A Geochemical Report on the STOGGIE Property submitted as Representation Work on the following quartz claims

Claims: Stoggie 3-40; Grant Numbers YE71503-YE71540 Total 38 Quartz Claims in the Dawson Mining District Owner: Gordon Richards

Location NTS Map Sheet 115P06, Camp at 351,100E, 6.979,350N, Elev 1080 m UTM NAD 83, Zone 8

Field work performed by Gordon Richards and Jeff Mieras during the period July 3 to July 10, 2013

Report written by Gordon Richards October 15, 2013

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INTRODUCTION

Based on aeromagnetic derivative lows the writer prospected in 2012 an exploration target he had developed in the underexplored area east of the White Gold District in the area of pre-Reid glaciations. Staking was conducted at the conclusion of prospecting because of significant alteration seen during the course of prospecting. Claims were recorded July 10, 2012. The property is located 140 km from Dawson City, 130 km from Mayo, and 130 km from Carmacks. It is located in the westernmost headwaters of a major east flowing tributary to Black Creek on NTS map sheet 115I13. Access is made by helicopter from any of the above towns. Refer to Figures 1 and 2.

Richards and Mieras returned to the property by helicopter on July 5, 2013 to conduct a soil sampling programme as described below. They worked on the property until they flew out on July 10, 2013. During this time they collected 171 MMI soil samples, 62 rock samples, and one silt sample.

The geology of the area has recently been described on *Canadian Geoscience Map 7 of Southwestern McQuesten and parts of northern Carmacks by Ryan, J.J., Colpron, M., and Hayward, N., 2010.* The property is underlain by volcanic flows and volcaniclastics of the Early Jurassic Seminof Formation and its co-eval Aishihik intrusive suite within Quesnellia/Stikinia Terrane overlain by volcaniclastics of the Upper Cretaceous Carmacks Group. This piece of Quesnellia/Stikinia occurs at the northern tip of this Quesnellia Terrane surrounded to the west, north and east by rocks of the Yukon Tanana Terrane. White Gold District gold occurrences had been described by many geologists familiar with the deposits as near vertical structural occurrences within all rock types so rock type was not considered as a preliminary screen for identifying targets.

Jeffrey Bond and Panya Lipovsky of the Yukon Geological Survey have recently provided a number of papers, maps and posters on the surficial geology of the pre-Reid glaciated area with descriptions related to exploration. In particular they noted that tills have largely been removed by weathering from hilltops and modest slopes leaving hillsides amenable to soil sampling with effectiveness believed to be similar to unglaciated terrain further west. The property lies at the extreme western limit of the pre-Reid glaciated terrain with higher elevations shown to be unglaciated. Current work found an extensive loess blanket 20 to 50 cm thick covering the hillsides.

The McQuesten Aeromagnetic Survey by Kiss, F., and Cryle, M., 2009 is available from Geoscience Data Repository through Natural Resources Canada. Horizontal and tilt derivative maps derived from the raw aeromagnetic data show structures where in some instances magnetite destructive alteration has occurred.

Regional Geochemical Data (RGS) is readily available. RGS samples variably anomalous for Au, As, Sb and Hg occur in three north flowing and three south flowing creeks off of the east-west ridge on which the camp was situated.

Very Few Minfile occurrences are known in the area. Minfile occurrence 115I 102 occurs on the Smoko Claims 5 km north and is described as anomalous Cu and Mo in rocks and soils explored by the Klotassin JV in 1975 for porphyry style mineralization. The Smoko Claims have been explored by the writer in 2011 and 2012 under YMIP Grants. Anomalous gold in soils with accompanying anomalous pathfinder elements were outlined over a two km length.

The Stoggie Property was first prospected by the writer in 2012 under YMIP Grant 12-016. Prospecting was focussed on aeromagnetic tilt derivative lows. Refer to Figures 2.5, 2.6, and 2.7. A strong pattern of anomalous Pb in rocks, MMI soil and Ah soil response ratios was defined over a zone measuring 1800 m by 1100 m with no discernible pattern. Anomalous Zn, and lesser Au, As, and Ag were present in rocks and soils within this Pb zone. More detailed soil and rock chip sampling was recommended to define the extent of this anomaly and try and locate gold bearing zones within it.

On July 5, 2013, the writer flew by helicopter to the property with Jeff Mieras to collect soil and rock samples on a grid across the large Pb soil anomalous zone outlined in 2012. Work was completed on July 10, 2013.

Results were encouraging. Strong precious metal and pathfinder metal values occur across the survey area but do not define a mineralized structure. There is no outcrop or significantly mineralized float over the anomalies. More detailed soil, detailed ground magnetic and VLF surveys, and trenching of the highest Au and Ag MMI response ratios are recommended.

All garbage was removed from camp and taken to Carmacks for disposal.

CLAIMS.

The following is a list of all claims forming the property. The claims lie in the Dawson Mining District on NTS map sheet 115113. Work was funded by a YMIP grant 13-034, and was performed by and for the registered owner, Gordon G Richards. Claims were staked June 15 & 16, 2012 and recorded July 10, 2012. Claim expiry dates will be extended to July 10, 2018 by filing of the work described in this report as representation work. Refer to Figure 2 and Table 1 for claim information.

Claim Name	Grant No.	Expiry Date	Reg Owner	% Owned	NTS #s
Stoggie 3-40	YE61503 -	2015/12/10	Gordon G	100.00	115 13
	YE61540		Richards		

Table 1. Claim Status

AEROMAGNETIC LOW.

Tilt and horizontal derivative lows derived from government aeromagnetic data are believed to define zones of magnetite destructive alteration that has been shown to be a good guide to gold bearing alteration systems within the White Gold District. An aeromagnetic tilt derivative low is shown on Figure 4 and in generalized form as a dashed purple line on Figures 2.5 to 2.7 and Figures 5 to 11. They were used as the main target for soil sampling in 2012 but not in 2013. A horizontal derivative low is also present and forms a similar pattern as the tilt derivative low. The pattern shown on the figures for the tilt derivative low is an approximation only as limits of the low are somewhat diffuse as can be seen on Figure 4 and its location is not exact. Its axis is believed to be within 100 m of where shown.

SURFICIAL GEOLOGY.

Jeffrey Bond and Panya Lipovsky of the Yukon Geological Survey have recently provided a number of papers, maps and posters on the surficial geology of the pre-Reid glaciated area with descriptions related to exploration. In particular they noted that tills have largely been removed by weathering from hilltops and modest slopes leaving hillsides amenable to soil sampling with effectiveness believed to be similar to unglaciated terrain further west. Glaciation is described as pre-Reid in age. Reid glaciation began 200,000 years ago and ended about 50,000 years ago. The glaciation across the general area of the Stoggie Property is described as much older than Reid, possibly older than 500,000 years (Jeff Bond, personal communication, 2012).

The property lies at the extreme western limit of the pre-Reid glaciated terrain with higher elevations shown to be unglaciated. Current work confirmed unglaciated terrain at higher elevations as shown on the accompanying figures.

A blanket of loess believed to have been deposited in late McConnell Glacial times (22 ma) covers most of the hillsides in common depths of 10 to 25 cm. It is less common on the flat upland surface and absent on some steep hillsides.

Soil pits exposed colluvium and tills beneath the loess and in some pits variably admixed with the loess. At lower elevations tills were common often admixed with colluvium. At higher elevations and on some hillsides colluvium was common. At many sites below the upper limit of tills only colluvium was exposed in soil pits. Thus it appeared that much of the till that previously covered hillsides had been removed by weathering or incorporated into the soil profile with colluvium much as described by Lipovsky and Bond.

BEDROCK GEOLOGY.

Bedrock geology is best described on *Canadian Geoscience Map 7 of Southwestern McQuesten and Parts of Northern Carmacks by Ryan, J.J., Colpron, M., and Hayward, N., 2010.* The claims area is underlain by andesite and phyllite of the Upper Triassic Semenof Formation lying in contact with granodiorite of the Early Jurassic Aishihik Suite that together are part of the Stikinia/Quesnellia Terrane. Upper Cretaceous Carmacks Group dacite overlies the Semenof Formation rocks on the hilltop around camp. Refer to figures.

Float and rock chips found on hillsides and in many soil pits were used to map the approximate contacts between Carmacks Group dacite, Seminof Formation andesites and phyllites and granodiorite as shown on Figures 2.5 to 11. As MMI soils are collected across the 10 to 25 cm depth, only those soil pits that contained less than 25 cm loess provided rock chips for mapping underlying geology. Carmacks Group volcanics were only seen as angular rubble and float of dacite across the height of land above the upper limits of till shown on the figures and below that elevation as angular float and chips within many of the soil pits that expose tills and colluvium. The dacite was most commonly a lapilli tuff with some fine-grained tuffs and was invariably limonitic. Siliceous lenses, local silicification, and drusy patches with <1mm crystalline quartz were seen in samples. Pyrite was noted in a few samples as described on Table 3. Limonite and Mn stains were both disseminated and fracture controlled. In a few pits, the dacite was an unaltered massive vitreous pale green dacite with about 5% 1-3 mm feldspar phenocrysts. Selected geochemical results are provided in Table 3 and shown graphically on the figures.

Angular float of Seminof Formation fine-grained andesite and phyllite was seen north, west, and south of camp and provides the uphill limits of the contact with overlying Carmacks Group dacite. Bleaching and fracture and disseminated limonite were noted in some of the float of Seminof andesites. This limonite in Seminof Formation volcanic was more intense and common in the float west of camp.

A few pieces and chips of granodiorite were seen in some soil pits at the western limit of sampling.

Geology was only recorded along the T-series of samples collected in 2013 and the P-series of samples collected in 2012 where Richards traversed. However altered rocks collected by Mieras from soil pits on his traverses were examined and sampled, where appropriate, by Richards.

GEOCHEMICAL SURVEYS.

SURVEY METHODS

Collection of **171 MMI soil** samples that uses a selective leach analyses was used because the area was known to have been glaciated during one or more pre-Reid glacial periods and MMI soil sampling can "see through" deep overburden including glacial till. Also MMI soil samples are collected from a depth of 10 to 25 cm that avoids having to dig deeper and possibly frozen ground. **62 altered ro**ck samples were collected for analysis from soil pits. **One silt** sample was collected. Samples were sent to labs described below. Ten man days were spent by Jeff Mieras and Gordon Richards collecting these samples. Lab results and spreadsheets showing UTM locations with the geochemical data are provided in Tables and Appendices. UTM coordinates were recorded using a UTM NAD 83, Zone 8 Projection.

Sample details such as rock type and mineralization, soil colour, texture, depth, dampness and site slope were described in notes. Their locations were recorded in a handheld Garmin GPSmap 60Cx unit. Some UTM co-ordinates were also recorded in notebooks as a backup in case of loss of the GPS unit or loss of data stored on the unit. No such loss occurred. Sampled material was placed into numbered bags as described below. Soils were collected at 50 m intervals where possible on east-west lines spaced 200 m apart with few exceptions as noted.

Response ratios for 19 selected elements were calculated for all 171 MMI soil samples and are provided in Table 2. Geochemical results for rock samples are provided in Table 3 and for the one silt sample in Table 4. Anomalous response ratios of MMI soil samples greater than selected threshold values for Au, As, Pb, Zn, Ag, Bi, and Ni are shown graphically on Figures 5 to 11 along with anomalous response ratios for those elements.

MMI Soil Samples.

MMI analysis uses a weak partial extraction to improve the conventional geochemical response over buried ore deposits. The process measures the mobile metal ions from mineralization, which have moved toward the surface and become loosely attached to the surfaces of soil particles. They concentrate within the 10 to 25 cm soil depth which on the property is till, till and loess, colluvium, or loess with variable amounts of admixed colluvium and till. Its effectiveness has been documented in over 1000 case histories on six continents and includes numerous commercial successes. The anomalies are sharply bounded and in most cases directly overlie and define the extent of the surface projection of buried primary mineralized zones. The MMI process is a proprietary method developed by Wamtech of Australia. SGS Minerals Services in Toronto purchased all rights to the method and provides analyses in Vancouver and Toronto.

Watch and ring were removed prior to sampling. Pits were dug by shovel to a depth of 30 cm in order to expose the soil profile for sampling. The profile was scraped clean with a plastic scoop to remove any metal effect from the shovel. A continuous strip of soil was collected by plastic scoop over the interval of 10 to 25 cm below the top of true soil, placed in a pre-numbered ziplock baggie and placed in an 11 inch by 20 inch 2 mil plastic bag. Loess was present at nearly all sample sites but the 10 to 25 cm sample depth included various mixtures of loess, colluvium and till for the 171 MMI soils collected. Samples were kept cool until they were shipped to SGS Minerals Services, 3260 Production Way, Burnaby, B.C., V5A 4W4 for analyses.

In the SGS Lab, samples are not dried or prepared in any way. The MMI process includes analyses of an unscreened 50-g sample using multi-component extractants. Metal contents are determined for 53 elements by ICP-MS in the parts per billion range.

Response Ratios were calculated for 19 elements as shown on Table 2. The average value for results of the lower quartile was calculated for each element. One-half of detection limit was used for those samples with values reported as less than detection limit. Then each result was divided by the lower quartile average to obtain its response ratio. A response ratio of 10 or more is considered very significant for indicating underlying mineralization. Lesser values of 5 to 10 can also be important particularly where more than one element has such a value. Response ratios can best be thought of as a multiple of background in interpreting results.

Rock Samples.

62 rock samples were collected from the MMI grid soil pits. Rock chips from angular float were collected in a numbered kraft sample bag. They were sent to Acme Labs in Vancouver, B.C., where the samples were weighed, crushed, split and pulverized to 200 mesh, and 15 grams digested in 1:1:1 Aqua Regia and sent for ICP-MS analysis. This is Acme's 1DX method using a 15 g sample size.

Silt Samples.

One stream sediment sample was collected from a stream within the soil grid area. The sample was collected by plastic scoop, placed into a numbered gusseted kraft sample bag and stored in an 11 by 20 cm plastic bag. This sample was collected to corroborate grid soil results and establish effectiveness of silt sampling in the general area. Samples were sent to Acme Analytical Laboratories Ltd, 9050 Shaughnessy St, Vancouver, B.C., V6P 6E5 where the sample was dried

at 60*C, 100g sieved through an 80 mesh screen, a 15 gram sample digested in 1:1:1 Aqua Regia and then sent for Acme's Ultratrace MS-ICP analysis. This is Acme's 1DX analysis.

SURVEY RESULTS.

<u>Au. Figure 5.</u> No obvious linear anomalous Au MMI RR anomalies occur anywhere on the soil grid. However referring to Figure 5, the three samples west of camp with RRs of 23, 15, and 24 are bracketed by anomalous Au RRs on the soil line to the north of 13 and 25 and the soil line to the south of 84. This set of samples form a linear trend that parallels the tilt derivative low immediately east as can be seen on Figure 4 and could represent a gold mineralized structure lying immediately beneath this northeast trend. This trend is open to the southwest for less than 200 m but unlimited to the northeast. Good anomalous geochemical support is provided by As, Pb, Zn and Ag (Figures 6-9). Many rock chips of limonitic dacite were collected from these soil pits but none exceeded 11ppb Au. Source of these strong Au MMI RRs is thus unexplained and remains an excellent target for additional exploration.

A second and more irregular distribution of anomalous Au MMI RRs occurs on line 6,979,500N about 300m northwest of camp with RRs of 18,7,8, and 17 and on the next two lines 300 and 500 m northwest with values of 10 and 16 on line 6,979,700N and RRs of 13,7,9, on line 6,979,900N. Inconsistent support is provided by other elements. The highest gold values in rock were collected in 2012 on line 6,979,300N west of camp, which could form part of this Au anomalous cluster. See Figure 2.6.

Most of the anomalous Au MMI RRs occur in soils collected in colluvium or in loess with some admixed colluvium. Responsiveness of Au in MMI samples collected from tills is uncertain.

<u>Ag. Figure 9.</u> Two patterns of anomalous MMI response ratios for Ag occur, one from the 2012 data shown on Figure 2.7 and one from the 2013 data shown on Figure 9.

In the 2012 data three contiguous MMI soil samples highly anomalous for Ag have RRs of 34, 35, and 15 in the most northwestern samples shown on Figure 2.7. MMI samples collected nearby in 2013 have Ag RRs of 16, 16, and 19 for Ag in samples T37 to T39. Samples collected on two east-west lines 300m and 600m

north of the 2013 samples were all collected in tills whereas the previous samples were collected from various mixtures of loess and colluvium. This may explain the absence of anomalous RRs for Ag if MMI sampling proves ineffective in tills and effective in samples with colluvium. It is not known if this is true or not but this type of problem does occur in selective leach analytical techniques. Additional anomalous Ag samples can be seen further southeast in the 2012 data along the trend of a prominent northeast trending aeromagnetic tilt derivative low. MMI RR geochemical support is provided most notably by As, Pb, and Zn and less so by Au and Bi.

In the 2013 data two long strings of highly anomalous Ag in MMI samples occur on the two lines south of camp. The most southerly line has Ag RRs of 8, 6, 15, 6, 14, and 9. The next line 300m north has Ag RRs of 8, 6,6,9,15,14,31,7, and 22. These samples represent lengths of 250m and 450m respectively. The next line to the north has weaker anomalous Ag MMI RRs that together with the previous two lines form a northeast trending linear pattern. These anomalous Ag samples are supported most notably by As, Pb, and Zn and less so by Bi. The trend crosses the contact between dacite and andesite. No rock samples collected from any of these sites have strongly anomalous Ag or Au leaving the cause of the Ag anomaly unexplained yet highly encouraging.

<u>Other elements.</u> Ni RRs shown on Figure 11 and high Cu RRs not shown on a figure but easily recognized by the similar high RRs on Table 2 both form widespread high patterns that are believed to reflect Seminof andesitic bedrock. The high patterns terminate roughly at the dacite-andesite contact shown on the figures.

High Ti, Ce and La RR values similarly occur more commonly over terrain underlain by Carmacks Group dacites although not as cleanly as the above relationship for Ni and Cu with andesite.

CONCLUSIONS.

 Angular float and chips in soil define the limits of limonitic dacite of the Upper Cretaceous Carmacks Group in contact with underlying fine-grained andesites and phyllites of the Lower Jurassic Seminof Formation. The distribution of Seminof Formation andesites is mimicked by widespread anomalous RRs for Ni and Cu. The contact of the Seminof Formation with Aishihik suite granodiorite was not located although it is mapped by Ryan and Colpron as lying along the western limit of the survey area.

- The ridgetop at camp is unglaciated with the upper contact of tills fairly well defined from the soil profiles in soil sample pits. Soils on lower parts of hillsides sampled are till with a covering of 20 to 50 cm thick loess that in places is partially admixed into the upper part of the till. The upper limit of tills occurs at about 950 m elevation with residual soils and angular rubble occurring above this elevation and below it at many soil sample locations. The flat upland surface contains large areas of dacite rubble with no or thin loess cover as at camp.
- The dacite that occurs as rubble on the upland surface and as chips in many soil pits is limonitic with occasional siliceous fractures and lenses. Mn staining as disseminations and fractures is common in many limonitic dacite samples. Pyrite forms up to 3% in the few dacites where it is present. Some of the Seminof andesites are bleached with varying limonite content.
- Soil samples with a colluvium component were the only sample type that contained anomalous Au MMI RRs. No samples that were largely till material contained anomalous gold RRs. This could be due to gold not forming anomalies in tills or a fortuitous presence of gold mineralization occurring only under colluvium but not tills.
- A 700 m long northeast trending zone of anomalous Au MMI RRs occurs 100 m east of camp. The zone is open to the northeast and is supported by anomalous MMI RRs for As, Pb, Zn and Ag. None of the limonitic dacites sampled along this trend were anomalous for gold or silver leaving the cause unexplained and open for discovery.
- A second less well defined zone of anomalous Au MMI RRs occurs 300 m northwest of camp and extends for another 500 m with inconsistent support by other elements. Again, no rock chips strongly anomalous for gold exist within this soil anomaly.
- Two large zones of anomalous MMI RRs for Ag, Pb, and Zn and As also exist on the soil grid. One 500m long zone trends northeast in the north part of the property and projects northwest under two soil lines that samples only

till. The tills may mask MMI response for Ag and Au. The second is 800m long zone that trends northeast in the southwest of the soil grid. No rock chips assayed within these zones are even weakly anomalous for Au or Ag.

As and Au were anomalous in rocks but not in MMI samples that were collected in tills or in loess-till mixtures. These elements may not be responsive in tills using MMI analysis. Ag, Pb, Zn and As were responsive in MMI soils regardless of soil type. Standard soil samples may or may not work in this environment. If they do they would certainly yield anomalies transported some distance by pre-Reid glaciers. Above the limits of till, standard soils might be a good method of sampling because of the very rocky nature of the soil which makes collection of MMI samples very difficult to collect.

RECOMMENDATIONS.

It is recommended that:

- A VLF-EM survey and a detailed ground magnetic survey be conducted to search for sulphide bearing structures that could be gold bearing. This survey should cover the large multi element anomalies that cover much of the soil grid.
- Trenches be dug over the highly anomalous MMI RRs discussed above that include T24 (84 RR for Au), S104 (24 RR for Au), T67 (25 RR for Au), T19 (31 RR for Ag), and S13 (15 RR for Ag).
- A minimal amount of soil sampling be carried out in restricted areas on a 25 m interval perpendicular to the trends of the Au and Ag anomalous zones described above using conventional analytic techniques. Because these zones occur in the unglaciated upland surface, soil pits should be dug by mattock or shovel. The rocky nature of the soil makes augering impractical.
- Further soil sample prospecting be conducted over the claims away from previous sampling.

STATEMENT OF COSTS 2013 Stoggie Property

	TOTAL	\$24,883.99
Report: 10% of above costs		2260.00
	Sub Total	\$ 22,623.99
YWCB: ¼ of \$351.00		87.75
Food and supplies: 12 man days @ \$100/day		1200.00
Van Kam Freight: samples to Vancouver ¼ of \$36	2.82	90.70
Gord Richards July 5-10: 6 days @ \$600/da	ау	3600.00
Jeff Mieras July 5-10: 6 days @ \$300/day		1800.00
Wages:		
Acme - rock assays. VANI174509		1598.48
Acme – silt sample assays. VANI174674		24.63
SGS - MMI soil sample assays. TO122410		6822.90
Geochem:		
	C	
Truck: Whitehorse-Pelly Farm-Whitehorse. ½ 622	2 km @ \$0.61/km	196.42
June 10. Demob off property. #57250		4521.83
July 8. Mob from Carmacks to Smoko Cam	ıp.#57818	\$ 2681.28
Trans North Helicopters:		

STATEMENT OF QUALIFICATIONS.

I, Gordon G Richards, with business address at 6410 Holly Park Drive, B.C., V4K 4W6, do hereby certify that:

- I am a Professional Engineer, registered with number 11,411, with the Association of Professional Engineers and Geoscientists of British Columbia since 1978.
- 2. I hold a B.A.Sc. (1968) in Geology from The University of British Columbia, and an M.A.Sc. (1974) in Geology from The University of British Columbia.
- 3. I have been practicing my profession as a geologist for over 40 years and as a consulting geological engineer since 1985. I have work experience in western areas of the United States, Alaska, Canada, Mexico and Africa.
- 4. I have based this report my field work and supervision of field work by Jeff Mieras during the period of July 5 to 10, 2013 and on the results generated by that field work.
- 5. I have written this report based on results of the fieldwork described.

Respectfully submitted,

Gordon G Richards, P.Eng.

See Data Folder for Tables





























See Data Folder for Assays