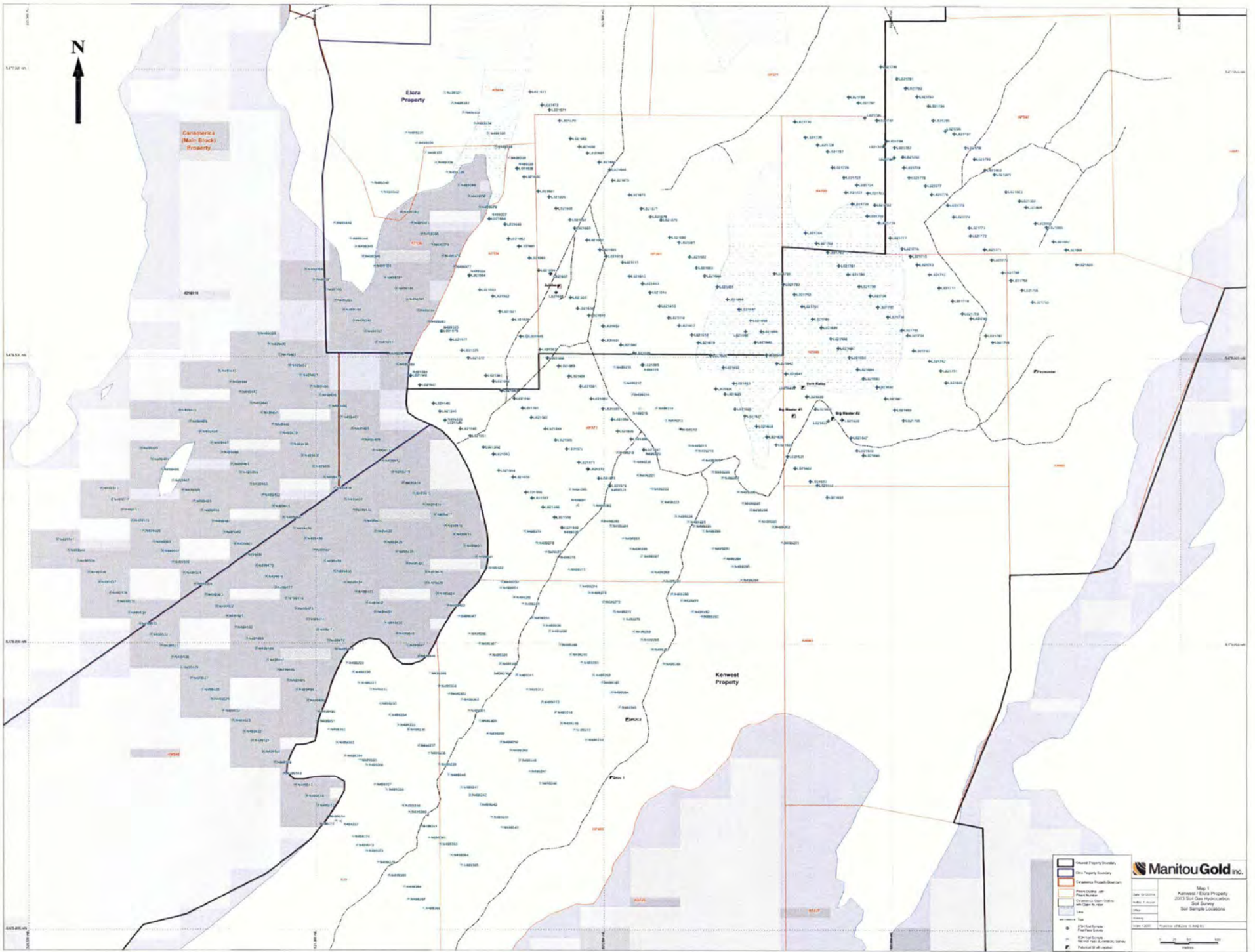
### **"ADDITIONAL INTERPRETATION": (\$ 1,800.00)**

The SGH data can be interpreted multiple times in comparison to a variety of SGH templates developed for exploration for different mineral targets or petroleum plays. The samples do not have to be reanalyzed. This can be addressed as a separate section of a report or as a separate report based on the client's wishes. The price is per survey area, e.g. if there are two projects in a submission, perhaps a North area and South area, and both survey areas are to be interpreted for say Gold and Copper, the first interpretation is included in the SGH analysis price, the second interpretation for each area would be priced at \$1,800 per area, thus a total of \$3,600.

### **"BASIC OR SUPPLEMENTAL REPORT GIS PACKAGE": (\$ 250.00)**

Those clients that wish to import the SGH results into their GIS software can request a "GIS Package", which will include the geo-referenced image files that reflect the mapped SGH Pathfinder Class or Classes contained in the Standard or Supplemental Report and an Excel CSV file(s) containing the associated Class Sum data.





- Survey Property Boundary
- City/Township Boundary
- Compliance Property Boundary
- PPM Values
- PPM Values with Depth
- Compliance User Defined
- Compliance User Defined with Depth
- Soil Sample Locations
- Soil Sample Locations with Depth
- Soil Sample Locations with Depth
- Soil Sample Locations with Depth
- Soil Sample Locations with Depth

**Manitou Gold Inc.**

Map 1: Elora Property  
2013 Soil Gas Hybridation  
Soil Survey  
Soil Sample Locations

Scale: 1:50,000  
Date: 1/2014  
Author: J. Smith  
Date: 1/2014  
Project: Elora Property  
Map No.: 1001-1000-1000-1000

	001 - LA	002 - LA	003 - LB	004 - LA	005 - LB	006 - LB	007 - LA	008 - LB	009 - LB	010 - LB	011 - LA	012 - LB	013 - LBA	014 - LB
LO21545	90	468	10	8	3	-1	1	3	-1	-1	2	-1	3	-1
LO21546	104	366	15	7	3	1	-1	7	1	2	3	-1	3	-1
LO21547	103	519	13	16	3	1	2	4	-1	1	3	-1	4	-1
LO21548	67	381	11	8	3	-1	-1	4	-1	1	1	-1	1	-1
LO21549	60	426	15	16	5	2	5	9	3	4	16	-1	15	-1
LO21549-R	69	435	16	16	5	3	5	9	3	4	15	-1	13	-1
LO21550	95	438	16	16	5	2	2	4	-1	1	3	-1	3	-1
LO21551	83	402	13	8	3	2	2	5	-1	2	3	-1	3	-1
LO21552	66	348	11	9	3	3	-1	4	-1	1	3	-1	2	-1
LO21553	48	224	6	3	2	-1	1	2	-1	-1	1	-1	1	-1
LO21554	100	636	14	14	3	2	2	4	-1	1	3	-1	3	-1
LO21555	109	393	13	9	4	2	1	5	-1	1	3	-1	3	-1
LO21556	72	366	17	5	4	1	2	5	-1	1	3	-1	2	-1
LO21557	73	459	18	7	4	1	2	5	-1	1	3	-1	3	-1
LO21558	77	606	18	9	5	2	3	7	-1	2	4	-1	4	-1
LO21559	78	576	18	8	5	2	4	7	-1	2	5	-1	5	-1
LO21560	103	501	18	8	5	2	2	6	-1	2	4	-1	4	-1
LO21561	128	576	13	10	4	2	1	6	1	1	3	-1	2	-1
LO21562	74	65	15	6	5	2	3	9	-1	3	18	-1	17	-1
LO21563	79	408	19	5	8	3	5	12	-1	3	43	-1	39	1
LO21564	84	69	21	7	7	3	5	12	-1	3	57	-1	52	-1
LO21564-R	98	76	22	7	7	3	4	14	-1	3	45	-1	41	-1
LO21565	86	62	17	5	6	3	3	11	3	3	33	-1	30	2
LO21566	90	606	19	11	6	3	3	6	-1	2	10	-1	9	-1
LO21567	143	687	23	11	7	3	5	7	-1	2	9	-1	9	-1
LO21568	83	384	11	6	4	1	-1	5	-1	-1	4	-1	3	-1
LO21569	110	609	14	24	5	2	2	5	-1	2	6	-1	6	-1
LO21570	133	738	16	12	5	2	3	5	-1	-1	5	-1	5	-1
LO21571	122	627	11	11	3	2	1	3	-1	-1	2	-1	2	-1
LO21572	96	531	17	11	4	1	2	4	-1	-1	4	-1	4	-1
LO21573	87	492	14	9	5	2	2	5	-1	1	5	-1	5	-1
LO21574	46	360	12	13	4	1	3	6	-1	2	6	-1	5	-1
LO21575	57	268	6	1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21576	117	459	15	8	4	1	1	5	-1	-1	3	-1	3	-1
LO21577	87	387	10	6	3	1	1	3	-1	-1	3	-1	3	-1
LO21578	64	366	5	9	2	-1	1	2	-1	-1	-1	-1	-1	-1
LO21579	34	274	7	9	2	-1	1	3	-1	-1	3	-1	2	-1
LO21579-R	39	299	7	10	2	1	1	3	-1	-1	3	-1	3	-1
LO21580	47	327	7	7	2	-1	1	3	-1	-1	1	-1	-1	-1
LO21581	74	396	9	8	3	1	1	3	-1	-1	2	-1	3	-1
LO21582	55	360	10	11	3	1	3	4	-1	1	4	-1	4	-1
LO21583	71	255	6	2	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21584	76	342	8	5	2	1	-1	2	-1	-1	1	-1	2	-1
LO21585	58	348	10	9	3	1	1	4	-1	1	2	-1	2	-1
LO21586	53	375	10	9	3	1	2	4	-1	-1	2	-1	3	-1
LO21587	53	333	8	7	2	1	1	4	-1	-1	2	-1	2	-1
LO21588	58	459	7	11	2	1	2	3	-1	-1	2	-1	2	-1
LO21589	99	462	7	7	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21590	67	441	10	9	3	-1	1	2	-1	-1	2	-1	2	-1
LO21591	72	299	13	8	3	1	2	4	-1	-1	4	-1	3	-1
LO21592	51	315	8	6	2	-1	-1	3	-1	-1	1	-1	1	-1
LO21593	37	282	11	5	3	1	2	4	-1	-1	8	-1	7	-1
LO21594	33	300	9	12	3	-1	2	4	-1	-1	7	-1	6	-1
LO21594-R	36	309	10	13	3	-1	10	4	-1	-1	7	-1	6	-1

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LO21595	38	271	11	4	3	2	2	5	-1	1	9	-1	8	-1
LO21596	36	268	8	8	2	-1	2	3	-1	-1	4	-1	4	-1
LO21597	56	330	10	6	2	1	1	2	-1	-1	2	-1	2	-1
LO21598	34	275	6	5	2	-1	-1	-1	-1	-1	2	-1	2	-1
LO21599	83	324	9	5	2	-1	-1	2	-1	-1	-1	-1	1	-1
LO21600	32	259	6	4	2	-1	2	3	-1	-1	4	-1	3	-1
LO21601	44	210	9	4	2	1	-1	2	-1	-1	3	-1	3	-1
LO21602	31	236	8	3	2	-1	1	2	-1	-1	2	-1	2	-1
LO21603	25	201	5	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21604	69	321	9	5	3	-1	1	3	-1	-1	4	-1	4	-1
LO21605	60	280	8	6	2	-1	1	2	-1	-1	2	-1	2	-1
LO21606	45	293	6	7	2	-1	-1	2	-1	-1	3	-1	3	-1
LO21607	90	396	11	8	3	1	-1	3	1	1	3	-1	3	-1
LO21608	26	218	6	3	1	1	2	2	-1	-1	4	-1	4	-1
LO21609	31	245	8	4	2	1	2	3	-1	-1	6	-1	5	-1
LO21609-R	32	242	8	4	2	2	2	3	1	-1	6	-1	5	-1
LO21610	35	281	9	6	2	-1	2	4	-1	-1	9	-1	8	-1
LO21611	30	217	9	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	49	275	8	6	2	-1	-1	2	-1	-1	2	-1	1	-1
LO21613	33	260	7	3	1	-1	-1	1	-1	-1	2	-1	2	-1
LO21614	57	287	6	4	2	-1	-1	1	-1	-1	1	-1	-1	-1
LO21615	66	354	7	9	2	-1	-1	2	-1	-1	1	-1	2	-1
LO21616	48	293	7	6	2	-1	-1	1	-1	-1	1	-1	1	-1
LO21617	53	300	11	5	3	-1	1	3	-1	-1	2	-1	2	-1
LO21618	68	280	6	5	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21619	37	241	8	5	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	47	236	8	4	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21621	65	281	8	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	141	399	11	5	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21623	82	345	8	10	2	1	-1	2	-1	-1	1	-1	1	-1
LO21624	102	399	7	7	2	1	-1	2	-1	-1	1	-1	1	-1
LO21624-R	107	429	7	7	2	-1	-1	2	-1	-1	1	-1	1	-1
LO21625	75	453	12	11	3	-1	2	4	-1	-1	2	-1	1	-1
LO21626	76	414	8	4	2	1	-1	2	-1	-1	2	-1	2	-1
LO21627	25	209	6	2	2	1	1	-1	-1	-1	2	-1	1	-1
LO21628	30	208	6	2	2	-1	1	3	-1	-1	2	-1	2	-1
LO21629	28	205	5	2	1	-1	1	2	-1	-1	1	-1	1	-1
LO21630	33	232	8	3	2	-1	1	2	-1	-1	2	-1	2	-1
LO21631	60	297	6	5	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21632	78	312	6	5	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21633	34	256	6	4	2	-1	-1	2	-1	-1	1	-1	1	-1
LO21634	51	303	6	5	2	1	-1	1	-1	-1	-1	-1	-1	-1
LO21635	49	282	7	5	2	-1	-1	1	-1	-1	1	-1	1	-1
LO21636	39	289	7	6	2	-1	1	3	-1	-1	2	-1	1	-1
LO21637	42	299	8	6	2	-1	1	3	-1	-1	4	-1	4	-1
LO21638	28	257	6	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	26	215	5	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21639-R	27	212	6	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21640	25	203	7	2	2	-1	1	1	-1	-1	2	-1	1	-1
LO21641	36	284	8	5	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21642	34	242	8	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21643	31	228	8	2	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	28	214	10	2	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	51	295	11	7	2	-1	-1	-1	-1	-1	-1	-1	-1	-1

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	001 - LA	002 - LA	003 - LB	004 - LA	005 - LB	006 - LB	007 - LA	008 - LB	009 - LB	010 - LB	011 - LA	012 - LB	013 - LBA	014 - LB
LO21646	27	223	7	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	37	272	7	6	2	1	2	3	-1	-1	2	-1	2	-1
LO21648	22	164	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	30	216	5	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	33	238	4	4	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21651	49	203	5	3	2	2	-1	1	-1	-1	-1	-1	-1	-1
LO21652	26	245	5	4	1	-1	2	1	-1	-1	2	-1	2	-1
LO21653	32	210	5	4	1	-1	1	2	-1	-1	2	-1	1	-1
LO21654	46	286	5	6	2	2	-1	2	-1	-1	-1	-1	1	-1
LO21654-R	49	279	6	7	3	2	1	2	-1	-1	-1	-1	1	-1
LO21655	56	256	6	5	2	2	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	28	207	5	2	2	2	-1	1	-1	-1	-1	-1	-1	-1
LO21657	31	225	6	3	2	1	-1	1	-1	-1	-1	-1	-1	-1
LO21658	31	227	5	2	2	2	-1	1	-1	-1	-1	-1	-1	-1
LO21659	26	233	5	4	1	-1	1	2	-1	-1	2	-1	1	-1
LO21660	49	384	6	14	3	1	-1	1	-1	-1	-1	-1	-1	-1
LO21661	38	238	8	4	2	-1	1	2	-1	-1	2	-1	2	-1
LO21662	51	290	9	5	3	2	1	2	-1	-1	2	-1	2	-1
LO21663	67	396	8	7	4	3	2	3	-1	-1	4	-1	4	-1
LO21664	27	221	6	3	2	-1	2	3	-1	-1	8	-1	7	-1
LO21665	38	209	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	44	239	7	4	2	-1	1	2	-1	-1	2	-1	2	-1
LO21667	26	195	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21668	34	226	7	3	2	-1	-1	2	-1	-1	1	-1	1	-1
LO21669	26	211	5	3	1	-1	2	2	-1	-1	6	-1	6	-1
LO21669-R	28	217	6	3	2	-1	2	3	-1	-1	7	-1	6	-1
LO21670	28	225	6	3	2	-1	3	3	-1	-1	6	-1	5	-1
LO21671	29	242	6	4	2	-1	2	4	-1	-1	5	-1	5	-1
LO21672	32	31	8	4	2	1	2	2	1	1	11	-1	11	-1
LO21673	27	207	6	2	2	-1	1	2	-1	-1	2	-1	2	-1
LO21674	24	200	5	2	1	-1	1	2	-1	-1	2	-1	2	-1
LO21675	29	217	8	3	2	-1	2	4	-1	-1	14	-1	13	-1
LO21676	28	208	7	2	2	-1	1	2	-1	-1	3	-1	3	-1
LO21677	25	197	7	2	1	-1	1	2	-1	-1	3	-1	3	-1
LO21678	27	214	7	2	2	-1	2	4	-1	-1	8	-1	8	-1
LO21679	30	233	9	3	2	-1	9	5	-1	-1	13	-1	13	-1
LO21680	32	218	5	4	1	-1	-1	-1	-1	-1	1	-1	1	-1
LO21681	61	360	12	5	3	1	2	2	-1	-1	4	-1	4	-1
LO21682	74	321	12	5	3	1	2	2	-1	-1	4	-1	4	-1
LO21683	25	216	5	4	2	-1	2	3	-1	-1	2	-1	2	-1
LO21684	56	303	12	4	3	1	2	4	-1	-1	3	-1	2	-1
LO21684-R	54	295	10	4	3	1	2	3	-1	-1	2	-1	2	-1
LO21685	34	263	9	4	2	1	-1	1	-1	-1	-1	-1	-1	-1
LO21686	30	227	4	5	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	26	213	8	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	24	202	5	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	27	222	6	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	52	185	5	3	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21691	66	268	6	5	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21692	22	189	5	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	42	381	5	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	21	160	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	35	245	5	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	23	198	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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	001 - LA	002 - LA	003 - LB	004 - LA	005 - LB	006 - LB	007 - LA	008 - LB	009 - LB	010 - LB	011 - LA	012 - LB	013 - LBA	014 - LB
LO21697	42	321	5	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	34	232	5	7	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	49	289	4	4	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	48	283	4	4	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	28	213	5	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	30	225	5	4	2	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	18	158	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	32	220	4	3	3	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	36	239	5	4	2	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	37	246	4	5	3	3	2	2	-1	-1	2	-1	2	-1
LO21706	43	279	5	7	2	1	1	2	-1	-1	1	-1	-1	-1
LO21707	31	298	5	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	26	197	3	3	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	43	247	5	5	1	1	1	2	-1	-1	2	-1	2	-1
LO21710	21	158	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	20	203	4	3	1	-1	2	3	-1	-1	5	-1	4	-1
LO21712	56	295	7	5	2	-1	2	2	-1	-1	2	-1	2	-1
LO21713	44	268	5	5	2	1	1	2	-1	-1	2	-1	2	-1
LO21714	39	293	5	7	2	1	1	-1	-1	-1	2	-1	2	-1
LO21714-R	44	296	5	8	2	1	1	2	-1	-1	3	-1	3	-1
LO21715	58	293	7	5	2	1	1	-1	-1	-1	3	-1	3	-1
LO21716	23	189	5	2	1	-1	1	2	-1	-1	2	-1	2	-1
LO21717	29	241	4	3	-1	-1	-1	-1	-1	-1	2	-1	1	-1
LO21718	50	354	7	7	3	2	1	2	-1	-1	3	-1	3	-1
LO21719	30	228	7	3	1	-1	1	2	-1	-1	1	-1	-1	-1
LO21720	32	251	4	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	30	225	6	2	2	-1	1	2	-1	-1	2	-1	2	-1
LO21722	48	286	6	3	2	-1	1	-1	-1	-1	-1	-1	-1	-1
LO21723	60	283	8	5	2	-1	1	-1	-1	-1	-1	-1	2	-1
LO21724	24	183	6	2	1	-1	-1	-1	-1	-1	1	-1	1	-1
LO21725	50	272	6	3	2	2	1	1	-1	-1	3	-1	3	-1
LO21726	44	228	9	3	2	1	1	4	-1	-1	5	-1	5	-1
LO21727	41	240	4	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21728	92	283	8	5	3	2	-1	2	-1	-1	2	-1	2	-1
LO21729	46	191	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	65	306	6	3	2	1	1	2	-1	-1	2	-1	1	-1
LO21730	39	133	4	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	37	230	5	3	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21752	52	462	7	6	-1	-1	-1	-1	-1	1	1	-1	1	1
LO21753	44	242	6	3	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21754	20	164	4	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	20	158	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	18	181	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	66	387	9	6	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	18	166	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	50	327	5	11	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	23	203	3	1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21761	19	165	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	29	290	4	5	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	26	223	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	18	145	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	17	141	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	62	375	16	5	3	3	1	1	-1	-1	2	-1	3	-1
LO21766	48	234	4	2	-1	-1	-1	2	-1	-1	-1	-1	-1	-1

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LO21767	53	309	7	3	2	1	-1	-1	-1	-1	4	-1	3	-1
LO21768	47	213	5	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21769	40	225	6	3	2	-1	-1	3	-1	-1	2	-1	2	-1
LO21770	27	218	5	3	1	-1	-1	-1	-1	-1	2	-1	2	-1
LO21771	36	222	5	3	1	-1	2	3	-1	-1	3	-1	3	-1
LO21772	24	216	4	5	1	-1	1	2	-1	-1	3	-1	3	-1
LO21773	24	191	4	3	1	-1	-1	2	-1	-1	2	-1	2	-1
LO21774	42	257	5	6	2	-1	1	2	-1	-1	3	-1	3	-1
LO21775	38	230	4	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21776	44	241	5	3	-1	-1	-1	3	-1	-1	3	-1	3	-1
LO21777	22	195	5	3	1	-1	1	1	-1	-1	2	-1	2	-1
LO21778	34	229	5	3	-1	-1	1	2	-1	-1	2	-1	2	-1
LO21779	20	185	4	2	-1	-1	-1	1	-1	-1	1	-1	-1	-1
LO21779-R	20	184	4	2	-1	-1	1	2	-1	-1	1	-1	1	-1
LO21780	23	197	5	3	1	-1	1	3	-1	-1	2	-1	2	-1
LO21781	20	191	5	2	1	-1	1	2	-1	-1	2	-1	2	-1
LO21782	16	157	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	28	188	5	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	25	180	8	2	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21785	35	217	5	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21786	29	195	5	2	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21787	27	183	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	29	219	5	2	-1	-1	-1	-1	-1	-1	1	-1	1	-1
LO21789	32	217	4	3	-1	-1	1	2	-1	-1	2	-1	1	-1
LO21790	49	321	6	4	2	-1	1	2	-1	-1	2	-1	2	-1
LO21791	47	306	4	3	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21792	42	236	7	4	2	-1	1	1	-1	-1	-1	-1	-1	-1
LO21793	37	228	4	2	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21794	22	192	4	2	-1	-1	1	3	-1	-1	3	-1	3	-1
LO21794-R	23	190	4	3	1	-1	1	3	-1	-1	2	-1	2	-1
LO21795	23	190	4	2	-1	-1	-1	-1	-1	-1	1	-1	1	-1
LO21796	37	192	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	26	212	6	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21798	55	287	6	4	1	-1	-1	2	-1	-1	1	-1	1	-1
LO21799	18	156	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	19	202	5	2	1	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21801	22	108	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	22	185	5	2	1	-1	-1	1	-1	-1	1	-1	1	-1
LO21803	17	193	4	3	-1	-1	-1	2	-1	-1	3	-1	3	-1
LO21804	18	203	3	3	-1	-1	1	2	-1	-1	7	-1	7	-1
LO21805	32	243	6	5	2	-1	1	3	-1	-1	4	-1	4	-1
LO21806	18	177	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	16	166	3	2	-1	-1	1	-1	-1	-1	2	-1	2	-1
LO21808	47	235	5	10	2	-1	2	3	-1	-1	4	-1	4	-1
LO21809	290	447	11	62	4	1	7	3	-1	-1	4	-1	5	-1
LO21809-R	299	516	11	66	4	2	8	3	-1	-1	5	-1	6	-1
LMB-QA	39	206	5	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	24	176	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	25	175	4	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	18	155	3	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	17	151	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	14	140	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	15	146	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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**SOIL GAS HYDROCARBONS (SGH) by GC/MS**

A13-06619 - Date: June 21, 2013 - Activation Laboratories Ltd.

Results represent only the material tested. Actlabs is not liable for any claim/damage from use of this report in excess of the test cost. Unless requested samples are discarded in 90 days

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**Manitou Gold Inc. - Todd Keast  
Elora and Kenwest Project**

R=Replicate Sample

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

LMB-QA = Laboratory Materials Blank - Quality Assurance

**LEGEND FOR COLUMN HEADINGS - SGH COMPOUND CLASSES**

LA, HA, LBA, HBA = ALKYL-ALKANES

LB, HB, LPB, HPB = ALKYL-BENZENES

LAR, MAR, HAR = ALKYL-AROMATICS

LBI, MBI, HBI, LPH, MPH, HPH = ALKYL-POLYAROMATICS

THI = ALKYL-DIVINYLENE SULPHIDES

ALK = ALKYL-ALKENES

	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK
LO21545	-1	-1	-1	-1	-1	4	-1	3	2	-1	-1	2	2	3
LO21546	-1	-1	-1	1	2	6	-1	5	4	-1	-1	2	4	3
LO21547	-1	-1	-1	1	1	7	-1	6	4	-1	-1	3	3	5
LO21548	-1	-1	-1	2	2	2	-1	3	17	-1	-1	2	11	4
LO21549	-1	-1	1	2	2	32	2	30	5	-1	-1	5	5	9
LO21549-R	-1	-1	-1	2	2	30	2	29	5	-1	-1	6	5	9
LO21550	-1	-1	-1	1	1	3	-1	3	1	-1	-1	1	2	2
LO21551	-1	-1	-1	1	1	5	-1	4	2	-1	-1	2	2	4
LO21552	-1	-1	-1	-1	1	4	-1	4	1	-1	-1	1	2	3
LO21553	-1	-1	-1	-1	1	4	-1	4	-1	-1	-1	2	2	2
LO21554	-1	-1	-1	2	3	6	-1	6	19	-1	-1	2	14	4
LO21555	-1	-1	-1	1	2	5	-1	5	13	-1	-1	1	6	1
LO21556	-1	-1	-1	-1	1	4	-1	4	1	-1	-1	1	2	2
LO21557	-1	-1	-1	3	3	7	-1	7	11	-1	1	3	22	5
LO21558	-1	-1	-1	1	2	8	-1	8	2	-1	-1	2	3	4
LO21559	-1	-1	-1	2	2	8	-1	8	3	1	-1	3	2	5
LO21560	-1	-1	-1	1	2	6	-1	5	4	-1	-1	3	2	4
LO21561	-1	-1	-1	-1	1	4	-1	3	3	-1	-1	1	2	3
LO21562	-1	-1	-1	2	2	38	3	40	2	2	-1	8	2	7
LO21563	-1	1	-1	2	3	71	6	72	5	2	-1	9	3	11
LO21564	-1	-1	-1	3	3	110	8	112	4	2	-1	16	3	13
LO21564-R	-1	-1	-1	3	3	83	6	85	3	2	-1	13	2	12
LO21565	-1	2	-1	2	3	58	5	59	2	2	-1	6	3	5
LO21566	-1	-1	-1	1	2	10	-1	11	3	-1	-1	4	2	6
LO21567	-1	-1	-1	1	2	8	-1	8	6	-1	-1	3	3	4
LO21568	-1	-1	-1	-1	1	7	-1	6	3	-1	-1	3	2	6
LO21569	-1	-1	-1	-1	1	6	-1	6	5	-1	-1	2	-1	3
LO21570	-1	-1	-1	1	1	7	-1	7	10	-1	-1	1	2	3
LO21571	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	1	1	3
LO21572	-1	-1	-1	-1	1	5	-1	5	2	-1	-1	2	2	4
LO21573	-1	-1	-1	1	1	8	-1	9	5	-1	-1	3	2	5
LO21574	-1	-1	-1	1	1	8	-1	7	3	-1	-1	3	2	5
LO21575	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21576	-1	-1	-1	1	1	5	-1	4	8	-1	-1	2	-1	2
LO21577	-1	-1	-1	-1	-1	4	-1	4	3	-1	-1	2	2	2
LO21578	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2
LO21579	-1	-1	-1	-1	-1	5	-1	5	2	-1	-1	2	1	3
LO21579-R	-1	-1	-1	-1	-1	5	-1	5	2	-1	-1	2	1	3
LO21580	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21581	-1	-1	-1	-1	-1	4	-1	3	3	-1	-1	1	1	3
LO21582	-1	-1	-1	1	1	6	-1	6	5	-1	-1	2	2	4
LO21583	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	-1	2
LO21584	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	1
LO21585	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	1	3
LO21586	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	1	1	4
LO21587	-1	-1	-1	-1	-1	2	-1	2	3	-1	-1	1	1	3
LO21588	-1	-1	-1	-1	-1	3	-1	3	3	-1	-1	1	1	3
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	-1	-1	-1	-1	-1	3	-1	3	1	-1	-1	-1	-1	2
LO21591	-1	-1	-1	-1	-1	4	-1	4	2	-1	-1	1	1	3
LO21592	-1	-1	-1	-1	-1	2	-1	2	7	-1	-1	-1	-1	3
LO21593	-1	-1	-1	-1	-1	12	1	12	1	-1	-1	2	1	3
LO21594	-1	-1	-1	-1	-1	11	-1	11	1	-1	-1	2	1	3
LO21594-R	-1	-1	-1	-1	-1	11	-1	11	1	-1	-1	2	1	3



	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK
LO21595	-1	-1	-1	-1	-1	17	1	18	1	-1	-1	2	1	3
LO21596	-1	-1	-1	-1	-1	7	-1	8	-1	-1	-1	2	1	2
LO21597	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1
LO21598	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	1
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21600	-1	-1	-1	-1	-1	6	-1	6	1	-1	-1	4	-1	2
LO21601	-1	-1	-1	-1	-1	4	-1	4	-1	-1	-1	-1	-1	1
LO21602	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21603	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	1	-1	-1
LO21604	-1	-1	-1	-1	-1	5	-1	5	3	-1	-1	1	2	4
LO21605	-1	-1	-1	-1	-1	2	-1	2	2	-1	-1	1	-1	2
LO21606	-1	-1	-1	-1	-1	3	-1	4	-1	-1	-1	-1	-1	2
LO21607	-1	-1	-1	-1	-1	3	-1	4	2	-1	-1	-1	1	2
LO21608	-1	-1	-1	-1	-1	10	-1	9	-1	-1	-1	2	1	2
LO21609	-1	-1	1	-1	1	15	1	15	6	-1	-1	2	-1	3
LO21609-R	-1	-1	2	-1	-1	13	1	13	8	-1	-1	1	-1	3
LO21610	-1	-1	-1	-1	-1	25	2	24	2	-1	-1	3	2	4
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	-1	3
LO21613	-1	-1	-1	-1	-1	6	-1	7	-1	-1	-1	-1	-1	2
LO21614	-1	-1	-1	-1	-1	2	-1	1	-1	-1	-1	-1	-1	1
LO21615	-1	-1	-1	-1	-1	2	-1	2	2	-1	-1	-1	-1	2
LO21616	-1	-1	-1	-1	-1	2	-1	2	2	-1	-1	-1	-1	2
LO21617	-1	-1	-1	-1	-1	4	-1	4	6	-1	-1	2	1	5
LO21618	-1	-1	-1	-1	-1	1	-1	1	1	-1	-1	-1	-1	2
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21623	-1	-1	-1	-1	-1	2	-1	1	6	-1	-1	-1	-1	-1
LO21624	-1	-1	-1	-1	-1	2	-1	2	3	-1	-1	-1	2	2
LO21624-R	-1	-1	-1	-1	-1	2	-1	2	4	-1	-1	-1	1	2
LO21625	-1	-1	-1	-1	1	4	-1	4	9	-1	-1	1	2	2
LO21626	-1	-1	-1	-1	1	2	-1	2	5	-1	-1	2	2	2
LO21627	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	2	-1	1
LO21628	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	2	1	2
LO21629	-1	-1	-1	-1	-1	2	-1	3	-1	-1	-1	3	-1	1
LO21630	-1	-1	-1	-1	-1	5	-1	5	-1	-1	-1	3	1	2
LO21631	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21632	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21633	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	2
LO21634	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1
LO21635	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1
LO21636	-1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	2	-1	2
LO21637	-1	-1	-1	-1	-1	5	-1	5	1	-1	-1	2	1	3
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21640	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	1	-1	-1
LO21641	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	-1	-1	-1	-1	-1	1	-1	1	1	-1	-1	-1	-1	2
LO21651	-1	-1	-1	-1	-1	-1	-1	1	1	-1	-1	-1	-1	2
LO21652	-1	-1	-1	-1	-1	4	-1	4	1	-1	-1	-1	-1	2
LO21653	-1	-1	-1	-1	-1	3	-1	3	1	-1	-1	2	-1	2
LO21654	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1
LO21654-R	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21659	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21661	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	1	-1	2
LO21662	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21663	-1	-1	-1	-1	-1	4	-1	3	2	-1	-1	1	2	4
LO21664	-1	-1	-1	-1	-1	10	-1	10	-1	-1	-1	1	1	2
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	-1	1
LO21666	-1	-1	-1	-1	-1	3	-1	3	1	-1	-1	-1	-1	-1
LO21667	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21668	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21669	-1	-1	-1	-1	-1	9	-1	9	-1	-1	-1	-1	1	2
LO21669-R	-1	-1	-1	-1	-1	10	-1	11	-1	-1	-1	-1	-1	2
LO21670	-1	-1	-1	-1	-1	9	-1	10	-1	-1	-1	3	1	2
LO21671	-1	-1	-1	-1	-1	6	-1	6	1	-1	-1	2	1	2
LO21672	-1	-1	-1	1	1	13	1	13	9	-1	-1	2	-1	2
LO21673	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21674	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	1
LO21675	-1	-1	-1	-1	-1	21	-1	21	-1	-1	-1	1	1	1
LO21676	-1	-1	-1	-1	-1	5	-1	6	-1	-1	-1	-1	-1	1
LO21677	-1	-1	-1	-1	-1	4	-1	5	-1	-1	-1	-1	-1	-1
LO21678	-1	-1	-1	-1	-1	14	1	14	1	-1	-1	-1	3	2
LO21679	-1	-1	-1	-1	-1	19	-1	19	-1	-1	-1	1	1	1
LO21680	-1	-1	-1	-1	-1	2	-1	1	1	-1	-1	-1	2	1
LO21681	-1	-1	-1	-1	-1	4	-1	4	7	-1	-1	-1	-1	3
LO21682	-1	-1	-1	-1	-1	4	-1	4	5	-1	-1	-1	-1	2
LO21683	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	1
LO21684	-1	-1	-1	-1	-1	2	-1	3	2	-1	-1	-1	-1	3
LO21684-R	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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

	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK
LO21697	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	-1	-1	-1	2	-1	2	3	-1	-1	1	-1	2
LO21706	-1	-1	-1	-1	-1	1	-1	1	2	-1	-1	-1	-1	2
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	-1	-1	-1	-1	-1	2	-1	2	2	-1	-1	-1	-1	1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	-1	-1	-1	-1	-1	10	-1	10	1	-1	-1	3	1	2
LO21712	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	-1	3
LO21713	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	-1	3
LO21714	-1	-1	-1	-1	-1	2	-1	2	2	-1	-1	-1	-1	3
LO21714-R	-1	-1	-1	-1	-1	4	-1	4	2	-1	-1	2	-1	3
LO21715	-1	-1	-1	-1	-1	4	-1	3	5	-1	-1	-1	-1	1
LO21716	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21717	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21718	-1	-1	-1	-1	-1	4	-1	4	3	-1	-1	-1	2	3
LO21719	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2
LO21723	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	1	-1	2
LO21724	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	-1	-1	-1	4	-1	4	-1	-1	-1	1	-1	2
LO21726	-1	-1	-1	-1	-1	5	-1	5	1	-1	-1	1	-1	2
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1	3
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	2
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21752	-1	1	-1	-1	-1	2	-1	2	11	-1	-1	1	-1	3
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	-1	-1	-1	3	-1	3	3	-1	-1	1	-1	2
LO21766	-1	-1	-1	-1	-1	1	-1	-1	2	-1	-1	-1	-1	1

	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK
LO21767	-1	-1	-1	-1	-1	4	-1	4	2	-1	-1	-1	-1	-1
LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21769	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	1	-1	1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21771	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	2
LO21772	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21773	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	2
LO21774	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	2
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	-1	-1
LO21777	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1
LO21778	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	2
LO21779	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779-R	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	-1	-1	-1	1	-1	2	-1	-1	-1	1	-1	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21789	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1	-1	2
LO21790	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	1	-1	2
LO21791	-1	-1	-1	-1	-1	2	-1	-1	-1	-1	-1	3	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	2
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	-1	-1	-1	4	-1	4	1	-1	-1	-1	-1	2
LO21794-R	-1	-1	-1	-1	-1	2	-1	2	1	-1	-1	-1	-1	-1
LO21795	-1	-1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1	-1	-1	1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	-1	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1
LO21804	-1	-1	-1	-1	-1	8	-1	8	-1	-1	-1	-1	-1	1
LO21805	-1	-1	-1	-1	-1	3	-1	3	2	-1	-1	-1	-1	1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	-1	-1	-1	1	-1	2	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	-1	-1	-1	4	-1	4	2	-1	-1	-1	-1	2
LO21809	-1	-1	-1	-1	-1	4	-1	5	-1	-1	-1	2	-1	2
LO21809-R	-1	-1	-1	-1	-1	5	-1	5	-1	-1	-1	3	-1	3
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	015 - LAR	016 - LB	017 - LB	018 - LB	019 - LB	020 - LA	021 - LPH	022 - LBA	023 - LAR	024 - LB	025 - LAR	026 - LBA	027 - LB	028 - ALK

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

A13-06619

12/72

	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB
LO21545	-1	-1	1	-1	-1	-1	-1	2	-1	2	-1	-1	11	-1
LO21546	1	-1	-1	1	-1	-1	-1	2	-1	2	-1	-1	7	-1
LO21547	-1	-1	-1	1	-1	-1	-1	4	-1	4	-1	-1	21	-1
LO21548	2	-1	2	-1	-1	-1	-1	1	-1	1	-1	-1	3	-1
LO21549	1	-1	3	2	1	1	2	14	1	14	-1	-1	128	-1
LO21549-R	1	-1	3	2	1	1	2	14	1	14	-1	-1	128	-1
LO21550	-1	-1	1	-1	-1	-1	-1	2	-1	2	-1	-1	8	-1
LO21551	-1	-1	-1	-1	-1	-1	-1	2	-1	3	-1	-1	17	-1
LO21552	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	19	-1
LO21553	-1	-1	-1	-1	-1	-1	-1	1	1	4	-1	-1	2	-1
LO21554	3	-1	2	1	-1	-1	-1	3	-1	3	-1	-1	12	-1
LO21555	2	-1	-1	1	-1	-1	-1	2	-1	2	-1	-1	11	-1
LO21556	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	5	-1
LO21557	3	-1	2	-1	-1	-1	-1	3	1	4	-1	-1	18	-1
LO21558	-1	-1	2	1	1	-1	-1	4	-1	4	-1	-1	16	-1
LO21559	-1	-1	2	1	1	-1	-1	5	-1	5	-1	-1	23	-1
LO21560	-1	-1	2	1	-1	-1	-1	3	-1	3	-1	-1	11	-1
LO21561	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	8	-1
LO21562	1	1	3	2	2	1	2	16	1	17	-1	-1	116	-1
LO21563	1	1	-1	2	1	-1	3	27	-1	27	-1	-1	177	-1
LO21564	-1	1	3	2	2	-1	3	34	1	37	-1	-1	211	-1
LO21564-R	-1	1	1	2	-1	-1	3	38	-1	39	-1	-1	315	-1
LO21565	2	-1	-1	2	1	-1	2	20	-1	21	-1	-1	139	-1
LO21566	-1	-1	2	1	-1	-1	-1	7	-1	6	-1	-1	19	-1
LO21567	-1	-1	-1	1	-1	-1	-1	4	-1	3	-1	-1	11	-1
LO21568	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	10	-1
LO21569	-1	-1	-1	-1	-1	-1	-1	4	-1	5	-1	-1	29	-1
LO21570	1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	15	-1
LO21571	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	10	-1
LO21572	-1	-1	1	-1	-1	-1	-1	3	-1	3	-1	-1	14	-1
LO21573	-1	-1	-1	-1	-1	-1	-1	5	-1	5	-1	-1	26	-1
LO21574	-1	-1	-1	-1	-1	-1	-1	5	-1	5	-1	-1	22	-1
LO21575	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21576	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	9	-1
LO21577	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	11	-1
LO21578	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	1	-1
LO21579	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	17	-1
LO21579-R	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	16	-1
LO21580	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	5	-1
LO21581	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	11	-1
LO21582	-1	-1	1	-1	-1	-1	-1	3	-1	3	-1	-1	16	-1
LO21583	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21584	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21585	-1	-1	-1	-1	-1	-1	-1	1	-1	2	-1	-1	7	-1
LO21586	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	13	-1
LO21587	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	10	-1
LO21588	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	7	-1
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	6	-1
LO21591	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	10	-1
LO21592	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	4	-1
LO21593	-1	-1	-1	-1	-1	-1	-1	4	-1	4	-1	-1	34	-1
LO21594	-1	-1	-1	-1	-1	-1	-1	4	-1	4	-1	-1	25	-1
LO21594-R	-1	-1	-1	-1	-1	-1	-1	4	-1	4	-1	-1	25	-1

	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB
LO21595	-1	-1	-1	-1	-1	-1	-1	5	-1	5	-1	-1	47	-1
LO21596	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	18	-1
LO21597	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21598	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21600	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	16	-1
LO21601	-1	-1	-1	-1	-1	-1	-1	1	-1	2	-1	-1	11	-1
LO21602	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21603	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21604	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	13	-1
LO21605	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21606	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	7	-1
LO21607	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	6	-1
LO21608	-1	-1	-1	-1	-1	-1	-1	4	-1	4	-1	-1	32	-1
LO21609	1	-1	1	-1	-1	-1	-1	5	-1	5	-1	-1	18	-1
LO21609-R	-1	-1	1	-1	-1	-1	-1	4	-1	4	-1	-1	16	-1
LO21610	-1	-1	1	-1	-1	-1	-1	7	-1	7	-1	-1	58	-1
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	2	-1
LO21613	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	15	-1
LO21614	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21615	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	6	-1
LO21616	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21617	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	11	-1
LO21618	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21623	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21624	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21624-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21625	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	9	-1
LO21626	-1	-1	-1	-1	-1	-1	-1	1	-1	2	-1	-1	8	-1
LO21627	-1	-1	-1	-1	-1	-1	-1	-1	1	2	-1	-1	5	-1
LO21628	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	4	-1
LO21629	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21630	-1	-1	-1	-1	-1	-1	1	1	-1	3	-1	-1	11	-1
LO21631	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21632	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21633	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21634	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21635	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21636	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21637	-1	-1	-1	-1	-1	-1	-1	2	-1	3	-1	-1	13	-1
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21640	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	9	-1
LO21641	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21651	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21652	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	15
LO21653	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	5	-1
LO21654	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21654-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21659	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21661	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21662	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21663	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	2	-1
LO21664	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	18	-1
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	7	-1
LO21667	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21668	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21669	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	12	-1
LO21669-R	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	15	-1
LO21670	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	30	-1
LO21671	-1	-1	-1	-1	-1	-1	-1	1	-1	2	-1	-1	9	-1
LO21672	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	19	-1
LO21673	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21674	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21675	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	25	-1
LO21676	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21677	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21678	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	16	-1
LO21679	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	26	-1
LO21680	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21681	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21682	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	7	-1
LO21683	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21684	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21684-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1



	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB
LO21697	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21706	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	16	-1
LO21712	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21713	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21714	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21714-R	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	6	-1
LO21715	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	5	-1
LO21716	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21717	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21718	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	4	-1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21723	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	4	-1
LO21726	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	5	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	2	-1	1	-1	-1	-1	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21752	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	2	-1
LO21766	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB
LO21767	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21771	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21772	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21773	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21774	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21777	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21778	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21779	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21789	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21790	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1	3	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	2	-1	2	-1	-1	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21794-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21804	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21805	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	4	-1
LO21809	-1	-1	-1	-1	-1	-1	-1	3	-1	3	-1	-1	6	-1
LO21809-R	-1	-1	-1	-1	-1	-1	-1	4	-1	4	-1	-1	7	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	029 - HB	030 - HB	031 - HB	032 - HB	033 - HB	034 - HB	035 - LAR	036 - LBA	037 - HB	038 - LBA	039 - LAR	040 - LPB	041 - LBA	042 - LPB

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

	043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI
LO21545	-1	-1	11	-1	8	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21546	-1	-1	7	-1	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21547	-1	-1	21	1	16	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21548	-1	-1	4	-1	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21549	-1	-1	128	8	9	-1	-1	14	-1	-1	-1	-1	-1	-1
LO21549-R	-1	-1	131	9	8	-1	-1	12	-1	-1	-1	-1	-1	-1
LO21550	-1	-1	8	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21551	-1	-1	18	1	12	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21552	-1	-1	20	1	3	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21553	-1	-1	12	-1	3	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21554	-1	-1	12	-1	2	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21555	-1	-1	11	-1	3	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21556	-1	-1	5	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21557	-1	-1	18	1	3	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21558	-1	-1	17	1	4	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21559	-1	-1	23	1	4	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21560	-1	-1	12	-1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21561	-1	-1	9	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21562	-1	-1	127	8	84	-1	-1	11	-1	-1	-1	-1	-1	-1
LO21563	-1	-1	183	12	121	-1	-1	13	-1	-1	-1	-1	-1	-1
LO21564	-1	-1	216	16	84	-1	-1	14	-1	-1	-1	-1	-1	-1
LO21564-R	-1	-1	327	22	218	1	-1	19	1	-1	-1	-1	-1	-1
LO21565	-1	-1	141	10	8	-1	-1	12	-1	-1	-1	-1	-1	-1
LO21566	-1	-1	19	1	14	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21567	-1	-1	11	-1	3	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21568	-1	-1	12	-1	5	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21569	-1	-1	29	2	4	-1	-1	6	-1	-1	-1	-1	-1	-1
LO21570	-1	-1	15	1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21571	-1	-1	11	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21572	-1	-1	14	-1	11	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21573	-1	-1	26	2	4	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21574	-1	-1	22	2	4	-1	-1	5	-1	-1	-1	-1	-1	-1
LO21575	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21576	-1	-1	9	-1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21577	-1	-1	11	-1	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21578	-1	-1	1	-1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21579	-1	-1	19	1	13	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21579-R	-1	-1	17	1	9	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21580	-1	-1	5	-1	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21581	-1	-1	11	-1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21582	-1	-1	16	1	3	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21583	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21584	-1	-1	2	-1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21585	-1	-1	7	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21586	-1	-1	13	1	10	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21587	-1	-1	10	-1	2	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21588	-1	-1	7	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	-1	-1	7	-1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21591	-1	-1	10	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21592	-1	-1	5	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21593	-1	-1	35	3	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21594	-1	-1	25	2	17	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21594-R	-1	-1	25	2	17	-1	-1	3	-1	-1	-1	-1	-1	-1

	043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI
LO21595	-1	-1	49	4	35	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21596	-1	-1	19	1	14	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21597	-1	-1	3	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21598	-1	-1	4	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21599	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21600	-1	-1	17	1	12	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21601	-1	-1	11	-1	7	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21602	-1	-1	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21603	-1	-1	4	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21604	-1	-1	13	1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21605	-1	-1	4	-1	3	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21606	-1	-1	6	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21607	-1	-1	6	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21608	-1	-1	34	3	23	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21609	-1	-1	19	1	2	-1	-1	3	-1	-1	-1	-1	-1	-1
LO21609-R	-1	-1	16	1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21610	-1	-1	58	4	3	-1	-1	5	-1	-1	-1	-1	-1	-1
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21613	-1	-1	16	1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21614	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21615	-1	-1	6	-1	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21616	-1	-1	4	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21617	-1	-1	12	-1	2	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21618	-1	-1	4	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21623	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21624	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21624-R	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21625	-1	-1	9	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21626	-1	-1	8	-1	1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21627	-1	-1	5	-1	3	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21628	-1	-1	5	-1	3	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21629	-1	-1	6	-1	3	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21630	-1	-1	11	-1	8	-1	-1	4	-1	-1	-1	-1	-1	-1
LO21631	-1	-1	1	-1	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21632	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21633	-1	-1	1	-1	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21634	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21635	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21636	-1	-1	2	-1	2	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21637	-1	-1	13	-1	4	-1	-1	6	-1	-1	-1	-1	-1	-1
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	-1	-1	-1	-1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21639-R	-1	-1	1	-1	1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21640	-1	-1	9	-1	5	-1	-1	6	-1	-1	-1	-1	-1	-1
LO21641	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21651	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21652	-1	-1	15	1	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21653	-1	-1	6	-1	4	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21654	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21654-R	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21659	-1	-1	4	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21661	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21662	-1	-1	4	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21663	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21664	-1	-1	18	1	12	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	-1	-1	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21667	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21668	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21669	-1	-1	12	1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21669-R	-1	-1	15	1	6	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21670	-1	-1	15	2	19	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21671	-1	-1	9	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21672	-1	-1	19	2	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21673	-1	-1	6	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21674	-1	-1	5	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21675	-1	-1	25	2	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21676	-1	-1	7	-1	5	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21677	-1	-1	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21678	-1	-1	16	2	8	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21679	-1	-1	26	2	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LO21680	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21681	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21682	-1	-1	7	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21683	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684-R	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21691	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI
LO21697	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21706	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	-1	-1	17	1	12	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21712	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21713	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714-R	-1	-1	6	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21715	-1	-1	5	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21716	-1	-1	4	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21717	-1	-1	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21718	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21719	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21723	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	4	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21726	-1	-1	5	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21752	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21766	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI
LO21767	-1	-1	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21771	-1	-1	3	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21772	-1	-1	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21773	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21774	-1	-1	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21777	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21778	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21789	-1	-1	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21790	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	3	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794-R	-1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21804	-1	-1	6	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21805	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21809	-1	-1	6	-1	3	-1	-1	1	-1	-1	-1	-1	-1	-1
LO21809-R	-1	-1	7	-1	-1	-1	-1	2	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1



Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

043 - HB	044 - HB	045 - LA	046 - LPH	047 - LBA	048 - HB	049 - HB	050 - LBA	051 - LBI	052 - LPB	053 - LPB	054 - HB	055 - LPB	056 - LBI

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A13-06619

24/72

	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB
LO21545	-1	-1	-1	-1	-1	4	1	3	-1	9	-1	-1	9	-1
LO21546	-1	-1	-1	-1	-1	3	-1	3	-1	5	-1	-1	5	-1
LO21547	-1	-1	-1	-1	-1	8	-1	9	-1	12	-1	-1	13	-1
LO21548	1	-1	-1	1	-1	2	-1	1	-1	3	-1	-1	3	-1
LO21549	2	-1	-1	2	1	17	2	17	-1	36	-1	-1	36	1
LO21549-R	2	-1	-1	2	-1	17	2	17	-1	35	-1	-1	36	1
LO21550	-1	-1	-1	-1	-1	3	-1	2	-1	4	-1	-1	5	-1
LO21551	2	-1	-1	1	-1	5	1	3	-1	12	-1	-1	12	-1
LO21552	-1	-1	-1	-1	-1	6	-1	7	-1	10	-1	-1	11	-1
LO21553	-1	-1	-1	1	-1	5	-1	6	-1	13	-1	-1	13	-1
LO21554	-1	-1	-1	-1	-1	5	-1	6	-1	7	-1	-1	7	-1
LO21555	-1	-1	-1	-1	-1	4	-1	5	-1	6	-1	-1	6	-1
LO21556	-1	-1	-1	-1	-1	2	-1	-1	-1	3	-1	-1	4	-1
LO21557	-1	-1	-1	1	-1	7	1	7	-1	10	-1	-1	10	-1
LO21558	-1	-1	-1	-1	-1	6	-1	8	-1	10	-1	-1	11	-1
LO21559	-1	-1	-1	1	-1	8	1	9	-1	13	-1	-1	13	-1
LO21560	-1	-1	-1	-1	-1	4	-1	2	-1	6	-1	-1	7	-1
LO21561	-1	-1	-1	-1	-1	4	-1	4	-1	6	-1	-1	7	-1
LO21562	5	-1	-1	2	-1	16	1	17	-1	52	2	1	53	2
LO21563	4	-1	-1	2	1	20	2	22	-1	70	3	1	71	2
LO21564	5	-1	-1	2	1	13	2	22	-1	97	3	1	98	2
LO21564-R	8	-1	-1	2	2	16	2	27	-1	129	-1	1	130	2
LO21565	2	-1	-1	2	1	19	1	21	-1	77	3	1	79	2
LO21566	-1	-1	-1	1	-1	10	1	10	-1	15	-1	-1	16	-1
LO21567	-1	-1	-1	-1	-1	5	-1	7	-1	10	-1	-1	11	-1
LO21568	2	-1	-1	-1	-1	7	1	5	-1	15	-1	-1	16	-1
LO21569	-1	-1	-1	-1	-1	5	-1	3	-1	9	-1	-1	10	-1
LO21570	-1	-1	-1	-1	-1	4	-1	5	-1	7	-1	-1	8	-1
LO21571	-1	-1	-1	-1	-1	3	-1	2	-1	6	-1	-1	6	-1
LO21572	-1	-1	-1	-1	-1	4	-1	4	-1	7	-1	-1	7	-1
LO21573	1	-1	-1	1	-1	9	-1	11	-1	15	-1	-1	16	-1
LO21574	1	-1	-1	1	-1	7	-1	8	-1	11	-1	-1	11	-1
LO21575	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	1	-1
LO21576	-1	-1	-1	-1	-1	4	-1	4	-1	5	-1	-1	5	-1
LO21577	-1	-1	-1	-1	-1	4	-1	5	-1	6	-1	-1	6	-1
LO21578	-1	-1	-1	-1	-1	2	-1	3	-1	3	-1	-1	-1	-1
LO21579	-1	-1	-1	-1	-1	5	-1	1	-1	10	-1	-1	11	-1
LO21579-R	-1	-1	-1	-1	-1	5	-1	5	-1	10	-1	-1	11	-1
LO21580	-1	-1	-1	-1	-1	2	-1	1	-1	4	-1	-1	4	-1
LO21581	-1	-1	-1	-1	-1	4	-1	4	-1	7	-1	-1	7	-1
LO21582	-1	-1	-1	-1	-1	6	-1	2	-1	10	-1	-1	10	-1
LO21583	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21584	-1	-1	-1	-1	-1	2	-1	2	-1	2	-1	-1	2	-1
LO21585	-1	-1	-1	-1	-1	3	-1	2	-1	5	-1	-1	5	-1
LO21586	-1	-1	-1	-1	-1	4	-1	2	-1	6	-1	-1	6	-1
LO21587	-1	-1	-1	-1	-1	4	-1	4	-1	6	-1	-1	7	-1
LO21588	-1	-1	-1	-1	-1	3	-1	3	-1	4	-1	-1	4	-1
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21590	-1	-1	-1	-1	-1	2	-1	3	-1	3	-1	-1	4	-1
LO21591	-1	-1	-1	-1	-1	-1	-1	4	-1	5	-1	-1	5	-1
LO21592	-1	-1	-1	-1	-1	2	-1	2	-1	3	-1	-1	3	-1
LO21593	-1	-1	-1	-1	-1	3	-1	5	-1	20	-1	-1	20	-1
LO21594	-1	-1	-1	-1	-1	4	-1	3	-1	9	-1	-1	10	-1
LO21594-R	-1	-1	-1	-1	-1	5	-1	3	-1	10	-1	-1	10	-1

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	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB
LO21595	2	-1	-1	-1	-1	4	-1	4	-1	30	1	-1	31	-1
LO21596	-1	-1	-1	-1	-1	4	-1	5	-1	8	-1	-1	8	-1
LO21597	-1	-1	-1	-1	-1	1	-1	1	-1	2	-1	-1	2	-1
LO21598	-1	-1	-1	-1	-1	2	-1	-1	-1	3	-1	-1	3	-1
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21600	3	-1	-1	-1	-1	2	-1	3	-1	10	-1	-1	10	-1
LO21601	-1	-1	-1	-1	-1	2	-1	1	-1	6	-1	-1	6	-1
LO21602	-1	-1	-1	-1	-1	1	-1	1	-1	3	-1	-1	3	-1
LO21603	-1	-1	-1	-1	-1	2	-1	-1	-1	3	-1	-1	3	-1
LO21604	-1	-1	-1	-1	-1	4	-1	4	-1	6	-1	-1	6	-1
LO21605	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	3	-1
LO21606	-1	-1	-1	-1	-1	2	-1	1	-1	3	-1	-1	3	-1
LO21607	-1	-1	-1	-1	-1	2	-1	-1	-1	3	-1	-1	3	-1
LO21608	-1	-1	-1	-1	-1	5	-1	2	-1	18	-1	-1	18	-1
LO21609	-1	-1	-1	-1	-1	4	-1	3	-1	4	-1	-1	4	-1
LO21609-R	-1	-1	-1	-1	-1	4	-1	2	-1	3	-1	-1	3	-1
LO21610	-1	-1	-1	-1	-1	8	-1	4	-1	36	1	-1	36	-1
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1	-1	1	-1
LO21613	-1	-1	-1	-1	-1	3	-1	2	-1	5	-1	-1	5	-1
LO21614	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	1	-1
LO21615	-1	-1	-1	-1	-1	2	-1	2	-1	4	-1	-1	4	-1
LO21616	-1	-1	-1	-1	-1	-1	-1	2	-1	3	-1	-1	3	-1
LO21617	-1	-1	-1	-1	-1	5	-1	2	-1	9	-1	-1	9	-1
LO21618	-1	-1	-1	-1	-1	2	-1	1	-1	3	-1	-1	3	-1
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21623	-1	-1	-1	-1	-1	2	-1	2	-1	2	-1	-1	2	-1
LO21624	-1	-1	-1	-1	-1	1	-1	2	-1	2	-1	-1	2	-1
LO21624-R	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21625	-1	-1	-1	-1	-1	3	-1	2	-1	5	-1	-1	5	-1
LO21626	-1	-1	-1	-1	-1	3	-1	3	-1	6	-1	-1	6	-1
LO21627	-1	-1	-1	-1	-1	3	-1	2	-1	5	-1	-1	5	-1
LO21628	-1	-1	-1	-1	-1	4	-1	2	-1	5	-1	-1	5	-1
LO21629	1	-1	-1	-1	-1	4	-1	2	-1	5	-1	-1	5	-1
LO21630	-1	-1	-1	-1	-1	9	-1	4	-1	14	-1	-1	14	-1
LO21631	-1	-1	-1	-1	-1	7	-1	8	-1	4	-1	-1	4	-1
LO21632	-1	-1	-1	-1	-1	1	-1	1	-1	1	-1	-1	1	-1
LO21633	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1	-1	-1	-1
LO21634	-1	-1	-1	-1	-1	2	-1	2	-1	2	-1	-1	2	-1
LO21635	-1	-1	-1	-1	-1	1	-1	1	-1	2	-1	-1	2	-1
LO21636	-1	-1	-1	-1	-1	4	-1	4	-1	3	-1	-1	3	-1
LO21637	1	-1	-1	-1	-1	10	-1	10	-1	12	-1	-1	12	-1
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	-1	-1	-1	-1	-1	3	-1	5	-1	5	-1	-1	6	-1
LO21639-R	-1	-1	-1	-1	-1	1	-1	4	-1	4	-1	-1	4	-1
LO21640	-1	-1	-1	-1	-1	18	-1	17	-1	22	2	-1	22	-1
LO21641	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21651	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21652	-1	-1	-1	-1	-1	3	-1	1	-1	8	-1	-1	9	-1
LO21653	-1	-1	-1	-1	-1	2	-1	1	-1	4	-1	-1	4	-1
LO21654	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21654-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	2	-1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21659	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21661	-1	-1	-1	-1	-1	1	-1	1	-1	2	-1	-1	2	-1
LO21662	-1	-1	-1	-1	-1	2	-1	1	-1	3	-1	-1	3	-1
LO21663	-1	-1	-1	-1	-1	1	-1	2	-1	2	-1	-1	2	-1
LO21664	-1	-1	-1	-1	-1	2	-1	2	-1	7	-1	-1	7	-1
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	-1	-1	-1	-1	-1	2	-1	-1	-1	5	-1	-1	5	-1
LO21667	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21668	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21669	-1	-1	-1	-1	-1	2	-1	2	-1	4	-1	-1	4	-1
LO21669-R	-1	-1	-1	-1	-1	2	-1	-1	-1	5	-1	-1	5	-1
LO21670	-1	-1	-1	-1	-1	3	-1	2	-1	9	-1	-1	10	-1
LO21671	-1	-1	-1	-1	-1	2	-1	-1	-1	3	-1	-1	3	-1
LO21672	-1	-1	-1	-1	-1	2	-1	-1	-1	8	-1	-1	8	-1
LO21673	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	3	-1
LO21674	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	3	-1
LO21675	-1	-1	-1	-1	-1	2	-1	-1	-1	10	-1	-1	10	-1
LO21676	-1	-1	-1	-1	-1	-1	-1	1	-1	3	-1	-1	3	-1
LO21677	-1	-1	-1	-1	-1	-1	-1	1	-1	4	-1	-1	4	-1
LO21678	-1	-1	-1	-1	-1	1	-1	2	-1	8	-1	-1	8	-1
LO21679	-1	-1	-1	-1	-1	2	-1	2	-1	11	-1	-1	11	-1
LO21680	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21681	-1	-1	-1	-1	-1	1	-1	1	-1	2	-1	-1	2	-1
LO21682	-1	-1	-1	-1	-1	1	-1	2	-1	3	-1	-1	3	-1
LO21683	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21684	-1	-1	-1	-1	-1	1	-1	1	-1	2	-1	-1	2	-1
LO21684-R	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	1	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB
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LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	-1	-1	-1	1	-1	-1	-1	3	-1	-1	3	-1
LO21706	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	1	-1	-1	-1	-1	3	-1	-1	-1	9	-1	-1	9	-1
LO21712	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1	-1	1	-1
LO21713	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21714	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21714-R	-1	-1	-1	-1	-1	2	-1	1	-1	3	-1	-1	3	-1
LO21715	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	3	-1
LO21716	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21717	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21718	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21723	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1	-1	1	-1
LO21726	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21752	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-1	-1	2	-1
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
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LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
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	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB
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LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
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LO21772	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21773	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21774	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21777	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21778	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
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LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
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LO21790	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	1	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21794-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
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LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	2	-1
LO21804	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	2	-1
LO21805	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	-1	-1	-1	1	-1	-1	-1	2	-1	-1	2	-1
LO21809	-1	-1	-1	-1	-1	2	-1	-1	-1	5	-1	-1	5	-1
LO21809-R	-1	-1	-1	-1	-1	3	-1	-1	-1	7	-1	-1	7	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	057 - ALK	058 - LPB	059 - LPB	060 - LPH	061 - LBI	062 - LBA	063 - LPH	064 - LBA	065 - HPB	066 - LBA	067 - LBI	068 - HPB	069 - LA	070 - HPB

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

A13-06619

30/72

SOIL GAS HYDROCARBONS  
(SGH) by GC/MS  
ELORA AND KENWEST PROJECT

	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA
LO21545	-1	-1	7	3	-1	-1	-1	-1	-1	-1	-1	-1	17	-1
LO21546	-1	-1	4	2	-1	-1	-1	1	-1	-1	-1	-1	4	-1
LO21547	-1	-1	11	6	-1	-1	-1	4	-1	-1	1	-1	13	-1
LO21548	-1	-1	2	2	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21549	1	1	21	12	-1	-1	1	1	-1	-1	2	-1	41	-1
LO21549-R	2	2	18	12	2	-1	-1	4	-1	-1	1	-1	38	-1
LO21550	-1	-1	3	1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21551	-1	-1	5	4	-1	-1	-1	3	-1	-1	-1	-1	13	-1
LO21552	-1	-1	8	5	-1	-1	-1	-1	-1	-1	-1	-1	10	-1
LO21553	1	1	9	7	-1	-1	-1	4	-1	-1	1	-1	21	1
LO21554	-1	-1	6	4	-1	-1	-1	-1	-1	-1	-1	-1	9	-1
LO21555	-1	-1	5	3	-1	-1	-1	2	-1	-1	-1	-1	6	-1
LO21556	-1	-1	3	3	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21557	1	1	8	5	1	-1	-1	2	-1	-1	1	-1	18	1
LO21558	-1	-1	8	5	-1	-1	-1	2	-1	-1	-1	-1	18	-1
LO21559	1	1	11	11	1	-1	-1	4	-1	-1	-1	-1	14	-1
LO21560	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21561	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21562	2	3	15	10	2	-1	1	4	-1	-1	1	-1	36	-1
LO21563	2	2	16	13	2	-1	1	4	-1	-1	1	-1	41	-1
LO21564	2	3	16	12	2	-1	1	4	-1	-1	1	-1	47	-1
LO21564-R	3	3	20	14	3	-1	2	8	1	-1	1	-1	55	-1
LO21565	2	2	20	9	2	-1	1	5	-1	-1	-1	-1	31	-1
LO21566	1	1	12	7	1	-1	-1	4	-1	-1	-1	-1	31	-1
LO21567	1	-1	10	5	1	-1	-1	3	-1	-1	-1	-1	12	1
LO21568	1	1	8	6	1	-1	-1	3	-1	-1	-1	-1	20	-1
LO21569	-1	-1	8	9	-1	-1	-1	2	-1	-1	1	-1	22	-1
LO21570	-1	-1	7	4	-1	-1	-1	2	-1	-1	-1	-1	12	-1
LO21571	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21572	-1	-1	6	3	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21573	-1	-1	12	6	-1	-1	-1	3	-1	-1	-1	-1	15	-1
LO21574	-1	-1	8	4	-1	-1	-1	2	-1	-1	-1	-1	15	-1
LO21575	-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21576	-1	-1	5	3	-1	-1	-1	1	-1	-1	-1	-1	2	-1
LO21577	-1	-1	5	2	-1	-1	-1	1	-1	-1	-1	-1	6	-1
LO21578	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21579	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	12	-1
LO21579-R	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	12	-1
LO21580	-1	-1	3	1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21581	-1	-1	5	3	-1	-1	-1	1	-1	-1	-1	-1	7	-1
LO21582	-1	-1	6	4	-1	-1	-1	2	-1	-1	-1	-1	12	-1
LO21583	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21584	-1	-1	2	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21585	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21586	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21587	-1	-1	6	3	-1	-1	-1	2	-1	-1	-1	-1	11	-1
LO21588	-1	-1	3	1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	-1	-1	3	2	-1	-1	-1	1	-1	-1	-1	-1	5	-1
LO21591	-1	-1	4	2	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21592	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21593	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	10	-1
LO21594	-1	-1	4	3	-1	-1	-1	-1	-1	-1	-1	-1	10	-1
LO21594-R	-1	-1	4	3	-1	-1	-1	-1	-1	-1	-1	-1	4	-1

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	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA
LO21595	-1	1	4	3	-1	-1	-1	1	-1	-1	-1	-1	12	-1
LO21596	-1	1	4	3	-1	-1	-1	-1	-1	-1	-1	-1	10	-1
LO21597	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21598	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21600	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21601	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21602	-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21603	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21604	-1	-1	5	2	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21605	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21606	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21607	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21608	-1	-1	5	3	-1	-1	-1	-1	-1	-1	-1	-1	13	-1
LO21609	-1	-1	4	2	-1	-1	-1	-1	-1	-1	-1	-1	14	-1
LO21609-R	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	11	-1
LO21610	-1	-1	7	4	-1	-1	-1	1	-1	-1	-1	-1	16	-1
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21612	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21613	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21614	-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21615	-1	-1	3	1	-1	-1	-1	1	-1	-1	-1	-1	4	-1
LO21616	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21617	-1	-1	7	4	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21618	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21623	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21624	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21624-R	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21625	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21626	-1	-1	4	2	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21627	-1	-1	3	-1	-1	-1	-1	1	-1	-1	-1	-1	11	-1
LO21628	-1	-1	3	2	-1	-1	-1	2	-1	-1	-1	-1	10	-1
LO21629	-1	-1	3	-1	-1	-1	-1	1	-1	-1	-1	-1	12	-1
LO21630	-1	-1	7	4	-1	-1	1	1	-1	-1	-1	-1	31	-1
LO21631	-1	-1	7	7	-1	-1	1	2	-1	-1	-1	-1	18	-1
LO21632	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21633	-1	-1	3	3	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21634	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21635	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21636	-1	-1	4	4	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21637	-1	-1	8	2	-1	-1	1	-1	-1	-1	-1	-1	10	-1
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	-1	-1	6	6	-1	1	2	2	-1	-1	-1	-1	17	-1
LO21639-R	-1	-1	5	5	-1	-1	2	1	-1	-1	-1	-1	13	-1
LO21640	-1	-1	16	15	-1	1	3	2	-1	-1	-1	-1	45	-1
LO21641	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1

	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21647	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21650	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21651	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21652	-1	-1	3	2	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21653	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21654	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21654-R	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21655	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21659	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21661	-1	-1	1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21662	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21663	-1	-1	2	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21664	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	9	-1
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21666	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21667	-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21668	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21669	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	8	-1
LO21669-R	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21670	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	9	-1
LO21671	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LO21672	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	7	-1
LO21673	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21674	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21675	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21676	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21677	-1	-1	1	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21678	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21679	-1	-1	2	2	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21680	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21681	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21682	-1	-1	2	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21683	-1	-1	1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1

	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA
LO21697	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21706	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21711	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	9	-1
LO21712	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21713	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21714-R	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21715	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	6	-1
LO21716	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21717	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21718	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21721	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21723	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21725	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21726	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21729-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21752	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21766	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA
LO21767	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21771	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21772	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21773	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21774	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21776	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21777	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21778	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21779	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21780	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21789	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21790	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21794	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21794-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21803	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21804	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21805	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21808	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21809	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1
LO21809-R	-1	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	071 - HPB	072 - HPB	073 - HBA	074 - HBA	075 - HPB	076 - LPH	077 - MAR	078 - ALK	079 - LBI	080 - LPH	081 - MAR	082 - LPH	083 - HBA	084 - HBA

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

	085 - LPH	086 - LBI	087 - MAR	088 - HBA	089 - THI	090 - HPB	091 - LBI	092 - LPH	093 - LA	094 - LBI	095 - MAR	096 - LPH	097 - HBA	098 - THI
LO21545	17	2	-1	19	-1	2	1	1	50	2	-1	1	51	3
LO21546	10	1	-1	11	-1	2	-1	1	18	1	1	1	17	2
LO21547	28	2	3	34	-1	19	2	4	116	4	20	4	112	6
LO21548	7	1	2	1	-1	3	-1	1	21	1	2	3	20	1
LO21549	62	3	4	69	-1	7	3	3	246	7	5	-1	250	14
LO21549-R	58	3	4	65	-1	6	3	3	241	7	5	-1	235	13
LO21550	8	1	-1	9	-1	1	-1	-1	18	1	-1	1	18	1
LO21551	20	2	-1	22	-1	2	1	1	65	2	1	2	61	3
LO21552	22	2	-1	24	-1	1	1	-1	55	2	-1	1	55	3
LO21553	35	3	3	43	-1	3	2	2	128	3	2	2	111	5
LO21554	19	2	3	22	-1	3	1	1	49	2	2	2	53	3
LO21555	13	1	2	15	-1	5	-1	2	25	1	4	2	24	1
LO21556	7	1	-1	8	-1	2	-1	-1	14	-1	1	1	13	1
LO21557	26	2	4	31	-1	15	2	4	104	3	15	-1	102	5
LO21558	23	2	-1	26	-1	2	1	1	46	2	1	2	47	2
LO21559	30	2	1	36	-1	3	1	2	71	2	2	2	74	4
LO21560	14	1	-1	15	-1	2	-1	1	31	1	2	1	29	2
LO21561	15	1	-1	17	-1	1	-1	-1	35	2	-1	1	35	2
LO21562	56	3	-1	61	-1	3	2	2	165	5	-1	2	150	7
LO21563	65	3	-1	71	-1	2	2	1	190	5	-1	2	174	8
LO21564	82	4	-1	92	-1	3	3	2	278	7	1	3	252	12
LO21564-R	98	5	-1	103	-1	3	3	2	288	5	-1	3	259	14
LO21565	56	3	-1	57	-1	2	2	1	113	4	-1	2	110	6
LO21566	26	2	-1	28	-1	2	1	1	52	2	-1	2	51	3
LO21567	24	2	-1	27	-1	2	1	1	41	2	1	2	41	2
LO21568	26	2	-1	30	-1	3	1	1	98	3	2	2	84	4
LO21569	26	2	-1	35	-1	4	2	1	188	5	3	2	198	11
LO21570	20	2	1	24	-1	3	1	2	55	2	3	2	56	3
LO21571	16	2	-1	18	-1	1	1	-1	50	2	-1	1	47	3
LO21572	15	2	-1	17	-1	1	-1	-1	37	2	-1	1	37	2
LO21573	33	2	-1	36	-1	2	1	1	90	3	-1	2	89	5
LO21574	22	2	-1	24	-1	-1	1	1	59	2	-1	1	57	4
LO21575	3	-1	1	3	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21576	12	1	-1	13	-1	2	-1	-1	16	-1	-1	1	17	1
LO21577	13	1	-1	14	-1	3	-1	-1	32	1	2	1	32	3
LO21578	6	1	2	7	-1	2	-1	-1	1	-1	1	1	7	-1
LO21579	21	2	2	22	-1	3	1	1	83	2	2	2	76	5
LO21579-R	21	2	1	23	-1	3	1	1	83	2	2	2	78	5
LO21580	10	1	-1	11	-1	2	-1	-1	33	2	2	1	34	3
LO21581	15	1	-1	16	-1	2	1	-1	47	2	-1	1	47	3
LO21582	19	2	-1	18	-1	3	1	1	56	2	2	1	53	3
LO21583	6	-1	1	7	-1	2	-1	-1	17	1	1	1	17	2
LO21584	5	-1	1	6	-1	2	-1	-1	4	-1	2	1	-1	-1
LO21585	10	1	-1	10	-1	2	-1	-1	23	1	-1	1	22	2
LO21586	15	1	-1	17	-1	2	1	-1	43	2	-1	1	45	3
LO21587	18	2	-1	20	-1	2	1	-1	58	2	1	1	57	4
LO21588	9	1	-1	9	-1	3	-1	1	22	1	2	1	21	2
LO21589	3	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	9	1	-1	10	-1	1	-1	-1	23	1	-1	1	23	2
LO21591	11	1	-1	12	-1	1	-1	-1	30	1	-1	1	28	2
LO21592	8	1	-1	10	-1	-1	-1	-1	26	1	-1	1	25	2
LO21593	19	1	-1	19	-1	1	1	-1	46	2	-1	1	43	3
LO21594	14	1	-1	15	-1	1	1	-1	53	2	-1	1	50	4
LO21594-R	16	2	-1	16	-1	1	1	-1	62	2	-1	1	56	4

	085 - LPH	086 - LBI	087 - MAR	088 - HBA	089 - THI	090 - HPB	091 - LBI	092 - LPH	093 - LA	094 - LBI	095 - MAR	096 - LPH	097 - HBA	098 - THI
LO21595	23	-1	-1	24	-1	1	1	-1	57	2	-1	1	50	3
LO21596	15	2	-1	15	-1	1	1	-1	54	2	-1	1	47	3
LO21597	5	-1	-1	5	-1	-1	-1	-1	13	-1	-1	-1	12	-1
LO21598	8	1	-1	8	-1	1	-1	-1	19	1	-1	-1	20	2
LO21599	2	-1	-1	2	-1	1	-1	-1	5	-1	-1	-1	5	-1
LO21600	14	1	-1	15	-1	2	-1	-1	57	1	-1	1	43	3
LO21601	7	-1	-1	7	-1	-1	-1	-1	17	-1	-1	-1	14	1
LO21602	4	-1	-1	4	-1	-1	-1	-1	6	-1	-1	-1	6	-1
LO21603	5	1	-1	6	-1	-1	-1	-1	23	1	-1	-1	19	-1
LO21604	15	1	-1	16	-1	3	1	-1	47	2	2	1	46	3
LO21605	4	-1	-1	5	-1	1	-1	-1	15	-1	-1	-1	12	1
LO21606	7	-1	-1	7	-1	-1	-1	-1	14	-1	-1	-1	13	-1
LO21607	5	-1	-1	5	-1	-1	-1	-1	10	-1	-1	-1	10	1
LO21608	21	2	-1	22	-1	-1	2	1	97	2	-1	1	92	6
LO21609	11	1	-1	2	-1	-1	-1	-1	12	-1	-1	1	9	-1
LO21609-R	8	1	-1	8	-1	-1	-1	-1	7	-1	-1	-1	6	-1
LO21610	29	2	-1	29	-1	1	1	-1	78	2	-1	1	75	5
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21612	4	-1	-1	-1	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21613	9	1	-1	10	-1	-1	-1	-1	11	-1	-1	-1	9	-1
LO21614	3	-1	-1	3	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21615	9	1	-1	9	-1	1	-1	-1	21	1	-1	-1	20	2
LO21616	7	1	-1	8	-1	1	-1	-1	21	1	1	-1	19	2
LO21617	22	2	-1	23	-1	2	1	1	56	2	3	2	53	4
LO21618	8	1	1	8	-1	2	1	-1	20	1	2	1	20	2
LO21619	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	-1	-1
LO21620	1	-1	-1	-1	-1	1	-1	-1	2	-1	-1	-1	2	-1
LO21621	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21622	2	-1	1	2	-1	1	-1	-1	3	-1	-1	-1	3	-1
LO21623	5	-1	2	6	-1	7	-1	1	19	1	7	1	18	1
LO21624	4	-1	1	4	-1	4	-1	1	12	-1	4	1	12	-1
LO21624-R	4	-1	1	5	-1	4	-1	-1	12	-1	3	1	12	2
LO21625	9	1	1	9	-1	10	-1	2	30	1	11	1	28	2
LO21626	15	1	2	16	-1	4	1	1	55	2	4	1	54	4
LO21627	9	1	-1	6	-1	-1	-1	-1	22	1	-1	1	19	1
LO21628	8	1	-1	3	-1	-1	-1	-1	15	-1	-1	1	13	-1
LO21629	10	1	-1	4	-1	-1	-1	-1	26	1	-1	1	21	2
LO21630	27	2	-1	11	-1	1	1	1	84	2	-1	1	70	4
LO21631	17	-1	-1	10	1	-1	2	-1	19	2	-1	-1	20	-1
LO21632	3	-1	-1	4	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21633	7	1	-1	8	-1	1	-1	-1	10	-1	-1	-1	6	-1
LO21634	4	-1	-1	-1	-1	1	-1	-1	11	-1	-1	-1	10	1
LO21635	4	-1	-1	4	-1	-1	-1	-1	9	-1	-1	-1	9	-1
LO21636	10	1	-1	-1	-1	1	-1	-1	12	-1	-1	-1	7	-1
LO21637	23	2	-1	13	-1	2	1	-1	62	1	-1	1	64	4
LO21638	2	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21639	8	2	-1	17	-1	-1	1	-1	15	1	-1	-1	14	-1
LO21639-R	5	2	-1	13	-1	-1	1	-1	11	1	-1	-1	11	-1
LO21640	43	3	1	10	1	-1	3	1	70	2	-1	2	74	4
LO21641	3	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21642	-1	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21643	2	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21644	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	1	-1
LO21645	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1

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	085 - LPH	086 - LBI	087 - MAR	088 - HBA	089 - THI	090 - HPB	091 - LBI	092 - LPH	093 - LA	094 - LBI	095 - MAR	096 - LPH	097 - HBA	098 - THI
LO21646	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21647	5	-1	-1	-1	-1	1	-1	-1	7	-1	-1	-1	3	-1
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21649	-1	-1	-1	2	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21650	4	-1	-1	4	-1	-1	-1	-1	10	-1	-1	-1	9	-1
LO21651	3	-1	-1	3	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21652	11	1	-1	11	-1	-1	-1	-1	30	1	-1	-1	30	2
LO21653	7	-1	-1	1	-1	-1	-1	-1	31	1	-1	-1	26	2
LO21654	4	-1	-1	4	-1	-1	-1	-1	6	-1	-1	-1	6	-1
LO21654-R	3	-1	-1	-1	-1	-1	-1	-1	6	-1	-1	-1	5	-1
LO21655	2	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21656	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	1	-1
LO21657	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21658	2	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21659	4	-1	-1	4	-1	-1	-1	-1	13	-1	-1	-1	12	-1
LO21660	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21661	4	-1	-1	4	-1	-1	-1	-1	8	-1	-1	-1	7	-1
LO21662	7	1	-1	8	-1	1	-1	-1	20	1	-1	-1	20	2
LO21663	4	-1	1	4	-1	2	-1	-1	-1	-1	2	-1	4	-1
LO21664	8	1	-1	8	-1	1	-1	-1	21	1	-1	1	19	2
LO21665	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21666	6	-1	-1	6	-1	1	-1	-1	9	-1	-1	-1	9	1
LO21667	4	-1	-1	4	-1	-1	-1	-1	10	-1	-1	-1	10	-1
LO21668	-1	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21669	7	-1	-1	7	-1	-1	-1	-1	8	-1	-1	-1	8	-1
LO21669-R	8	1	-1	8	-1	-1	-1	-1	10	-1	-1	-1	9	-1
LO21670	8	1	1	8	-1	-1	-1	-1	16	1	-1	-1	15	-1
LO21671	4	-1	-1	4	-1	-1	-1	-1	8	-1	-1	-1	7	1
LO21672	7	-1	-1	7	-1	-1	-1	-1	13	-1	-1	-1	12	-1
LO21673	3	-1	-1	3	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21674	3	-1	-1	3	-1	-1	-1	-1	5	-1	-1	-1	4	-1
LO21675	6	-1	-1	5	-1	-1	-1	-1	8	-1	-1	-1	8	-1
LO21676	3	-1	-1	3	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21677	3	-1	-1	3	-1	-1	-1	-1	5	-1	-1	-1	5	-1
LO21678	5	-1	-1	5	-1	-1	-1	-1	11	-1	-1	-1	10	-1
LO21679	7	-1	-1	6	-1	-1	-1	-1	10	-1	-1	-1	10	1
LO21680	-1	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21681	4	-1	1	4	-1	3	-1	-1	6	-1	2	1	6	-1
LO21682	5	-1	-1	5	-1	-1	-1	-1	7	-1	-1	-1	7	1
LO21683	5	-1	-1	5	-1	-1	-1	-1	12	-1	-1	-1	11	1
LO21684	3	-1	-1	4	-1	1	-1	-1	7	-1	-1	-1	7	1
LO21684-R	3	-1	-1	3	-1	-1	-1	-1	5	-1	-1	-1	4	-1
LO21685	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21690	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21691	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21692	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21696	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1

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LO21697	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21698	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21699	1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21699-R	2	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	4	-1	-1	4	-1	-1	-1	-1	8	-1	-1	-1	8	-1
LO21706	-1	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21707	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21710	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	9	1	-1	8	-1	-1	-1	-1	20	1	-1	-1	17	2
LO21712	3	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21713	3	-1	-1	3	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21714	4	-1	-1	4	-1	-1	-1	-1	5	-1	-1	-1	5	-1
LO21714-R	6	-1	-1	6	-1	-1	-1	-1	6	-1	-1	-1	6	-1
LO21715	5	-1	-1	4	-1	-1	-1	-1	7	-1	-1	-1	7	-1
LO21716	-1	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21717	2	-1	-1	2	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21718	3	-1	-1	3	-1	2	-1	-1	6	-1	1	-1	6	1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21720	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21721	-1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21722	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21723	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21724	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21725	3	-1	-1	3	-1	-1	-1	-1	3	-1	-1	-1	-1	-1
LO21726	3	-1	-1	3	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21727	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21728	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21729-R	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	1	-1
LO21730	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21751	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21752	2	-1	-1	3	-1	1	-1	-1	3	-1	-1	-1	3	-1
LO21753	1	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	2	-1
LO21754	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	2	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21766	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	1	-1

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LO21767	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21768	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21769	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21770	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21771	2	-1	-1	2	-1	-1	-1	-1	4	-1	-1	-1	3	-1
LO21772	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21773	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21774	3	-1	-1	2	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21775	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21776	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21777	-1	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21778	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21779	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	2	-1
LO21779-R	-1	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21780	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21781	2	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21782	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21783	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21789	2	-1	-1	2	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21790	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	3	-1
LO21791	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21792	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21793	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21794	2	-1	-1	2	-1	-1	-1	-1	4	-1	-1	-1	3	-1
LO21794-R	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21795	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21796	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21797	2	-1	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21798	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1
LO21799	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21800	2	-1	-1	2	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LO21803	2	-1	-1	2	-1	-1	-1	-1	3	-1	-1	-1	3	-1
LO21804	3	-1	-1	3	-1	-1	-1	-1	5	-1	-1	-1	4	-1
LO21805	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1
LO21806	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1
LO21807	2	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1	1	-1
LO21808	5	-1	-1	5	-1	-1	-1	-1	4	-1	-1	-1	4	-1
LO21809	7	-1	-1	1	-1	-1	-1	-1	17	1	-1	-1	17	1
LO21809-R	8	1	-1	1	-1	-1	-1	-1	22	1	-1	-1	22	2
LMB-QA	1	-1	-1	1	-1	-1	-1	-1	2	-1	-1	-1	2	-1
LMB-QA	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LMB-QA	-1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	085 - LPH	086 - LBI	087 - MAR	088 - HBA	089 - THI	090 - HPB	091 - LBI	092 - LPH	093 - LA	094 - LBI	095 - MAR	096 - LPH	097 - HBA	098 - THI

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

A13-06619

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	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI
LO21545	1	1	1	-1	1	2	4	-1	-1	5	4	43	4	6
LO21546	1	1	1	-1	1	-1	3	-1	-1	5	4	26	4	5
LO21547	3	3	2	-1	2	3	9	1	1	8	6	78	5	9
LO21548	3	3	2	-1	2	4	4	-1	-1	7	4	27	4	7
LO21549	3	3	3	1	2	1	10	2	2	7	7	130	7	13
LO21549-R	3	3	3	1	2	2	11	2	2	8	7	120	6	12
LO21550	1	1	-1	-1	1	1	2	-1	-1	4	4	22	3	5
LO21551	2	1	1	-1	1	2	5	-1	-1	5	5	47	4	7
LO21552	1	1	1	-1	1	2	5	1	-1	5	5	52	5	7
LO21553	3	2	2	-1	2	2	13	-1	1	8	6	64	5	12
LO21554	2	2	2	-1	2	2	6	-1	-1	6	5	59	5	7
LO21555	2	2	1	-1	1	2	5	-1	-1	6	5	38	4	6
LO21556	1	1	-1	-1	1	-1	2	-1	-1	4	4	19	3	5
LO21557	3	3	2	-1	-1	8	10	-1	1	9	7	90	6	10
LO21558	2	1	1	-1	1	2	6	-1	-1	5	5	53	4	7
LO21559	2	2	2	-1	1	2	9	1	1	6	5	83	6	9
LO21560	1	1	1	-1	-1	2	4	-1	-1	5	4	33	4	6
LO21561	1	1	1	-1	1	1	4	-1	-1	4	4	39	4	6
LO21562	2	2	2	-1	1	3	12	2	-1	6	7	100	5	4
LO21563	2	2	2	-1	-1	3	10	2	1	7	7	95	5	3
LO21564	2	2	3	1	2	3	16	2	-1	9	7	76	7	4
LO21564-R	2	2	3	1	-1	3	13	2	-1	8	7	137	7	5
LO21565	2	1	2	-1	1	2	8	1	1	5	5	78	5	9
LO21566	1	-1	1	-1	1	2	5	-1	-1	5	4	56	5	7
LO21567	1	1	1	-1	1	2	5	-1	-1	5	4	55	4	6
LO21568	1	1	2	-1	1	2	5	-1	-1	5	4	27	4	7
LO21569	2	2	2	-1	2	3	6	2	1	6	6	126	6	11
LO21570	2	2	1	-1	1	2	5	-1	-1	5	5	52	4	6
LO21571	1	1	1	-1	1	1	4	-1	-1	4	4	46	4	7
LO21572	1	1	1	-1	1	1	3	-1	-1	4	4	35	4	6
LO21573	1	1	2	-1	1	2	6	1	1	5	5	68	5	8
LO21574	1	1	1	-1	-1	2	4	-1	-1	4	4	44	4	6
LO21575	-1	-1	-1	-1	-1	1	-1	-1	-1	4	3	9	-1	4
LO21576	1	1	1	-1	1	2	3	-1	-1	4	4	29	4	5
LO21577	1	1	1	-1	-1	2	2	-1	-1	4	4	29	4	5
LO21578	1	1	-1	-1	1	2	1	-1	-1	4	3	16	4	5
LO21579	1	1	1	-1	1	2	4	-1	-1	5	4	48	4	7
LO21579-R	1	1	1	-1	1	2	4	-1	-1	5	4	48	4	7
LO21580	1	1	1	-1	-1	1	2	-1	-1	4	4	29	4	5
LO21581	1	1	1	-1	-1	1	3	-1	-1	4	4	36	4	6
LO21582	1	1	1	-1	1	2	3	-1	-1	4	4	39	4	6
LO21583	1	-1	-1	-1	-1	-1	2	-1	-1	4	3	19	4	5
LO21584	1	1	-1	-1	-1	-1	1	-1	-1	4	3	16	4	5
LO21585	1	-1	-1	-1	1	1	2	-1	-1	4	4	21	3	5
LO21586	1	1	1	-1	1	1	3	-1	-1	4	4	38	4	6
LO21587	1	1	1	-1	1	1	4	-1	-1	5	4	50	4	7
LO21588	1	-1	-1	-1	-1	1	2	-1	-1	4	3	23	4	5
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	11	-1	-1
LO21590	1	-1	1	-1	-1	1	2	-1	-1	4	3	25	4	5
LO21591	1	-1	1	-1	-1	1	3	-1	-1	4	3	29	4	6
LO21592	-1	-1	1	-1	-1	1	2	-1	-1	4	3	27	4	5
LO21593	-1	-1	1	-1	-1	1	3	-1	-1	4	4	29	4	6
LO21594	1	1	1	-1	-1	1	3	-1	-1	5	4	33	4	6
LO21594-R	1	1	1	-1	-1	1	4	-1	-1	6	4	36	4	3

	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI
LO21595	1	1	1	-1	1	1	3	-1	-1	5	4	32	4	6
LO21596	1	1	1	-1	-1	1	3	-1	-1	5	4	35	4	2
LO21597	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	16	3	5
LO21598	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	6	4	5
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	8	-1	-1
LO21600	-1	-1	1	-1	-1	1	3	-1	-1	4	4	31	4	6
LO21601	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	14	3	5
LO21602	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	8	-1	-1
LO21603	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	17	3	5
LO21604	1	1	1	-1	-1	2	4	1	-1	4	4	40	4	6
LO21605	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	13	-1	5
LO21606	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	16	3	4
LO21607	-1	-1	-1	-1	-1	1	1	-1	-1	4	3	12	-1	4
LO21608	1	1	1	-1	-1	2	3	1	1	4	4	43	4	7
LO21609	-1	-1	1	-1	-1	-1	2	-1	-1	4	4	25	4	5
LO21609-R	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	17	4	5
LO21610	1	1	1	-1	-1	1	3	-1	-1	4	4	36	4	6
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21612	-1	-1	-1	-1	-1	1	-1	-1	-1	4	3	3	-1	4
LO21613	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	20	4	5
LO21614	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	-1
LO21615	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	21	4	5
LO21616	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	21	4	5
LO21617	1	1	1	-1	1	2	4	1	-1	5	4	47	5	7
LO21618	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	19	3	5
LO21619	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21622	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	8	-1	4
LO21623	1	1	-1	-1	1	-1	2	-1	-1	4	3	17	4	5
LO21624	1	-1	-1	-1	-1	-1	1	-1	-1	4	3	13	3	5
LO21624-R	1	-1	-1	-1	-1	-1	1	-1	-1	4	3	14	3	5
LO21625	1	1	-1	-1	-1	2	2	-1	-1	4	3	20	4	5
LO21626	1	1	1	-1	1	-1	3	-1	-1	4	4	37	4	6
LO21627	-1	-1	-1	-1	-1	1	2	-1	-1	5	4	20	3	6
LO21628	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	16	-1	5
LO21629	-1	-1	1	-1	-1	1	2	-1	-1	4	4	22	3	6
LO21630	1	1	2	-1	1	2	5	-1	-1	6	5	56	4	8
LO21631	-1	-1	2	1	-1	1	2	-1	-1	4	8	93	6	10
LO21632	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	-1
LO21633	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	4	4	5
LO21634	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	13	3	5
LO21635	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	12	3	4
LO21636	-1	-1	1	-1	-1	1	2	-1	-1	4	4	5	4	5
LO21637	1	1	1	-1	1	2	6	1	1	4	4	58	5	7
LO21638	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	-1
LO21639	-1	-1	2	1	-1	1	7	-1	-1	4	8	56	5	8
LO21639-R	-1	-1	1	1	-1	1	5	-1	-1	4	7	40	4	6
LO21640	1	1	2	1	1	2	8	2	1	5	7	112	7	11
LO21641	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	1
LO21642	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21643	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21644	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21645	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1

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	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21647	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	14	3	5
LO21648	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21650	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	11	-1	-1
LO21651	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	9	-1	-1
LO21652	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	20	4	5
LO21653	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	17	-1	5
LO21654	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	11	3	4
LO21654-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	11	-1	-1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	2	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	8	3	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21659	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	13	3	4
LO21660	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21661	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	9	-1	-1
LO21662	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	22	4	5
LO21663	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	11	-1	4
LO21664	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	16	-1	5
LO21665	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21666	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	12	-1	4
LO21667	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	3	12	-1	4
LO21668	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21669	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	16	3	5
LO21669-R	-1	-1	-1	-1	-1	-1	2	-1	-1	4	3	18	3	5
LO21670	-1	-1	-1	-1	-1	1	2	-1	-1	4	3	15	3	5
LO21671	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	5
LO21672	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	12	-1	1
LO21673	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21674	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	-1
LO21675	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	9	-1	4
LO21676	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	-1
LO21677	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	9	3	-1
LO21678	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	4
LO21679	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	12	-1	4
LO21680	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21681	1	-1	-1	-1	-1	-1	1	-1	-1	4	3	11	-1	4
LO21682	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	3	4
LO21683	-1	-1	-1	-1	-1	-1	1	-1	-1	4	3	12	-1	4
LO21684	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	9	-1	-1
LO21684-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	8	-1	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	4	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	4	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21693	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1

	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI
LO21697	-1	-1	-1	-1	-1	1	-1	-1	-1	3	2	5	-1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21705	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	4
LO21706	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21711	-1	-1	-1	-1	-1	1	2	-1	-1	5	3	16	-1	5
LO21712	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21713	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21714	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	10	-1	-1
LO21714-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	2	-1	4
LO21715	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	10	-1	-1
LO21716	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	-1
LO21717	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21718	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	8	-1	-1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21720	-1	-1	-1	-1	-1	1	-1	-1	-1	4	3	6	-1	-1
LO21721	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21723	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	7	-1	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	2	5	-1	-1
LO21725	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	9	-1	-1
LO21726	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21728	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	8	-1	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21729-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21752	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21753	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	4
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21765	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21766	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1

SOIL GAS HYDROCARBONS  
(SGH) by GC/MS  
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	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI
LO21767	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21768	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21771	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21772	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21773	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21774	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21776	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21777	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21778	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21779	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21780	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	5	-1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21789	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	-1
LO21790	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	7	-1	4
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21794	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	7	-1	-1
LO21794-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	5	-1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	6	-1	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LO21803	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	6	-1	-1
LO21804	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	8	-1	-1
LO21805	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	5	-1	-1
LO21808	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	10	-1	4
LO21809	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	3	-1	4
LO21809-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	3	3	-1	4
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	6	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	4	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	3	4	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	4	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	4	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-1

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



Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	099 - LPH	100 - LPH	101 - MAR	102 - MBI	103 - LPH	104 - MAR	105 - ALK	106 - MBI	107 - MBI	108 - LPH	109 - MAR	110 - HBA	111 - MAR	112 - MBI

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

A13-06619

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	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH
LO21545	45	3	9	2	81	5	43	-1	5	4	5	5	3	4
LO21546	27	8	9	2	60	4	23	-1	5	4	4	5	3	4
LO21547	84	3	21	2	143	8	62	4	9	5	8	8	5	6
LO21548	30	16	19	2	128	6	30	4	7	22	2	7	7	6
LO21549	138	49	65	3	173	6	97	5	7	8	6	13	5	5
LO21549-R	131	39	53	3	324	5	98	5	7	10	7	12	6	6
LO21550	22	10	11	2	44	3	19	-1	4	4	4	5	2	4
LO21551	53	28	35	2	225	4	45	-1	5	6	5	8	3	4
LO21552	56	10	14	2	121	4	41	-1	5	5	5	6	3	4
LO21553	22	125	161	2	807	7	110	5	8	22	1	20	10	6
LO21554	61	6	12	2	80	5	42	4	6	5	6	7	5	5
LO21555	41	11	11	2	89	6	32	3	7	5	7	6	4	5
LO21556	19	17	21	2	40	4	17	-1	4	16	4	6	4	4
LO21557	99	40	50	2	259	17	112	5	18	17	16	13	16	9
LO21558	55	41	52	2	99	4	41	-1	5	8	-1	10	7	5
LO21559	89	30	40	2	129	6	64	4	7	17	6	10	11	5
LO21560	36	21	25	2	95	4	31	-1	5	7	5	7	5	4
LO21561	46	14	19	2	82	4	34	-1	4	4	4	6	3	4
LO21562	117	113	148	3	498	5	86	4	5	8	5	17	7	5
LO21563	96	86	111	3	852	4	91	4	5	12	5	15	7	5
LO21564	111	128	164	3	1270	5	128	5	-1	14	6	18	8	5
LO21564-R	139	154	196	3	1220	5	127	5	6	13	6	20	8	5
LO21565	84	37	49	2	161	4	62	4	5	6	5	9	4	4
LO21566	59	16	22	2	71	4	28	-1	4	6	4	7	9	4
LO21567	64	32	40	2	80	4	29	-1	4	6	4	8	7	4
LO21568	47	33	40	2	300	4	38	-1	4	7	4	8	4	4
LO21569	137	21	29	3	145	7	104	5	8	7	8	10	9	5
LO21570	53	12	16	2	57	4	37	-1	5	5	5	6	4	4
LO21571	50	30	36	2	150	4	39	-1	4	4	4	8	3	4
LO21572	38	18	21	2	75	3	29	-1	4	6	-1	6	5	4
LO21573	74	3	41	2	223	4	56	-1	5	13	5	9	4	4
LO21574	49	30	37	2	133	4	37	-1	4	6	4	8	3	4
LO21575	10	5	5	-1	13	3	8	-1	4	3	4	4	2	3
LO21576	31	11	12	2	39	4	23	-1	4	4	4	5	4	4
LO21577	30	3	8	2	33	4	23	-1	4	3	4	5	3	4
LO21578	17	6	7	-1	19	3	11	-1	4	3	4	5	3	4
LO21579	46	50	65	2	274	4	45	-1	5	8	5	10	4	4
LO21579-R	48	47	60	2	259	4	45	-1	5	7	5	11	4	4
LO21580	30	3	8	2	37	4	25	-1	4	4	4	5	3	4
LO21581	39	3	10	2	56	3	28	-1	4	3	4	5	2	4
LO21582	43	25	32	2	143	4	34	-1	4	5	4	7	4	4
LO21583	20	7	8	2	26	4	18	-1	4	3	4	5	2	4
LO21584	16	5	5	-1	16	4	13	-1	4	3	4	4	3	4
LO21585	22	13	16	-1	40	3	19	-1	4	4	4	5	3	4
LO21586	40	1	7	2	35	4	28	-1	4	3	4	5	4	4
LO21587	56	33	33	2	160	5	46	-1	5	10	5	8	7	4
LO21588	25	12	13	-1	41	3	18	-1	4	4	4	5	2	3
LO21589	11	-1	6	-1	17	-1	9	-1	-1	3	-1	4	2	-1
LO21590	28	16	19	-1	59	3	20	-1	4	4	4	6	4	4
LO21591	32	26	33	2	136	3	24	-1	4	5	4	7	3	3
LO21592	30	17	21	-1	122	3	25	-1	4	4	4	6	3	3
LO21593	32	15	21	2	158	3	27	-1	4	4	4	6	3	4
LO21594	31	34	44	2	147	3	30	-1	4	5	4	8	3	4
LO21594-R	30	75	98	2	321	4	37	-1	4	8	4	11	4	4

	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH
LO21595	30	47	62	2	366	4	35	-1	4	11	4	9	4	4
LO21596	35	75	99	2	366	3	36	-1	4	7	4	12	4	4
LO21597	17	8	9	-1	31	3	15	-1	4	4	3	5	3	3
LO21598	26	-1	9	2	34	3	22	-1	4	3	4	5	3	3
LO21599	9	6	6	-1	16	-1	2	-1	-1	3	-1	4	2	-1
LO21600	43	41	55	2	801	3	38	-1	4	4	4	9	4	4
LO21601	16	17	22	2	102	-1	15	-1	-1	5	3	6	2	3
LO21602	9	8	9	-1	30	-1	8	-1	-1	3	-1	4	2	-1
LO21603	18	23	29	2	162	4	6	-1	4	59	4	7	7	3
LO21604	43	13	17	2	137	4	30	-1	4	6	-1	6	4	4
LO21605	15	21	27	-1	91	3	14	-1	4	3	3	6	3	3
LO21606	17	-1	6	2	35	-1	13	-1	-1	3	-1	4	2	-1
LO21607	12	5	5	-1	14	-1	2	-1	4	3	3	4	2	3
LO21608	47	33	45	2	149	4	38	2	4	35	4	8	7	4
LO21609	28	19	23	2	193	4	25	-1	-1	27	4	6	9	4
LO21609-R	18	10	11	-1	48	3	15	-1	4	5	4	5	6	4
LO21610	39	15	21	2	128	4	12	-1	4	41	4	6	8	4
LO21611	6	-1	5	-1	21	-1	6	-1	-1	3	-1	4	2	-1
LO21612	12	11	13	-1	21	3	11	-1	4	3	3	5	2	3
LO21613	23	12	15	2	97	-1	19	-1	-1	4	3	5	3	3
LO21614	11	6	6	-1	23	-1	9	-1	-1	3	3	4	2	-1
LO21615	22	2	13	-1	34	3	17	-1	4	7	4	5	3	3
LO21616	24	25	32	2	126	3	7	-1	4	28	4	7	5	4
LO21617	50	35	45	2	148	5	13	-1	5	83	5	8	10	4
LO21618	21	-1	7	-1	43	3	16	-1	4	4	4	4	2	3
LO21619	6	5	9	-1	21	-1	6	-1	-1	15	-1	4	3	-1
LO21620	7	14	22	-1	23	-1	7	-1	-1	6	-1	6	2	-1
LO21621	6	8	14	-1	23	-1	6	-1	-1	4	-1	5	2	-1
LO21622	8	15	19	-1	31	3	8	-1	4	4	3	5	2	3
LO21623	18	9	10	-1	26	4	16	-1	5	8	5	5	4	4
LO21624	14	7	7	-1	17	4	11	-1	4	3	4	4	3	3
LO21624-R	14	7	8	-1	24	3	12	-1	4	4	4	4	3	3
LO21625	20	2	12	-1	27	4	15	-1	4	6	4	5	4	4
LO21626	38	3	12	2	44	4	28	-1	5	3	4	5	3	4
LO21627	19	73	95	2	197	3	24	-1	4	7	4	11	3	4
LO21628	17	47	62	2	60	3	16	-1	4	4	4	8	3	4
LO21629	27	57	76	2	183	4	26	-1	4	7	4	9	4	4
LO21630	67	107	148	3	867	4	75	3	-1	12	5	15	6	4
LO21631	87	2	10	4	99	4	95	-1	4	6	4	8	4	4
LO21632	10	5	5	-1	14	-1	9	-1	-1	3	-1	4	2	-1
LO21633	23	21	27	-1	98	3	20	-1	4	4	3	6	3	3
LO21634	14	14	17	-1	74	4	8	-1	4	73	4	5	9	3
LO21635	13	6	6	-1	16	3	11	-1	-1	3	3	4	2	-1
LO21636	30	18	22	2	98	3	22	-1	4	5	4	6	3	3
LO21637	60	8	12	2	58	4	45	4	4	10	4	6	5	4
LO21638	7	8	7	-1	8	-1	7	-1	4	5	3	4	3	3
LO21639	52	13	14	3	60	3	42	-1	4	7	4	7	4	4
LO21639-R	41	16	19	2	54	3	31	-1	4	6	4	7	4	4
LO21640	119	18	26	3	107	4	80	-1	5	6	5	9	4	4
LO21641	12	38	53	-1	24	4	11	-1	4	14	3	8	3	-1
LO21642	7	11	19	-1	23	-1	8	-1	-1	6	-1	5	2	-1
LO21643	7	16	24	-1	30	-1	8	-1	-1	7	-1	5	2	-1
LO21644	6	7	13	-1	3	-1	7	-1	-1	6	-1	4	2	-1
LO21645	7	4	8	-1	17	3	6	-1	4	19	3	4	4	-1

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	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH
LO21646	5	8	13	-1	12	-1	5	-1	-1	17	-1	4	3	-1
LO21647	16	14	17	-1	57	3	14	-1	4	3	3	5	2	-1
LO21648	5	3	6	-1	5	-1	5	-1	-1	3	-1	4	-1	-1
LO21649	6	-1	4	-1	6	-1	5	-1	-1	3	-1	-1	2	-1
LO21650	12	18	22	-1	72	3	13	-1	4	8	3	5	5	-1
LO21651	10	5	5	-1	11	-1	8	-1	-1	3	-1	4	2	-1
LO21652	21	10	11	2	37	3	17	-1	4	3	3	4	2	3
LO21653	22	30	39	2	402	3	24	-1	4	5	4	6	3	3
LO21654	13	8	9	-1	27	-1	11	-1	-1	3	3	4	2	-1
LO21654-R	12	8	8	-1	35	-1	11	-1	-1	3	-1	4	2	-1
LO21655	8	-1	5	-1	14	-1	8	-1	-1	3	-1	4	2	-1
LO21656	7	-1	5	-1	9	-1	6	-1	-1	3	-1	4	2	-1
LO21657	9	-1	4	-1	8	-1	7	-1	-1	3	-1	-1	2	-1
LO21658	8	-1	4	-1	7	-1	7	-1	-1	3	-1	4	2	-1
LO21659	14	11	13	-1	45	-1	13	-1	-1	4	3	5	2	-1
LO21660	7	5	10	-1	17	-1	2	-1	4	19	3	4	4	-1
LO21661	11	8	9	-1	32	-1	11	-1	-1	3	-1	4	2	-1
LO21662	23	14	17	2	51	3	20	-1	4	3	4	5	3	3
LO21663	12	5	5	-1	12	3	9	-1	4	3	3	4	2	3
LO21664	18	32	42	2	145	4	12	-1	5	123	-1	6	12	4
LO21665	6	3	7	-1	8	-1	6	-1	-1	3	3	4	2	-1
LO21666	13	6	6	-1	16	-1	11	-1	-1	3	3	4	2	-1
LO21667	13	7	7	-1	15	3	12	-1	-1	3	-1	4	2	-1
LO21668	7	-1	5	-1	10	-1	6	-1	-1	3	-1	4	2	-1
LO21669	17	3	7	2	44	-1	13	-1	-1	3	-1	4	2	-1
LO21669-R	19	9	9	2	76	-1	15	-1	-1	4	3	4	2	3
LO21670	13	16	20	-1	30	3	15	-1	4	4	4	5	3	-1
LO21671	11	19	24	-1	22	3	2	-1	4	3	3	5	2	-1
LO21672	12	15	19	-1	62	3	14	-1	4	18	4	5	4	3
LO21673	7	5	4	-1	11	-1	7	-1	-1	3	-1	4	2	-1
LO21674	8	5	9	-1	27	-1	8	-1	-1	6	-1	4	2	-1
LO21675	10	8	9	-1	20	-1	9	-1	-1	4	3	4	2	-1
LO21676	8	7	7	-1	23	-1	8	-1	-1	3	-1	4	2	-1
LO21677	10	-1	4	-1	11	-1	8	-1	-1	3	-1	-1	2	-1
LO21678	11	9	10	-1	28	-1	10	-1	-1	3	-1	4	2	-1
LO21679	12	8	9	-1	24	-1	10	-1	-1	3	-1	4	2	-1
LO21680	7	3	7	-1	11	-1	7	-1	-1	3	-1	4	2	-1
LO21681	11	5	5	-1	11	4	8	-1	4	3	4	4	2	3
LO21682	11	6	7	-1	16	-1	9	-1	4	3	3	4	2	-1
LO21683	13	12	15	-1	34	3	13	-1	4	3	3	5	4	-1
LO21684	10	8	9	-1	25	3	9	-1	4	3	3	4	2	-1
LO21684-R	8	6	7	-1	11	-1	7	-1	-1	3	3	4	2	-1
LO21685	5	-1	5	-1	7	-1	5	-1	-1	-1	-1	4	-1	-1
LO21686	5	-1	4	-1	-1	-1	5	-1	-1	3	-1	-1	2	-1
LO21687	5	3	7	-1	11	-1	6	-1	-1	17	-1	4	3	-1
LO21688	5	-1	5	-1	9	-1	5	-1	-1	15	-1	4	3	-1
LO21689	5	3	7	-1	10	3	2	-1	4	24	3	4	4	-1
LO21690	6	-1	5	-1	10	-1	6	-1	-1	3	3	4	2	-1
LO21691	8	3	8	-1	18	-1	7	-1	-1	3	-1	4	2	-1
LO21692	4	-1	5	-1	3	-1	5	-1	-1	5	-1	4	2	-1
LO21693	5	2	6	-1	3	-1	6	-1	-1	12	-1	4	3	-1
LO21694	5	-1	5	-1	9	-1	5	-1	-1	3	-1	4	-1	-1
LO21695	5	-1	5	-1	11	-1	5	-1	-1	3	-1	4	2	-1
LO21696	5	2	6	-1	11	-1	5	-1	-1	3	-1	4	2	-1

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	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH
LO21697	5	-1	5	-1	3	-1	6	-1	4	15	-1	4	3	-1
LO21698	5	-1	5	-1	12	-1	6	-1	3	19	3	4	3	-1
LO21699	5	-1	5	-1	3	-1	6	-1	-1	9	-1	4	2	-1
LO21699-R	6	-1	5	-1	3	-1	6	-1	-1	9	-1	4	3	-1
LO21700	5	2	6	-1	3	-1	6	-1	-1	11	-1	4	3	-1
LO21701	6	-1	5	-1	13	3	2	-1	4	27	3	4	4	-1
LO21702	4	-1	4	-1	1	-1	5	-1	-1	7	-1	-1	2	-1
LO21703	5	-1	6	-1	3	-1	6	-1	-1	11	-1	4	3	-1
LO21704	4	-1	4	-1	1	-1	5	-1	-1	7	-1	-1	2	-1
LO21705	11	7	7	-1	23	-1	10	-1	-1	3	3	4	3	3
LO21706	7	4	8	-1	23	-1	7	-1	4	16	-1	4	3	-1
LO21707	5	-1	4	-1	-1	-1	5	-1	-1	-1	-1	-1	2	-1
LO21708	6	3	7	-1	13	-1	7	-1	-1	6	-1	4	3	-1
LO21709	7	-1	5	-1	10	-1	7	-1	-1	3	-1	4	2	-1
LO21710	5	-1	4	-1	6	-1	5	-1	-1	3	-1	-1	2	-1
LO21711	14	25	32	2	87	3	17	-1	4	4	4	6	3	3
LO21712	7	6	5	-1	8	-1	6	-1	-1	3	-1	4	2	-1
LO21713	8	4	4	-1	7	-1	7	-1	-1	3	-1	-1	3	-1
LO21714	11	6	6	-1	18	-1	2	-1	-1	3	3	4	2	-1
LO21714-R	11	5	5	-1	11	-1	8	-1	-1	3	-1	4	2	-1
LO21715	10	6	6	-1	14	-1	9	-1	-1	3	-1	4	3	-1
LO21716	8	3	7	-1	33	-1	7	-1	-1	3	-1	4	2	-1
LO21717	6	-1	4	-1	9	-1	6	-1	-1	4	-1	-1	2	-1
LO21718	9	6	6	-1	12	-1	1	-1	4	3	3	4	2	-1
LO21719	6	-1	5	-1	11	-1	7	-1	-1	8	-1	4	2	-1
LO21720	6	4	4	-1	7	-1	5	-1	-1	-1	-1	4	2	-1
LO21721	5	-1	4	-1	7	-1	4	-1	-1	3	-1	-1	2	-1
LO21722	6	-1	5	-1	17	-1	6	-1	-1	3	-1	4	2	-1
LO21723	8	4	8	-1	18	-1	7	-1	-1	3	-1	4	2	-1
LO21724	6	-1	-1	-1	8	-1	5	-1	-1	3	-1	-1	-1	-1
LO21725	10	-1	4	-1	9	-1	7	-1	-1	3	3	3	2	-1
LO21726	8	6	7	-1	12	-1	7	-1	-1	3	3	4	2	-1
LO21727	5	-1	-1	-1	5	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21728	8	5	5	-1	9	-1	7	-1	-1	3	-1	4	2	-1
LO21729	5	-1	4	-1	9	-1	5	-1	-1	3	-1	-1	-1	-1
LO21729-R	6	-1	4	-1	8	-1	5	-1	-1	-1	-1	-1	-1	-1
LO21730	5	-1	4	-1	6	-1	5	-1	-1	-1	-1	-1	-1	-1
LO21751	5	-1	5	-1	6	-1	5	-1	-1	3	-1	4	2	-1
LO21752	8	5	5	-1	8	-1	6	-1	-1	3	-1	4	2	-1
LO21753	8	5	4	-1	8	-1	6	-1	-1	3	-1	4	2	3
LO21754	4	-1	-1	-1	8	-1	4	-1	-1	3	-1	-1	-1	-1
LO21755	4	-1	4	-1	4	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21756	4	-1	4	-1	1	-1	5	-1	-1	5	-1	4	2	-1
LO21757	5	-1	6	-1	9	-1	5	-1	-1	3	-1	4	2	-1
LO21758	4	-1	4	-1	1	-1	5	-1	-1	4	-1	-1	2	-1
LO21759	5	-1	4	-1	1	-1	5	-1	-1	4	-1	-1	2	-1
LO21760	4	-1	4	-1	3	-1	5	-1	-1	6	-1	-1	2	-1
LO21761	5	3	6	-1	9	-1	4	-1	-1	3	-1	4	-1	-1
LO21762	4	-1	4	-1	3	-1	5	-1	-1	12	-1	-1	3	-1
LO21763	4	-1	4	-1	1	-1	5	-1	-1	12	-1	-1	3	-1
LO21764	4	-1	-1	-1	4	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21764-R	4	-1	4	-1	5	-1	4	-1	-1	3	-1	-1	-1	-1
LO21765	7	-1	4	-1	8	-1	6	-1	-1	-1	-1	4	2	-1
LO21766	6	-1	5	-1	9	-1	5	-1	-1	3	-1	4	2	3

SOIL GAS HYDROCARBONS  
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	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH
LO21767	6	2	6	-1	10	-1	5	-1	-1	3	-1	4	2	-1
LO21768	5	-1	4	-1	7	-1	6	-1	-1	3	-1	-1	2	-1
LO21769	6	-1	4	-1	8	-1	5	-1	-1	3	-1	4	2	-1
LO21770	5	-1	4	-1	6	-1	5	-1	-1	-1	-1	-1	2	-1
LO21771	7	3	7	-1	19	-1	7	-1	-1	8	-1	4	3	-1
LO21772	6	-1	5	-1	9	-1	7	-1	-1	3	-1	4	3	-1
LO21773	5	-1	4	-1	6	-1	6	-1	-1	-1	-1	-1	2	-1
LO21774	7	6	6	-1	11	-1	7	-1	-1	3	-1	4	2	-1
LO21775	5	-1	4	-1	5	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21776	5	-1	-1	-1	5	-1	5	-1	-1	-1	-1	-1	2	-1
LO21777	6	-1	6	-1	3	-1	7	-1	-1	11	-1	4	3	-1
LO21778	7	2	6	-1	10	-1	7	-1	-1	3	-1	4	3	-1
LO21779	6	-1	5	-1	8	-1	6	-1	-1	3	-1	4	3	-1
LO21779-R	6	-1	5	-1	7	-1	6	-1	-1	3	-1	4	3	-1
LO21780	7	4	9	-1	16	-1	7	-1	-1	7	-1	4	3	-1
LO21781	6	-1	5	-1	-1	-1	6	-1	-1	3	-1	4	3	-1
LO21782	5	-1	4	-1	8	-1	5	-1	-1	3	-1	4	-1	-1
LO21783	5	-1	-1	-1	5	-1	5	-1	-1	-1	-1	-1	2	-1
LO21784	5	-1	4	-1	6	-1	4	-1	-1	2	-1	-1	-1	-1
LO21785	5	-1	-1	-1	5	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21786	5	-1	5	-1	11	-1	5	-1	-1	3	-1	4	2	-1
LO21787	4	-1	-1	-1	5	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21788	5	-1	4	-1	7	-1	5	-1	-1	3	-1	-1	2	-1
LO21789	7	6	6	-1	16	-1	7	-1	-1	3	-1	4	2	-1
LO21790	7	-1	4	-1	7	-1	6	-1	4	3	3	-1	2	-1
LO21791	8	-1	4	-1	11	-1	6	-1	-1	3	-1	4	2	-1
LO21792	6	-1	5	-1	-1	-1	5	-1	-1	3	-1	-1	2	-1
LO21793	5	-1	-1	-1	6	-1	5	-1	-1	3	-1	-1	-1	-1
LO21794	7	6	7	-1	14	-1	7	-1	-1	5	-1	4	4	-1
LO21794-R	7	3	7	-1	13	-1	7	-1	-1	3	3	4	4	-1
LO21795	5	-1	4	-1	-1	-1	5	-1	-1	-1	-1	-1	2	-1
LO21796	5	-1	4	-1	7	-1	5	-1	-1	3	-1	-1	-1	-1
LO21797	7	-1	4	-1	6	-1	5	-1	-1	3	-1	4	2	-1
LO21798	6	-1	4	-1	6	-1	5	-1	-1	3	-1	-1	2	-1
LO21799	5	3	6	-1	2	-1	6	-1	-1	4	-1	4	2	-1
LO21800	7	-1	6	-1	15	-1	6	-1	-1	3	-1	4	2	-1
LO21801	4	-1	4	-1	5	-1	4	-1	-1	-1	-1	4	2	-1
LO21802	5	-1	4	-1	6	-1	4	-1	-1	-1	-1	-1	-1	-1
LO21803	7	-1	5	-1	9	-1	6	-1	-1	3	-1	4	2	-1
LO21804	9	6	6	-1	27	-1	8	-1	-1	3	-1	4	2	-1
LO21805	6	-1	5	-1	7	-1	6	-1	-1	3	-1	4	2	-1
LO21806	5	-1	4	-1	-1	-1	5	-1	-1	3	-1	-1	2	-1
LO21807	6	-1	4	-1	12	-1	5	-1	-1	3	-1	4	2	-1
LO21808	11	6	6	-1	15	-1	10	-1	-1	3	3	4	3	-1
LO21809	13	-1	4	-1	16	-1	11	-1	4	3	3	4	2	-1
LO21809-R	15	-1	5	-1	18	-1	13	-1	4	3	3	4	2	3
LMB-QA	-1	-1	-1	-1	18	-1	10	-1	-1	3	-1	-1	7	-1
LMB-QA	5	-1	-1	-1	8	-1	6	-1	-1	3	-1	-1	4	-1
LMB-QA	-1	-1	-1	-1	-1	-1	6	-1	-1	3	-1	-1	4	-1
LMB-QA	-1	-1	-1	-1	-1	-1	6	-1	-1	-1	-1	-1	4	-1
LMB-QA	4	-1	-1	-1	-1	-1	5	-1	-1	-1	-1	-1	3	-1
LMB-QA	-1	-1	-1	-1	-1	-1	5	-1	-1	-1	-1	-1	2	-1
LMB-QA	4	-1	-1	-1	-1	-1	5	-1	-1	-1	-1	-1	2	-1

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Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	113 -HBA	114 - MBI	115 - MBI	116 - MAR	117 - HA	118 - MPH	119 - HBA	120 - THI	121 - MPH	122 - MPH	123 - MPH	124 - MBI	125 - HAR	126 - MPH

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(SGH) by GC/MS  
ELORA AND KENWEST PROJECT

	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH
LO21545	4	4	3	4	4	70	22	28	21	19	23	23	20	21
LO21546	4	3	3	4	3	38	21	24	20	19	20	20	19	19
LO21547	5	4	4	5	4	98	23	30	23	22	26	26	21	22
LO21548	5	4	4	4	4	55	20	23	22	22	24	24	21	21
LO21549	5	4	4	5	4	131	25	36	25	23	30	29	22	23
LO21549-R	5	4	4	5	5	136	26	37	26	23	30	29	23	24
LO21550	4	3	3	4	3	37	20	23	19	19	21	21	-1	19
LO21551	4	4	3	4	4	71	22	28	22	20	24	23	21	21
LO21552	4	4	3	4	4	65	22	27	21	20	22	22	20	21
LO21553	6	5	4	5	5	156	25	35	26	24	33	31	23	24
LO21554	5	4	4	4	4	68	21	24	22	21	24	24	21	22
LO21555	5	4	4	4	4	56	20	24	21	20	23	23	19	20
LO21556	4	3	3	4	3	31	20	22	19	19	21	21	-1	19
LO21557	6	4	5	6	5	127	22	30	27	24	29	28	24	26
LO21558	5	4	5	4	4	72	21	24	22	21	25	24	21	21
LO21559	5	4	3	4	4	92	23	30	23	21	26	25	21	21
LO21560	4	3	3	4	4	46	24	25	20	20	22	22	20	20
LO21561	4	4	3	4	4	58	20	23	19	19	22	22	19	20
LO21562	5	4	4	5	4	139	24	34	24	22	28	27	21	23
LO21563	5	5	4	5	4	160	25	37	24	23	32	29	21	22
LO21564	5	5	5	5	4	172	26	36	25	23	32	30	21	22
LO21564-R	5	5	4	5	5	184	28	38	26	25	35	33	23	24
LO21565	4	4	4	5	4	120	24	31	23	23	29	28	21	22
LO21566	4	3	3	4	4	50	21	25	21	20	22	23	20	21
LO21567	4	3	3	4	4	51	20	23	20	19	21	21	18	-1
LO21568	4	4	3	4	4	61	21	24	20	20	23	22	19	20
LO21569	5	4	4	4	4	137	24	32	23	23	29	27	22	22
LO21570	4	3	3	4	4	54	20	23	20	19	20	20	19	20
LO21571	4	3	3	4	4	59	20	24	19	19	22	22	19	19
LO21572	4	3	3	4	3	43	20	22	19	19	21	21	-1	19
LO21573	4	4	3	4	4	77	22	27	20	20	24	24	19	19
LO21574	4	3	3	4	3	54	20	24	20	19	23	23	19	19
LO21575	-1	-1	-1	3	-1	-1	-1	21	-1	-1	18	18	-1	-1
LO21576	4	3	3	4	3	39	20	22	19	-1	21	21	18	19
LO21577	4	3	3	3	3	37	19	22	20	18	20	20	-1	-1
LO21578	4	-1	3	3	3	20	18	20	-1	-1	19	19	-1	-1
LO21579	4	4	3	4	4	59	22	27	21	20	23	23	19	20
LO21579-R	4	4	3	4	4	65	20	25	22	20	24	23	20	20
LO21580	4	3	3	4	3	35	20	24	19	19	20	20	-1	19
LO21581	4	-1	3	3	3	43	19	21	19	18	21	21	-1	-1
LO21582	4	3	3	4	3	44	23	24	20	19	21	21	19	19
LO21583	4	-1	3	4	3	27	20	22	19	19	20	19	-1	-1
LO21584	4	-1	3	3	3	21	-1	19	19	-1	18	18	-1	-1
LO21585	4	3	3	3	3	28	19	21	19	19	19	20	-1	-1
LO21586	4	3	3	4	3	42	20	22	19	-1	20	21	-1	-1
LO21587	4	3	3	4	4	58	21	23	20	19	23	22	19	19
LO21588	4	3	3	3	3	28	19	21	18	-1	20	20	-1	-1
LO21589	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	4	3	3	4	3	31	19	21	18	-1	20	20	-1	-1
LO21591	4	3	3	3	3	37	-1	21	19	-1	21	20	-1	-1
LO21592	4	3	3	3	3	40	20	22	19	19	20	20	-1	-1
LO21593	4	3	3	4	-1	46	21	23	19	19	21	20	-1	18
LO21594	4	3	3	4	3	48	21	23	19	19	22	21	-1	19
LO21594-R	4	3	3	4	4	55	21	24	20	20	24	24	19	19

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	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH
LO21595	4	3	3	4	3	50	21	24	19	19	22	22	18	19
LO21596	4	3	3	4	4	49	21	25	20	20	23	22	19	20
LO21597	4	-1	3	-1	3	25	-1	20	-1	19	20	20	-1	19
LO21598	4	3	3	3	3	37	19	22	18	-1	21	21	-1	-1
LO21599	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21600	4	3	3	4	3	52	-1	23	19	19	21	21	-1	-1
LO21601	4	-1	-1	3	3	26	-1	21	-1	19	20	20	-1	-1
LO21602	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21603	4	3	3	4	3	35	20	21	19	-1	20	20	-1	-1
LO21604	4	3	3	4	3	44	20	22	19	19	21	21	-1	19
LO21605	4	-1	3	4	3	24	-1	21	-1	-1	19	19	-1	-1
LO21606	-1	-1	-1	3	-1	23	-1	20	-1	-1	19	19	-1	-1
LO21607	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	18	18	-1	-1
LO21608	4	4	3	4	4	57	20	24	21	19	22	21	19	19
LO21609	4	3	3	4	4	47	-1	23	20	19	21	21	19	19
LO21609-R	4	-1	3	3	3	28	-1	21	-1	19	20	20	18	-1
LO21610	4	3	3	4	3	50	21	24	19	19	21	22	-1	19
LO21611	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	4	-1	3	3	3	21	-1	20	-1	-1	19	19	-1	-1
LO21613	3	3	3	4	3	30	-1	22	-1	-1	20	19	-1	-1
LO21614	-1	-1	-1	-1	-1	-1	-1	20	19	-1	18	-1	-1	-1
LO21615	4	3	3	3	3	25	-1	21	-1	-1	20	20	-1	-1
LO21616	4	3	3	4	3	32	-1	22	19	-1	20	20	-1	-1
LO21617	4	4	4	4	4	47	20	23	20	19	22	21	19	19
LO21618	4	-1	3	3	-1	26	-1	21	-1	-1	20	20	-1	-1
LO21619	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1
LO21622	4	-1	-1	3	3	-1	-1	19	-1	-1	19	19	-1	-1
LO21623	4	-1	3	4	3	27	-1	19	20	19	19	19	-1	19
LO21624	4	-1	-1	3	-1	-1	-1	20	-1	-1	-1	19	-1	-1
LO21624-R	4	-1	3	3	3	20	-1	20	18	-1	19	-1	-1	-1
LO21625	4	-1	3	4	3	21	-1	21	19	-1	18	19	-1	19
LO21626	4	3	3	4	3	41	20	22	19	19	21	21	-1	19
LO21627	4	3	3	4	3	37	-1	23	19	19	23	23	18	19
LO21628	4	3	3	4	3	27	19	21	19	19	21	21	18	19
LO21629	4	3	3	4	4	40	20	23	20	19	23	23	18	19
LO21630	4	4	4	5	4	77	23	33	22	20	28	26	19	20
LO21631	4	4	4	6	4	211	28	69	21	20	49	49	20	21
LO21632	-1	-1	3	3	-1	-1	-1	20	-1	-1	19	19	-1	-1
LO21633	4	3	3	4	3	31	20	22	19	-1	20	20	-1	-1
LO21634	-1	-1	3	4	-1	25	-1	20	-1	-1	19	20	-1	-1
LO21635	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	19	19	-1	-1
LO21636	4	3	3	4	3	35	20	23	19	-1	20	20	-1	-1
LO21637	4	5	6	7	4	85	22	28	21	20	25	25	20	21
LO21638	-1	4	4	5	3	24	-1	21	19	-1	21	20	-1	19
LO21639	4	4	5	5	3	101	20	44	20	18	29	29	19	20
LO21639-R	4	4	4	5	3	74	20	37	19	-1	27	27	-1	19
LO21640	4	4	4	5	4	117	24	39	22	20	28	27	20	21
LO21641	3	-1	3	4	3	-1	-1	-1	-1	-1	22	21	-1	-1
LO21642	-1	-1	3	5	-1	-1	-1	-1	-1	-1	22	22	-1	-1
LO21643	-1	-1	-1	4	-1	-1	-1	-1	-1	-1	19	19	-1	-1
LO21644	-1	-1	-1	4	-1	-1	-1	-1	-1	-1	18	18	-1	-1
LO21645	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	18	-1	-1	-1

	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH
LO21646	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	4	-1	-1	3	3	26	-1	20	-1	-1	20	20	-1	-1
LO21648	-1	-1	-1	3	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	4	-1	-1	4	3	23	-1	20	-1	-1	20	20	-1	-1
LO21651	-1	-1	-1	-1	3	-1	-1	19	-1	-1	18	-1	-1	-1
LO21652	4	3	3	3	3	28	-1	21	19	-1	19	19	-1	-1
LO21653	4	3	3	4	3	33	-1	21	19	-1	20	20	-1	-1
LO21654	-1	-1	-1	3	-1	22	-1	20	18	-1	20	20	-1	-1
LO21654-R	-1	-1	3	3	-1	21	-1	20	-1	-1	19	19	-1	-1
LO21655	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21659	-1	-1	-1	3	-1	24	-1	19	-1	-1	19	19	-1	-1
LO21660	-1	-1	-1	4	-1	-1	-1	-1	-1	-1	21	20	-1	-1
LO21661	-1	-1	-1	-1	-1	22	-1	-1	-1	-1	19	18	-1	-1
LO21662	4	-1	3	3	3	37	19	21	19	-1	20	20	-1	19
LO21663	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	18	19	-1	-1
LO21664	4	3	3	4	3	32	-1	21	19	-1	21	21	-1	-1
LO21665	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	3	-1	-1	3	-1	21	-1	19	-1	-1	-1	18	-1	-1
LO21667	-1	-1	-1	3	-1	22	-1	20	-1	-1	19	19	-1	-1
LO21668	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21669	-1	3	3	3	-1	26	-1	21	-1	-1	19	19	-1	-1
LO21669-R	-1	-1	3	3	-1	30	-1	21	18	-1	19	20	-1	-1
LO21670	4	-1	3	3	3	24	-1	20	-1	19	20	19	-1	-1
LO21671	4	-1	-1	3	3	-1	-1	-1	-1	-1	20	20	-1	-1
LO21672	4	-1	-1	3	-1	23	-1	20	-1	-1	19	20	-1	-1
LO21673	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21674	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1
LO21675	-1	-1	-1	3	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21676	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21677	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21678	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	19	19	-1	-1
LO21679	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	18	-1	-1
LO21680	-1	-1	-1	3	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21681	3	-1	3	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21682	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21683	3	-1	-1	3	-1	-1	-1	21	-1	-1	18	18	-1	-1
LO21684	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	19	18	-1	-1
LO21684-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21685	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21691	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21692	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH
LO21697	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	18	18	-1	-1
LO21706	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	19	19	-1	-1
LO21707	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21710	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21711	4	3	3	3	3	27	-1	21	19	-1	20	20	-1	-1
LO21712	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21713	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	-1	-1	-1	-1
LO21714-R	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21715	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21716	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21717	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21718	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21719	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21720	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21722	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21723	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21724	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21726	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21727	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21730	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21752	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21753	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21766	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH
LO21767	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21768	-1	4	3	4	-1	26	20	30	-1	-1	23	23	-1	19
LO21769	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21770	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21771	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21772	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21773	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21774	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21775	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21777	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21778	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779-R	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21781	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21782	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21786	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21787	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21789	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21790	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21791	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21792	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21793	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794-R	-1	-1	-1	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21795	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21796	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21798	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21799	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21801	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21804	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21805	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	18	-1	-1	-1
LO21806	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21809	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LO21809-R	-1	-1	-1	-1	-1	-1	-1	20	-1	-1	19	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	20	18	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	19	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	127 - MPH	128 - MPH	129 - HAR	130 - HAR	131 - MPH	132 - ALK	133 - HAR	134 - HAR	135 - MPH	136 - MPH	137 - HBI	138 - HBI	139 - HPH	140 - HPH

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

A13-06619

60/72

	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH
LO21545	22	20	188	20	72	18	19	18	19	17	18	17	52	59
LO21546	20	19	73	18	44	-1	18	-1	18	-1	-1	-1	-1	-1
LO21547	23	21	188	21	73	20	20	19	19	20	19	21	61	65
LO21548	21	20	93	19	45	19	18	19	18	19	18	19	56	62
LO21549	26	22	384	25	122	20	22	19	20	19	20	20	58	62
LO21549-R	26	22	345	24	121	21	22	19	20	19	20	20	59	63
LO21550	20	-1	90	18	44	17	18	-1	-1	-1	-1	-1	-1	-1
LO21551	22	20	178	20	70	19	19	18	18	17	18	18	53	59
LO21552	21	20	151	20	65	19	19	18	18	-1	18	-1	53	59
LO21553	29	23	339	25	121	21	22	20	20	18	20	19	57	63
LO21554	22	20	172	21	67	20	19	19	18	18	18	19	55	59
LO21555	20	20	94	19	57	19	19	19	18	19	18	20	56	60
LO21556	19	-1	67	18	39	18	-1	-1	17	-1	-1	-1	-1	-1
LO21557	25	23	291	24	6	22	22	20	19	25	22	21	68	62
LO21558	22	20	142	21	77	21	21	21	19	18	18	18	54	60
LO21559	23	21	200	22	4	19	20	18	19	18	18	18	56	60
LO21560	20	19	113	19	52	18	18	-1	17	-1	-1	-1	52	-1
LO21561	21	19	155	19	60	18	19	18	17	-1	-1	-1	-1	-1
LO21562	25	22	263	22	96	20	20	19	19	18	19	18	54	60
LO21563	26	22	321	23	115	20	21	20	19	18	19	19	56	61
LO21564	30	23	402	25	139	21	22	20	20	19	20	19	57	64
LO21564-R	29	23	396	26	129	21	22	20	20	18	19	19	57	63
LO21565	24	20	266	22	97	19	20	19	19	18	19	18	55	62
LO21566	23	20	182	21	4	19	19	18	18	17	18	18	53	59
LO21567	20	-1	80	18	44	17	17	-1	-1	-1	-1	-1	-1	-1
LO21568	21	19	158	20	60	18	18	-1	-1	-1	-1	-1	-1	-1
LO21569	26	21	429	24	123	20	22	20	20	19	19	19	56	61
LO21570	19	-1	73	18	39	18	17	-1	-1	-1	-1	-1	-1	-1
LO21571	21	-1	169	19	4	18	19	-1	-1	-1	-1	-1	-1	-1
LO21572	20	-1	104	18	47	17	18	-1	-1	-1	-1	-1	-1	-1
LO21573	22	19	185	20	71	18	19	-1	18	-1	-1	-1	-1	-1
LO21574	21	19	139	19	56	18	18	-1	-1	-1	-1	-1	-1	-1
LO21575	19	-1	37	-1	29	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21576	20	19	81	18	46	18	4	-1	17	-1	-1	-1	-1	-1
LO21577	19	-1	97	18	45	18	17	-1	-1	-1	-1	-1	-1	57
LO21578	-1	-1	40	-1	31	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21579	22	19	176	20	65	18	19	-1	18	-1	-1	17	51	-1
LO21579-R	22	19	189	21	68	19	19	18	18	-1	18	18	53	-1
LO21580	20	-1	141	19	52	17	4	-1	-1	-1	-1	-1	-1	-1
LO21581	20	-1	139	19	2	17	18	-1	-1	-1	-1	-1	-1	-1
LO21582	20	-1	122	19	51	17	18	-1	-1	-1	-1	-1	-1	-1
LO21583	19	-1	90	18	38	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21584	19	-1	47	-1	34	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21585	20	-1	85	18	38	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21586	20	-1	124	18	49	17	18	-1	-1	-1	-1	-1	-1	-1
LO21587	21	19	160	19	5	18	18	-1	17	-1	-1	-1	-1	-1
LO21588	20	-1	78	18	38	17	17	-1	-1	-1	-1	-1	-1	-1
LO21589	-1	-1	38	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21590	19	-1	71	17	36	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21591	20	-1	86	17	40	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21592	20	-1	117	19	46	17	4	-1	-1	-1	-1	-1	-1	-1
LO21593	20	-1	116	18	3	17	18	-1	-1	-1	-1	-1	-1	-1
LO21594	21	-1	160	19	52	18	18	-1	17	-1	-1	-1	-1	-1
LO21594-R	22	19	176	20	4	18	18	-1	18	-1	18	-1	-1	-1

	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH
LO21595	21	-1	103	18	47	17	18	-1	17	-1	-1	-1	-1	-1
LO21596	21	-1	134	19	56	18	19	-1	18	-1	-1	-1	-1	-1
LO21597	19	-1	76	-1	34	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21598	20	-1	108	18	45	17	17	-1	-1	-1	-1	-1	-1	-1
LO21599	-1	-1	40	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21600	20	-1	114	19	48	-1	18	-1	-1	-1	-1	-1	-1	-1
LO21601	19	-1	62	-1	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21602	-1	-1	36	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21603	20	-1	97	18	40	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21604	20	-1	103	18	44	17	17	-1	-1	-1	-1	-1	53	57
LO21605	19	-1	69	18	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21606	-1	-1	59	-1	31	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21607	-1	-1	52	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21608	22	19	225	21	5	18	19	-1	18	-1	17	-1	-1	-1
LO21609	20	-1	10	18	44	17	18	-1	-1	-1	-1	-1	-1	-1
LO21609-R	19	-1	6	-1	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21610	21	-1	155	19	4	18	18	-1	-1	-1	-1	-1	-1	-1
LO21611	-1	-1	27	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21612	-1	-1	41	-1	30	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21613	19	-1	56	-1	39	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21614	-1	-1	6	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21615	19	-1	65	-1	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21616	19	-1	90	18	38	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21617	21	19	106	19	48	18	18	-1	-1	-1	-1	-1	-1	-1
LO21618	19	-1	85	17	36	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21619	-1	-1	4	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21620	-1	-1	27	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21621	-1	-1	27	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21622	-1	-1	33	-1	26	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21623	19	-1	63	18	33	18	18	-1	-1	-1	-1	21	57	58
LO21624	-1	-1	48	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21624-R	19	-1	51	17	29	-1	-1	-1	-1	-1	-1	-1	52	-1
LO21625	-1	-1	51	-1	29	-1	-1	-1	-1	-1	-1	18	53	-1
LO21626	20	-1	125	18	5	17	18	-1	-1	-1	-1	19	55	58
LO21627	22	-1	108	19	45	17	18	-1	-1	-1	-1	-1	-1	-1
LO21628	20	-1	62	17	33	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21629	23	-1	122	19	47	18	18	-1	17	-1	-1	-1	-1	-1
LO21630	26	21	336	23	89	19	20	4	18	18	18	18	53	59
LO21631	33	20	366	31	261	19	28	18	25	17	25	18	54	58
LO21632	-1	-1	5	-1	30	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21633	19	-1	60	18	42	17	4	-1	-1	-1	-1	-1	-1	-1
LO21634	19	-1	72	17	32	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21635	-1	-1	65	-1	31	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21636	19	-1	64	18	42	18	18	-1	-1	-1	-1	-1	-1	-1
LO21637	23	20	242	22	77	19	20	17	18	-1	18	18	54	-1
LO21638	19	-1	36	-1	31	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21639	23	-1	109	21	77	18	19	17	19	-1	18	17	-1	-1
LO21639-R	21	-1	83	19	59	-1	19	-1	18	-1	18	-1	-1	-1
LO21640	26	20	223	24	12	19	22	18	20	-1	19	17	-1	58
LO21641	19	-1	43	18	34	-1	18	-1	17	-1	-1	-1	-1	-1
LO21642	-1	-1	37	-1	30	-1	18	-1	17	-1	-1	-1	-1	-1
LO21643	-1	-1	33	-1	27	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21644	-1	-1	5	-1	27	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21645	-1	-1	31	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1

	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH
LO21646	-1	-1	27	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21647	19	-1	8	17	36	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21648	-1	-1	26	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21649	-1	-1	4	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21650	19	-1	71	-1	34	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21651	-1	-1	40	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21652	19	-1	88	18	38	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21653	20	-1	143	18	39	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21654	19	-1	56	-1	33	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21654-R	-1	-1	54	-1	32	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21655	-1	-1	38	-1	27	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21656	-1	-1	27	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21657	-1	-1	34	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21658	-1	-1	32	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21659	19	-1	82	17	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21660	-1	-1	38	-1	28	-1	19	-1	-1	-1	-1	-1	-1	-1
LO21661	-1	-1	54	-1	31	-1	18	-1	-1	-1	-1	-1	-1	-1
LO21662	20	-1	108	19	47	18	18	19	17	18	19	18	19	18
LO21663	-1	-1	38	-1	29	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21664	20	-1	92	19	38	18	18	19	17	18	19	18	19	18
LO21665	-1	-1	31	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21666	-1	-1	55	-1	32	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21667	-1	-1	65	-1	33	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21668	-1	-1	5	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21669	19	-1	51	-1	35	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21669-R	-1	-1	56	-1	36	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21670	19	-1	62	17	32	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21671	19	-1	49	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21672	19	-1	58	17	32	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21673	-1	-1	35	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21674	-1	-1	37	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21675	-1	-1	40	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21676	-1	-1	34	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21677	-1	-1	46	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21678	-1	-1	51	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21679	-1	-1	52	-1	29	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21680	-1	-1	37	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21681	-1	-1	34	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21682	-1	-1	40	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21683	-1	-1	72	18	30	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684	-1	-1	44	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21684-R	-1	-1	37	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21685	-1	-1	4	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21686	-1	-1	5	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21687	-1	-1	5	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21688	-1	-1	24	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21689	-1	-1	25	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21690	-1	-1	28	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21691	-1	-1	31	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21692	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21693	-1	-1	5	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21694	-1	-1	5	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21695	-1	-1	26	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21696	-1	-1	5	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1



	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH
LO21697	-1	-1	4	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21698	-1	-1	4	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699	-1	-1	27	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21699-R	-1	-1	27	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21700	-1	-1	26	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21701	-1	-1	28	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21702	-1	-1	4	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21703	-1	-1	4	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21704	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21705	-1	-1	51	-1	29	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21706	-1	-1	31	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21707	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21708	-1	-1	34	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21709	-1	-1	35	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21710	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21711	20	-1	64	18	33	-1	17	-1	-1	-1	-1	-1	-1	-1
LO21712	-1	-1	31	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21713	-1	-1	33	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714	-1	-1	37	-1	26	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21714-R	-1	-1	36	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21715	-1	-1	42	-1	25	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21716	-1	-1	28	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21717	-1	-1	29	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21718	-1	-1	36	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21719	-1	-1	28	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21720	-1	-1	28	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21721	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21722	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21723	-1	-1	31	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21724	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21725	-1	-1	31	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21726	-1	-1	31	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21727	-1	-1	24	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21728	-1	-1	29	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729	-1	-1	4	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21729-R	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21730	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21751	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21752	-1	-1	28	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21753	-1	-1	5	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21754	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21755	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21756	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21757	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21758	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21759	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21760	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21761	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21762	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21763	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764	-1	-1	22	-1	18	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21764-R	-1	-1	22	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21765	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21766	-1	-1	4	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1

	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH
LO21767	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21768	19	19	50	18	43	-1	18	-1	18	17	18	18	53	61
LO21769	-1	-1	28	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21770	-1	-1	5	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21771	-1	-1	31	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21772	-1	-1	30	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21773	-1	-1	29	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21774	-1	-1	34	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21775	-1	-1	23	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21776	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21777	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21778	-1	-1	32	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779	-1	-1	32	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21779-R	-1	-1	30	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21780	-1	-1	38	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21781	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21782	-1	-1	4	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21783	-1	-1	24	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21784	-1	-1	4	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21785	-1	-1	25	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21786	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21787	-1	-1	22	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21788	-1	-1	26	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21789	-1	-1	32	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21790	-1	-1	27	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21791	-1	-1	28	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21792	-1	-1	24	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21793	-1	-1	24	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794	-1	-1	32	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21794-R	-1	-1	32	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21795	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21796	-1	-1	4	-1	20	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21797	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21798	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21799	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21800	-1	-1	27	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21801	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21802	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21803	-1	-1	31	-1	22	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21804	-1	-1	31	-1	24	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21805	-1	-1	26	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21806	-1	-1	4	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21807	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21808	-1	-1	37	-1	27	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21809	-1	-1	62	-1	28	-1	-1	-1	-1	-1	-1	-1	-1	-1
LO21809-R	-1	-1	64	-1	29	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	39	-1	31	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	28	-1	23	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	25	-1	21	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	23	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	22	-1	18	-1	-1	-1	-1	-1	-1	-1	-1	-1
LMB-QA	-1	-1	22	-1	19	-1	-1	-1	-1	-1	-1	-1	-1	-1

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

Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

(SGH) by GC/MS

ELORA AND KENWEST PROJECT

Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	141 - HBI	142 - HPH	143 - HA	144 - HBI	145 - HBA	146 - HPH	147 - HBI	148 - HPH	149 - HBI	150 - HPH	151 - HBI	152 - HPH	153 - HPH	154 - HPH

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

SOIL GAS HYDROCARBONS  
(SGH) by GC/MS  
ELORA AND KENWEST PROJECT

	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH
LO21545	-1	-1	54	139	53	52	167	-1
LO21546	-1	-1	52	95	-1	-1	114	-1
LO21547	-1	53	53	120	52	53	150	-1
LO21548	-1	53	54	101	53	53	125	-1
LO21549	53	53	56	181	56	53	219	49
LO21549-R	55	55	57	181	56	54	220	50
LO21550	-1	-1	-1	99	-1	-1	122	-1
LO21551	-1	-1	55	134	53	51	160	-1
LO21552	-1	-1	54	119	52	51	146	-1
LO21553	13	56	58	201	57	56	248	50
LO21554	53	54	53	125	51	54	156	-1
LO21555	52	53	53	106	51	-1	133	-1
LO21556	-1	-1	-1	88	-1	-1	110	-1
LO21557	55	53	55	152	52	54	190	52
LO21558	52	-1	54	127	53	53	157	-1
LO21559	53	51	54	142	53	53	172	-1
LO21560	-1	-1	53	112	51	-1	137	-1
LO21561	-1	-1	51	122	52	-1	149	-1
LO21562	53	54	56	169	54	53	203	-1
LO21563	53	55	56	196	56	57	245	50
LO21564	54	56	59	220	57	59	278	50
LO21564-R	56	58	60	238	58	58	293	50
LO21565	53	54	56	173	55	56	215	-1
LO21566	-1	53	55	137	53	53	166	-1
LO21567	-1	-1	53	119	52	-1	149	-1
LO21568	-1	-1	53	122	-1	51	146	-1
LO21569	51	54	53	172	54	55	216	-1
LO21570	-1	-1	-1	95	-1	-1	118	-1
LO21571	-1	-1	-1	120	-1	-1	149	-1
LO21572	-1	-1	-1	96	50	-1	119	-1
LO21573	-1	-1	-1	116	-1	-1	144	-1
LO21574	-1	-1	53	107	-1	-1	131	-1
LO21575	-1	-1	-1	69	-1	-1	84	-1
LO21576	-1	-1	-1	89	-1	-1	111	-1
LO21577	-1	-1	-1	87	-1	-1	109	-1
LO21578	-1	-1	-1	69	-1	-1	87	-1
LO21579	-1	-1	52	122	51	51	147	-1
LO21579-R	-1	-1	53	130	52	-1	160	-1
LO21580	-1	-1	-1	106	-1	-1	128	-1
LO21581	-1	-1	-1	101	-1	-1	125	-1
LO21582	-1	-1	52	107	51	-1	128	-1
LO21583	-1	-1	-1	80	-1	-1	100	-1
LO21584	-1	-1	-1	74	-1	-1	90	-1
LO21585	-1	-1	-1	88	-1	-1	108	-1
LO21586	-1	-1	-1	96	-1	-1	119	-1
LO21587	-1	-1	-1	109	-1	-1	135	-1
LO21588	-1	-1	-1	83	-1	-1	103	-1
LO21589	-1	-1	-1	68	-1	-1	85	-1
LO21590	-1	-1	-1	78	-1	-1	97	-1
LO21591	-1	-1	-1	86	-1	-1	106	-1
LO21592	-1	-1	-1	95	-1	-1	117	-1
LO21593	-1	-1	-1	103	-1	-1	126	-1
LO21594	-1	-1	53	109	51	-1	133	-1
LO21594-R	-1	-1	54	112	52	-1	137	-1

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	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH
LO21595	-1	-1	-1	102	-1	-1	126	-1
LO21596	-1	-1	-1	105	-1	-1	128	-1
LO21597	-1	-1	-1	79	-1	-1	98	-1
LO21598	-1	-1	-1	94	-1	-1	117	-1
LO21599	-1	-1	-1	66	-1	-1	83	-1
LO21600	-1	-1	-1	102	-1	-1	126	-1
LO21601	-1	-1	-1	79	-1	-1	98	-1
LO21602	-1	-1	-1	65	-1	-1	80	-1
LO21603	-1	-1	-1	88	-1	-1	109	-1
LO21604	-1	-1	-1	87	-1	-1	109	-1
LO21605	-1	-1	-1	78	-1	-1	94	-1
LO21606	-1	-1	-1	76	-1	-1	95	-1
LO21607	-1	-1	-1	69	-1	-1	86	-1
LO21608	-1	-1	52	112	51	-1	136	-1
LO21609	-1	-1	-1	91	-1	-1	115	-1
LO21609-R	-1	-1	-1	75	-1	-1	94	-1
LO21610	-1	-1	52	100	51	-1	121	-1
LO21611	-1	-1	-1	61	-1	-1	75	-1
LO21612	-1	-1	-1	70	-1	-1	88	-1
LO21613	-1	-1	-1	81	-1	-1	100	-1
LO21614	-1	-1	-1	67	-1	-1	82	-1
LO21615	-1	-1	-1	73	-1	-1	92	-1
LO21616	-1	-1	-1	85	-1	-1	105	-1
LO21617	-1	-1	-1	87	-1	-1	110	-1
LO21618	-1	-1	-1	83	-1	-1	104	-1
LO21619	-1	-1	-1	62	-1	-1	78	-1
LO21620	-1	-1	-1	60	-1	-1	73	-1
LO21621	-1	-1	-1	60	-1	-1	75	-1
LO21622	-1	-1	-1	73	-1	-1	90	-1
LO21623	-1	-1	-1	75	-1	-1	91	-1
LO21624	-1	-1	-1	72	-1	-1	90	-1
LO21624-R	-1	-1	-1	71	-1	-1	88	-1
LO21625	-1	-1	-1	69	-1	-1	84	-1
LO21626	-1	-1	-1	94	-1	-1	116	-1
LO21627	-1	-1	52	102	-1	-1	126	-1
LO21628	-1	-1	-1	80	50	-1	99	-1
LO21629	-1	-1	53	108	51	53	134	-1
LO21630	-1	-1	55	171	53	53	209	50
LO21631	55	65	87	462	85	66	62	50
LO21632	-1	-1	-1	76	-1	-1	93	-1
LO21633	-1	-1	-1	82	-1	-1	100	-1
LO21634	-1	-1	-1	79	-1	-1	98	-1
LO21635	-1	-1	-1	76	-1	-1	95	-1
LO21636	-1	-1	-1	86	-1	-1	105	-1
LO21637	-1	-1	53	122	52	51	148	-1
LO21638	-1	-1	53	73	51	-1	90	-1
LO21639	-1	-1	58	129	56	53	163	-1
LO21639-R	-1	-1	55	109	54	53	138	-1
LO21640	-1	53	55	153	54	54	188	-1
LO21641	-1	50	58	93	57	-1	113	-1
LO21642	-1	-1	56	84	54	-1	104	-1
LO21643	-1	-1	-1	75	-1	-1	94	-1
LO21644	-1	-1	-1	74	-1	-1	90	-1
LO21645	-1	-1	-1	70	-1	-1	89	-1

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	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH
LO21646	-1	-1	-1	66	-1	-1	83	-1
LO21647	-1	-1	-1	89	-1	-1	112	-1
LO21648	-1	-1	-1	62	-1	-1	76	-1
LO21649	-1	-1	-1	62	-1	-1	80	-1
LO21650	-1	-1	-1	87	-1	-1	107	-1
LO21651	-1	-1	-1	71	-1	-1	88	-1
LO21652	-1	-1	-1	88	-1	-1	106	-1
LO21653	-1	-1	-1	94	-1	-1	116	-1
LO21654	-1	-1	-1	78	-1	-1	98	-1
LO21654-R	-1	-1	-1	77	-1	-1	97	-1
LO21655	-1	-1	-1	69	-1	-1	86	-1
LO21656	-1	-1	-1	62	-1	-1	78	-1
LO21657	-1	-1	-1	62	-1	-1	78	-1
LO21658	-1	-1	-1	65	-1	-1	80	-1
LO21659	-1	-1	-1	80	-1	-1	100	-1
LO21660	-1	-1	62	79	59	-1	97	-1
LO21661	-1	-1	51	77	50	-1	98	-1
LO21662	-1	-1	53	103	51	-1	128	-1
LO21663	-1	-1	-1	74	-1	-1	92	-1
LO21664	-1	-1	-1	91	-1	-1	112	-1
LO21665	-1	-1	-1	74	-1	-1	90	-1
LO21666	-1	-1	52	86	-1	-1	105	-1
LO21667	-1	-1	-1	83	-1	-1	103	-1
LO21668	-1	-1	-1	66	-1	-1	81	-1
LO21669	-1	-1	-1	81	-1	-1	101	-1
LO21669-R	-1	-1	-1	82	-1	-1	104	-1
LO21670	-1	-1	-1	81	-1	-1	100	-1
LO21671	-1	-1	-1	76	-1	-1	95	-1
LO21672	-1	-1	-1	85	-1	-1	106	-1
LO21673	-1	-1	-1	71	-1	-1	89	-1
LO21674	-1	-1	-1	71	-1	-1	87	-1
LO21675	-1	-1	-1	69	-1	-1	87	-1
LO21676	-1	-1	-1	68	-1	-1	83	-1
LO21677	-1	-1	-1	70	-1	-1	86	-1
LO21678	-1	-1	-1	75	-1	-1	94	-1
LO21679	-1	-1	-1	71	-1	-1	89	-1
LO21680	-1	-1	-1	66	-1	-1	82	-1
LO21681	-1	-1	-1	62	-1	-1	78	-1
LO21682	-1	-1	-1	69	-1	-1	87	-1
LO21683	-1	-1	-1	75	-1	-1	91	-1
LO21684	-1	-1	-1	68	-1	-1	85	-1
LO21684-R	-1	-1	-1	68	-1	-1	84	-1
LO21685	-1	-1	-1	65	-1	-1	81	-1
LO21686	-1	-1	-1	62	-1	-1	78	-1
LO21687	-1	-1	-1	61	-1	-1	74	-1
LO21688	-1	-1	-1	59	-1	-1	74	-1
LO21689	-1	-1	-1	65	-1	-1	81	-1
LO21690	-1	-1	-1	63	-1	-1	79	-1
LO21691	-1	-1	-1	62	-1	-1	78	-1
LO21692	-1	-1	-1	58	-1	-1	73	-1
LO21693	-1	-1	-1	70	-1	-1	86	-1
LO21694	-1	-1	-1	58	-1	-1	73	-1
LO21695	-1	-1	-1	61	-1	-1	75	-1
LO21696	-1	-1	-1	59	-1	-1	74	-1

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SOIL GAS CARBOONS  
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	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH
LO21697	-1	-1	-1	67	-1	-1	83	-1
LO21698	-1	-1	-1	66	-1	-1	81	-1
LO21699	-1	-1	-1	64	-1	-1	77	-1
LO21699-R	-1	-1	-1	65	-1	-1	80	-1
LO21700	-1	-1	-1	59	-1	-1	74	-1
LO21701	-1	-1	-1	64	-1	-1	80	-1
LO21702	-1	-1	-1	62	-1	-1	78	-1
LO21703	-1	-1	-1	67	-1	-1	81	-1
LO21704	-1	-1	-1	61	-1	-1	74	-1
LO21705	-1	-1	-1	72	-1	-1	88	-1
LO21706	-1	-1	-1	63	-1	-1	79	-1
LO21707	-1	-1	-1	60	-1	-1	75	-1
LO21708	-1	-1	-1	64	-1	-1	80	-1
LO21709	-1	-1	-1	63	-1	-1	79	-1
LO21710	-1	-1	-1	60	-1	-1	75	-1
LO21711	-1	-1	-1	82	-1	-1	103	-1
LO21712	-1	-1	-1	67	-1	-1	81	-1
LO21713	-1	-1	-1	66	-1	-1	82	-1
LO21714	-1	-1	-1	65	-1	-1	81	-1
LO21714-R	-1	-1	-1	64	-1	-1	81	-1
LO21715	-1	-1	-1	66	-1	-1	80	-1
LO21716	-1	-1	-1	61	-1	-1	77	-1
LO21717	-1	-1	-1	61	-1	-1	76	-1
LO21718	-1	-1	-1	61	-1	-1	74	-1
LO21719	-1	-1	-1	59	-1	-1	14	-1
LO21720	-1	-1	-1	62	-1	-1	76	-1
LO21721	-1	-1	-1	56	-1	-1	68	-1
LO21722	-1	-1	-1	58	-1	-1	72	-1
LO21723	-1	-1	-1	61	-1	-1	74	-1
LO21724	-1	-1	-1	55	-1	-1	69	-1
LO21725	-1	-1	-1	61	-1	-1	76	-1
LO21726	-1	-1	-1	65	-1	-1	81	-1
LO21727	-1	-1	-1	58	-1	-1	73	-1
LO21728	-1	-1	-1	61	-1	-1	76	-1
LO21729	-1	-1	-1	54	-1	-1	68	-1
LO21729-R	-1	-1	-1	57	-1	-1	72	-1
LO21730	-1	-1	-1	57	-1	-1	69	-1
LO21751	-1	-1	-1	56	-1	-1	70	-1
LO21752	-1	-1	-1	60	-1	-1	75	-1
LO21753	-1	-1	-1	58	-1	-1	73	-1
LO21754	-1	-1	-1	59	-1	-1	75	-1
LO21755	-1	-1	-1	58	-1	-1	71	-1
LO21756	-1	-1	-1	58	-1	-1	73	-1
LO21757	-1	-1	-1	58	-1	-1	70	-1
LO21758	-1	-1	-1	55	-1	-1	70	-1
LO21759	-1	-1	-1	61	-1	-1	76	-1
LO21760	-1	-1	-1	57	-1	-1	69	-1
LO21761	-1	-1	-1	56	-1	-1	71	-1
LO21762	-1	-1	-1	57	-1	-1	69	-1
LO21763	-1	-1	-1	56	-1	-1	68	-1
LO21764	-1	-1	-1	55	-1	-1	67	-1
LO21764-R	-1	-1	-1	56	-1	-1	68	-1
LO21765	-1	-1	-1	55	-1	-1	69	-1
LO21766	-1	-1	-1	57	-1	-1	71	-1

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	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH
LO21767	-1	-1	-1	55	-1	-1	70	-1
LO21768	55	53	62	106	60	53	130	51
LO21769	-1	-1	-1	58	-1	-1	71	-1
LO21770	-1	-1	-1	56	-1	-1	70	-1
LO21771	-1	-1	-1	59	-1	-1	72	-1
LO21772	-1	-1	-1	60	-1	-1	75	-1
LO21773	-1	-1	-1	55	-1	-1	71	-1
LO21774	-1	-1	-1	59	-1	-1	72	-1
LO21775	-1	-1	-1	55	-1	-1	69	-1
LO21776	-1	-1	-1	57	-1	-1	71	-1
LO21777	-1	-1	-1	59	-1	-1	71	-1
LO21778	-1	-1	-1	59	-1	-1	74	-1
LO21779	-1	-1	-1	59	-1	-1	74	-1
LO21779-R	-1	-1	-1	60	-1	-1	73	-1
LO21780	-1	-1	-1	62	-1	-1	77	-1
LO21781	-1	-1	-1	56	-1	-1	69	-1
LO21782	-1	-1	-1	58	-1	-1	71	-1
LO21783	-1	-1	-1	55	-1	-1	68	-1
LO21784	-1	-1	-1	53	-1	-1	65	-1
LO21785	-1	-1	-1	56	-1	-1	68	-1
LO21786	-1	-1	-1	55	-1	-1	70	-1
LO21787	-1	-1	-1	54	-1	-1	68	-1
LO21788	-1	-1	-1	56	-1	-1	71	-1
LO21789	-1	-1	-1	59	-1	-1	13	-1
LO21790	-1	-1	-1	55	-1	-1	72	-1
LO21791	-1	-1	-1	58	-1	-1	72	-1
LO21792	-1	-1	-1	58	-1	-1	71	-1
LO21793	-1	-1	-1	58	-1	-1	73	-1
LO21794	-1	-1	-1	62	-1	-1	78	-1
LO21794-R	-1	-1	-1	61	-1	-1	76	-1
LO21795	-1	-1	-1	56	-1	-1	69	-1
LO21796	-1	-1	-1	54	-1	-1	66	-1
LO21797	-1	-1	-1	55	-1	-1	68	-1
LO21798	-1	-1	-1	55	-1	-1	68	-1
LO21799	-1	-1	-1	57	-1	-1	72	-1
LO21800	-1	-1	-1	59	-1	-1	73	-1
LO21801	-1	-1	-1	55	-1	-1	67	-1
LO21802	-1	-1	-1	54	-1	-1	68	-1
LO21803	-1	-1	-1	57	-1	-1	72	-1
LO21804	-1	-1	-1	62	-1	-1	75	-1
LO21805	-1	-1	-1	58	-1	-1	70	-1
LO21806	-1	-1	-1	55	-1	-1	69	-1
LO21807	-1	-1	-1	57	-1	-1	72	-1
LO21808	-1	-1	-1	66	-1	-1	83	-1
LO21809	-1	-1	-1	70	-1	-1	87	-1
LO21809-R	-1	-1	-1	71	-1	-1	88	-1
LMB-QA	-1	-1	-1	92	-1	-1	115	-1
LMB-QA	-1	-1	-1	67	-1	-1	83	-1
LMB-QA	-1	-1	-1	61	-1	-1	75	-1
LMB-QA	-1	-1	-1	62	-1	-1	78	-1
LMB-QA	-1	-1	-1	56	-1	-1	71	-1
LMB-QA	-1	-1	-1	54	-1	-1	65	-1
LMB-QA	-1	-1	-1	55	-1	-1	69	-1

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Manitou Gold Inc.

Todd Keast

-1=Reporting Limit of 1pg/g (ppt=parts per trillion)

SOIL GAS HYDROCARBONS

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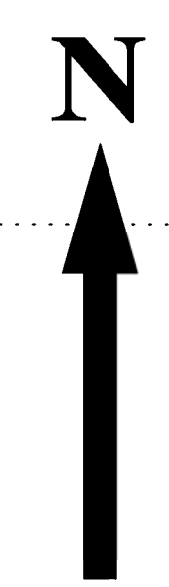
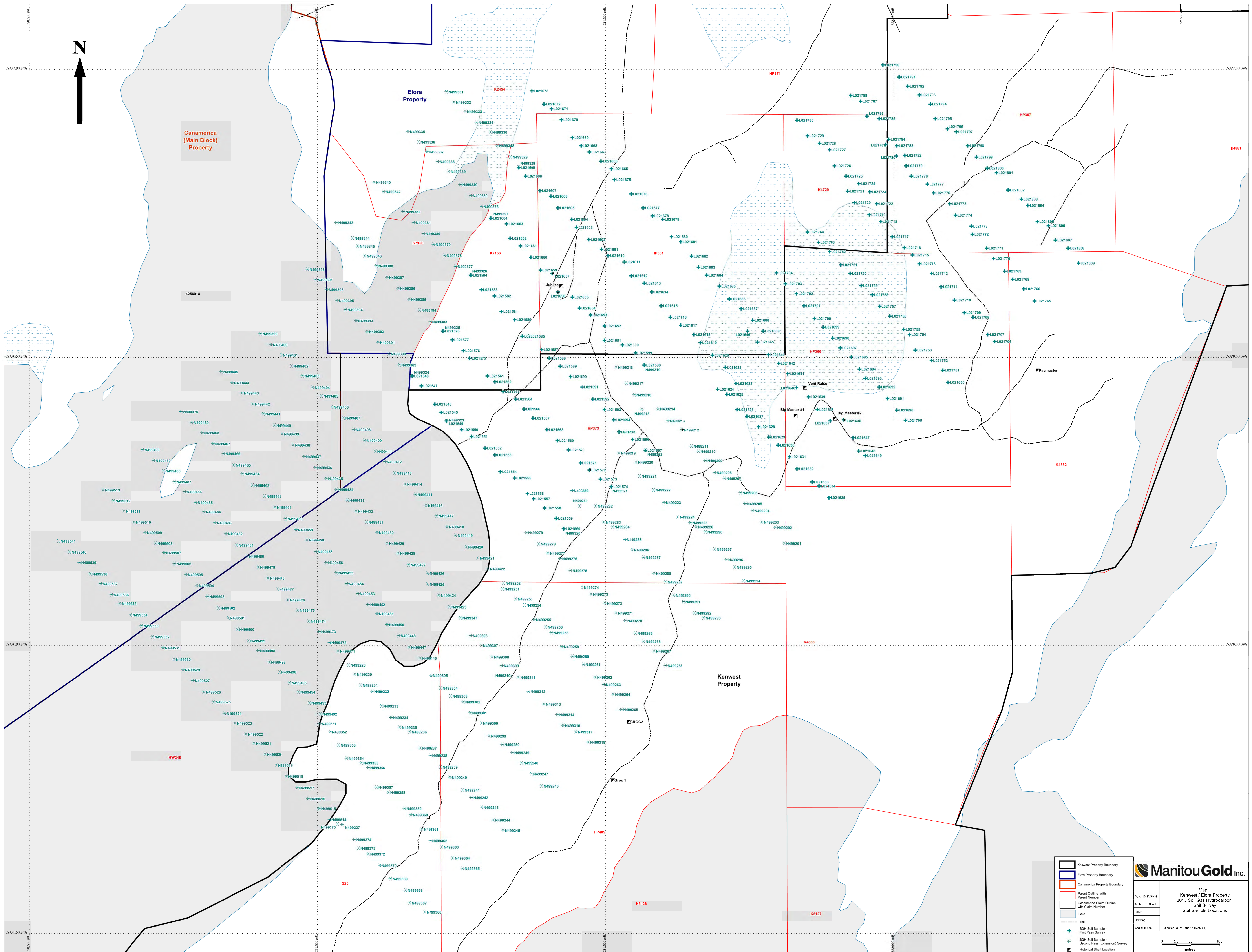
Activation Laboratories Ltd.

Date: June 24, 2013

R=Replicate Sample

	155 - HPH	156 - HBI	157 - HAR	158 - HBA	159 - HBA	160 - HBI	161 - HA	162 - HPH

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<p>Map 1 Kenwest / Elora Property 2013 Soil Gas Hydrocarbon Soil Survey Soil Sample Locations</p>	
<p>Date: 15/02/2014 Author: T. Aesch Office: Drawing: Scale: 1:2000 Projection: UTM Zone 18 (NAD 83)</p>	<p>0 25 50 100 metres</p>

- Kenwest Property Boundary
- Elora Property Boundary
- Canamerica Property Boundary
- Parent Outline with Parent Number
- Canamerica Claim Outline with Claim Number
- Lake
- Trail
- + SGH Soil Sample - First Pass Survey
- \* SGH Soil Sample - Second Pass (Extension) Survey
- Historical Shaft Location