#### REPORT

## On the

BC Geological Survey Assessment Report 31109

## 2009 Geophysical Survey

## KEITHLEY CREEK AREA

Weaver Creek Grid Cariboo Mining Division British Columbia

OCT 0 7 2009

Gold Commissioner's Office

VANCOUVER, B.C.

Event Number 4292657

NTS Map 93A//14W

Ministry of Energy and Mines Kamloops, B.C.

Rec'd 0CT - 5 2009

For

## NOBLE METAL GROUP INCORPORATED

1501 – 543 Granville Street Vancouver, British Columbia V6C 1X8

By

## W.G. TIMMINS, P. Eng.

September - 2009

GEOLOGICAL SURVEY BRANCH

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Geophysical Report by

SJV Consultants

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#### **SUMMARY**

During the month of May, a magnetometer and VLF electromagetmeter survey was conducted over sections of a previously established geochemical soil survey grid in the Weaver Creek area on claims held by Noble Metal Group Incorporated.

The claims are located in the Cariboo Mining Division of British Columbia near the community of Likely, B.C., NTS 93A/14W.

This report and its Appendix describes an interpretation of the results of the above survey and the relationship to gold anomalies as illustrated by the geochemical soil sample surveys carried out in 2007 and 2008.

The magnetic survey delineates northwest striking rocks of both sedimentary and volcanic and/or metamorphic rocks underlying the area. Two high amplitude magnetic anomalies indicative of near surface bodies are mapped.

VLF-em data indicates several northeast trending conductors suggestive of fault zones. Several of the conductors occur in proximity and two coincide with anomalous gold values in soil.

A program of geological mapping, prospecting, limited induced polarization surveying followed by diamond drilling of defined targeted zones is recommended.

Respectfully submitted,

WH Tumin's

W.G. Timmins, P.Eng.

October 2, 2009

#### **INTRODUCTION AND TERMS OF REFERENCE**

The author was retained by Noble Metal Group Incorporated to provide an assessment report on geochemical soil sampling (2007-2008) and magnetometer and VLF-em surveys (2009) both of which were carried out under the direction of the writer.

The geophysical survey was performed by a two man crew provided by Mackevoy Geosciences Ltd. Of Vancouver, B.C., while the interpretation was provided by S.J.V Consultants Ltd. of Vancouver, B.C. attached to this report of Appendix I.

The survey was carried over fourteen of thirty-three grid lines previously established for the geochemical soil sampling survey referred to above.

The author has consulted on the property intermittently since 1987.

#### PROPERTY DESCRIPTION AND LOCATION

The property is located approximately 21 kilometers north-northeast of the community of Likely, in the Cariboo Mining Division of British Columbia, Canada, NTS 93A/14W centered approximately at latitude 52 47'N, longitude 121 29'W (Figures 1 & 2).

The property consists of 22 four post located claims containing 388 units and 50 located two post claims for a total of 438 units. The claims are contiguous and cover an area of approximately 10, 950 hectares. The property has not been surveyed.

A list of the claims, tenure numbers and expiry dates are tabulated below and illustrated on Figure 2.

| Tenure No. | Claim Name | No. Units | Expiry Date |
|------------|------------|-----------|-------------|
|            |            |           | · · ·       |
| 204756     | CAC 1      | 20        | 2009/07/12  |
| 204757     | CAC 11     | 20        | 2010/07/12  |
| 205123     | CAC 3      | 20        | 2010/04/16  |
| 205124     | CAC 4      | 20        | 2010/04/16  |
| 205125     | CAC 5      | 20        | 2009/04/16  |
| 412720     | CAC 6      | 20        | 2009/07/23  |
| 412721     | CAC 7      | 20        | 2009/07/25  |
| 412722     | CAC 8      | 20        | 2010/07/24  |
| 204351     | CASCA 1    | 8         | 2009/10/02  |
| 204352     | CASCA 2    | 20        | 2010/10/23  |
| 204363     | CASCA 3    | 16        | 2009/10/02  |
| 204364     | CASCA 4    | 16        | 2010/10/23  |
| 410855     | CASCA 5    | 20        | 2010/05/29  |
| 204185     | D.D. 2     | 6         | 2009/08/17  |
| 349094     | D.D. 3     | 12        | 2010/07/14  |
| 349095     | D.D. 4     | 20        | 2009/07/19  |
| 349096     | D.D. 5     | 20        | 2009/07/19  |
| 349097     | D.D. 6     | 20        | 2009/07/17  |
| 349098     | D.D. 7     | 1         | 2011/07/16  |
| 349099     | D.D. 8     | 1         | 2011/07/16  |
| 349100     | D.D. 9     | 1         | 2011/07/16  |
| 410856     | DOT 1      | 20        | 2010/05/29  |
| 410865     | DOT 2      | 1         | 2012/05/27  |
| 410872     | DOT 3      | 1         | 2012/05/27  |

| Tenure No. | Claim Name | No. Units | Expiry Date |
|------------|------------|-----------|-------------|
| 410873     | DOT 4      | 1         | 2012/05/27  |
| 410874     | DOT 5      | 1         | 2012/05/27  |
| 410875     | DOT 6      | 1         | 2012/05/27  |
| 410876     | DOT 7      | 1         | 2012/05/27  |
| 410877     | DOT 8      | 1         | 2012/05/27  |
| 204123     | J#1        | 20        | 2010/10/12  |
| 302656     | J-2        | 18        | 2011/07/16  |
| 313489     | NMG 1      | 1         | 2010/07/24  |
| 313490     | NMG 2      | 1         | 2010/09/24  |
| 313491     | NMG 3      | 1         | 2010/09/24  |
| 313492     | NMG 4      | 1         | 2010/09/24  |
| 313493     | NMG 5      | 1         | 2010/09/24  |
| 313494     | NMG 6      | 1         | 2010/09/24  |
| 313495     | NMG 7      | 1         | 2010/09/24  |
| 313496     | NMG 8      | 1         | 2010/09/24  |
| 313497     | NMG 9      | 1         | 2010/09/25  |
| 313498     | NMG 10     | 1         | 2010/09/25  |
| 313499     | NMG 11     | 1         | 2010/09/25  |
| 313500     | NMG 12     | 1         | 2010/09/25  |
| 320311     | NMG 13     | 1         | 2010/08/07  |
| 320312     | NMG 14     | 1         | 2010/08/07  |
| 320313     | NMG 15     | 1         | 2010/08/07  |
| 320314     | NMG 16     | 1         | 2010/08/07  |
| 320315     | NMG 17     | 1         | 2010/08/07  |
| 320316     | NMG 18     | 1         | 2010/08/07  |
| 320317     | NMG 19     | 1         | 2010/08/07  |
| 320318     | NMG 20     | 1         | 2010/08/07  |
| 320319     | NMG 21     | 1         | 2010/08/07  |
| 320320     | NMG 22     | 1         | 2010/08/07  |
| 320321     | NMG 23     | 1         | 2010/08/08  |
| 320322     | NMG 24     | 1         | 2010/02/08  |
| 320323     | NMG 25     | 1         | 2010/08/08  |
| 320324     | NMG 26     | 1         | 2010/08/08  |
| 320325     | NMG 27     | 1         | 2010/08/08  |
| 320326     | NMG 28     | 1         | 2010/08/08  |
| 320327     | NMG 29     | 1         | 2010/08/08  |
| 320328     | NMG 30     | 1         | 2010/08/08  |
| 320329     | NMG 31     | 1         | 2011/08/09  |
| 320330     | NMG 32     | 1         | 2011/08/09  |
| 320331     | NMG 33     | 1         | 2011/08/09  |
| 320332     | NMG 34     | 1         | 2013/08/09  |

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| <u>Tenure No.</u>  | Claim Name  |                                  | No. Units                                     | Expiry Date  |
|--|---|----------------------------------|---|--|
|  |   |                                  |   |  |
| 410850   | NMG 35  | 1                                | 201   | 0/05/27  |
| 410851   | NMG 36  | 1                                | 201   | 0/05/27  |
| 410852   | NMG 37  | 1                                | 201   | 0/05/27  |
| 410853   | NMG 38  | 1                                | 201   | 0/05/27  |
| 410854   | NMG 39  | 1                                | 201   | 1/05/28  |
| 320338   | NMG 40  | 1                                | 201   | 0/08/10  |
| 201184   | STU 1   | 12                               | 201   | 0/08/17  |
| 410851<br>410852<br>410853<br>410854<br>320338<br>201184 | NMG 36<br>NMG 37<br>NMG 38<br>NMG 39<br>NMG 40<br>STU 1 | 1<br>1<br>1<br>1<br>1<br>1<br>12 | 201<br>201<br>201<br>201<br>201<br>201<br>201 | 0/05/27<br>0/05/27<br>0/05/27<br>1/05/28<br>0/08/10<br>0/08/17 |

This report represents work completed and filed as Event Number 4296257 on July 7,2009 covering the claims listed below with their new expiry dates.

| <u>Tenure No.</u> | <u>Claim Name</u> | No. Units | Expiry Date |
|-------------------|-------------------|-----------|-------------|
|                   |                   |           |             |
| 204756            | .11               | 20        | 2011/10/12  |
| 320313            | NMG 15            | 1         | 2011/08/07  |
| 320314            | NMG 16            | 1         | 2011/08/07  |
| 320315            | NMG 17            | 1         | 2011/08/07  |
| 320316            | NMG 18            | 1         | 2011/08/07  |
| 320317            | NMG 19            | 1         | 2011/08/07  |
| 320318            | NMG 20            | 1         | 2011/08/07  |
| 320319            | NMG 21            | 1         | 2011/08/07  |
| 320320            | NMG 22            | 1         | 2011/08/07  |
| 320321            | NMG 23            | 1         | 2011/08/08  |
| 320322            | NMG 24            | 1         | 2011/08/08  |
| 204756            | CAC 1             | 20        | 2010/07/12  |
| 412720            | CAC 6             | 20        | 2010/07/23  |
| 412721            | CAC 7             | 20        | 2010/07/25  |
| 204185            | D.D. 2            | 6         | 2011/08/17  |
| 349095            | D.D. 4            | 20        | 2010/07/19  |
| 349096            | D.D. 5            | 20        | 2010/07/19  |
| 349097            | D.D.6             | 20        | 2010/07/17  |
| 204351            | CASCA 1           | 8         | 2010/10/17  |
| 204364            | CASCA 4           | 16        | 2010/10/23  |

#### ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The property is located in the Quesnel Highlands of Central British Columbia with elevations ranging from 1000 to 1500 metres above sea level.

Topography varies from steep along the Keithley Creek and Snowshoe Creek to moderate and gentle at higher elevations.

Keithley Creek flows in a southeasterly direction through the centre of the property with many creeks such as Donaldson, Honest John, Rabbit, Snowshoe and Weaver Creeks flowing into Keithley Creek.

The area receives significant precipitation throughout the year occurring from both rain and snow. Accumulations of snow may reach three metres or more during the winter months. Temperatures can vary from  $-25^{\circ}$ C in winter to  $+30^{\circ}$  in summer.

The natural vegetation is predominantly coniferous forest consisting of spruce, balsam, firs and cedar. Large portions of the property have been logged by clear cutting and most of these areas have been replanted. Many of the replanted areas contain second growth trees ranging from three to ten metres in height.

Access to the property is provided by an all-weather logging road to Keithley Creek from the community of Likely, B.C. From the old settlement of Keithley Creek, on Carlboo Lake, a logging road on the east side of Keithley Creek leads to the property. A network of logging and skid roads provide good access to all areas of the property. Upgrading is often required.

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A complete camp consisting of trailers with built-on additions including kitchen, four bedroom mobile, generator building, geological and core buildings, garage and building for small tools is located on the J1 claim about 12 kilometers from the main road at Cariboo Lake.

The community of Likely, situated on Quesnel Lake, is reached by paved highway from a point on Highway 97 about 12 kilometers southeast of the town of Williams Lake. Distance from Highway 97 to Likely is approximately 90 kilometers.

Williams Lake is a logging and lumber centre serviced by scheduled daily air service from Vancouver. Necessary supplies and equipment as well as local labor and modern communications are readily available.

Power for exploration purposes is supplied by portable generating units while water services are plentiful from the numerous creeks and rivers.





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## **HISTORY**

The Cariboo region of British Columbia is notable for the gold rush that began in 1860, which has continued to some degree to the present day. Placer gold was discovered in Keithley, Snowshoe, Little Snowshoe and French Snowshoe Creeks around the same time.

Prospecting for hard rock deposits started shortly after the Cariboo gold rush began with production in the Wells- Barkerville area beginning in 1935.

Noble Metal Group Incorporated and its predecessor company Cascadia Mines and Resources Ltd. Have been carrying out intermittent exploration for lode deposits since 1979.

Various work programs have been carried out in several areas of the property including soil geochemical surveys, magnetic and electromagnetic surveys, Induced Polarization surveys, trenching and diamond drilling.

The most recent Induced Polarization surveys were carried out by Pacific Geophysical Ltd on the J1 claim in 1995 and 1996. Several anomalies were tested by diamond drilling in 1996 and 2001 and anomalous values in gold, nickel, chromium, strontium and vanadium were intersected.

A geochemical soil sampling survey was carried out over sections of the CAC 1, CAC 2 and CAC 3 mineral claims in the Rabbit Creek area, as well as a stream sediment survey on Weaver Creek between May 20 and July 30, 2003.

Geochemical soil sampling surveys were carried out in the Weaver Creek area in 2007 and 2008.

#### **GEOLOGICAL SETTING**

#### **Regional Geology**

The Cariboo mining district is divided into four tectonically and stratigraphically unique terrains. The rocks of the four terrains range in age from Proterozoic to Jurassic and were deposits into an ocean environment. From east to west, the terrains are Cariboo (continental shelf clastics and carbonates, Barkerville (continental shelf and slope clastics, carbonates and volcaniclastics), Slide Mountain (rift floor pillowed basalt and chert) and Quesnel (island arc volcaniclastics and fine grained clastics.) (See Figure 3).

The Cariboo Terrain is of Precambrian to Permo Triassic age and is in fault contact with the western margin of the Precambrian North American Crater along the Rocky Mountain Trench. It can be divided into two successions, one Cambrian and older and the other Ordovician to Permo-Triassic. The older succession consists of grit, limestone, sandstone and shale and is unconformably overlain by the younger succession of basinal shale, dolostone, wacke, limestone and basalt.

The Barkerville Terrain consists of Precambrian and Palaeozoic rocks ranging in composition from grit, quartzite, and black and green pelite to lesser limestone and volcaniclastic rocks. The contact between the Barkerville and Cariboo terrains is the northwest trending, east dipping Pleasant Valley Thrust.

The Barkerville and Cariboo terrains are overthrust (Pundata Thrust) by the Slide Mountain Terrain. The Slide Mountain Terrain consists of Mississippian to Permian basalt in part pillowed, and chert pelite sequences intruded by diorite, gabbro and minor ultramafic rocks.

The Quesnel Terrain lies west of the Slide Mountain Terrain and consists of Upper Triassic and Lower Jurassic black shale and volcaniclastic greenstone.

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#### Local Geology

The rocks in the vicinity of Yank's Peak belong to the Barkerville Terrain and have been named the Snowshoe Group by Struik (1988). Struik has further divided the sedimentary and volcanic rocks of the Snowshoe Group into fourteen informal subdivisions, Ramos, Tregillus, Kee Khan, Keithley, Harvey's Ridge, Goose Peak, Agnes, Downey, Eaglenest, Bralco, Hardscrabble, Unnamed carbonate, Island Mountain, and Tom. Igneous intrusions of the terrain consist mainly of diorite and gabbro sills with quartz porphyry rhyolite. All rocks have been regionally metamorphosed to low and middle greenschist facies.

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The following table summarizes the composition of each group, as well as the estimated thickness (from Struik 1988).

| Island Mountain Amphibolite<br>(<150m) | Amphibolite, tuff siliceous mylonite  |
|--|---|
| Hardscrabble Mountain<br>(≤150m)       | Black sulphide, argillite and muddy granule conglomerate  |
| Bralco<br>(<100m)                      | Grey limestone, locally pelletal, commonly marble, includes undifferentiated phyllite   |
| Eaglenest<br>(≥150m)                   | Grey and olive micaceous feldspathic, poorly sorted quartzite and phyllite  |
| Downey<br>(≥150m)                      | Olive-grey micaceous feldspathic, poorly sorted quartzite and phyllite, marble, metabasaltic volcaniclastics                    |
| Agnes<br>(<150m)                       | Light grey conglomerate in part with calcareous matrix  |
| Goose Peak<br>(<250m)                  | Light grey, poorly sorted quartitle, phyllite, minor black sulphide   |
| Harvey's Ridge<br>(<300m)              | Black micaceous, poorly sorted quartzite, sulphide and phyllite, minor muddy conglomerate, limestone and basaltic metavolcanics |
| Keithley<br>(<300m)                    | Light grey quartzite, olive micaceous, poorly sorted quartzite, sulphide and phyllite   |

| Kee Khan<br>(<750m) | Marble, olive phyllite, sandy marble  |
|---------------------|---|
| Tregillius          | Olive-grey micaceous, poorly sorted feldspathic   |
| (>400m)             | quartzite and phyllite, conglomerate  |
| Ramos<br>(>300m)    | Olive micaceous poorly sorted feldspathic quartzite and phyllite, black sulphide and phyllite, amphibolite, marble, minor basaltic and felsic volcanics |
| Tom                 | Olive-grey micaceous poorly sorted feldspathic quartzite,   |
| (<175m)             | phyllite and schist; quartzose mylonite   |

The successions range in age from Hadrynian (Ramos through Keithley) to Palaeozoic (Harvey's Ridge through Bralco) and Upper Palaeozoic (Hardscrabble Mountain and Island Mountain Amphibolite).

Recent work by the British Columbia Geological Survey reported in Geological Fieldwork 2001, Report 2002-1, suggests that rocks of the Downey and Ramos may be equivalent to the Keithley succession.

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## Property Geology ( see Figure 3)

The mineral claims are underlain by rocks of the Ramos succession of which interbedded quartzite and phyllite are the most abundant. The age of the Ramos succession is believed to be Hadrynian.

The quartzite is olive to grey on fresh surfaces, is poorly sorted and generally medium to coarse grained. The quartz clasts are predominantly glass clear and grey with minor blue. The quartzite is usually micaceous and sericite, epidote, muscovite, chlorite, and biotite occur along foliations. Some sections of the quartzite are weakly calcareous.

Graphitic schist containing pyritic sulphides was located in proximity to anomalous gold values obtained by the Weaver Creek stream sediment survey in 2003 prompting the 2007-2008 soil sampling surveys and the 2009 geophysical survey.

The phyllite varies from olive gray to black with chlorite, graphite and accessory pyrite, and pyrrhotite. There is often rhythmic banding within the phyllite and contacts between the quartzite and phyllite are usually sharp.

The main structure in the area is the Keithley Creek Thrust that runs from Shoal's Bay on Quesnel Lake northwest up Keithley Creek and along the lower portion of Rabbit Creek carrying on to the northwest across Fontaine Creek.

The Weaver Creek grid area is underlain by rocks of the Ramos succession containing phyllite, schist, calc-silicate rocks, and quartzite.



British Columbia Geological Survey

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Figure 3. (a) Simplified preliminary geologic map of the Cariboo Lake area. (b) Simplified structural cross-sesetion.

## **Deposit Types**

The Barkerville Terrain hosts the principal gold occurrences of the Cariboo area. These include the Mosquito Creek, Island Mountain, Cariboo Gold quartz and Cariboo Hudson mines and the Showshoe and Midas veins. Deposits of less economic importance include those of silver, tungsten, lead, zinc and copper.

The gold ore at the Mosquito Creek, Island Mountain and Cariboo Gold Quartz mines in the Cariboo Gold Belt occurs (1) auriferous pyrite in quartz veins and (2) stratabound, massive auriferous pyrite lenses, termed "replacement ore".

The location of the gold deposits correlate with elements of (1) stratigraphy, (2) structure and (3) metamorphism.

- Stratigraphic Controls: Lode gold deposits are almost entirely confined to the Palaeozoic section of the Snowshoe group. In the Keithley Creek-Snowshoe Creek area, the Palaeozoic Harvey's Ridge succession contains a high density of auriferous quartz velns.
- Structural Controls: The auriterous replacement pyrite in limestone lenses is located in the hinge zones and less commonly along the limbs of regional and minor folds. Orientation of quartz veins is in part controlled by the regional fault and fracture pattern.
- 3. *Metamorphic Controls:* Lode gold concentrations are confined to rocks in the chlorite grade of metamorphism. The auriferous quartz veins in the Yank's Peak area vary greatly in dimension, ranging in width from a few inches to tens of feet and in length from a few tens of feet to greater than 1000 feet. They can be grouped into three types based on their strike, northerly, northeasterly and easterly striking. The vein quartz is usually milky-white in appearance and massive or slightly fractured with small crystal lined vugs. Ankerite is a common gangue mineral. The quartz is sparsely to moderately mineralized with sulphides. The highest gold values appear to be associated with the highest concentrations of pyrite.



## WORK PROGRAM

During the month of May, 2009, magnetic and VLF-em surveys were carried out by a two person crew provided by Mackevoy Geosciences Ltd. of Vancouver, B.C., under the direction of the author.

The geophysical surveys were performed over portions of the previously established geochemical soil survey grid in 2007 and expanded in 2008. The entire grid is illustrated as Figure 4.

The purpose of the magnetometer and VLF-em survey was to aid in geological mapping and to establish any correlation to the soil survey of 2007,2008 and a stream sediment sampling program on Weaver Creek in 2003.

# **RESULT OF GEOPHYSICAL SURVEYS** (SEE APPENDIX I)

Trent Pezzot, B.Sc, P.Geo. describes the magnetics as quiet with dominant geological structures striking 330 degrees and 340 degrees. Discoutinuites along the trends indicate northeasterly trending faults.

Quiet responses are indicative of sedimentary rocks while volatile responses are indicative of a volcanic or metamorphic environment.

Two high amplitude anomalies indicated highly magnetic material near surface and several very high gold values coincide with strong magnetic spikes.

VLF-em data indicate inphase responses trending 020 degrees which may be mapping weakly conductive near surface lineations.

In some cases these lineations are in proximity to anomalous gold values as shown on the geochemical soil maps.

## **CONCLUSIONS AND RECOMMENDATIONS**

The geophysical evidence indicates that the Weaver Creek grid is underlain by both sedimentary and volcanic or metamorphic rocks which may be displaced by the northeasterly trending faults.

Some near surface bodies are indicated by high amplitude magnetic anomalies.

VLF-em data indicates several northeasterly trending faults, two of which may be associated with elevated gold values in soil and others proximal to anomalous gold values.

A program of geological mapping, prospecting and possible limited induced polarization surveying followed by diamond drilling of targeted zones is recommended.

Respectfully submitted,

WHI

September 30<sup>th</sup>, 2009

W.G. Timmins, P. Eng

#### STATEMENT OF QUALIFICATIONS

I, William G. Timmins, of the city of Kelowna, in the province of British Columbia, do hereby certify that:

- I am a consulting geologist, with offices at 3-950 Lanfranco Road, Kelowna, B.C. V1W 3W8
- I have been practicing my profession since 1965, having been engaged in the evaluation, exploration and development of mineral properties throughout Canada, the United States, Latin and South America, Australia and New Zealand.
- I am a graduate of the Provincial Institute of Mining, Haileybury, Ontario (1956) and attended Michigan Technological University 1962-1965, Geology and was licensed by the Professional Engineers Association of B.C. (geological discipline) in 1969.
- 4. This report titled "Report on the Geophysical survey, Keithly Creek Area", dated September 30<sup>th</sup>, 2009, is based on published and private reports, maps and data in the public domain, overseeing the geophysical survey, a report by SJV Consultants Ltd, and numerous visits to the property.

W M Ream

W.G. Timmins, P. Eng 23.

September 30<sup>th</sup>, 2009

# NOBLE METAL GROUP INCORPORATED

# Expenditures – Geophysical Survey

# May 15<sup>th</sup> - 26<sup>th</sup> 2009

| Geo Tech Operator | 10 days @ \$550/day                                | \$5500          |
|-------------------|--|-----------------|
| Geo Tech Ass't    | 9 days @ \$385/day                                 | \$3465          |
| Geophys. Interp.  | 9 days @ \$/day                                    | \$2850          |
| Supervisor        | 10 days @ \$550/day                                | \$5500          |
| Prof Eng.         | Travel – 2Days<br>+4 Days @ 600/Day                | \$600<br>\$2400 |
| Skidoo Rental     | 2 Skidoos @ \$100/day                              | \$2000          |
| Instrument Rental | 10 days @ \$100/day                                | \$1000          |
| Truck Rentals     | 2Trucks, 10 days @ 100/day                         | \$2000          |
| Accom. & Meals    | 3 Men, 10 Days @ 100/day<br>1 Man 4 Days @ 100/day | \$3000<br>\$400 |
| Supplies Etc.     |  | \$550           |

Total: <u>\$29,865</u>

Mackevoy Geosciences Ltd. Chris Davis 539 4th Street East North Vancouver, BC, V7L 1J7

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# INVOICE

Invoice No.

| Custome   |  |  | Misc           |              |            |
|-----------|--|--|----------------|--------------|------------|
| Name      | Noble Metal Group Ltd.   |  | Date           | Mav          | / 28. 2009 |
| Address   | Suite 1501, 543 Granville Street                                     |  | Order No.      |              |            |
| City      | Vancouver Province BC Postal Code                                    | V6C 1X8                                | Rep            |              |            |
| Phone     | 604-683-9338   |  | FOB            |              |            |
| Qtv       | Description  | Project Name                           | Unit Price     | <del>,</del> | TOTAL      |
| 10        | Chris Davis  | Carlboo Mag Survey                     | \$ 550.00      | \$           | 5,500.00   |
| 0         |  |  |                |              |            |
| g         | Laurel Arness  | Cariboo Mag Survey                     | \$ 385.00      | \$           | 3,465.00   |
| 1533      | km Truck   | Cariboo Mag Survey                     | \$ 0.50        | \$           | 766.50     |
| 10        | GSM-19WV Magnetometer/VLF  | Cariboo Mag Survey                     | \$ 100.00      | \$           | 1,000.00   |
|           |  |  |                |              |            |
|           |  |  |                |              |            |
| GST:      | 81041 1827   | ······································ | SubTotal       | \$           | 10,731.50  |
|           |  |  | Shipping       | ĺ            |            |
|           |  | Tax Rate(s)                            | 5.00%          | \$           | 536.58     |
|           |  |  | Advance        | \$           | 6,000.00   |
| pproved b | ру   | TOTAL                                  | REMAINING      | \$           | 5,268.08   |
|           |  | Office Us                              | e Only         |              |            |
| Paym      | nent not received within thirty days of date billed will result in a | n additional charge of 5% per n        | nonth on outst | andin        | ig amount  |

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**APPENDIX I** 

## **GEOPHYSICAL REPORT**

on

# Magnetic and Vlf-em Surveys

Weaver Creek Project

Latitude 42°47'N Longitude 121°29'W

N.T.S. 93A/14W

## **Cariboo Mining Division**

## British Columbia, Canada

## **Noble Metal Group Incorporated**

1501 - 543 Granville Street

Vancouver, British Columbia

Canada

# Report by S.J.V. CONSULTANTS LTD.

E. Trent Pezzot, BSc., PGeo. Geophysicist

September 22, 2009

Weaver Creek Project - Mag - Vlf-em Surveys, September, 2009

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#### 1 <u>SUMMARY</u>

The Weaver Creek survey grid, located along the eastern boundary of Noble Metal Group Inc.'s Keithley Creek claim group, was the subject of a magnetometer and vlf-electromagnetometer survey conducted in May 2009. These surveys were intended to help map the geology and search for a lode gold source for anomalous stream sampling discovered in 2003. Gold assay results from a geochemical soil sampling program were provided to assist in the geophysical interpretation.

The magnetic data suffers from a lack of diurnal corrections however still delineates a NW trending geology. The character of the magnetic field suggests both sedimentary and volcanic and/or metamorphic rocks underlie the area. It also maps two very high amplitude, localized magnetic anomalies, indicative of highly magnetic bodies at or very near the ground surface.

The vlf-em data was recorded for the Seattle transmitter and provided information on northerly trending conductors. Several poorly defined conductors were mapped, generally trending N20E. Some of these coincide with offsets in northwesterly striking magnetic trends, suggesting they are mapping fault zones. Two of the better defined conductors are mapped on the north side of Weaver Creek and appear to be getting deeper to the north, suggesting they are trending into the hillside. Both of these conductors are loosely associated with elevated Au values in the soil.

Geological prospecting across the localized, high amplitude magnetic anomalies is recommended to identify the source. Similar prospecting should be conducted at the southern ends of vlf-em conductors on the north side of Weaver Creek. Trenching or shallow drilling would likely be required to test the northern ends of these conductors.

Magnetic and vlf-em surveying should be included as part of exploration programs designed for the rest of the property. Magnetic surveying should include monitoring and correcting for diurnal variations.

Induced polarization should be considered as a method for identifying quartz veining and/or the pyritic lenses known to be associated with gold in the area.

#### 2 INTRODUCTION

This report describes the results from a magnetometer and vlf-em survey conducted in the Weaver Creek area in May, 2009 under the direction of W.G. (Bill) Timmins. Data was provided as digital ASCII text files, listing the raw (non-diurnal corrected) magnetic data, location (utm easting, northing and elevation) and 6 components of the vlf-em signal associated with the Seattle VLF-EM transmitter.

This report is intended to be used as an addendum to an assessment report being compiled by Bill Timmins. Consequently details concerning the property (description, ownership, previous work), regional and local geology and cost breakdowns are treated only briefly, or not included.

#### **3 PROPERTY DESCRIPTION AND LOCATION**

The project area is located approximately 21 kilometres north-northeast of the community of Likely, in the Cariboo Mining Division of British Columbia, Canada. It lies with NTS map sheet 93A14W. The approximate centre of the claim group is latitude 52<sup>0</sup> 47'N and longitude 121<sup>0</sup> 29'W.

The property consists of 22 four post located claims containing 388 units and 50 located two post claims for a total of 438 units. The claims are contiguous and cover an area of approximately 10,950 hectares.

The Weaver Creek survey grid is located along the eastern boundary of this claim group, as shown on Figure 1 below.



Fig: 1. Claim Map (copied from Assessment Report 29447) and survey grid location

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#### 4 <u>GEOPHYSICAL TECHNIQUES</u>

#### 4.1 Magnetic Survey Method

Magnetic intensity measurements are taken along survey traverses (normally on a regular grid) and are used to identify metallic mineralization that is related to magnetic materials (normally magnetite and/or pyrrhotite). Magnetic data are also used as a mapping tool to distinguish rock types, identify faults, bedding, structure and alteration zones. Line and station intervals are usually determined by the size and depth of the exploration targets.

The magnetic field has both an amplitude and a direction and instrumentation is available to measure both components. The most common technique used in mineral exploration (which was used on this project) is to measure just the amplitude component using a proton precession magnetometer. The instrument digitally records the survey line, station, total magnetic field and time of day at each station. This information is typically downloaded to a computer at the end of each day for archiving and further processing.

The earth's magnetic field is continually changing (diurnal variations) and field measurements must be adjusted for these variations. The most accurate technique is to establish a stationary base station magnetometer that continually monitors and records the magnetic field for the duration of the survey. The base station and field magnetometers are synchronized on the basis of time and computer software is used to correct the field data for the diurnal variations.

#### 4.2 VLF-EM Method

The VLF method uses powerful radio transmitters set up in different parts of the world for military communications. In radio communications terminology, VLF stands for very low frequency, about 15 to 25 kHz. This is actually very high relative to frequencies generally used in geophysical exploration.

The signals from these powerful radio transmitters induce electric currents in conductive bodies thousands of miles away. Induced currents produce secondary magnetic fields which can be detected at surface through deviations of the normal VLF field.

Successful use of VLF requires that the strike of the conductor be in the direction of the VLF station so that the lines of magnetic field from the VLF signal cut the conductor at close to right angles. The secondary field (from the conductor) is added to the primary field (from the transmitter) so that the resultant field is tilted up on one side of the conductor and down on the other. A VLF receiver measures the tilt of the resultant field. Some receivers measure other parameters such as the relative amplitude of

the total field (or any component) and the phase between any two components. The tilt angle is sometimes referred to as the in phase component. The phase difference is sometimes referred to as the out of phase or quadrature component.

Interpretation is quite simple and usually conducted on profile plots that compare the component data to the horizontal locations along the survey line. A conductor will be located at the inflection point marking the crossover from positive tilt to negative tile and the maximum in field strength. One cannot make reliable estimates of conductor quality. A rule of thumb depth estimate can be made from the distance between the positive and negative peaks in the tilt angle profile.

The major disadvantage of the VLF method is that the high frequencies results in a multitude of anomalies from unwanted sources such as swamp edges, creeks and topographic highs. It is sometimes impossible to get a powerful enough VLF station to be near the strike of the expected conductor. One way to compensate for this latter problem is with the use of portable VLF transmitters. These units have limited power and therefore limited range, but can be positioned to provide optimum geometry for localized surveys.

The major advantages of the VLF method are that it is relatively inexpensive, fast and can be a useful prospecting tool. The tendency for VLF to respond to poor conductors aids in the mapping of faults and rock contacts.

# 5 **INSTRUMENTATION**

The geophysical data was gathered using a GEM systems GSM-19 magnetometer and vlf-em system, configured in the walking mag mode. Location and magnetic readings were recorded automatically at 2-second intervals throughout the day. Vlf-em data was recorded manually at the discretion of the operator.

# 6 FIELD SURVEYS

Details concerning the field surveys were not provided to SJV. It is apparent from the data file format that the survey was conducted over 6 days, from May 16 to May 21, 2009. Magnetic and location (UTM) data were gathered continuously throughout the day at 2-second intervals. Vlf-em readings were recorded at 25 metre stations along east-west survey lines, previously established for a geochemical soil sampling program. Fourteen of the thirty-three geochemical grid lines were surveyed with the vlf-em technique, providing coverage varying from 75 to 300 metres. Additionally, data was recorded as the operators walked between survey lines, along access routes to and from the grid. Five survey lines were walked where no vlf-em data was gathered.

No efforts were made to monitor or correct for diurnal magnetic variations.

# 7 DATA PRESENTATION

Base maps showing the claim outlines, topographic features and earlier geochemical results were copied as raster images from assessment report # 29447 obtained from the B.C. Government website (ARIS). These images were georeferenced to the NAD83, Zone 10N UTM co-ordinate system and used as background images for stacked profile and colour contour maps displaying the geophysical data.

Magnetic data is presented in two formats: as stacked profile maps (based on the data gathered across pre-existing lines) and as false colour contour maps, based both on the stacked profile data and the more detailed (and randomly located) walking mag data. Duplicate and closely spaced walking mag data was averaged during the gridding process.

Vlf-em data is presented in stacked profile format illustrating the inphase, quadrature and total field components.

Topographic data is presented as stacked profiles with the vlf-em data.

Au soil geochemical data was provided as an ASCII text file to assist in the geophysical interpretation. These data are presented as a thematic map using various symbols, size and color to reflect the assay value.

1:5000 scale maps of the magnetic, vlf-em and Au geochemistry data are provided as pdf documents with the report. Page sized versions of some maps are included as figures in the text of this report..

Profiles comparing the vlf-em, magnetic and elevation data are included as EXCEL graphs in appendix 2 at the end of this report.

## 8 <u>Geology</u>

#### 8.1 Overview

In assessment report 29447, Timmins (2007) describes the claims area as being underlain by Proterozoic to Palaeozoic sedimentary and volcanic rocks of the Snowshoe Group. More specifically, the survey area is underlain by rocks of the Ramos succession, one of fourteen subdivisions of the Snowshoe group identified by Struik (1988). The Ramos succession is predominantly interbedded quartzite and phylites with minor schist, calc-silicate and limestones.

The Geological Survey of Canada open file map 3-1961, shows the Snowshoe Group as lying in contact with the Midas Formation to the east in the survey area. This map shows the contacts between

these units as striking approximately  $320^{\circ}$ . antiform.

these units as striking approximately  $320^{\circ}$ . The Midas formation is mapped as an overturned



Fig: 2.

GSC Geology Map 3-1961 Red outline of Claim Group – Green outline of Weaver Creek Survey Grid

Unit 6: Snowshoe Formation – sericitic quartzite, pebble conglomerate, phyllite, quartz biotite schist.

Unit 5: Midas Formation - quartzose phyllite, slate, argillite, siltstone.

Unit 3: Yankee Belle Formation - quartzose phyllite, quartzite.



## 8.2 <u>Exploration Targets</u>

Anomalous gold found in a stream sampling program in 2003, led exploration to the headwaters of Weaver Creek in the search for the in situ source. In the Cariboo area, in situ gold occurs as (1) auriferous pyrite in quartz veins and (2) stratabound, massive auriferous pyrite lenses (replacement ore). There are historical reports of Au associated with quartz veins (faulting) and sulphides (pyrite) on Yanks Peak, some 2.5 km to the north of the survey area.

Timmins (2007) states the location of the gold deposits correlates with elements of (1) stratigraphy (2) structure and (3) metamorphism.

Stratigraphic controls: lode gold deposits are almost entirely confined to the Palaeozoic section of the Snowshoe group. In the Keithley Creek – Snowshoe Creek area, the Palaeozoic Harvey's Ridge succession contains a high density of auriferous quartz veins.

Structural controls: the auriferous replacement pyrite in limestone lenses is located in the hinge zones and less commonly along the limbs of regional and minor folds. Orientation of quartz veins is in part controlled by the regional fault and fracture pattern.

Metamorphic controls: lode gold concentrations are confined to rocks in the chlorite grade of metamorphism. The highest gold values appear to be associated with the highest concentrations of sulphides.

# 9 <u>GEOPHYSICAL TARGETS</u>

Under some conditions, the magnetic and vlf-em techniques can be used to help map these various control mechanisms.

Lithologies have different magnetic susceptibilities, which can be mapped by the amplitude component of the magnetic field. Phyllite and quartzite, the dominant lithologies in the Ramos succession which underlie the survey area, have similar magnetic susceptibilities (4.0 vs.  $1.5 (x \ 10^3 \text{ SI})$ ). Any contrast in the measured magnetic field generated by these two units would likely be very low in amplitude. Unfortunately, diurnal variations, which were not corrected for on this survey, can often exceed the amplitude contrasts expected between these rock types. For this reason, it is likely that the character of the magnetic response will be more diagnostic than the amplitude.

Structures can often be interpreted from magnetic data. If there is a significant contrast in the magnetic amplitudes associated with adjacent rock units, the shape of the magnetic profile crossing the units will often be diagnostic of the strike, dip and depth of the contact. Analysis of these parameters along linear features can sometimes reveal fold axes.

Faulting can often be detected by both magnetic and vlf-em surveying. If there is a magnetic unit associated with the fault zone (alteration component) it might be detected directly. More often, evidence of faulting is apparent as discontinuities and offsets along background trends. Fault zones (and sometimes contacts) are areas of structural weakness and associated with increased permeability. When these become filled with electrolytic solutions they can often appear as weak conductors to the vlf-em technique.

Concentrations of quartz veins are often associated with faulting and although the veins themselves are resistive, an association with electrolytic solutions can sometimes produce a conductive signature.

As noted above, metamorphism can often be detected by the character of the magnetic field and typically appears as rapid fluctuations similar to random noise. The chloritic grade of metamorphism can be expected to generate high magnetic amplitudes superimposed on this signature.

### 10 DISCUSSION OF RESULTS

### 10.1 Magnetic Data

The lack of diurnal control reduces the effectiveness of the magnetic mapping, particularly in this environment where the contrast between the known lithologies is likely to be subtle. However, it is noted that the magnetic contour maps do not display any extreme shifts in amplitudes associated with the different survey dates. On Figure 3 below, the magnetic contour map is overlain with color coded symbols identifying the survey date for the readings. From this display it is apparent that the diurnal variations are not too severe. However, there are some obvious problems. For example, the low at the east end of line 3600N is probably not geological. A look at the stacked profile display of the magnetic data (Figure 7) suggests this line has very similar characteristics to the lines to the north and south and is likely underlain by the same geological unit. While the diurnal variations do not appear to be severe, they do reduce the confidence in the contour mapping and the interpretation.



Weaver Creek Project - Mag - Vlf-em Surveys, September, 2009

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<sup>9</sup> 

The data density recorded by the walking mag is higher than what is required for this exploration target. To illustrate this point, the graphs below compare magnetic profiles for line 2275N. One is generated from data gathered at 25 metre increments along the line (where vlf-em data was recorded). The second is generated from the walking mag (2 second interval) where the average station spacing is 1.7 metres. The larger spacing data does an adequate job reflecting the major magnetic responses. For this property, a station spacing of 12.5 metres would be reasonable to map the target trends.





Fig: 4. Magnetic Profiles for line 2275N.

Top profile from data at 25m intervals, Bottom profile from walking mag data at 1.7 metre intervals

Figures 5 and 6 compare color contours generated from all of the walking mag data (27,195 data points) to those generated from the data gathered at the discrete stations used for the vlf-em survey (593 data points). While there is more detail in the walking mag data and more area covered, the main trends are still evident in the sparser data. In order to make an effective use of the detail afforded by the walking mag, diurnal corrections need to be applied

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With the exception of a couple localized responses, the magnetic data is quiet, with 95% of the data falling within a 175 nT range. High magnetic trends on the color contour maps suggest the dominant geological structures strike between  $330^{\circ}$  and  $340^{\circ}$ . Discontinuities along these trends suggest the presence of northeasterly trending faults.

Some of these trends are more easily traced on the stacked profile displays than on the colour contour maps. This is partially due to the diurnal shifts which are still present in the data. Many characteristics of the magnetic profiles can be traced from line to line, suggesting they are mapping linear features, possibly contacts, faults, fold axes or similar structures.

The stacked profile map of the magnetic data (based on 25 metre spaced data) reveals two distinct characters of magnetic data. In two areas, the northeast section (from 3200N to 4150N) and on the western half of the southernmost line (1275N) the magnetic field is relatively quiet. For the balance of the grid, the magnetic response reflects rapid fluctuations with higher amplitudes. These characteristics are more diagnostic than the relative magnetic amplitudes. The quiet responses are indicative of sedimentary rocks (or possibly a thick overburden layer) while the volatile responses are more typical of a volcanic or metamorphic environment.

There are two very high amplitude anomalies, one at the west end of line 4000N and another near the centre of line 3200N. These responses are indicative of small pods of highly magnetic material, at or very near the ground surface. One possible source could be the chloritic grade of metamorphism noted as one of the controlling mechanisms for Au enrichment.



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### 10.2 VLF-EM Data

The inphase, quadrature and total field components of the vlf-em data are presented in stacked profile format.

Measurements were taken on the 24.8 kHz signal, originating from the vlf-em transmission station NLK at Jim Creek, Washington (Seattle). The relative location of this transmitter with respect to the survey area makes this an effective tool for mapping northerly trending conductors.

There are no clear inphase, quadrature or total field responses indicative of discrete conductors. There are several questionable inphase responses, that generally trend  $020^{\circ}$  that may represent weakly conductive, near surface lineations. The two most reliable of these are mapped on the north side of Weaver Creek. The western conductor extends from line 3400N to 4150N and appears to be getting deeper to north. The second is noted on the eastern ends of lines 3200N to 3800N. It also appears to get deeper to the north.

The southern most conductor, mapped on lines 1600N, 1675N and 1975N is noisy, but evident in both IP and quadrature components.

Other responses flagged on Figure 8 are mapped on only one or two lines.

None of these questionable responses are apparent in the total field data.



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#### 10.3 Soil Geochemistry Data

An ASCII text file was provided that lists assay results for gold across the area. No description of the techniques used, identification of the horizons sampled or description of control sampling was provided. Figure 9 superimposes a thematic representation of these data over a color contour map showing the Au sample results from 2007. It is apparent from this map that recent soil sampling extended the 2007 coverage approximately 900metres to the north and 500 metres south.

There are no obvious or absolute correlations noted between the Au assays and the geophysical data. Figure 10 overlies the Au sample data with the magnetic data and interpreted vlf-em conductors. Some of the highest Au values coincide with very strong magnetic spikes, as noted on lines 1600N, 2275N, 3200N and 4150N. Conversely, there are a few Au highs that have no apparent magnetic correlation (Line 1975N) and some magnetic spikes with no Au anomalies (Lines 1275, 1975).

The two interpreted EM conductors which extend north from Weaver Creek appear to have a possible association with Au anomalies. The eastern conductor (lines 3200N to 3800N) coincides with one to two station Au anomalies along its interpreted length. The western conductor (lines 3400N to 4150N) coincides with elevated Au values at its' southern end (near surface).

If assays were measured for elements, these results should be compared to the geophysical data.



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## 11 CONCLUSIONS & RECOMMENDATIONS

The magnetic and vlf-em surveys completed over the Weaver Grid have assisted in exploration of this property. The data reveals that both sedimentary and volcanic (and/or metamorphic) rocks underlie the area and the dominant geological strike is northwest. There is evidence to suggest these trends have been displaced by northeasterly trending faults.

Localized, high amplitude magnetic anomalies suggest the presence of a few near surface bodies with very high susceptibility (possibly remnant magnetism). These anomalies could be mapping small intrusive plugs or alteration zones. They could also be indications of the chlorite grade of metamorphism.

The vlf-em data mapped several northeasterly oriented linears with a weak conductivity signature. Several of these coincide with discontinuities and offsets of the northwesterly oriented magnetic trends and could be reflecting the near surface projections of faulting. Two of these are loosely associated with elevated Au values in the soil.

These geophysical techniques should be part of any exploration programs covering the balance of the property. It is strongly recommended that the magnetic survey include monitoring and correction for diurnal variations.

Induced polarization techniques should be considered as a tool for mapping the resistivity signature of quartz veins and the chargeability signature of disseminated sulphides (pyrite) both of which are historically associated with in situ gold deposits in this area.

Respectfully submitted,

Per S.J.V. Consultants Ltd.

E. Trent Pezzot, BSc., PGeo, Geophysics, Geology

Date Signed: \_September 24, 2009

## 12 Appendix 1 – Statement of Qualifications – E. Trent Pezzot

I, E. Trent Pezzot, of the city of Surrey, Province of British Columbia, hereby certify that:

- 1) I graduated from the University of British Columbia in 1974 with a B.Sc. degree in the combined Honours Geology and Geophysics program.
- 2) I have practised my profession continuously from that date.
- 3) I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia.
- 4) I have no interest in Noble Metal Group Incorporated or any of their subsidiaries or related companies, nor do I expect to receive any.

Signed by:

E. Trent Pezzot, B.Sc., P.Geo. Geophysicist/Geologist

# 13 Appendix 2 – Magnetic and Vlf-em Line Profiles



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