SUMMARY REPORT
ON THE 2009
SOIL GEOCHEMICAL SAMPLING PROGRAM,
CARSCALLEN PROPERTY,
CARSCALLEN TOWNSHIP, ONTARIO

For: GeoVector Management Inc.

By: Terry A. Goodwin
December, 2009

Table of Contents

Page	
2	Table of Contents
3	List of Figures
3	List of Tables
4	Executive Summary
5	Introduction
5	2009 Soil Sampling Program
5	Introduction
6	Field Sampling Methodology – MMI Samples
6	Field Sampling Methodology – B-horizon Soil
7	Quality Assurance/Quality Control (QA/QC)
7	Sample Collection
7	Field Duplicates
7	Certified Reference Standards
7	Blanks
8	Sample Shipment
8	SGS Group QA/QC
8	ACTLABS QA/QC
8	Laboratory Methods
8	Sample Preparation
9	Instrumentation
9	SGS Group QA/QC
9	ACTLABS QA/QC
12	Results
12	Analytical Results – QA/QC
15	Analytical Results – Field Duplicates: MMI
16	Analytical Results – Field Duplicates: B-horizon Soil Samples
17	Analytical Results – MMI Soil Samples
24	Analytical Results – B-horizon Soil Samples
28	Surficial Geology
29	Discussion
29	Soil Profile
32	Key Field Observations
32	Conclusions
34	Recommendations
35	References

List of Figures

Figure 1. Carscallen Property location map.
Figure 2. X-Y scatterplot of INAA analytical results for gold for the B-horizon field duplicate sample pairs.
Figure 3a. Raw MMI gold results for the Carscallen Property.
Figure 3b. Raw MMI silver results for the Carscallen Property.
Figure 3c. Raw MMI arsenic results for the Carscallen Property.
Figure 3d. Plan view of MMI gold Response Ratios for the Carscallen Property.
Figure 4a. MMI gold plus silver Response Ratios for Line 1+00S.
Figure 4b. MMI gold plus silver Response Ratios for Line 1+00N.
Figure 4c. MMI gold plus silver Response Ratios for Line 2+00N.
Figure 4d. MMI gold plus silver Response Ratios for Line 3+00N.
Figure 4e. MMI gold plus silver Response Ratios for Line 13+00N.
Figure 5a. Raw INAA gold results for the Carscallen Property.
Figure 5b. Simplified raw INAA gold results for the Carscallen Property.
Figure 5c. Raw ICP-MS silver results for the Carscallen Property.
Figure 5d. Raw ICP-MS arsenic results for the Carscallen Property.
Figure 6. Comparison of raw MMI and INAA gold results for the Carscallen Property.

List of Tables

Table 1a. Analytical methodology for soil samples submitted to SGS Canada Inc – Mineral Services for MMI analysis (Package MMI-M5).
Table 1b. Analytical methodology for B-horizon samples submitted for geochemical analysis (Package 1H) at ACTLABS.
Table 2a. Analytical results for internal soil reference standards inserted by SGS Canada Inc – Mineral Services.
Table 2b. Analytical results for certified reference standard DMMAS 108B inserted by ACTLABS.
Table 3. Analytical results for certified standard ROCKLABS OxH37 reported by ACTLABS (INAA).
Table 4. Analytical results for preparation splits prepared and inserted by SGS Canada Inc – Mineral Services.
Table 5. Analytical results for "BLANKS" inserted by SGS Canada Inc – Mineral Services.
Table 6a. MMI analytical results for gold, silver, arsenic and lead for field duplicate sample pairs.
Table 6b. INAA analytical results for gold, silver, arsenic and lead for B-horizon field duplicate sample pairs.
Table 7. Summary statistics for (MMI) Au in soil.
Table 8. Summary statistics for (MMI) Au in soil.
Table 9. Mapped ice flow indicators.
Table 10. Summary of key field observations.

Executive Summary

During October, 2009, a total of 255 soil samples were collected from within Carscallen Property and submitted for MMI analysis to SGS Canada Inc – Mineral Services in Toronto, Ontario. In addition, 227 B-horizon soil samples were also collected and submitted for Au and multi-element geochemical analysis to Activation Laboratories Inc. (ACTLABS) of Ancaster, Ontario. A number of quality control protocols were used including the insertion of certified reference materials and the collection of field duplicates.

For the 255 soil samples analyzed by MMI for gold, concentrations ranged from a low of 0.05 ppb to a high of 3.70 ppb with a mean of 0.17 ppb and a median value of 0.05 ppb. Field duplicates for MMI gold results are highly repeatable and indicate that spatial variance is low. Gold did not correlate with any element. A very crude and weak alignment of anomalous MMI gold samples occurs in a northeast-southwest orientation. Response Ratios (gold plus silver) were generated with noteworthy anomalies identified on lines 1+00S (highest amplitude), 1+00N, 2+00N (most spatially cohesive), 3+00N and 13+00N (a significant anomaly open to the north). Other single station MMI anomalies were identified. All MMI anomalies remain effectively untested by diamond drilling.

For the 227 B-horizon soil samples analyzed for gold by INAA (and multi-element geochemistry by ICP-MS), concentrations ranged from a low of 1.0 ppb to a high of 68.0 ppb with a mean of 6.0 ppb and a median value of 1.0 ppb. Field duplicates for the B-horizon gold results indicate there is a poor correlation between the sample sites and that spatial variance is significant. Gold did not correlate with any element. Anomalous gold in B-horizon soil samples were commonly single-station anomalies although a cohesive, three-station anomaly (with a maximum value of 42 ppb) was located on Line 2+00S. The single station anomalies are likely the product of an overly coarse sampling density, the “nugget effect”, and/or a resultant of a combination of the orientation of the bedrock mineralization with the direction of the dominant ice flow movement. All B-horizon anomalies also remain effectively untested by diamond drilling.

The soil sampling density as it currently exists (particularly for the MMI samples) is too coarse and should be increased in order to identify narrow (<1 m) zones of fractured-controlled gold mineralization in bedrock. Additional tighter-spaced sampling in the vicinity of each of the anomalies will likely better define and/or enhance the RR anomalies. Consideration should also be given to increasing the sample density in the vicinity of single station B-horizon gold anomalies. Currently, a number of MMI and B-horizon soil anomalies are considered “open”. Additional sampling to close off the anomalies is warranted.

Additional prospecting is warranted in a number of areas (i.e. such as where sulphides were noted in soil samples). Mapping of the surficial geology is required to (a) enhance the regional and property level understanding of the glacial history and (b) assist with the interpretation of the B-horizon soil sample results.

Introduction

A limited soil geochemical sampling program was carried out during October, 2009, within Carscallen Property which is 100% owned by Melkior Resources (Figure 1). The Carscallen Property is located approximately 30 km southwest of Timmins, Ontario, and is located in the extreme southern end of Carscallen Township.

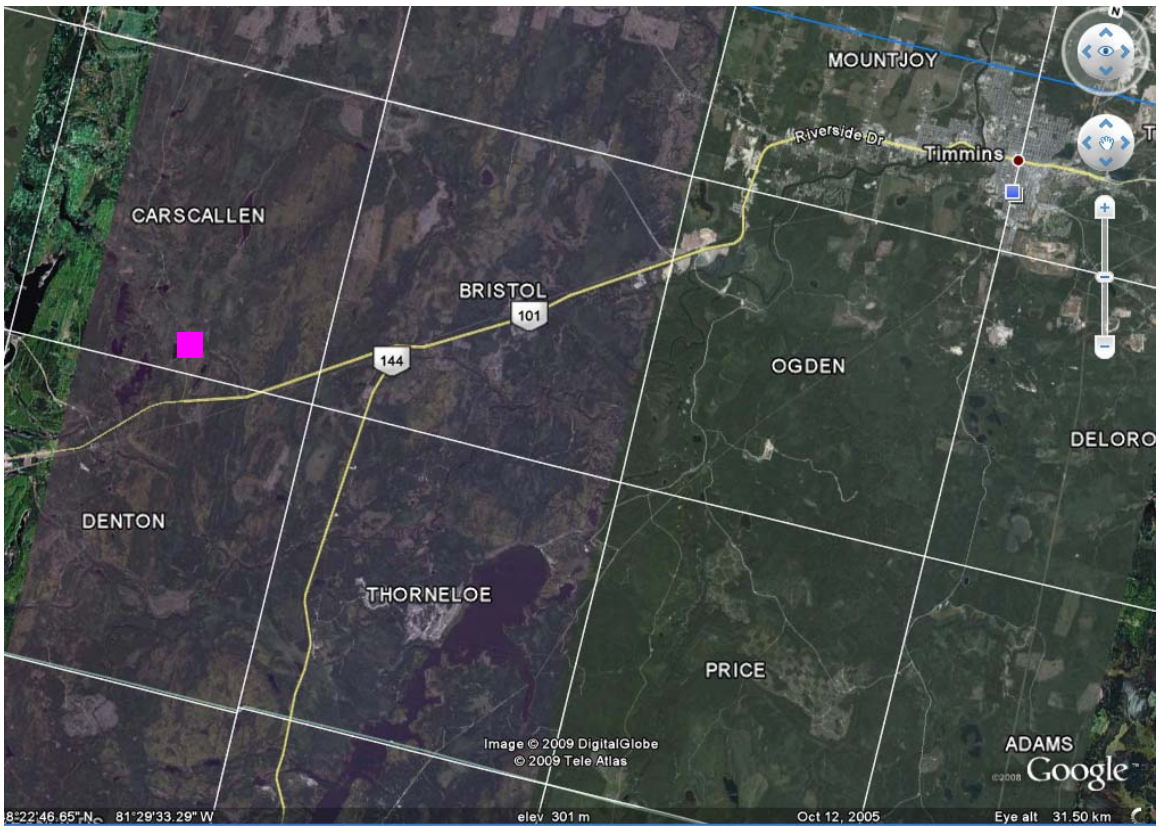


Figure 1. Carscallen Property location map. The Carscallen Property is represented as the mauve square. (Image modified from Google Earth).

The objective of the soil sampling program was to identify gold anomalies in soil in order to support an on-going gold exploration program. The geochemical sampling program described herein summarizes results for soil samples collected for MMI analysis as well as geochemical results for B-horizon soil samples collected and analyzed by INAA and ICP/MS from within the Carscallen Property during mid to late October, 2009.

2009 Soil Sampling Program

Introduction

A detailed, soil geochemical sampling program was completed from October 17 to October 23, 2009, on the Carscallen Property in northern Ontario. The program involved the collection of soil samples by means of (1) a shovel and plastic trowel or (2) with a Dutch auger. Samples were collected at 50 m intervals along previously cut grid lines

with a nominal 100 m line separation. Sample stations were located by GPS and all sample points were downloaded from the GPS to a laptop computer each evening in order to eliminate transcription errors.

At each station, two 500 g samples were collected. One sample was collected specifically for Mobile Metal Ions (MMI) analysis using a strict field sampling protocol (described below) and are referenced as the CAR–M *** series. A second 500 g sample was also collected at each site but specifically from the B-horizon (where present) and are referenced as the CAR-B *** series.

A total of 255 soil samples (including 13 field duplicates) were collected and submitted for MMI analysis. Only 227 B-horizon soil samples (including 13 field duplicates) were collected and submitted for Au and multi-element geochemical analysis.

Soil field descriptions and associated georeferenced data (tabulated in EXCEL format) were previously sent to GeoVector Management Inc. and are not included with this report.

Field Sampling Methodology – MMI Samples

The following sampling protocol was used to collect soil samples submitted for MMI analysis. Initially, all sample sites were dug by shovel to an average depth of 40 cm in order to observe the undisturbed soil profile. A zero point was established at the top of the first mineral soil horizon (which also corresponded to the base of the H-horizon). Next, a 0 – 10 cm section was marked out from the top of the first mineral soil horizon and left undisturbed. For the MMI sample, a complete plug of soil was consistently collected with a plastic trowel from the 10 – 25 cm interval regardless of the soil horizon(s) encountered. Typically the MMI sample consisted of either 100% A-horizon soil, 100% B-horizon soil or varying proportions of both. Rarely, a small percentage of the C-horizon was included in the MMI sample. Approximately 500 g of the 10 - 25 cm interval was then placed into a pre-labelled 4” x 6” Kraft soil bag after all roots and large pebbles (>1 cm) were removed. As the program progressed and confidence in recognizing the soil horizons increased, a Dutch auger was used to obtain the MMI sample.

Field Sampling Methodology: B-horizon Soil

At each station, a B-horizon soil sample was also collected (where present). On very rare occasions, if a well developed B-horizon was not present, a poorly developed B-horizon sample was collected and the sample quality was noted as being poor. If the B-horizon was not encountered, a B-horizon soil sample was not collected.

Initially, all sample sites were dug by shovel to an average depth of 40 cm in order to observe the undisturbed soil profile. A 500 g sample of the B-horizon soil was consistently collected with a plastic trowel and placed into a pre-labelled 4” x 6” Kraft soil bag after all roots and large pebbles (>1 cm) were removed. As the program

progressed and confidence in recognizing the soil horizons increased, a Dutch auger was used to obtain the B-horizon sample. The B-horizon was commonly encountered at depths varying between 20 – 40 cm below the ground/air interface.

Quality Assurance/Quality Control (QA/QC)

Sample Collection

Both geochemical samplers involved in the geochemical sampling program were experienced with collecting/describing soil samples using The Canadian System of Soil Classification - Third Edition (Agriculture and Agri-Food Canada, 2005). Samplers were trained to identify and collect the best quality soil sample possible. The sampling crew sampled and described the first two grid lines together as part of a property orientation plan and to discuss soil types, colors, textures, as well as additional sampling criteria or field observations specific to the collection of soil samples submitted for MMI analysis. Pertinent information characterizing each sample site was recorded in the field and entered into a spreadsheet each evening. Samplers were instructed to discard any organic material observed in the sample and to discard any pebbles >1 cm in size. Sampling crews were strictly prohibited from wearing any jewellery/rings.

Specific to the MMI field sampling program, numerous discussions were held with SGS's MMI representative Pierrette Prince and MMI consultant Mark Fedakow regarding field sampling methodology. Discussions centered on discrepancies in describing the sampling protocol posted on the SGS website versus protocols outlined in published literature (Hamilton, 2007).

Field Duplicates

Field duplicates were collected to assess site variance. Duplicate samples were collected from a separate sample site located within 5 m of the original sample site and were routinely collected at approximately every 20th site. The field duplicates were blindly inserted into the sample stream submitted to the laboratory for analysis.

Certified Reference Standards

Certified reference standards are not commercially available for MMI sampling programs and, therefore, were not included as part of the QC program. A certified standard should be included (when available) in future geochemical sampling programs.

A certified reference standard for gold, ROCKLABS OxH37 (Au = 1286 ppb), was routinely inserted into the sample stream approximately as every 20th sample for the B-horizon soils only.

Blanks

Blanks were not inserted into the sample stream prior to shipment to the laboratories.

Future sampling programs should consider the routine insertion of blanks as part of the overall QA/QC program.

Sample Shipment

Each Kraft bag was placed into a small plastic sandwich bag in order to avoid cross-contamination due to ruptured sample bags. Excessively wet samples were placed in a larger, durable freezer bag and zip locked in order to prevent spillage and subsequent contamination of surrounding samples. Finally, 20 samples were placed in pre-labelled 20 litre buckets for shipment to the lab. The contents of each bucket were entered into a spreadsheet and a copy of the list was included with the laboratory submittal form.

SGS Group QA/QC

The SGS Group also instituted their own QA/QC program which is described below under the section **Laboratory Methods (SGS QA/QC)**.

ACTLABS QA/QC

ACTLABS also instituted their own QA/QC program which is described below under the section **Laboratory Methods (ACTLABS QA/QC)**.

Laboratory Methods

Sample Preparation

Soil samples collected for MMI analysis were sent to SGS Canada Inc – Mineral Services laboratory in Toronto, Ontario. Samples were analyzed "as received" and do not require preparation or drying. The SGS Group has numerous offices around the world and specializes in inspection, verification, testing and certification with a strong commitment towards compliance and integrity. Specific to the mineral exploration industry, SGS is a service provider of analytical geochemical services. Detailed information on the SGS Group of companies can be found on their web page at: http://www.sgs.com/. At the time of writing, all excess MMI sample material was in storage at the SGS Canada Inc – Mineral Services laboratory in Toronto, Ontario.

B-horizon soil samples were sent to Activation Laboratories Inc. (ACTLABS) in Ancaster, Ontario, for sample preparation and analysis. ACTLABS is a fully accredited laboratory and employs an internal Quality System with respect to competent and trained personnel, test methods and method validation, equipment schedule for maintenance and calibration, sample traceability and sub-sampling reliability. Information regarding their QA/QC protocols and accreditation can be found on their web page at: http://www.actlabs.com/home.htm.

Prior to shipping to the laboratory, Kraft sample bags were air dried for several days by placing the bags outdoors on pieces of lumber. The samples were rotated daily in order to

assist the drying process. At the laboratory, the B-horizon soil samples were dried (60^0C) and sieved to <63 microns (ACTLABS Code S1-230). At the time of writing, all excess sample material was in storage at the ACTLABS facility in Ancaster, Ontario.

Instrumentation

A 50 g sub-sample of the 10 - 25 cm interval soil samples was subjected to a proprietary weak leach solution of organic and inorganic compounds. Multi-element geochemical analysis (SGS Package MMI-M5) of the solution was determined by Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS). The lower detection limits (LDL) for each element (as reported by SGS) is summarized in Table 1a.

Multi-element geochemical analysis of the B-horizon soil samples was determined by Inductively Coupled Plasma – Mass Spectroscopy (ICP-MS) on a 0.25 g sub-sample (ACTLABS Code 1H – Total Digestion – ICP, INAA) following a strong 4-acid digestion. Multi-element geochemical analysis of the B-horizon soil samples was also determined on a +/- 30 g sub-sample by Instrumental Neutron Activation Analysis (INAA) as part of Code 1H (Total Digestion – ICP, INAA) package. INAA does not require samples to be digested prior to analysis.

The lower detection limits (LDL) and upper detection limits (UDL) for each element is summarized in Table 1b. According to the ACTLABS website (http://www.actlabs.com/gg_soil_trace_usa.htm), the upper detection limits (UDL) are up to 20 000 times the LDL. Partial extraction is expected for some elements. Refer to the ACTLABS website for more information on each element.

SGS Group QA/QC

Although more extensive than what is briefly described below, SGS Canada Inc – Mineral Services have their own QA/QC program which involves; internal soil reference standards, preparation duplicates, and blanks. Preparation duplicates were prepared and inserted at a rate of approximately 1 in every 10 samples. Seven internal soil reference standards and seven blanks were also inserted by SGS at an average rate of about 1 in 40 for each control method.

ACTLABS QA/QC

Similarly, ACTLABS has a more extensive QA/QC program in place than what is briefly described below. ACTLABS also inserted (certified) reference standards, preparation duplicates, and blanks. For the ICP-MS analysis, ACTLABS inserted 14 preparation duplicates, 8 certified reference standards and 8 blanks. For the INNA, a total of 4 (certified) reference standards were inserted as well as 1 blank. Preparation duplicates were not inserted.

Element	Units	LDL	Digestion	Instrument	Code
Ag	ppb	1	proprietary	ICP-MS	MMI-M5

Al	ppb	1	proprietary	ICP-MS	MMI-M5
As	ppb	10	proprietary	ICP-MS	MMI-M5
Au	ppb	0.1	proprietary	ICP-MS	MMI-M5
Ba	ppb	10	proprietary	ICP-MS	MMI-M5
Bi	ppb	1	proprietary	ICP-MS	MMI-M5
Ca	ppm	10	proprietary	ICP-MS	MMI-M5
Cd	ppb	1	proprietary	ICP-MS	MMI-M5
Ce	ppb	5	proprietary	ICP-MS	MMI-M5
Co	ppb	5	proprietary	ICP-MS	MMI-M5
Cr	ppb	100	proprietary	ICP-MS	MMI-M5
Cu	ppb	10	proprietary	ICP-MS	MMI-M5
Dy	ppb	1	proprietary	ICP-MS	MMI-M5
Er	ppb	0.5	proprietary	ICP-MS	MMI-M5
Eu	ppb	0.5	proprietary	ICP-MS	MMI-M5
Fe	ppm	1	proprietary	ICP-MS	MMI-M5
Gd	ppb	1	proprietary	ICP-MS	MMI-M5
La	ppb	1	proprietary	ICP-MS	MMI-M5
Li	ppb	5	proprietary	ICP-MS	MMI-M5
Mg	ppm	1	proprietary	ICP-MS	MMI-M5
Mo	ppb	5	proprietary	ICP-MS	MMI-M5
Nb	ppb	0.5	proprietary	ICP-MS	MMI-M5
Nd	ppb	1	proprietary	ICP-MS	MMI-M5
Ni	ppb	5	proprietary	ICP-MS	MMI-M5
Pb	ppb	10	proprietary	ICP-MS	MMI-M5
Pd	ppb	1	proprietary	ICP-MS	MMI-M5
Pr	ppb	1	proprietary	ICP-MS	MMI-M5
Pt	ppb	1	proprietary	ICP-MS	MMI-M5
Rb	ppb	5	proprietary	ICP-MS	MMI-M5
Sb	ppb	1	proprietary	ICP-MS	MMI-M5
Sc	ppb	5	proprietary	ICP-MS	MMI-M5
Sm	ppb	1	proprietary	ICP-MS	MMI-M5
Sn	ppb	1	proprietary	ICP-MS	MMI-M5
Sr	ppb	10	proprietary	ICP-MS	MMI-M5
Ta	ppb	1	proprietary	ICP-MS	MMI-M5
Tb	ppb	5	proprietary	ICP-MS	MMI-M5
Te	ppb	10	proprietary	ICP-MS	MMI-M5
Th	ppb	0.5	proprietary	ICP-MS	MMI-M5
Ti	ppb	3	proprietary	ICP-MS	MMI-M5
Tl	ppb	0.5	proprietary	ICP-MS	MMI-M5
U	ppb	1	proprietary	ICP-MS	MMI-M5
W	ppb	1	proprietary	ICP-MS	MMI-M5
Y	ppb	5	proprietary	ICP-MS	MMI-M5
Yb	ppb	1	proprietary	ICP-MS	MMI-M5
Zn	ppb	20	proprietary	ICP-MS	MMI-M5
Zr	ppb	5	proprietary	ICP-MS	MMI-M5

Table 1a. Analytical methodology for soil samples submitted to SGS Canada Inc – Mineral Services for MMI analysis (Package MMI-M5).

ELEMENT	UNITS	LDL	UDL	DIGESTION	INSTRUMENT	CODE
Ag	ppm	0.03	100000	4-acid	ICP-MS	1H
Al	%	0.01	-	4-acid	ICP-MS	1H
As	ppm	0.5	100000	4-acid	ICP-MS	1H
Ba	ppm	50	-	4-acid	ICP-MS	1H
Be	ppm	1	-	4-acid	ICP-MS	1H
Bi	ppm	2	-	4-acid	ICP-MS	1H
Ca	%	0.01	-	4-acid	ICP-MS	1H
Cd	ppm	0.3		4-acid	ICP-MS	1H
Cu	ppm	1	10000	4-acid	ICP-MS	1H
K	ppm	1	100000	4-acid	ICP-MS	1H
Mg	%	0.01	-	4-acid	ICP-MS	1H
Mn	ppm	1	100000	4-acid	ICP-MS	1H
Mo	ppm	1	10000	4-acid	ICP-MS	1H
Ni	ppm	1	100000	4-acid	ICP-MS	1H
P	%	0.001	-	4-acid	ICP-MS	1H
Pb	ppm	3	5000	4-acid	ICP-MS	1H
S	%	0.01	20	4-acid	ICP-MS	1H
Sr	ppm	1	-	4-acid	ICP-MS	1H
Ti	%	0.01	-	4-acid	ICP-MS	1H
V	ppm	2	10000	4-acid	ICP-MS	1H
Y	Ppm	1	1000	4-acid	ICP-MS	1H
Zn	ppm	1	100000	4-acid	ICP-MS	1H
Au	ppb	2	30000	None	INAA	1H
As	ppm	0.5	100000	None	INAA	1H
Ba	ppm	50	-	None	INAA	1H
Br	ppm	0.5	-	None	INAA	1H
Ce	ppm	3	10000	None	INAA	1H
Co	ppm	1	5000	None	INAA	1H
Cr	ppm	2	100000	None	INAA	1H
Cs	ppm	1	-	None	INAA	1H
Eu	ppm	0.2	10000	None	INAA	1H
Fe	%	0.01	-	None	INAA	1H
Hf	ppm	1	-	None	INAA	1H
Hg	ppm	1	1	None	INAA	1H
Ir	ppb	5	10000	None	INAA	1H
La	ppm	0.5	10000	None	INAA	1H
Lu	ppm	0.05	10000	None	INAA	1H
Na	%	0.01	-	None	INAA	1H
Nd	ppm	5	10000	None	INAA	1H
Ni	ppm	1	100000	None	INAA	1H
Rb	ppm	15	-	None	INAA	1H

Sc	ppm	0.1	-	None	INAA	1H
Se	ppm	3	-	None	INAA	1H
Sm	ppm	0.1	10000	None	INAA	1H
Sn	%	0.01	-	None	INAA	1H
Ta	ppm	0.5	10000	None	INAA	1H
Tb	ppm	0.5	10000	None	INAA	1H
Th	ppm	0.2	10000	None	INAA	1H
U	ppm	0.5	10000	None	INAA	1H
W	ppm	0.1	10000	None	INAA	1H
Yb	ppm	0.2	10000	None	INAA	1H
Zn	ppm	1	100000	None	INAA	1H

Table 1b. Analytical methodology for B-horizon samples submitted for geochemical analysis (Package 1H) to ACTLABS. Refer to ACTLABS catalogue for more information with respect to digestion efficiencies.

Results

QA/QC results reported herein will primarily focus on gold; however, other elements will be discussed where necessary for illustrative purposes.

Analytical Results – QA/QC

SGS Canada Inc – Mineral Services inserted a total of seven internal soil reference standards; three samples of MMI-SRM-16 and four samples of MMI-SRM-18, as part of their internal quality control. Accepted gold values and reported analytical results for each standard are presented in Table 2a. Reported results for standard MMI-SRM-16 are very consistent but biased slightly lower than the accepted value of 29.2 ppb. Similarly, results reported for standard MMI-SRM-18 are also relatively consistent (with one exception). However, three of the four gold values reported for MMI-SRM-18 were also biased low (up to 28% low) while one sample was biased high (by 26%).

Material	Accepted Au (ppb)	Measured Au (ppb)	Laboratory Report #
MMI-SRM-16	29.2	25.4	TO108202
MMI-SRM-16	29.2	27.7	TO108203
MMI-SRM-16	29.2	27.4	TO108204
MMI-SRM-18	9.6	6.9	TO108202
MMI-SRM-18	9.6	7.8	TO108203
MMI-SRM-18	9.6	7.4	TO108204
MMI-SRM-18	9.6	12.1	TO108205

Table 2a. Analytical results for internal soil reference standards inserted by SGS Canada Inc – Mineral Services.

SGS Canada Inc – Mineral Services should be contacted and advised that the gold results for MMI-SRM-18 for laboratory report # TO108202 was biased low (in excess of 20% of the accepted value). Likewise, for laboratory report # TO108205 the standard was biased high (in excess of 20% of the accepted value).

Although certified reference standards were inserted with the multi-element ICP-MS geochemistry, ACTLABS did not analyze for gold by ICP-MS. No further discussion, therefore, on the results of the standards for the ICP-MS analysis is included with this report. ACTLABS did, however, insert 4 certified reference standards with the INAA analysis. Gold results are presented in Table 2b. All measured values for standard DMMAS 108B are highly repeatable and are within (+/-) 5% of the certified value of 625 ppb.

Certified Reference Standard	Certified Au (ppb)	Measured Au (ppb)
DMMAS 108B	625	656
DMMAS 108B	625	641
DMMAS 108B	625	604
DMMAS 108B	625	597

Table 2b. Analytical results for certified reference standard DMMAS 108B inserted by ACTLABS.

The field sampling crew inserted certified standard ROCKLABS OxH37 (supplied by GeoVector) with the B-horizon soil samples only. ACTLABS reported gold concentration values for the certified standard by INAA only (Table 3). All gold values reported by ACTLABS are biased high by 8.6% to 19.0%.

Soil Sample	Certified Reference Standard	Certified Au (ppb)	Measured Au (ppb)
CAR-B018	ROCKLABS OxH37	1286	1520
CAR-B038	ROCKLABS OxH37	1286	1530
CAR-B058	ROCKLABS OxH37	1286	1510
CAR-B078	ROCKLABS OxH37	1286	1490
CAR-B098	ROCKLABS OxH37	1286	1470
CAR-B118	ROCKLABS OxH37	1286	1420
CAR-B138	ROCKLABS OxH37	1286	1520
CAR-B158	ROCKLABS OxH37	1286	1520
CAR-B178	ROCKLABS OxH37	1286	1520
CAR-B198	ROCKLABS OxH37	1286	1460
CAR-B218	ROCKLABS OxH37	1286	1510
CAR-B238	ROCKLABS OxH37	1286	1490
CAR-B278	ROCKLABS OxH37	1286	1470

Table 3. Analytical results for certified standard ROCKLABS OxH37 reported by ACTLABS (INAA).

SGS Canada Inc – Mineral Services also reported MMI results for a number of preparation duplicates (Table 4). Results for the preparation duplicates, regardless of the laboratory report number, indicate there is a relatively high degree of repeatability although some variability does exist i.e. CAR-M233 and CAR-M270. This high degree of repeatability indicates the gold is relatively homogenous throughout the sample and the sub-sampling technique is appropriate.

Sample #	Au (ppb)		Sample#	Au (ppb)
CAR-M003	<0.1		CAR-M157	0.2
DUP-CAR-M003	<0.1		DUP-CAR-M157	0.1
CAR-M025	<0.1		CAR-M171	1.4
DUP- CAR-M025	0.3		DUP- CAR-M171	1.4
CAR-M041	<0.1		CAR-M174	<0.1
DUP-CAR-M041	<0.1		DUP-CAR-M174	<0.1
CAR-M042	<0.1		CAR-M196	<0.1
DUP- CAR-M042	0.1		DUP- CAR-M196	<0.1
CAR-M061	<0.1		CAR-M204	<0.1
DUP-CAR-M061	<0.1		DUP-CAR-M204	<0.1
CAR-M079	<0.1		CAR-M228	<0.1
DUP- CAR-M079	<0.1		DUP- CAR-M228	0.2
CAR-M085	0.9		CAR-M233	1.2
DUP-CAR-M085	0.9		DUP-CAR-M233	0.2
CAR-M105	<0.1		CAR-M261	<0.1
DUP- CAR-M105	<0.1		DUP- CAR-M261	0.3
CAR-M120	0.2		CAR-M270	1.0
DUP-CAR-M120	<0.1		DUP-CAR-M270	0.4
CAR-M134	<0.1		CAR-M280	0.1
DUP- CAR-M134	<0.1		DUP- CAR-M280	0.1
CAR-M146	<0.1			
DUP-CAR-M146	<0.1			

Table 4. Analytical results for preparation duplicates prepared and inserted by SGS Canada Inc – Mineral Services.

ACTLABS inserted 14 preparation duplicates but only for the ICP-MS analysis. Again, because gold was not analyzed by ICP-MS, no further discussion on the results of the preparation duplicates for the ICP-MS analysis is included with this report. ACTLABS did not insert any preparation duplicates for the INAA procedure.

SGS Canada Inc – Mineral Services also reported results for a number of internal blanks inserted during MMI analysis of the soil samples (Table 5). Gold results for the seven blank samples indicate all values were consistently <0.1 ppb.

Sample #	Au (ppb)	Lab. Report #
BLANK	<0.1	TO108202
BLANK	<0.1	TO108202
BLANK	<0.1	TO108203
BLANK	<0.1	TO108203
BLANK	<0.1	TO108204
BLANK	<0.1	TO108204
BLANK	<0.1	TO108205

Table 5. Analytical results for "BLANKS" inserted by SGS Canada Inc – Mineral Services.

ACTLABS inserted 8 blanks with the B-horizon samples submitted for ICP-MS analysis. Gold was not determined by ICP-MS and no further discussion on the ICP-MS results is included with this report. Only 1 blank was inserted by ACTLABS which returned a value of <2 ppb gold.

Analytical Results – Field Duplicates: MMI

Results for a select number of elements for the MMI field duplicates are presented in Table 6a. The data indicate that the MMI results for gold are highly repeatable and further indicate that spatial variance is low. The gold results reported for each sample site are, therefore, representative of the site sampled. Silver, arsenic and lead, in general, show similar results although a number of sites do exhibit some spatial variance (i.e. Pb for CAR-M199 and CAR-M200). Other elements such as cerium and rubidium (neither presented in this report) show a higher degree of spatial variance.

Sample #	Au (ppb)	Ag (ppb)	As (ppb)	Pb (ppb)
CAR-M019	<0.1	6	5	240
CAR-M020	0.1	12	5	230
CAR-M039	0.4	<0.1	10	170
CAR-M040	<0.1	<0.1	20	200
CAR-M059	<0.1	8	5	180
CAR-M060	<0.1	4	10	270
CAR-M079	<0.1	4	5	50
CAR-M080	<0.1	6	10	40
CAR-M099	<0.1	2	5	270
CAR-M100	<0.1	1	5	110
CAR-M119	<0.1	3	5	240
CAR-M120	0.2	3	5	190
CAR-M139	<0.1	2	5	470
CAR-M140	<0.1	4	5	470
CAR-M159	<0.1	4	5	190
CAR-M160	<0.1	6	5	220
CAR-M179	<0.1	10	5	220

CAR-M180	<0.1	5	5	240
CAR-M199	<0.1	8	5	60
CAR-M200	<0.1	2	5	330
CAR-M219	<0.1	1	10	200
CAR-M220	<0.1	2	5	180
CAR-M239	<0.1	1	5	100
CAR-M240	0.1	1	10	80
CAR-M279	0.1	1	5	30
CAR-M280	0.1	2	5	20

Table 6a. MMI analytical results for gold, silver, arsenic and lead for field duplicate sample pairs.

Analytical Results – Field Duplicates: B-horizon Soil Samples

INAA results for a select number of elements representing the B-horizon field duplicates are presented in Table 6b. Results indicate there is a poor correlation for gold and that there is significant spatial variability (Figure 2). A tighter sampling density is required to reduce spatial variability which may be the result of the "nugget effect". Other elements, including silver, arsenic and lead, are very highly repeatable indicating that spatial variance is low for these (and other) elements. Further, it indicates that these elements are, generally, uniformly distributed and homogenous throughout the B-horizon.

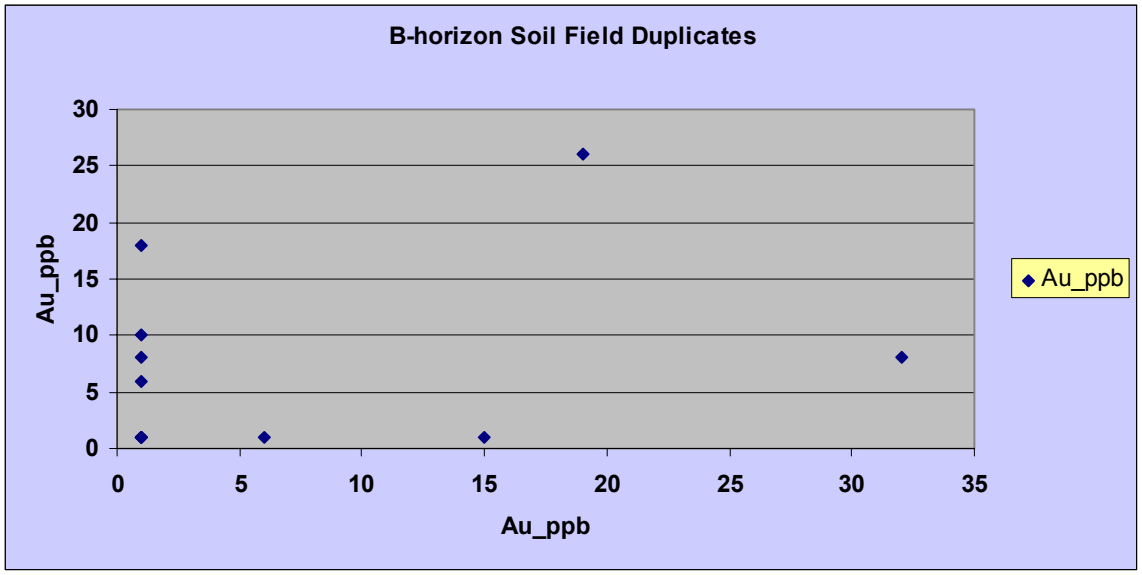


Figure 2. X-Y scatterplot of INAA analytical results for gold for the B-horizon field duplicate sample pairs.

Sample #	Au (ppb)	Ag (ppM)	As (ppM)	Pb (ppM)
CAR-B019	32	0.5	5.3	13
CAR-B020	8	0.6	6.8	14
CAR-B059	<2	0.4	2.6	13
CAR-B060	8	0.3	2.5	11
CAR-B079	<2	<0.3	3.2	10
CAR-B080	<2	0.6	3.9	9
CAR-B099	<2	0.5	<0.5	10
CAR-B100	<2	0.5	<0.5	10
CAR-B119	15	0.4	4.7	11
CAR-B120	<2	0.5	5.7	11
CAR-B139	<2	<0.3	3.4	5
CAR-B140	10	0.4	4.5	10
CAR-B159	<2	0.4	4.6	16
CAR-B160	<2	0.5	6.3	14
CAR-B179	<2	0.5	7.0	11
CAR-B180	18	0.6	4.0	10
CAR-B199	19	0.5	<0.5	11
CAR-B200	26	0.8	<0.5	10
CAR-B219	6	0.5	2.7	12
CAR-B220	<2	0.4	2.8	13
CAR-B239	<2	0.5	4.0	10
CAR-B240	<2	0.4	4.0	10
CAR-B279	<2	0.4	3.4	10
CAR-B280	6	0.4	4.7	12

Table 6b. INAA analytical results for gold, silver, arsenic and lead for B-horizon field duplicate sample pairs.

Analytical Results – MMI Soil Samples

MMI is a unique geochemical sampling and analytical method that involves the (1) collection of a specific, depth-based soil sample and (2) subjects the soil sample to a proprietary weak leach solution of organic and inorganic compounds formulated to strip away weakly-bound mobile metal ions. This technique has been designed to produce sharp, distinct responses over covered, mineralized bedrock thus focussing exploration activities. One method of viewing and interpreting MMI results involves plotting the raw data in plan view. Another common method of viewing and interpreting MMI data involves the calculation of response ratios (RR) and plotting the results as stacked columns. Both methods of visualizing and interpreting the data were used for this report and results are described below.

Basic summary statistics for gold for the 255 soil samples (including field duplicates) collected from the Carscallen Property and submitted for MMI analysis are presented in Table 7. (For computing the basic statistics, all concentrations reporting less than the

lower detection limit of 0.1 ppb were reset to 0.05 ppb, midway between zero and the lower detection limit). Gold concentrations ranged from a low of 0.05 ppb to a high of 3.70 ppb with a mean of 0.17 ppb and a median value of 0.05 ppb.

Parameter	Au-ppb
Number of Samples	255
Minimum	0.05
Maximum	3.70
Mean	0.17
Median	0.05
Mode	0.05
Standard Deviation	0.39522

Table 7. Summary statistics for (MMI) Au in soil.

A correlation matrix (not included with this report) of the entire dataset (n = 255 samples) was generated and reviewed for positive (or negative) elemental correlations with gold. Gold did not effectively correlate with any element. The best elemental correlations with gold occurred with magnesium (0.29), strontium (0.26) and calcium (0.25) and are considered very weak at best.

These extremely weak correlations with gold are in contrast to some moderate to strong correlations noted in 2009 diamond drill core data (ddh CAR-1, 2, 3, 7, 10, 12, 13, 14, 15, 16, 17, 18, 19, and 20) supplied by GeoVector Management Inc. while preparing this report. In the 2009 diamond drill core data (not included with this report), gold correlated with silver (0.96), bismuth (0.84), lead (0.69), sulphur (0.62), and arsenic (0.42).

Raw MMI data for gold, silver and arsenic are presented in plan as graduated symbol plots in figures 3a, 3b and 3c. (The lack of correlation between gold and silver or gold and arsenic in plan supports the lack of correlation of gold with these elements in the correlation matrix). Eleven of the 255 MMI soil samples exceeded 1.0 ppb gold. Comments on the significance and spatial distribution of the anomalies are discussed (below) with the Response Ratios (RR).

With respect to the raw MMI data, there appears to be a very crude and weak alignment of anomalous MMI gold samples in a northeast-southwest orientation (Figure 3a). This weak alignment also holds for anomalous arsenic (Figure 3b) but not for silver (Figure 3c) which exhibits a more random distribution of anomalous sample points.

RR for the MMI data were generated for gold and silver and plotted as stacked columns for lines 1+00S, 1+00N, 2+00N, 3+00N and 13+00N. The RR were generated by dividing the gold (or silver) results by the mean of the lowest quartile in order to normalize the data and enhance subtle anomalies from background. Although gold and silver results for MMI did not correlate, silver was chosen because of the strong lithogeochemical correlation with gold in drill core.

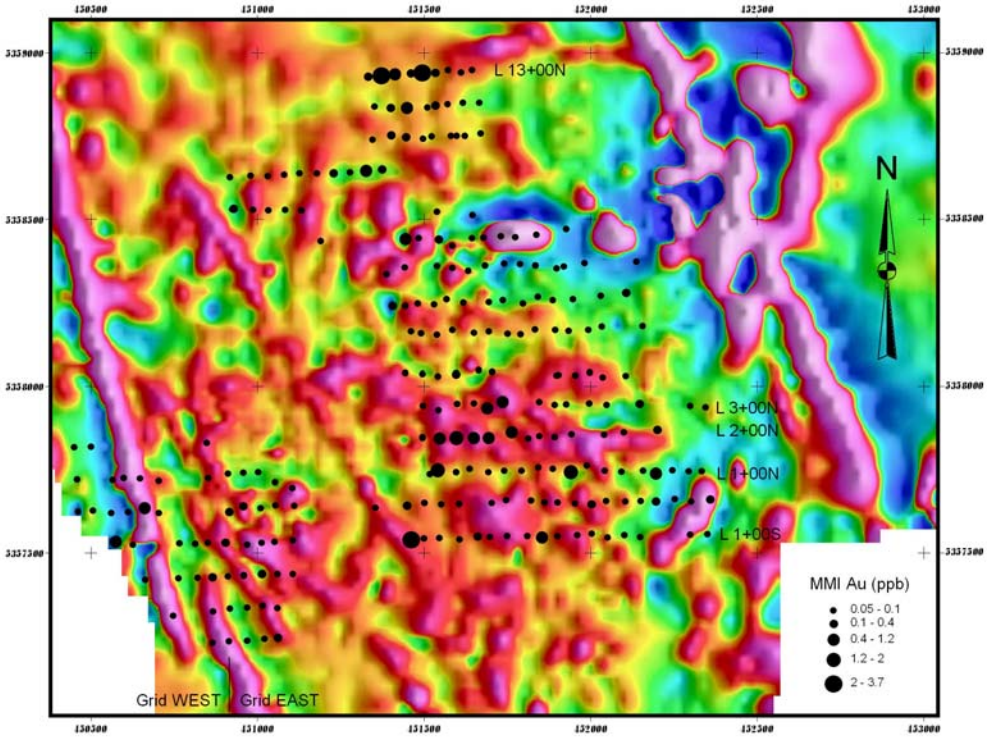


Figure 3a. Raw MMI gold results for the Carscallen Property. (Results overlain on 2006, 2007, 2008 and 2009 first vertical derivative magnetics – supplied by GeoVector).

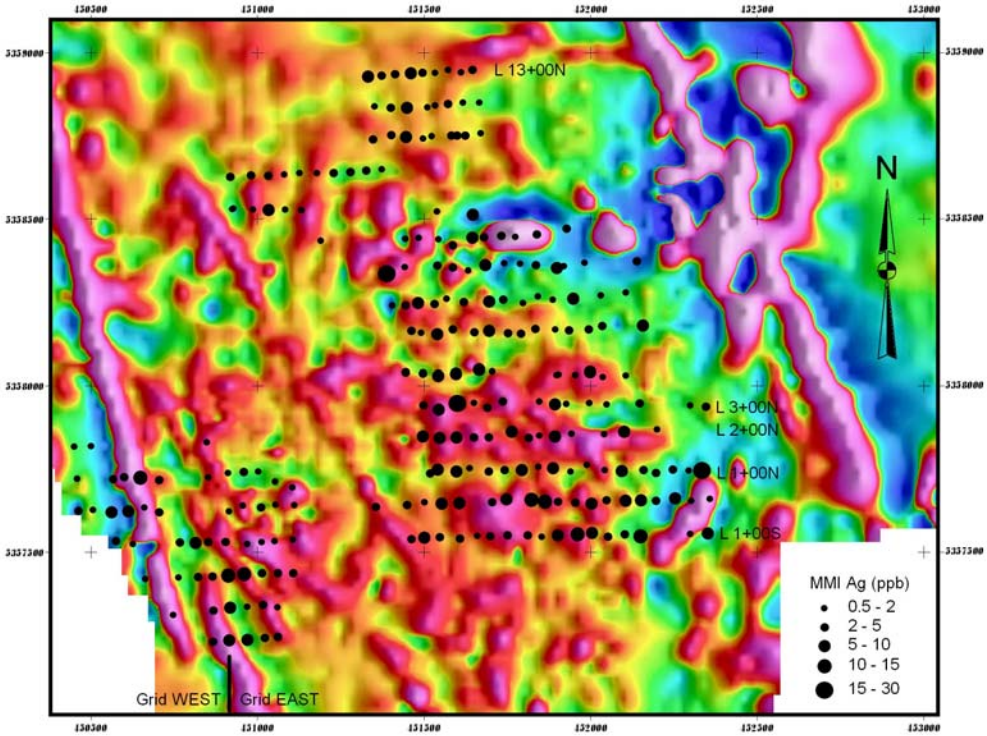


Figure 3b. Raw MMI silver results for the Carscallen Property. (Results overlain on 2006, 2007, 2008 and 2009 first vertical derivative magnetics – supplied by GeoVector).

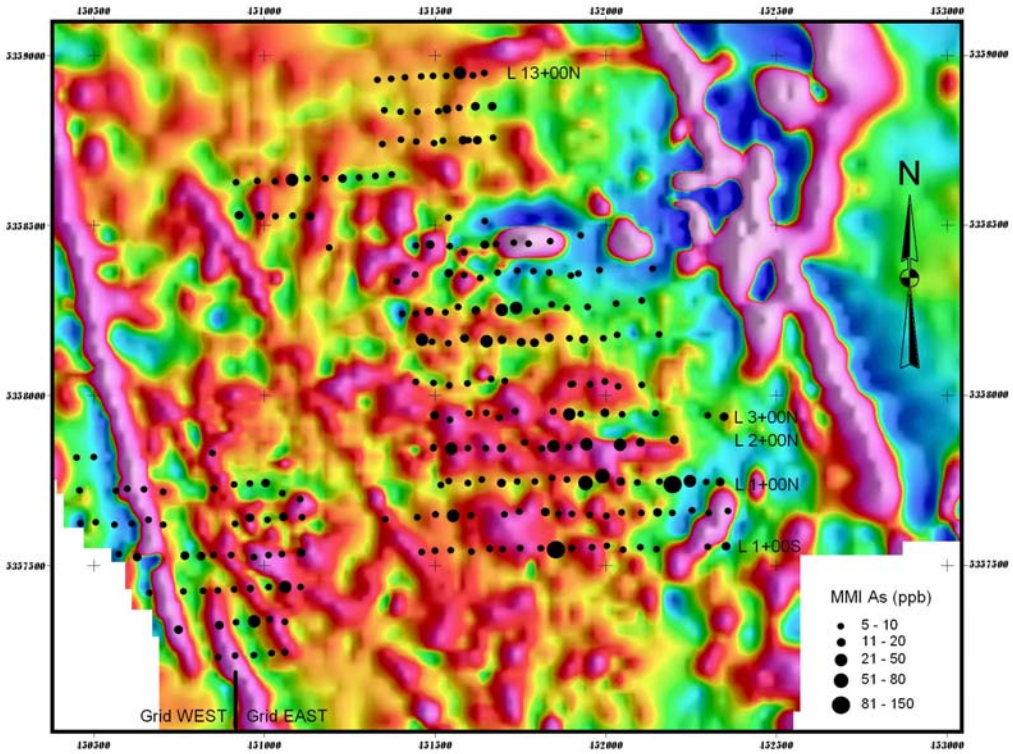


Figure 3c. Raw MMI arsenic results for the Carscallen Property. (Results overlain on 2006, 2007, 2008 and 2009 first vertical derivative magnetics – supplied by GeoVector).

MMI gold RR are presented in plan in Figure 3d. Line 1+00S had the highest raw MMI gold result (3.7 ppb) associated with sample CAR-M248 which was collected at station 5+00E. A wet bog with a thick (>1.3 m) organic layer of peat negated the collection of soil samples at stations 4+50E, 4+00E and 3+50E (3+50E coincidently is the western shoreline of a small lake). Stations immediately to the east (5+50E, 6+00E and 6+50E) all reported gold less the LDL resulting in a significant one-station anomaly at 5+00E.

Figure 4a shows the RR for gold plus silver for Line 1+00S. The very strong RR anomaly at 5+00E is very evident and worthy of follow up. Two additional, but weak, RR anomalies occur at 4+00W and 9+00E. The anomaly at 4+00W represents the western-most station sampled on Line 1+00S. Additional sampling west of this station is warranted in order to determine if the anomaly continues and strengthens to the west. The anomaly at 9+00E is flanked by numerous stations to the east and west yielding background gold concentrations. Additional in-fill sampling around 9+00E may better define or enhance the RR anomaly associated with station 9+00E.

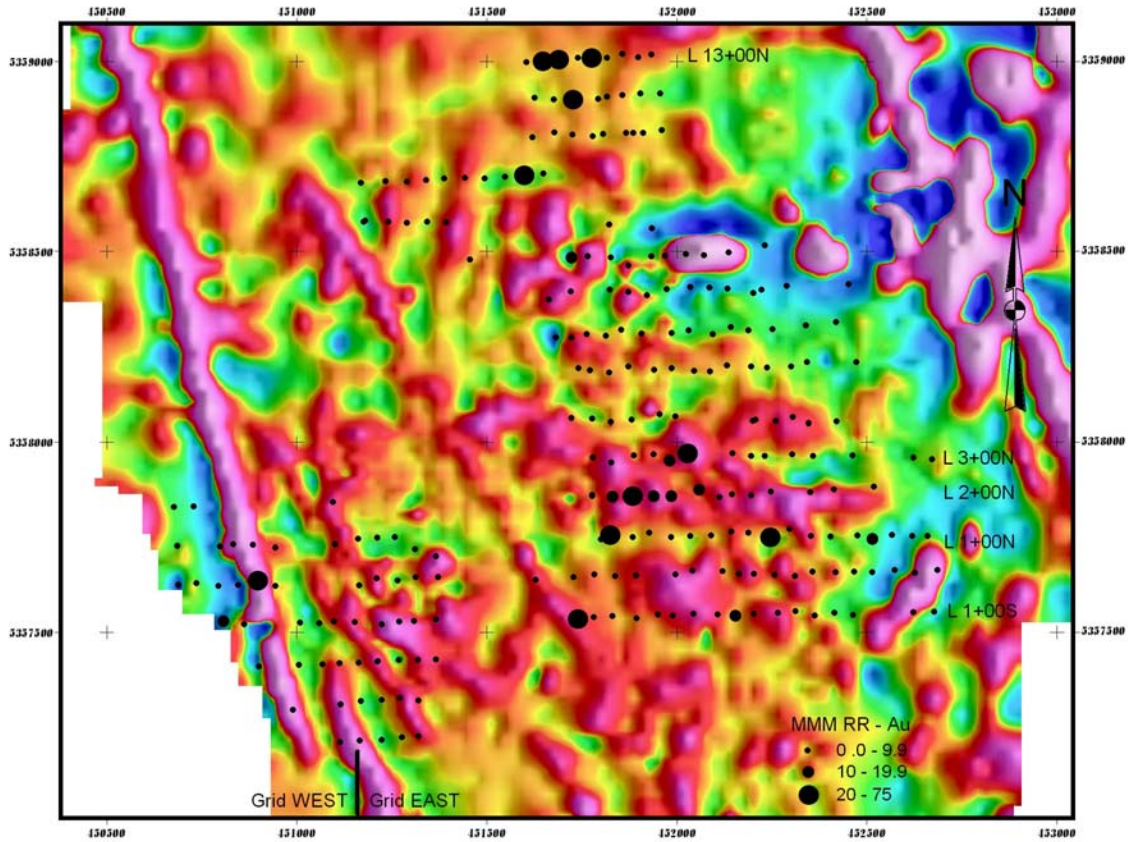


Figure 3d. Plan view of MMI gold Response Ratios for the Carscallen Property.

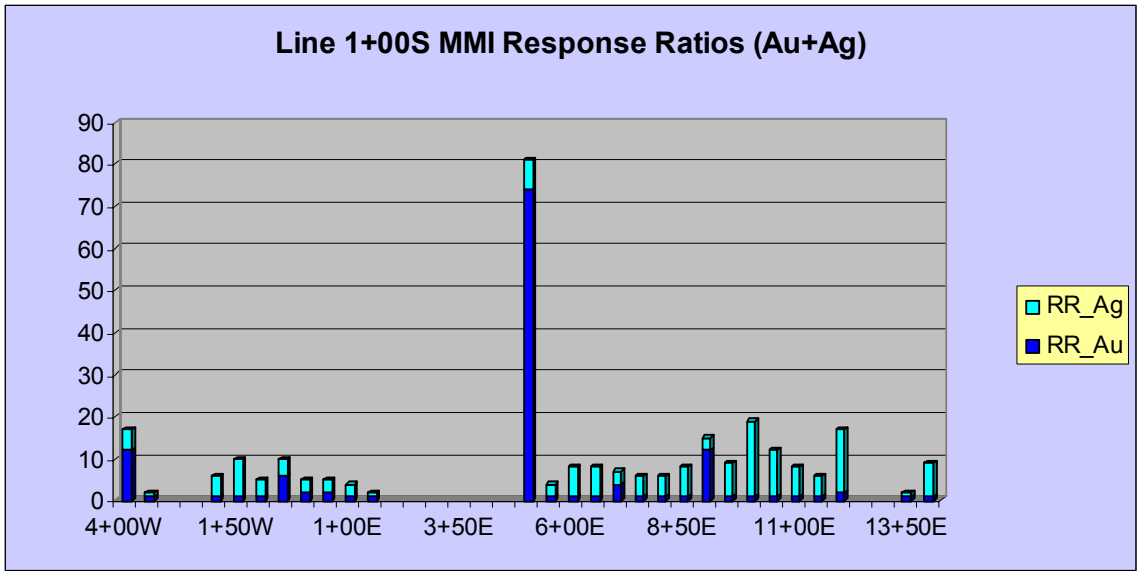


Figure 4a. MMI gold plus silver Response Ratios for Line 1+00S.

The RR for gold and silver for Line 1+00N are presented in Figure 4b. Two strong single-station gold anomalies occur at 6+00E and 10+00E with a weak anomaly at

12+50E. Additional in-fill sampling around each of the stations may better define or enhance the RR anomalies. Several single station silver anomalies (not associated with gold) also occur along the line.

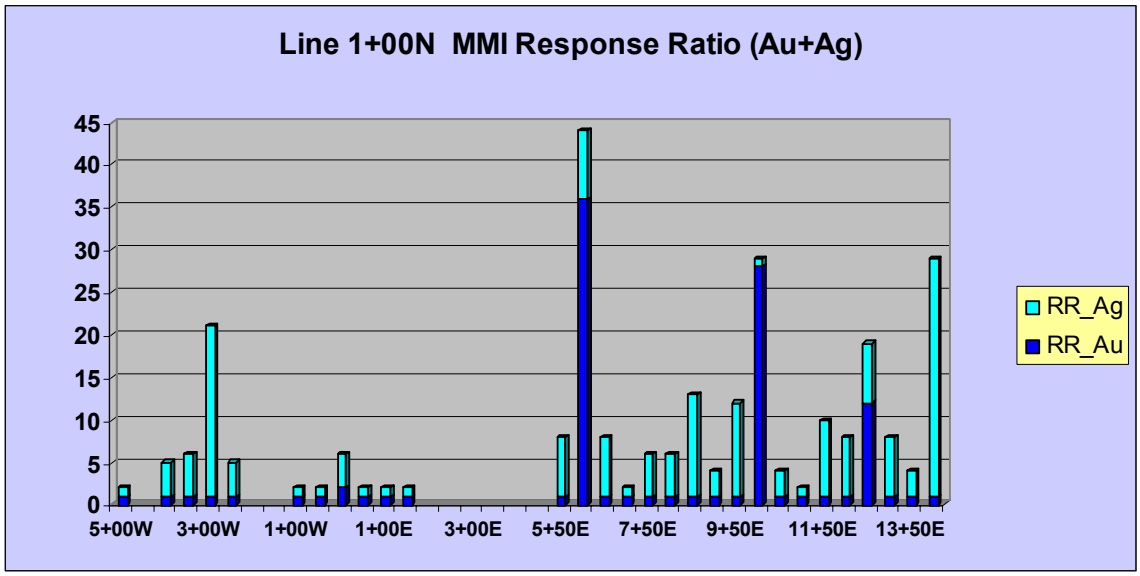


Figure 4b. MMI gold plus silver Response Ratios for Line 1+00N.

The most spatially cohesive RR anomalies occur along Line 2+00N from 6+00E to 8+00E (inclusive). Elevated silver also occurs with the gold anomaly enhancing the combined RR (Figure 4c). The anomaly occurs immediately west of a northwest-southeast striking geophysical trend (IP and magnetics) and has not been tested by diamond drilling. Additional in-fill sampling around each of the stations may better define or enhance the RR anomalies.

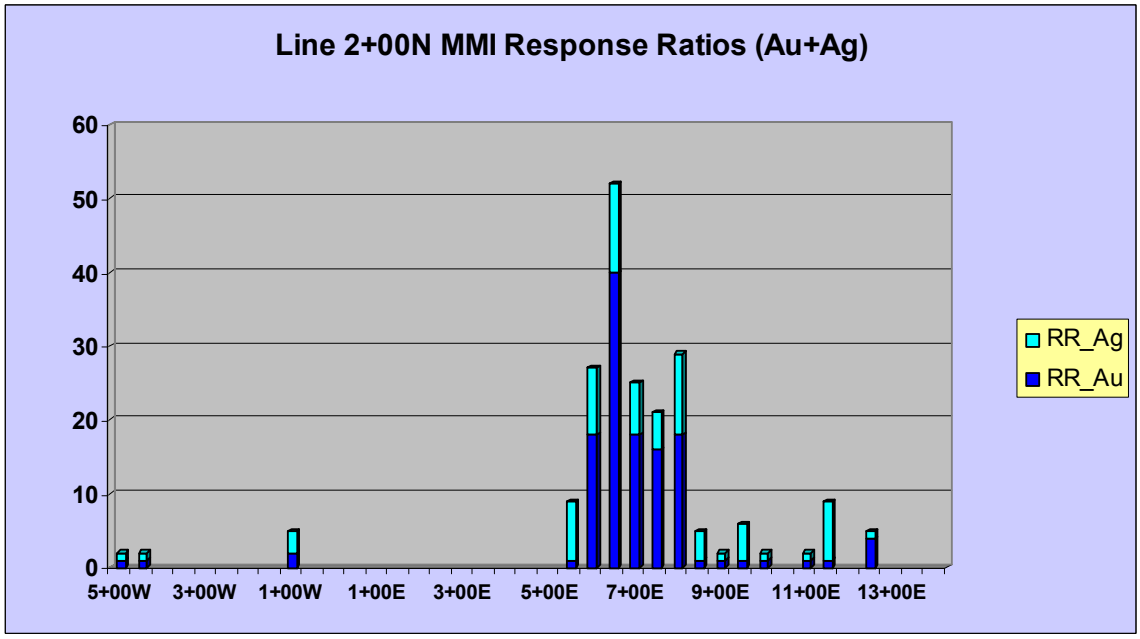


Figure 4c. MMI gold plus silver Response Ratios for Line 2+00N.

The RR for Line 3+00N are presented in Figure 4d. A moderately strong and cohesive two-station RR anomaly occurs at stations 7+50E and 8+00E. A very weak RR anomaly also occurs at 12+00E approximately 30 m of a northwest-trending brook that is oriented sub-parallel to the main mineralized trend for the area. Additional in-fill sampling around each of these stations may better define or enhance the RR anomalies. A strong single point silver RR anomaly occurs at station 6+50E.

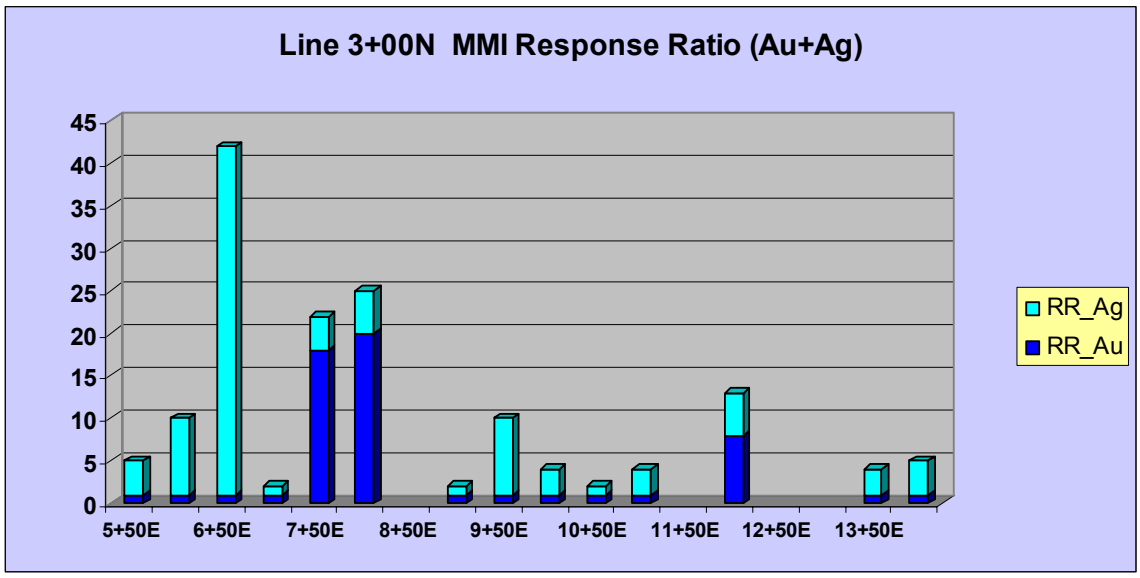


Figure 4d. MMI gold plus silver Response Ratios for Line 3+00N.

A second spatially cohesive RR anomaly occurs on Line 13+00N (Figure 4e). Strong RR anomalies occur at 4+50E, 5+00E and 6+00E. These anomalies are of immediate interest because of their strength, spatial cohesiveness and they represent the northern-most soil samples collected during this program. The anomaly remains open to the north and has an associated single-point RR anomaly immediately south on Line 12+00E. Additional in-fill sampling around each of the stations may better define or enhance the RR anomalies.

Additional single station MMI RR gold anomalies also occur on lines 12+00N, 10+00N, 8+00N and 0+00 (Figure 3d). All MMI RR anomalies are untested by diamond drilling. However, additional in-fill sampling is required to better define or enhance the RR anomalies as they currently exist.

One important aspect of the MMI sampling program that must be taken into account is sample spacing. The survey described herein was designed to collect soil samples at 50 m stations along each line. It is assumed (from information posted on the Melkior website) that gold mineralization occurs in relatively thin (< 1m) zones. A tighter MMI soil sampling density (using approximately 5m stations) is required in order to identify and define narrow zones of mineralization especially in areas where mineralization is expected to occur.

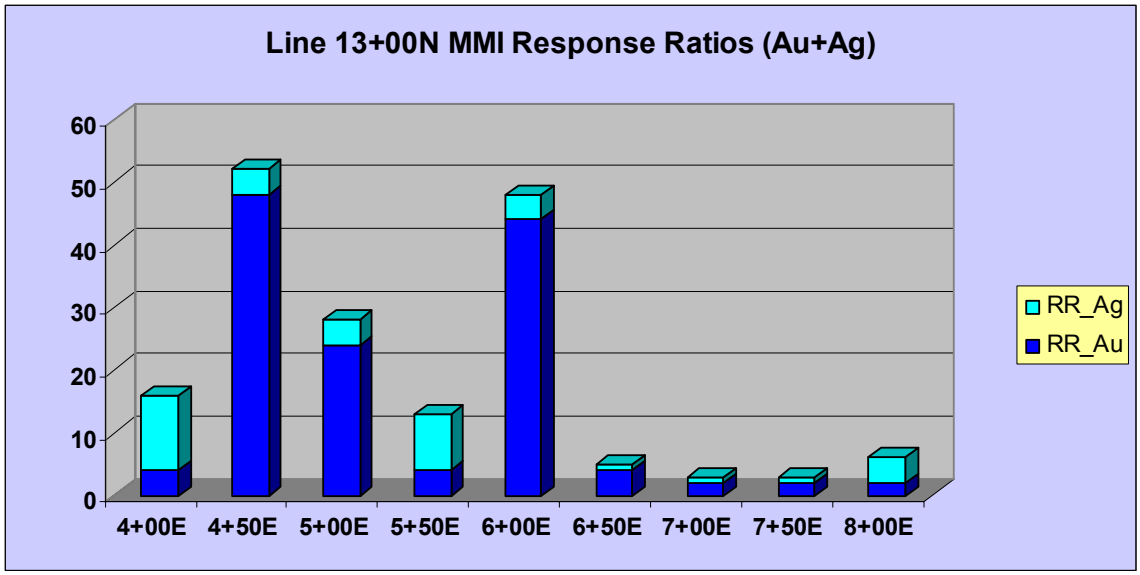


Figure 4e. MMI gold plus silver Response Ratios for Line 13+00N.

Analytical Results – B-horizon Soil Samples

The B-horizon is preferentially targeted in exploration because it is a zone of illuviation (enrichment) and as a result (typically) has better contrast between anomalous and background concentration values. However, the B-horizon is susceptible to the influences of climate, biological activity, topography, hydrology and glaciation as well as numerous other variables. As a result, anomalies associated with the B-horizon may be *in situ* or, more likely in Canada, transported away from source through chemical dispersion or physical dispersal. In general, the analysis of the "classic" B-horizon soil sample typically involves the use of partial acid digestions (formulated to dissolve sulphides, some oxides and some altered silicates) or "total" acid digestions (formulated to dissolve sulphides, oxides and silicates, but will not totally dissolve very resistate minerals like chromite, barite, or monazite).

Basic summary statistics for gold for the 227 B-horizon soil samples (including field duplicates) collected from the Carscallen Property and submitted for INAA analysis are presented in Table 8. (For computing the basic statistics, all concentrations reporting less than the lower detection limit of 2.0 ppb were reset to 1.0 ppb, midway between zero and the lower detection limit). Gold concentrations ranged from a low of 1.0 ppb to a high of 68.0 ppb with a mean of 6.0 ppb and a median value of 1.0 ppb.

A correlation matrix (not included with this report) was also generated for the B-horizon INAA and ICP-MS results (n = 227 samples) reported by ACTLABS. Gold did not effectively correlate with any element. The best elemental correlations with gold, which are considered very weak at best, occurred with chromium (0.29), vanadium (0.27) and iron (0.25) suggesting a (very weak) mafic association.

Parameter	Au-ppb
Number of Samples	227
Minimum	1.0
Maximum	68.0
Mean	6.0
Median	1.0
Mode	1.0
Standard Deviation	10.96935

Table 8. Summary statistics for (MMI) Au in soil.

As previously mentioned, these extremely weak correlations with gold are in contrast to some moderate to strong correlations noted in 2009 diamond drill core data (CAR-1, 2, 3, 7, 10, 12, 13, 14, 15, 16, 17, 18, 19, and 20) supplied by GeoVector Management Inc. while preparing this report. Results from diamond drill core (not included with this report) indicate gold correlates with silver (0.96), bismuth (0.84), lead (0.69), sulphur (0.62), and arsenic (0.42).

INAA results for gold and ICP-MS silver and arsenic results are presented in plan as graduated symbols in figures 5a, 5b, 5c and 5d. (The lack of correlation between gold and silver or gold and arsenic in plan supports the lack of correlation of gold with these elements in the correlation matrix).

Anomalous INAA gold samples were commonly single-station anomalies (Figures 5a and 5b) with one exception. A three-station (1+00W, 0+50W and 0+00) cohesive gold anomaly occurs on Line 2+00S with gold concentrations ranging from a low of 8 ppb to a high of 42 ppb (Figure 5a). It is important to stress that the 8 ppb gold was also a field duplicate site that returned 32 ppb. These sites were generally described as being very stony soil with thin soil cover. Outcrop was noted in the area.

The maximum gold concentration of 68 ppb occurs as a single station anomaly on the western edge of the grid on Line 2+00N (Figures 5a and 5b). This station also represents the edge of a very large, organic-rich bog void of B-horizon soil. Additional soil sampling proximal to this station is also warranted.

The single station anomalies are likely the product of an overly coarse sampling density and/or the “nugget effect” making (meaningful) data contouring difficult. A number of anomalies occur at the end of lines or within lines that do not have additional sample coverage north or south of the anomalies. As a result, a number of anomalies are considered “open” and additional sampling to close off the anomalies is warranted. However, as previously mentioned, significant spatial variability exists so that sites currently interpreted as background may in fact be anomalous if a tighter sampling grid is applied.

The collection of large 10 kg till samples, particularly in the areas of anomalous B-horizon gold in soil, is warranted. Processing of the till samples and the recovery a heavy mineral concentrate (HMC), including individual gold grains, will yield significant

information with respect to gold grain morphology and proximity to source. Proximity to source cannot be determined from a B-horizon soil sample.

The crude, weak alignment of anomalous MMI gold samples in a northeast-southwest orientation was not evident with the gold results for the B-horizon soil. This weak alignment was also absent for B-horizon silver and arsenic.

ICP-MS silver results (Figure 5c) were relatively low and, similar to MMI silver, do not correlate with gold. Two areas of the sampled grid show relatively spatial cohesive silver enrichment, (1) the southwestern most sampled lines and (2) and Line 8+00N.

ICP-MS arsenic results are presented as graduated symbols in Figure 5d. Arsenic appears to be somewhat depleted to the north (Line 11+00N, Line 12+00N and Line 13+00N) but is elevated on Line 7+00N and Line 8+00N. Arsenic enrichment occurs sporadically from Line 2+00N through to Line 6+00N. There is, however, a noticeable enrichment of arsenic from Line 4+00S to Line 1+00N. The relationship of lower arsenic concentrations to areas of relative arsenic enrichment is likely a function of a change in the bedrock or surficial geology.

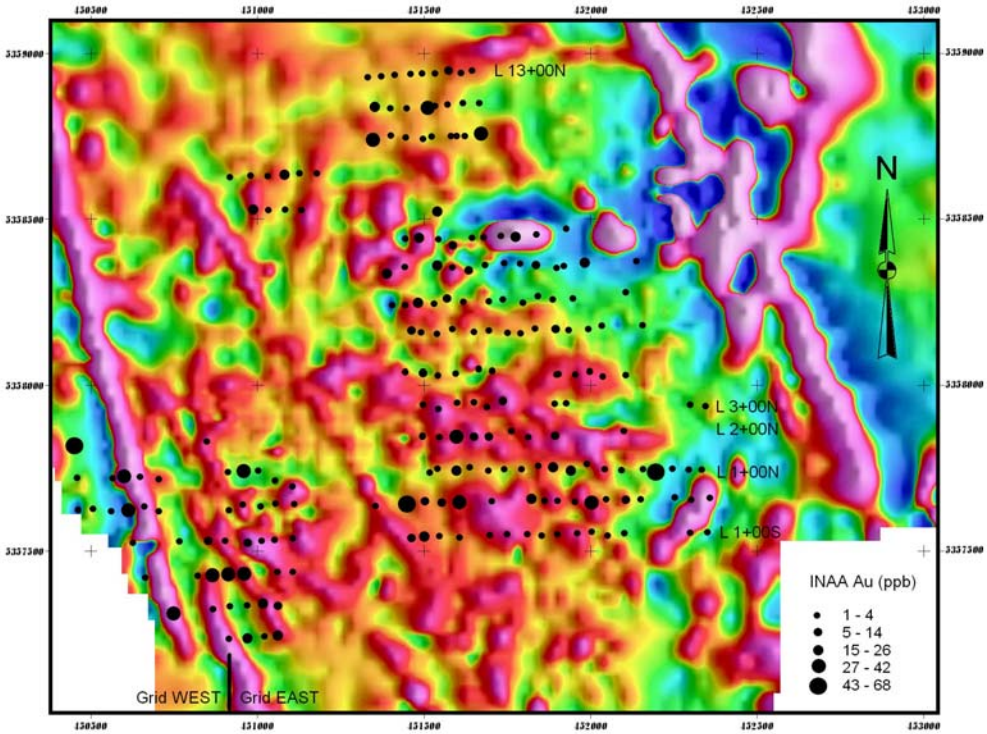


Figure 5a. Raw INAA gold results for the Carscallen Property. (Results overlain on 2006, 2007, 2008 and 2009 first vertical derivative magnetics – supplied by GeoVector).

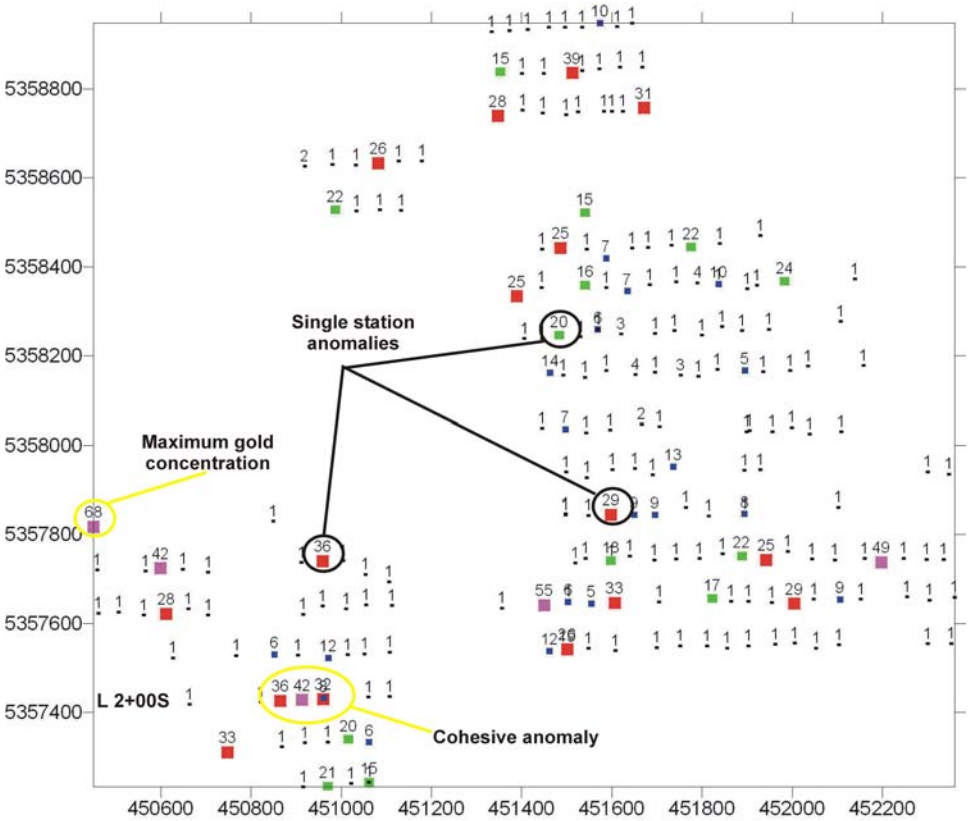


Figure 5b. Simplified raw INAA gold results for the Carscallen Property.

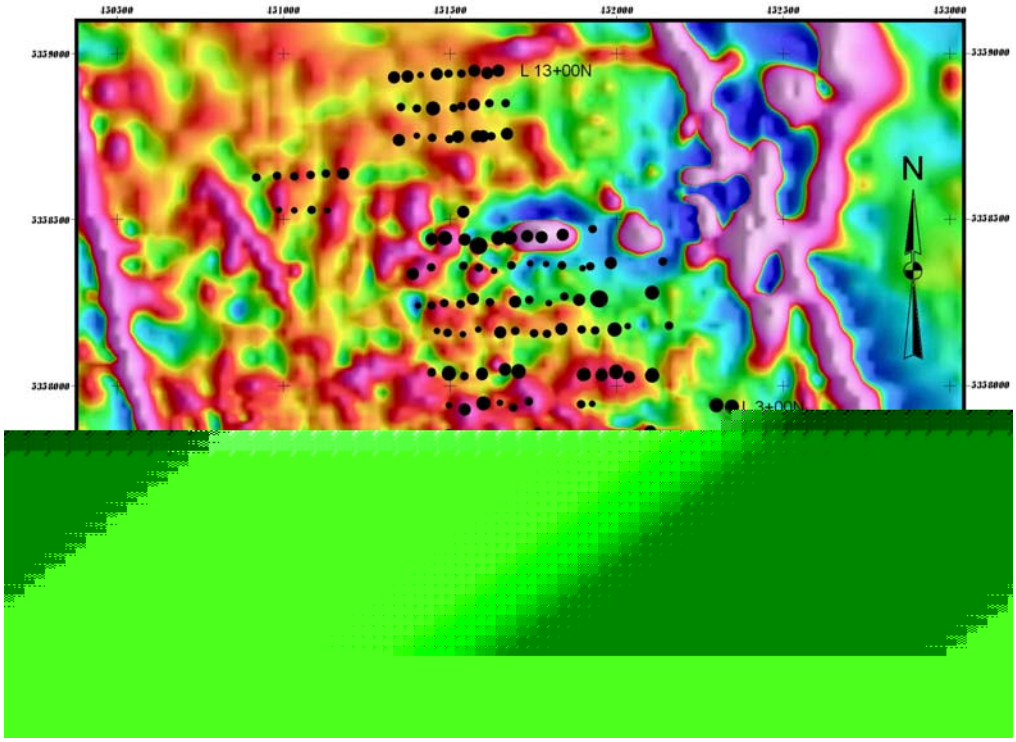


Figure 5c. Raw ICP-MS silver results for the Carscallen Property. (Results overlain on 2006, 2007, 2008 and 2009 first vertical derivative magnetics – supplied by GeoVector).

Quantitative ice flow indicators such as striae and stoss/lee features were measured at a number of outcrop locations (Table 9). The last dominant ice flow movement measured was to the south (176^0 - 192^0) with the majority of the striae in the 182^0 - 184^0 azimuth direction. A younger flow direction of 220^0 was noted at one outcrop location only. A more comprehensive ice flow indicator mapping program would likely enhance the regional and property level understanding of the glacial history and would benefit, in particular, the interpretation of the B-horizon soil sample results.

utm_E83	utm_N83	Azimuth	Indicator	Age	Bedrock
451984	5357662	184	striae on stoss/lee	1	f.g. felsic
451450	5358435	182	striae on stoss/lee	1	granite
451543	5358450	176	striae on stoss/lee	1	granite
451626	5358381	192	striae on stoss/lee	1	granite
451496	5358356	190	striae on stoss/lee	1	granite
451984	5357662	184	striae on stoss/lee	1	f.g. felsic
451984	5357662	220	v. f. striae on top only	2	f.g. felsic
451663	5357880	182	striae on stoss/lee	1	f.g. felsic

Table 9. Mapped ice flow indicators.

Evidence of down ice glacial dispersal likely exists in the vicinity of Line 13+00N, Line 12+00N and Line 11+00N. As previously mentioned, a well defined, spatially cohesive MMI gold anomaly is located on Line 13+00N. This anomaly is interpreted to occur over the bedrock source. However, INAA gold anomalism is absent on Line 13+00N but is present on the two lines immediately to the south, Line 12+00N and Line 11+00N (Figure 6). The INAA gold anomalies are interpreted as down ice dispersal from a bedrock source identified by the MMI anomaly (Figure 6). Mapped ice flow indicators suggest ice flowed to the south-southwest (Table 9) which displaced the anomaly southwards in a relatively flat, boggy area. A quantitative dispersal distance, however, is currently unknown and determination of the glacial dispersal distance is required.

The combination of (i) the orientation of the structural control on the bedrock mineralized zones with (ii) the azimuth direction of the last dominant ice flow movement measured, may yield simple, north-south ribbon-shaped dispersal trains. Bearing in mind the relatively broad spacing of the soil sampling program, this may (at least in part) explain a number of the single-station B-horizon gold anomalies.

Discussion

Soil Profile

The Canadian System of Soil Classification (Third Edition) was used to describe the (1) soil profile and (2) the type and percentage of each horizon collected for each sample site. Soils encountered while sampling the slightly elevated, non-bog areas were dominantly Ferric Podzol with lesser Ferro-Humic Podzol and rare Humic Podzol. Podzol soil profiles were best developed and the thickest in areas of mature hardwood (poplar) stands.

The L- and F-horizons were easily identifiable and relatively thin. The H-horizon was black, locally well developed (>10 cm) but virtually absent in some other areas directly under softwood trees where abundant needles formed the L- and F-horizons.

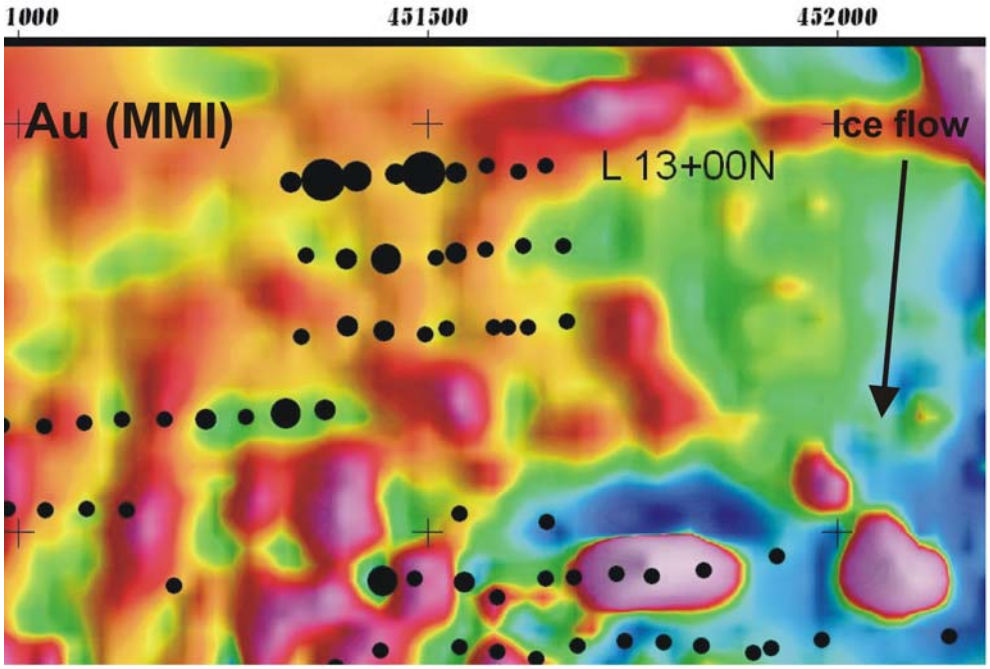
The first mineral soil horizon encountered was generally the A-horizon or B-horizon (if the A-horizon was absent). The A-horizon was commonly, but not always, present and was characterized by its variable thickness. The A-horizon was typically dominated by the eluviated (leached), grey Ae and to a lesser extent Ah. Boundaries were commonly well defined but locally may be wavy or broken. The Ah was dominant in low-lying, wet areas or proximal to bogs.

The B-horizon soil was commonly well developed, distinct and easily identifiable as an orange-brown Bf soil, a slightly darker Bfh or a relatively poorly distributed and significantly organic-enriched Bh. In areas where bedrock is shallow (<40 – 50 cm), the Bf soil was typically very dark red-brown with the bedrock/overburden interface likely acting as an aquitard for downward percolating water. In areas of excessive groundwater, the B-horizon was locally light brown in color.

The C-horizon, mostly glacial till, was easily identified by its relative stratigraphic position, olive green color, textural inhomogeneity and locally derived clasts. The C-horizon (till) was occasionally encountered at relatively shallow depths (approximately 40 cm) but generally was not encountered due to the relatively shallow nature of a typical sample site. Occasionally, the C-horizon (glaciofluvial?) consisted of well sorted sand generally lacking clasts. This horizon was encountered at about 1 m depth and was spatially associated with boggy terrain particularly to the north (lines 11+00N, 12+00N and 13+00N).

In contrast, soil developed within or proximal to low-lying swamps and extensive bogs were commonly Gleyed Humo-Ferric Podzol. The O-Horizon was typically well developed particularly in wet, swampy and boggy areas where the minimum thickness was 1.3 m, the length of the auger. The A-Horizon was poorly developed under very deep and thick organic cover and consisted dominantly of Aeg or Aej under slightly drier conditions. This horizon was commonly light grey in color and often exhibited varying degrees of mottling. Boundaries between the A- and B-horizons were often diffuse. Locally, the A-horizon was very sandy and had distinct white (kaolin?) grains. The B-horizon soil was typically not well developed but somewhat discernable. The B-horizon soil was commonly a Bg but also varied from a Bfj through to a Bhf. The contact with the C-Horizon, where encountered, was diffuse and the C-Horizon was typically a B/C transition.

Texturally, sand content increased significantly in the B and C horizons on the flat plains adjacent to and within the large bogs. This was the case north of line 8+00N where the flat terrain may represent an aeolian or glaciofluvial deposit. Soils were dominated almost 100% by sand; and clasts were totally absent. Clay increased in topographic lows, in particular, localized topographic lows occupying small areas (<100 m^2).



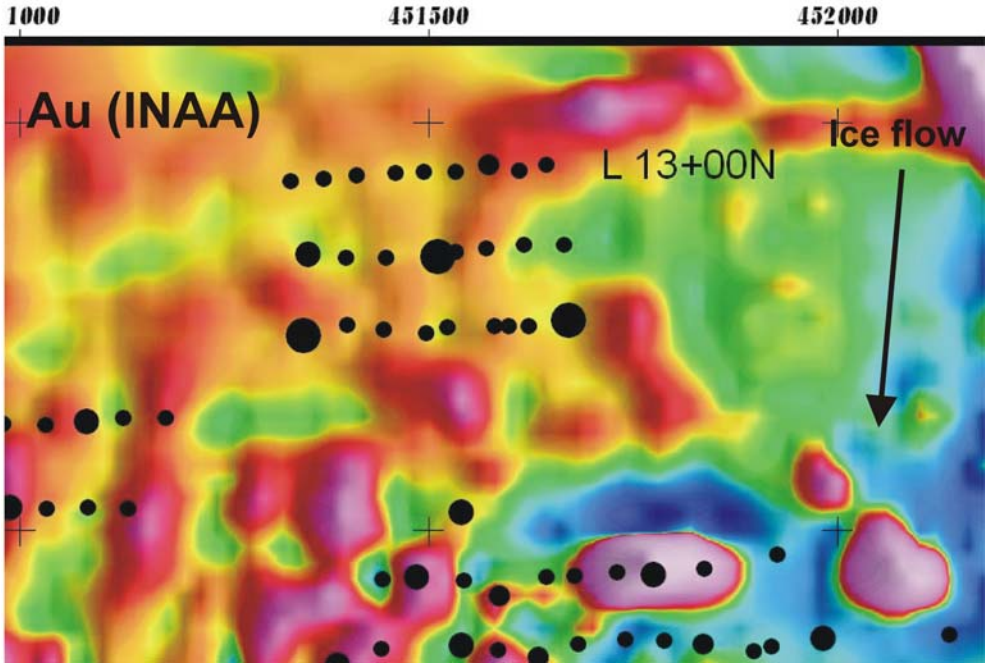


Figure 6. Comparison of raw MMI and INAA gold results for the Carscallen Property. Note the mapped ice flow direction.

Soil samples were not collected where ground disturbance associated with obvious anthropogenic effects (i.e. drill access roads, drill pads, stripped/trenched areas and logging roads) would potentially influence the geochemistry of the sample. The closest undisturbed natural soil profile to the station was instead sampled and proximity to the obvious anthropogenic effects was clearly noted. One possible exception where soil samples were collected in what may have been disturbed soil was in areas of re-planted pine trees. At these sampling locations, a relatively good profile was noted near the surface but at depth there appeared to be mixing (Ae, H, B repeated) of the soil profile. It is possible from the observations made in these areas that soil preparation (harrowing?) may have taken place prior to replanting.

Key Field Observations

During the soil sampling program, the soil sampling crew noted numerous key features such as the presence of sulphides in a soil sample or proximity to old pits and shafts. One site (9+00E, 1+00S) noted for its unique very dark red ferruginous (gossanous?) soil encountered in an auger sample also returned a moderate raw MMI gold concentration value of 0.60 ppb (which corresponds to 92.5 percentile of the entire dataset). Similar dark red ferruginous soil was noted at one of the recently exposed trenches.

A summary of these observations is found in Table 10 and additional prospecting in each of the areas listed is warranted.

Grid E	Grid N	Sample	MMI Au ppb	INAA Au ppb	Observation
0+50W	0+00	CAR-001	0.2	<2	**quartz boulder** near granite outcrop
0+00	1+00S	CAR-027	0.1	12	2 m east of **trench**
8+40E	7+00N	CAR-141	<0.1	4	outcrop ridge with **quartz vein**
12+00E	0+00	CAR-156	<0.1	<2	one angular **quartz clast** in soil sample
12+37E	0+00	CAR-157	0.2	no sample	green clasts in soil sample
6+50E	1+00N	CAR-179	<0.1	<2	old **shafts, pits, trenches** in area
9+00E	1+00S	CAR-191	0.6	<2	very dark ferruginous soil, **gossan**?
6+50E	1+00S	CAR-196	<0.1	<2	old **pits** in area?
5+50E	1+00S	CAR-200	<0.1	26	angular **quartz clasts** at two soil sites
7+00E	5+00N	CAR-205	0.1	4	one angular **quartz clast** in soil sample
5+00E	6+00N	CAR-215	<0.1	<2	two old **shafts** in area
6+50E	4+00N	CAR-263	0.2	<2	very small **sulphide** grain in sample
5+00E	0+00	CAR-277	0.3	55	abundant **sulphides** in soil sample

Table 10. Summary of key field observations.

Conclusions

A limited soil geochemical sampling program was carried out within Carscallen Property (100% owned by Melkior Resources) during October, 2009. The objective of the soil sampling program was to identify gold anomalies in soil in order to support an on-going gold exploration program. Samples were collected at 50 m intervals along cut lines with a nominal 100 m line separation. A number of quality control protocols were used

including the insertion of certified reference materials and the collection of field duplicates. The Canadian System of Soil Classification (Third Edition) was used to describe the (1) soil profile and (2) the type and percentage of each horizon collected for each sample site.

A total of 255 soil samples (including 13 field duplicates) were collected and submitted for MMI analysis to SGS Canada Inc – Mineral Services in Toronto, Ontario. Only 227 B-horizon soil samples (including 13 field duplicates) were collected and submitted for Au and multi-element geochemical analysis to Activation Laboratories Inc. (ACTLABS) of Ancaster, Ontario.

Field duplicates for MMI gold results are highly repeatable and indicate that spatial variance is low. Field duplicates for the B-horizon gold results indicate there is a poor correlation between the sample sites and that spatial variance is significant.

For the 255 soil samples (including 13 field duplicates) analyzed by MMI for gold, concentrations ranged from a low of 0.05 ppb to a high of 3.70 ppb with a mean of 0.17 ppb and a median value of 0.05 ppb. Gold did not effectively correlate with any element. A very crude and weak alignment of anomalous MMI gold samples occurs in a northeast-southwest orientation. Response Ratios (gold plus silver) for the MMI soil samples were generated. Anomalies were noted on lines 1+00S (highest amplitude), 1+00N, 2+00N (most spatially cohesive), 3+00N and 13+00N (a significant anomaly open to the north). The MMI anomalies all remain effectively untested by diamond drilling.

For the 227 B-horizon soil samples (including 13 field duplicates) analyzed for gold by INAA (and multi-element geochemistry by ICP-MS), concentrations ranged from a low of 1.0 ppb to a high of 68.0 ppb with a mean of 6.0 ppb and a median value of 1.0 ppb. Gold did not effectively correlate with any element. Anomalous gold in B-horizon soil samples were commonly single-station anomalies although a cohesive, three-station anomaly (with a maximum value of 42 ppb) was located on Line 2+00S. The single station anomalies are likely the product of an overly coarse sampling density, the "nugget effect", and/or a resultant of a combination of the orientation of the bedrock mineralization with the direction of the last dominant ice flow movement which may yield simple, north-south ribbon-shaped dispersal trains. A crude, weak alignment of anomalous MMI gold samples in a northeast-southwest orientation was not evident with the gold results for the B-horizon soil. All B-horizon anomalies also remain effectively untested by diamond drilling.

Till (ground moraine) is the dominant surficial material on the property. However, well sorted, medium grained, stone-free (glaciofluvial?, aeolian?) sand was particularly common throughout the northern part of the sampled grid. The northern most portion of the grid is also characterized by lower arsenic concentrations in the B-horizon soil. Quantitative ice flow indicators were measured during the soil sampling program. The last dominant ice flow movement measured was to the south with the majority of the striae measuring between 182^0 - 184^0. A younger flow direction (of 220^0) was noted at one outcrop location.

Evidence of glacial dispersal likely exists at the northern margin of the soil sampling grid in the vicinity of lines 11+00N to 13+00N. A well defined, spatially cohesive MMI gold anomaly, interpreted to occur over a bedrock source, is located on Line 13+00N. B-horizon gold anomalism is absent on Line 13+00N but is present on the two lines immediately to the south, Line 12+00N and Line 11+00N. The INAA gold anomalies are interpreted as down ice dispersal from a bedrock source identified by the MMI anomaly on Line 13+00N.

Recommendations

With respect to the narrow (<1 m) zones of fractured-controlled gold mineralization in bedrock and drill core, the soil sampling density as it currently exists (particularly for the MMI samples) is too coarse and should be tightened up in order to identify a geochemical response from a narrow, discrete mineralized zone. In areas of suspected bedrock mineralization, sample stations should be no more than 5 m apart along the grid line.

MMI Response Ratio (RR) gold anomalies were noted on numerous lines including 1+00S (highest amplitude), 1+00N, 2+00N (most spatially cohesive) and 13+00N (a significant anomaly open to the north). Additional tighter-spaced sampling in the vicinity of each of the anomalies will likely better define and/or enhance the RR anomalies. The MMI anomalies all remain effectively untested by diamond drilling.

Consideration should also be given to increasing the sample density in the vicinity of single station B-horizon gold anomalies which are likely the product of an overly coarse sampling density and/or the “nugget effect”. (Results for the B-horizon field duplicates indicate there is a poor correlation for gold and that there is significant spatial variability).

Additional B-horizon sampling is required to define and/or enhance a number of B-horizon gold anomalies that occur (a) at the end of grid lines or (b) within lines that do not have additional sample coverage north or south of the anomalies. Currently, a number of anomalies are considered “open” and additional sampling to close off the anomalies is warranted. (An example includes the highest B-horizon gold concentration of 68 ppb which occurs as a single station anomaly on the western edge of the sampled grid on Line 2+00N). All B-horizon anomalies also remain effectively untested by diamond drilling.

Future soil geochemical sampling programs would benefit from an orientation program to determine the appropriate sample medium, sample density, size fraction, digestion, instrumentation as well as costs and turnaround time.

Additional prospecting in areas of key observations (i.e. such as sulphides in the soil sample) is warranted.

With respect to the glacial geology:

(i) Complete a comprehensive ice flow indicator mapping program to enhance the regional and property level understanding of the glacial history which will assist with the interpretation of the B-horizon soil sample results.

(ii) Determine the glacial dispersal distance for the Carscallen Property to enhance the regional and property level understanding of the glacial history which will assist with the interpretation of the B-horizon soil sample results.

(iii) Collect and process several large 10 kg till samples (particularly in the areas of anomalous B-horizon gold) in order to obtain significant information with respect to gold grain counts/morphology/size, proximity to source and associated mineralogy.

SGS Canada Inc – Mineral Services should be contacted and advised that the gold results for their internal standard MMI-SRM-18 used in laboratory report # TO108202 was biased low (in excess of 20% of the accepted value). Likewise, for laboratory report # TO108205 the standard was biased high (in excess of 20% of the accepted value).

References

Agriculture and Agri-Food Canada 2005: The Canadian System of Soil Classification (Third Edition); R. H. Haynes (editor), NRC Research Press, National Research Council of Canada, Ottawa, 187 p.

Hamilton, S. M. 2007: Major advances in soil geochemical exploration methods for areas of thick glacial drift cover; in Exploration in the New Millennium, Proceedings of the Fifth Decennial International Conference on Mineral Exploration, ed. Bernd Milkereit, p. 263-280.

Melkior Resources 2009: A Discovery Company; Exploring in Ontario and Quebec, company website http://melkior.com/, accessed December 20, 2009.