

Ministry of Energy and Mines  
BC Geological Survey

Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Geological, Geochemical

TOTAL COST: 4,901.23

AUTHOR(S): Andris Kikauka

SIGNATURE(S): \_\_\_\_\_

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): \_\_\_\_\_

YEAR OF WORK: 2017

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5654379

PROPERTY NAME: Marysville

CLAIM NAME(S) (on which the work was done): Marysville South 1029860, Mag 1 1033194

COMMODITIES SOUGHT: magnesite

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082GNW.005

MINING DIVISION: Ft Steele

NTS/BCGS: 082G 12/W, 082G.051

LATITUDE: 49 ° 34 ' 31 " LONGITUDE: 115 ° 58 ' 50 " (at centre of work)

OWNER(S):

1) MGX Minerals Inc

2) Jared Lazerson

MAILING ADDRESS:

303-1080 Howe St

303-1080 Howe St

Vancouver BC V6C 2T1

Vancouver BC V6C 2T1

OPERATOR(S) [who paid for the work]:

1) same

2) \_\_\_\_\_

MAILING ADDRESS:

same

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Magnesite occurs as beds 1-30 meters wide over a strike length of 4 kilometers hosted in Lower Cambrian Cranbrook Fm.

Magnesite is intercalated with a sequence of weakly metamorphosed sandstone (quartzite), shale (phyllite) and carbonate (marble). Magnesite is coarse crystalline (sparry) and resistant to weathering forming ridges, small cliffs. Magnesite bearing strata trends north-northeast and dips steeply NW. Late NW trending and steep dipping faults have offset beds 10-40 meters

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: \_\_\_\_\_

| TYPE OF WORK IN THIS REPORT                            | EXTENT OF WORK (IN METRIC UNITS) | ON WHICH CLAIMS    | PROJECT COSTS APPORTIONED (incl. support) |
|--|----------------------------------|--------------------|---|
| <b>GEOLOGICAL (scale, area)</b>                        |                                  |                    |   |
| Ground, mapping:                                       | 10,000 40 hectares               | 1029860, 1033194   | 1,970.45                                  |
| Photo interpretation                                   |                                  |                    |   |
| <b>GEOPHYSICAL (line-kilometres)</b>                   |                                  |                    |   |
| <b>Ground</b>  |                                  |                    |   |
| Magnetic   |                                  |                    |   |
| Electromagnetic  |                                  |                    |   |
| Induced Polarization                                   |                                  |                    |   |
| Radiometric  |                                  |                    |   |
| Seismic  |                                  |                    |   |
| Other  |                                  |                    |   |
| <b>Airborne</b>  |                                  |                    |   |
| <b>GEOCHEMICAL (number of samples analysed for...)</b> |                                  |                    |   |
| Soil   |                                  |                    |   |
| Silt   |                                  |                    |   |
| Rock   | 8 ALS Code ME-XRF26 & LOI        |                    | 2,930.78                                  |
| Other  |                                  |                    |   |
| <b>DRILLING (total metres; number of holes, size)</b>  |                                  |                    |   |
| Core   |                                  |                    |   |
| Non-core   |                                  |                    |   |
| <b>RELATED TECHNICAL</b>                               |                                  |                    |   |
| Sampling/assaying                                      |                                  |                    |   |
| Petrographic   |                                  |                    |   |
| Mineralographic  |                                  |                    |   |
| Metallurgic  |                                  |                    |   |
| <b>PROSPECTING (scale, area)</b>                       |                                  |                    |   |
| <b>PREPARATORY / PHYSICAL</b>                          |                                  |                    |   |
| Line/grid (kilometres)                                 |                                  |                    |   |
| Topographic/Photogrammetric (scale, area)              |                                  |                    |   |
| Legal surveys (scale, area)                            |                                  |                    |   |
| Road, local access (kilometres)/trail                  |                                  |                    |   |
| Trench (metres)  |                                  |                    |   |
| Underground dev. (metres)                              |                                  |                    |   |
| Other  |                                  |                    |   |
|  |                                  | <b>TOTAL COST:</b> | <b>4,901.23</b>                           |

NTS 082G 12/W, TRIM 082G.051  
LAT. 49 34' 40" N  
LONG. 115 58' 33" W

GEOLOGICAL, & GEOCHEMICAL  
REPORT ON MINERAL TENURES  
1029860, 1033194, 1033236  
MARYSVILLE MAGNESITE  
MINERAL OCCURRENCES  
MARYSVILLE, B.C.

Fort Steele Mining Division

by

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Powell River, BC V8A 0C7

August 1, 2017 **GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

**36,596**

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## SUMMARY

Marysville magnesite occurrences are located about 7 km (4.5 miles) south-southwest of Marysville, BC and approximately 12 km (7.7 miles) south of Kimberly, BC (Fig 1, 2). The Marysville South Zone MTO tenures (1029860, 1033194, & 1033236) cover a total area of approximately 335.19 hectares (827.9 acres). The Marysville sediment hosted magnesite occurs as coarse crystalline massive lenses that trend north-northeast, dip 50 to 80 degrees northwest, are 5-15 meters wide (up to 75 m width including interbedded magnesite, quartzite & siltstone), and individual magnesite lenses vary from 60-600 meter strike length (including minor fault offsets in the order of 5-75 meters). Magnesite lenses form a combined strike length of approximately 2,200 meters along a total strike length of 6,000 meters, hosted in Lower Cambrian Cranbrook Formation quartzite (minor siltstone). Geological mapping suggests that the Cranbrook Formation is variable between 200 to 300 meters true thickness.

The magnesite lenses contain variable amounts of quartz (8 rock chip samples range 1.89-6.48% SiO<sub>2</sub>). Other impurities include trace amounts of serpentine and talc. Quartz present in the magnesite was probably deposited in the Cambrian(?) as chert and re-crystallized during Cretaceous(?) deep burial low-grade regional metamorphism resulting in textures that include milky-white micro-veinlet quartz veins, patches and bands of clear, glassy quartz.

The writer performed fieldwork consisting of geochemical sampling and geological mapping on the south portion of Marysville magnesite. Fieldwork was carried out June 20-23, 2017. Technical work is recorded in this assessment report, and reported as MEM Event number 5654379. Geochemical sampling was carried out on exposed surface bedrock located in close proximity to historic mapped lenses of magnesite. A total of 6 rock chip samples were collected from 3 meter intervals from various surface outcrop (sample numbers 17-Mary 1-6), and an additional 2 angular shaped float (from soil horizon or sub-crop, i.e. unconsolidated rock clast loosened from bedrock) rock chip samples (numbers 17Mary 7, & 8). Rock chip samples were analyzed by ALS Minerals, North Vancouver, BC, using Li Borate fusion, whole rock analysis ME-XRF-06 (XRF26). Results from Marysville South Zone are listed as follows:

| Sample ID | Zone name       | Easting NAD 83 | Northing NAD 83 | Elev (m) | Type    |
|-----------|-----------------|----------------|-----------------|----------|---------|
| 17Mary-1  | Main Zone South | 573564         | 5490871         | 1160     | outcrop |
| 17Mary-2  | Main Zone South | 573584         | 5491625         | 1183     | outcrop |
| 17Mary-3  | Main Zone South | 573615         | 5490639         | 1188     | outcrop |
| 17Mary-4  | Main Zone South | 573697         | 5491899         | 1241     | outcrop |
| 17Mary-5  | Main Zone South | 573723         | 5491938         | 1251     | outcrop |
| 17Mary-6  | Main Zone South | 573758         | 5491983         | 1276     | outcrop |
| 17Mary-7  | Main Zone South | 573295         | 5490521         | 1177     | float   |
| 17Mary-8  | Main Zone South | 573184         | 5490743         | 1220     | float   |

| Sample ID | Al2O3% | CaO% | Fe2O3% | K2O% | MgO% | Na2O% | P2O5% | SO3%  | SiO2% | TiO2% | Total% | LOI%  |
|-----------|--------|------|--------|------|------|-------|-------|-------|-------|-------|--------|-------|
| 17Mary-1  | 0.65   | 0.61 | 2.12   | 0.05 | 42.4 | 0.14  | 0.11  | <0.01 | 6.48  | 0.04  | 99.97  | 47.3  |
| 17Mary-2  | 0.65   | 0.54 | 2.43   | 0.06 | 43.8 | 0.14  | 0.11  | <0.01 | 3.96  | 0.03  | 100.4  | 48.6  |
| 17Mary-3  | 0.81   | 0.95 | 0.53   | 0.24 | 45   | 0.15  | 0.06  | <0.01 | 1.89  | 0.06  | 99.89  | 50.14 |
| 17Mary-4  | 0.7    | 0.57 | 0.88   | 0.13 | 45   | 0.15  | 0.03  | <0.01 | 2.78  | 0.04  | 99.99  | 49.66 |
| 17Mary-5  | 1.29   | 0.8  | 0.47   | 0.03 | 44.2 | 0.14  | 0.04  | <0.01 | 4.95  | 0.05  | 99.61  | 47.6  |
| 17Mary-6  | 1.08   | 0.87 | 0.66   | 0.07 | 45.8 | 0.15  | 0.08  | <0.01 | 2.26  | 0.05  | 100.45 | 49.37 |
| 17Mary-7  | 0.96   | 0.99 | 0.84   | 0.02 | 44.3 | 0.15  | 0.09  | 0.01  | 5.93  | 0.05  | 100.05 | 46.66 |
| 17Mary-8  | 0.77   | 0.51 | 0.95   | 0.03 | 45   | 0.14  | 0.08  | <0.01 | 3.05  | 0.05  | 99.72  | 49.1  |

The relatively high MgO content (42.4-45.8% MgO) compares favourably with other magnesite producers such as Baymag property near Radium Hot Springs, BC (NOTE: pure magnesite is about 47.6% MgO). Impurity compounds of interest (Al<sub>2</sub>O<sub>3</sub>, CaO) approach specifications required for producing deadburn, calcined and fused magnesia. The relatively high SiO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub> (e.g. sample 17Mary-1 & 2, 2.12% 2.43% Fe<sub>2</sub>O<sub>3</sub>), may require beneficiation in order to remove iron-bearing mineral impurities (e.g. siderite). Based on the range of %MgO and impurities Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Fe<sub>2</sub>O<sub>3</sub>, detailed mapping, geochemical sampling and core drilling is recommended in order to test the extent and purity of the Marysville magnesite, leading to metallurgical testing for suitability for use as a raw material for refractories in the steel industry as well as other industrial end uses such as agricultural, fire retardant, and/or specialized moisture/mold resistant filler, MgCl (road salt).

The magnesite member of the Cranbrook Formation quartzite is extensive throughout the local area as lenses along a 6 kilometer strike length. In the southern portion of Marysville magnesite there appears to be NNE trending, steeply west dipping layer approximately 1,000 meters in strike length, and in the range of 3-15 meters width of magnesite mineralization that represents a significant drill target, especially where the widest magnesite zones are located near the boundary of MTO tenures 1033194 and 1029860. The south and central portion of tenure 1029860 has several isolated magnesite occurrences and it is possible that some of these lenses are offset by late stage faulting.

MGX is planning further evaluation of commercial applications for Marysville magnesite as well as geochemical analysis of rock samples in order to determine grade and distribution of Marysville Magnesite.

## 1.0 Introduction

This technical report has been prepared on behalf of MGX Minerals Inc, and describes property history and recent geological and geochemical fieldwork done on the Marysville Magnesite mineral (June 20-23, 2017). This report is prepared to comply with BC Ministry of Energy and Mines Mineral Act requirements for filing assessment reports.

## 2.0 Location, Access, Infrastructure, & Physiography

The Marysville Magnesite property consists of MTO tenure ID numbers 1033194, 1029860, and 1033236 that are located approximately 12 km (7.7 miles) south of Kimberly, BC (Fig 1, 2). The property is located on NTS map sheet 082G/12W and on TRIM map sheet 082G.051 in the Fort Steele Mining Division of southern British Columbia, Canada (Figure 2). The Marysville Magnesite occurrences are located near latitude 49°34' 40" N and longitude 115°58' 33" W. The property covers a north to northeast trending ridge forming quartzite with lenses of relatively pure magnesite, located approximately 1-6 km northwest of Perry Creek. Near Antwerp Creek canyon topography is steep, and N to NE trending cliffs less than 7 m (23 ft) high occur in the vicinity of a NNE trending, sub-vertical dipping major fault. Elevations on the claim block range from 1,000 to 1,550 meters (3,280-5,084 feet).

The Marysville magnesite property can be accessed using Perry Creek FSR, which is connected to paved Interprovincial Highway 95A located east of the property. There is good infrastructure in the form of paved highways, a CPR spur line and a major power line all of which are within 10 kilometres of the property. Marysville magnesite deposit is partly exposed on surface, as a series of NNE trending outcrops. A series of northwest trending, cross-cutting faults has resulted in some small scale dextral offsets (in the order of 5-75 meters) of geologic contacts.

Vegetation on the property consists mainly of Lodgepole Pine with lesser Douglas Fir and Western Yellow Larch, with minor birch and aspen. The nearest towns are Marysville, Cranbrook and Kimberly on Highway 95A. Both Kimberly and Cranbrook have suitable infrastructure to support mining and mineral processing.

## 3.0 Property Status

The Marysville magnesite claim consists of three (3) mineral tenures (listed below) located within the Fort Steele Mining Division (Figure 2).

| Tenure number | Claim Name           | Issue Date  | Good To Date | Area in hectares |
|---------------|----------------------|-------------|--------------|------------------|
| 1029860       | Marysville South     | 2014/jul/25 | 2019/nov/01  | 188.56           |
| 1033194       | Mag 1                | 2015/jan/07 | 2019/nov/01  | 125.68           |
| 1033236       | Marysville Magnesium | 2015/jan/08 | 2019/nov/01  | 20.95            |



The total area of the mineral tenures that comprise the property is 335.19 hectares (827.9 acres). Details of the status of tenure ownership for the Marysville Magnesite property were obtained from the Mineral-Titles-Online (MTO) electronic staking system managed by the Mineral Titles Branch of the Province of British Columbia. This system is based on mineral tenures acquired electronically online using a grid cell selection system. Tenure boundaries are based on lines of latitude and longitude. There is no requirement to mark claim boundaries on the ground as these can be determined with reasonable accuracy using a GPS. The Marysville magnesite claim has not been surveyed.

The mineral tenures comprising the Marysville Magnesite mineral property are shown in Figure 2. The claim map shown in Figure 2 was generated from GIS spatial data downloaded from the Government of BC GeoBC website. These spatial layers are the same as those incorporated into the Mineral-Titles-Online (MTO) electronic staking system that is used to locate and record mineral tenures in British Columbia. Information posted on the MTO website indicates that mineral tenure 1033194 is owned 100% by MGX Minerals Inc, and mineral tenure 1029860 and 1033236 are owned 100% by Jared Lazerson (CEO MGX Minerals Inc).

#### **4.0 Marysville Magnesite Property History**

In 1932 the GSC announced the discovery of coarse crystalline magnesite in the area between Perry Creek and St Marys River. Cominco acquired the property and subsequent mapping and sampling (including a 2,700 tonne bulk sample shipped to Trail, BC) was carried out. Cominco held the mineral title for Marysville magnesite for several decades and did not file any assessment reports so there are public access documents for work done by Cominco on the property. A map published in EMPR Annual Report 1964 (pg 187) suggests that Cominco performed considerable stripping and trenching at the north end of the magnesite zone, at an elevation of 4,060 to 4,120 feet (1,237.5 to 1,255.8 m) for a length of about 500 feet (152.4 m) across widths of 50-60 feet (15.24-18.3 m). The main excavation where Cominco removed 2,700 tonnes came from a NE trending pit that is about 160 ft long and 50 ft wide. A total of 4 diamond drill holes appear to have been drilled 50-150 meters west of the trenches. Cominco did not pursue commercial production and the claims eventually lapsed.

The Marysville magnesite property was acquired by Magna Precious and Industrial Minerals Inc and in 2000 the property was optioned by Stralak Res Inc. It was announced that the main purpose of the property acquisition was for the production of magnesium chloride, considered to be suitable for the replacement of road salt with magnesium chloride. Stralak Res did not file any assessment work.

In 2008, D Fredlund performed prospecting on 125 hectares and filed an assessment report (AR 30,075). One sample was reported taken from the north portion of the claims and was analyzed by ALS Minerals and returned values of 41.9% MgO, 7.39% SiO<sub>2</sub>, 0.39% Al<sub>2</sub>O<sub>3</sub>, 1.48% Fe<sub>2</sub>O<sub>3</sub>, 0.36% CaO. Conclusions of work done indicated that further work is recommended. The claims were allowed to lapse and MGX Minerals Inc has acquired the south portion of the Marysville magnesite zone.

In 2015, MGX Minerals Inc performed sampling and mapping in the north and central area of the property (fieldwork in 2017 focused on the south extension). Results from the 2015 rock chip samples are listed as follows:

| SAMPLE DESCRIPTION | Al2O3 % | BaO % | CaO % | Fe2O3 % | K2O % | MgO % | MnO % | Na2O % | P2O5 % | SO3 % | SiO2 % | TiO2 % | Total % | LOI 1000 % |
|--------------------|---------|-------|-------|---------|-------|-------|-------|--------|--------|-------|--------|--------|---------|------------|
| MARY-15-AR-1       | 0.47    | 0.02  | 1.02  | 1.04    | 0.04  | 40.7  | 0.03  | 0.07   | 0.11   | 0.01  | 11.63  | 0.03   | 100.45  | 45.28      |
| MARY-15-AR-2       | 0.88    | 0.02  | 0.94  | 0.67    | 0.06  | 44.8  | 0.01  | 0.07   | 0.14   | 0.02  | 3.53   | 0.04   | 100.35  | 49.14      |
| MARY-15-AR-3       | 0.67    | 0.01  | 0.56  | 1.8     | 0.03  | 44.3  | 0.03  | 0.07   | 0.08   | <0.01 | 2.91   | 0.03   | 100.1   | 49.58      |
| MARY-15-AR-4       | 1.1     | 0.01  | 0.62  | 0.81    | 0.19  | 44.9  | 0.01  | 0.09   | 0.08   | <0.01 | 3.2    | 0.06   | 100.5   | 49.42      |
| MARY-15-AR-5       | 0.6     | 0.01  | 0.56  | 0.92    | 0.06  | 45    | 0.02  | 0.07   | 0.08   | 0.01  | 2.7    | 0.02   | 100.05  | 49.99      |
| MARY-15-AR-6       | 1.03    | 0.01  | 1.01  | 1.07    | 0.04  | 42.7  | 0.02  | 0.06   | 0.19   | <0.01 | 6.9    | 0.04   | 100.2   | 47.1       |

## 5.0 Regional Geology

The Marysville Magnesite high purity magnesite deposit is hosted by Lower Cambrian age Cranbrook Formation, part of the Upper Proterozoic to Lower Cambrian Eager and Cranbrook Formations consisting of various lithologies including slate, siltstone, limestone, argillite, and magnesite. The magnesite layers occur in the upper part of the Cranbrook Formation. The Marysville Magnesite Creek deposit is classified as a stratabound magnesite deposit type that is most likely of a sedimentary origin as a platform carbonate deposition, and recrystallized by a burial process that has been subjected to Cretaceous (Laramide Orogeny)? low-grade regional metamorphism (200-300 degrees C, and 300-400 MPa pressure).

Lithological units in the area of Marysville Magnesite are described as follows:

### Lithology Legend

#### Upper-Proterozoic-Lower Cambrian

**H** Eager Fm argillite, clastic sediments

**G** Cranbrook Formation magnesite  
minor serpentine/talc  
(upper portion of F quartzite)

**F** Cranbrook Formation quartzite

#### Middle Proterozoic Purcell Supergroup

**E** Purcell lava (basalt, andesite)

**D** Purcell intrusive sills

**C** Siyeh Fm argillite, clastic sediments

**B** Kitchener Formation dolomite

**A** Creston Formation quartzite

Bedrock geology of the area surrounding Marysville Magnesite magnesite occurrence has been mapped by the Geological Survey of Canada (Memoir 76). A description of lithologies are listed as follows:

**Creston Formation:** The oldest rocks in the area consist of Middle Proterozoic light to dark green and grey phyllitic siltstone, siltstone and sericitic quartzite. General attitude of bedding is N to NNE and dip is steep to the east. The Creston Formation has a fault contact with Cambrian Eager Formation to the north.

**Kitchener Formation:** Middle Proterozoic Kitchener Formation consists of dolomite, argillaceous dolomite, calcareous argillite and argillite. The bedding strikes N to NE and dips are steep to the W and NW. Cleavage and dragfolds suggest that beds are overturned and on the east limb of a large scale anticline.

**Siyeh Formation:** Middle Proterozoic Siyeh Formation conformably overlies the Kitchener Formation. Siyeh lithologies include fine grained, light to dark coloured, buff thin-bedded striped argillite,

**Cranbrook Formation:** Lower Cambrian Cranbrook Formation contains mainly quartzite, with interlayered magnesite and siltstone near the top of the section. The quartzites are medium to coarse grained white, pink, pale-green or brown. Quartzite beds vary from massive to 2-4 feet (0.61-1.22 m) thick, to 2-4 inches (5-10 cm) thick and cross-bedding is frequently preserved.

**Eager Formation:** The Lower Cambrian Eager Formation consists of argillite, argillaceous siltstone, minor schist, quartzite, and dolomite. The argillite is dark to light green and black slaty rocks that form thin bedded, well developed flow cleavage, and closely spaced fracture cleavage nearly parallel to bedding.

The Marysville magnesite occurrence is hosted in the upper member of the Lower Cambrian Cranbrook Formation. The magnesite member outcrops over widths of up to 75 meters wide (that includes interbedded quartzite and siltstone) near the east flank of the north-northeast trending ridge. Bedding is interpreted as compositional layering and not metamorphic banding/cleavage. Metamorphic grade is low (greenschist facies) and it is possible to identify compositional layering. The bedding in the magnesite zone trends NNE and dips steeply ENE. A series of NW trending (dextral offset 5-75 m) faults are roughly perpendicular to the magnesite beds.

## **6.0 2017 Field Program**

### **6.1 Scope & Purpose**

The 2017 geological mapping and geochemical sampling was carried out in order to evaluate mineral potential in a 300 X 1,000 m area (elongated north-northeast), located in the south portion of Marysville Magnesite property in the area where magnesite is partly exposed as sub-crop and outcrop (near Antwerp Creek canyon). Previous geochemical rock chip sampling by MGX Minerals in 2015 outlined areas of magnesite in the north portion of the property, and the 2017 sampling focused on the southern portion of the property closer to Antwerp Creek.

## 6.2 Methods and Procedures

A total of 6 rock chip samples (numbers 17Mary 1-6) were taken across 3 meter intervals along exposures of bedrock near Antwerp Creek in the Marysville magnesite zones (Fig 4 & 6). A total of 2 of the 8 samples (numbers 17Mary 7 & 8) were taken in areas of no outcrop, but did contain abundant angular sub-crop (suggesting local bedrock source). Rock chip samples were taken with rock hammer and chisel and consist of acorn to walnut sized bedrock pieces for a total weight ranging from 1.5 to 2.5 kgs. Sample material was placed in marked poly ore bags and shipped to ALS Minerals, North Vancouver.

ALS Minerals crushed better than 70% passing a 2 mm screen split and pulverized rock chip samples. A split of 250 grams is pulverized to better than 85% passing a 75 micron screen. The sample pulp is analyzed using ALS Minerals ME-XRF-06 (XRF-26) Li borate flux major oxide whole rock geochemical analytical methods.

Geological mapping was carried out over 40 hectares adjacent to exposed magnesite. Geological structure such as bedding and fault orientation as well as lithology changes were noted and mapped at a scale of 1:10,000 (Fig 5).

## 6.3 Property Geology & Mineralization

The writer performed fieldwork consisting of geochemical sampling and geological mapping on the south portion of Marysville magnesite. Fieldwork was carried out June 20-23, 2017.

Technical work is recorded in this assessment report, and reported as MEM Event number 5654379. Geochemical sampling was carried out on exposed surface bedrock located in close proximity to historic mapped lenses of magnesite. A total of 8 rock chip samples were collected from surface outcrop (samples 17M-1 to 6), and as angular float (samples 17M-7, 8). Rock chip samples were analyzed by ALS Minerals, North Vancouver, BC, using Li Borate fusion, whole rock analysis ME-XRF-06 (XRF26). Results from Marysville South Zone are listed as follows:

| Sample ID | Zone name       | Easting NAD 83 | Northing NAD 83 | Elev (m) | Type    |
|-----------|-----------------|----------------|-----------------|----------|---------|
| 17Mary-1  | Main Zone South | 573564         | 5490871         | 1160     | outcrop |
| 17Mary-2  | Main Zone South | 573584         | 5491625         | 1183     | outcrop |
| 17Mary-3  | Main Zone South | 573615         | 5490639         | 1188     | outcrop |
| 17Mary-4  | Main Zone South | 573697         | 5491899         | 1241     | outcrop |
| 17Mary-5  | Main Zone South | 573723         | 5491938         | 1251     | outcrop |
| 17Mary-6  | Main Zone South | 573758         | 5491983         | 1276     | outcrop |
| 17Mary-7  | Main Zone South | 573295         | 5490521         | 1177     | float   |
| 17Mary-8  | Main Zone South | 573184         | 5490743         | 1220     | float   |

| Sample ID | Al2O3% | CaO% | Fe2O3% | K2O% | MgO% | Na2O% | P2O5% | SO3%  | SiO2% | TiO2% | Total% | LOI%  |
|-----------|--------|------|--------|------|------|-------|-------|-------|-------|-------|--------|-------|
| 17Mary-1  | 0.65   | 0.61 | 2.12   | 0.05 | 42.4 | 0.14  | 0.11  | <0.01 | 6.48  | 0.04  | 99.97  | 47.3  |
| 17Mary-2  | 0.65   | 0.54 | 2.43   | 0.06 | 43.8 | 0.14  | 0.11  | <0.01 | 3.96  | 0.03  | 100.4  | 48.6  |
| 17Mary-3  | 0.81   | 0.95 | 0.53   | 0.24 | 45   | 0.15  | 0.06  | <0.01 | 1.89  | 0.06  | 99.89  | 50.14 |
| 17Mary-4  | 0.7    | 0.57 | 0.88   | 0.13 | 45   | 0.15  | 0.03  | <0.01 | 2.78  | 0.04  | 99.99  | 49.66 |
| 17Mary-5  | 1.29   | 0.8  | 0.47   | 0.03 | 44.2 | 0.14  | 0.04  | <0.01 | 4.95  | 0.05  | 99.61  | 47.6  |
| 17Mary-6  | 1.88   | 0.87 | 0.66   | 0.07 | 45.8 | 0.15  | 0.08  | <0.01 | 2.26  | 0.05  | 100.45 | 49.37 |
| 17Mary-7  | 0.96   | 0.99 | 0.84   | 0.02 | 44.3 | 0.15  | 0.09  | 0.01  | 5.93  | 0.05  | 100.05 | 46.66 |
| 17Mary-8  | 0.77   | 0.51 | 0.95   | 0.03 | 45   | 0.14  | 0.08  | <0.01 | 3.05  | 0.05  | 99.72  | 49.1  |

The relatively high MgO content (42.4-45.8% MgO) compares favourably with other magnesite producers such as Baymag property near Radium Hot Springs, BC (NOTE: pure magnesite is about 47.6% MgO). Impurity compounds of interest (Al<sub>2</sub>O<sub>3</sub>, CaO) approach specifications required for producing deadburn, calcined and fused magnesia. The relatively high SiO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub> (e.g. sample 17Mary-1 & 2, 2.12% 2.43% Fe<sub>2</sub>O<sub>3</sub>), may require beneficiation in order to remove iron-bearing mineral impurities (e.g. siderite). Based on the range of %MgO and impurities Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Fe<sub>2</sub>O<sub>3</sub>, detailed mapping and geochemical sampling is recommended in order to test the extent and purity of the Marysville magnesite, leading to metallurgical testing for suitability for use as a raw material for refractories in the steel industry as well as other industrial end uses such as agricultural, fire retardant, and/or specialized moisture/mold resistant filler, MgCl (road salt). MGX is planning further evaluation of commercial applications for Marysville magnesite as well as geochemical analysis of rock samples in order to determine grade and distribution of Marysville Magnesite.

In the southern portion of Marysville magnesite there appears to be NNE trending, steeply west dipping layer approximately 1,000 meters in strike length, and in the range of 3-15 meters width of magnesite mineralization that represents a significant drill target. The dip slope aspect of the slope (where magnesite zone approaches Antwerp Creek valley, rock samples 17M-2, 4, 5, & 6) may be a positive attribute with respect to footwall development of the magnesite layer, and gravity to assist open pit bench mining methods. The widest zones of magnesite are located near the boundary of MTO tenures 1033194 and 1029860 (located in center of 1,000 meter strike length). The south and central portion of tenure 1029860 has several isolated magnesite occurrences and it is possible that some of these lenses are offset by late stage faulting.

## 7.0 Discussion of Results

The Marysville mineral property contains layers and lenses of high purity magnesite hosted in the Cranbrook Formation. Geological mapping identified stratbound magnesite layers and lenses that striking north-northeast and dipping steeply northwest. The dominant structure appears to be steep dipping strata and sub-vertically oriented faults generally striking northwest. The magnesite member of the Cranbrook Formation quartzite is extensive throughout the local area as lenses along a 6 kilometer strike length.

Based on the range of % MgO and impurities Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Fe<sub>2</sub>O<sub>3</sub>, detailed mapping and geochemical sampling is recommended in order to test the extent and purity of the Marysville magnesite, leading to metallurgical testing for suitability for use as a raw material for refractories in the steel industry as well as other industrial end uses such as agricultural, fire retardant, and/or specialized moisture/mold resistant filler, MgCl (road salt). MGX is planning further evaluation of commercial applications for Marysville magnesite as well as geochemical analysis of rock samples in order to determine grade and distribution of Marysville South Zone magnesite.

Marysville magnesite is a significant magnesite resource, and the 'Southern Zone' offers a drill target along 600 meters strike length in the area where the widest magnesite zones are located near the boundary of MTO tenures 1033194 and 1029860 (Fig 4, 6). The south and central portion of tenure 1029860 has several isolated magnesite occurrences and it is possible that some of these lenses are offset by late stage faulting, and has very little outcrop except near Antwerp Creek and along forest service roads.

## 8.0 Conclusion

Reviewing available data, the writer offers the following interpretations & conclusions:

- The Marysville magnesite compares favourably in size with other deposits in BC e.g. Baymag, Driftwood.
- Access to the property is relatively good with a reasonable access road connecting Marysville Magnesite to Cranbrook and Kimberley.
- There is good infrastructure in the form of a paved highway, CPR spur line and powerline all of which are located approximately 10 kilometres east of the property.
- Lower Cambrian Cranbrook Formation sandstone, clastic and carbonate sedimentary sequence has been subjected to regional metamorphism (heat and pressure from deep burial during Cretaceous orogeny events, and subsequent erosion) has resulted in recrystallization of the sediments into magnesite, slate, marble and other metamorphic equivalents.
- Marysville property has exposed Cranbrook Formation magnesite bearing magnesite lithology along a segmented ridge crest that strikes north-northeast and dips steeply. Magnesite exposed near the crest of the ridge is accessible by a network of trails developed by Cominco in 1960's.
- High purity magnesite has been mapped over a strike length of 6,000 metres and a maximum width of about 15 meters. Impure (interbedded quartzite/siltstone) magnesite occurs as 20-60 m wide layers that are parallel to high purity lenses.

## **9.0 Recommendations**

Future exploration and development of Marysville Magnesite should be focused on defining the extensions of known magnesite formations of the South Zone. In order to outline zones of high purity magnesite, geochemical data should be collected from the South Zone. Based on new data interpretation and geochemical results, core drilling in the central portion of the property, near samples 17Mary-2, 4, 5, & 6, (and to the north where 2015 rock samples were taken) is recommended. In addition to drilling, a program of metallurgical testing (bulk sampling), for use in various end products is recommended.

## **10.0 References**

EMPR Annual Report 1937-A25, 1941-78, 1959-176, 1961-150, 1964-187

EMPR Bulletin 76, p 77

EMPR Open File 1987-13 1988-14

EMPR Property File, Oct 27, 1994

GSC Map 396A, 15-1957, 11-1960

GSC Memoir 76

GSC Summary Report 1932, Part AII

Henderson, G. G. L. (1954): Geology of the Stanford Range of the Rocky Mountains. EMPR Bulletin 35. pp.24-25, Figure 2

Leech, G. B. (1954): Canal Flats, British Columbia, GSC Paper 54-7, pp.18-19

## CERTIFICATE AND DATE

I, Andris Kikauka, of 4199 Highway, Powell River, BC am a self-employed professional geoscientist. I hereby certify that:

1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practiced my profession for twenty five years in precious and base metal exploration in the Cordillera of Western Canada, U.S.A., Mexico, Central America, and South America, as well as for three years in uranium exploration in the Canadian Shield.
5. The information, opinions, and recommendations in this report are based on fieldwork carried out in my presence on the subject property during which time a technical evaluation consisting of geological mapping, surveying, geochemical rock sampling of mineralized zones carried out June 20-23, 2017.
6. I have a direct interest in the Marysville Property and MGX Minerals Inc. The recommendations in this report are guidelines for future exploration activity, and not to be used for the purpose of public financing.
7. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
8. This technical work report supports requirements of BCEMPR for Exploration and Development Work/Expiry Date Change.

Andris Kikauka, P. Geo.,

*A. Kikauka*



August 1, 2017



**ITEMIZED COST STATEMENT-  
MARYSVILLE MINERAL TENURE 1033194, 1033236, & 1029860  
FIELDWORK PERFORMED JUNE 20-23, 2017,  
WORK PERFORMED ON MINERAL TENURES 1033194 & 1029860  
FORT STEELE MINING DIVISION, NTS 82G 12W (TRIM 082G 051)**

**FIELD CREW:**

|  |                    |
|--|--------------------|
| <b>A. Kikauka (Geologist) 4 days (surveying, mapping)</b>    | <b>\$ 2,100.00</b> |
| <b>S. Apted (Geotechnician) 4 days (surveying, sampling)</b> | <b>1,260.00</b>    |

**FIELD COSTS:**

|   |               |
|---|---------------|
| <b>Mob/demob/preparation</b>  | <b>182.55</b> |
| <b>Meals and accommodations</b>                                       | <b>190.05</b> |
| <b>Truck mileage &amp; fuel</b>                                       | <b>282.30</b> |
| <b>Li Borate Fusion ICP AES geochemical analysis (8 rock samples)</b> | <b>386.33</b> |
| <b>Report</b>   | <b>500.00</b> |

**Total= \$ 4,901.23**



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To: **MGX MINERALS INC**  
**303-1080 HOWE STREET**  
**VANCOUVER BC V6Z 2T1**

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Total # Pages: 2 (A - B)  
Plus Appendix Pages  
Date: 22-JUN-2017  
This copy reported on  
28-JUN-2017  
Account: MGXMIN

## APPENDIX A

### CERTIFICATE VA17113306

Project: Marysville

This report is for 8 Rock samples submitted to our lab in Vancouver, BC, Canada

The following have access to data associated with this certificate:

ANDRIS KIKAUKA

MGX MINERALS

### SAMPLE PREPARATION

| ALS CODE | DESCRIPTION                    |
|----------|--------------------------------|
| WEI-21   | Received Sample Weight         |
| PUL-QC   | Pulverizing QC Test            |
| LOG-22   | Sample login - Rcd w/o BarCode |
| CRU-31   | Fine crushing - 70% <2mm       |
| SPL-21   | Split sample - riffle splitter |
| PUL-31   | Pulverize split to 85% <75 um  |

### ANALYTICAL PROCEDURES

| ALS CODE  | DESCRIPTION              | INSTRUMENT |
|-----------|--------------------------|------------|
| ME-XRF26  | Whole Rock By Fusion/XRF | XRF        |
| OA-GRA05x | LOI for XRF              | WST-SEQ    |

To: **MGX MINERALS INC**  
**ATTN: ANDRIS KIKAUKA**  
**303-1080 HOWE STREET**  
**VANCOUVER BC V6Z 2T1**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

\*\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*\*

Signature:

  
Colin Ramshaw, Vancouver Laboratory Manager



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Page: 2 - A  
 Total # Pages: 2 (A - B)  
 Plus Appendix Pages  
 Date: 22-JUN-2017  
 Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA17113306**

| Sample Description | Method Analyte Units LOR | WEI-21       | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 | ME-XRF26 |        |
|--------------------|--------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
|                    |                          | Recvd Wt. kg | Al2O3 %  | BaO %    | CaO %    | Cr2O3 %  | Fe2O3 %  | K2O %    | MgO %    | MnO %    | Na2O %   | P2O5 %   | SO3 %    | SiO2 %   | SrO %    | TiO2 % |
| 17- MARY-1         |                          | 1.44         | 0.65     | <0.01    | 0.61     | <0.01    | 2.12     | 0.05     | 42.4     | 0.04     | 0.14     | 0.11     | <0.01    | 6.48     | <0.01    | 0.04   |
| 17 MARY-2          |                          | 1.48         | 0.65     | <0.01    | 0.54     | <0.01    | 2.43     | 0.06     | 43.8     | 0.05     | 0.14     | 0.11     | <0.01    | 3.96     | <0.01    | 0.03   |
| 17 MARY-3          |                          | 1.92         | 0.81     | <0.01    | 0.95     | <0.01    | 0.53     | 0.24     | 45.0     | 0.02     | 0.15     | 0.06     | <0.01    | 1.89     | <0.01    | 0.06   |
| 17 MARY-4          |                          | 1.86         | 0.70     | <0.01    | 0.57     | <0.01    | 0.88     | 0.13     | 45.0     | 0.02     | 0.15     | 0.03     | <0.01    | 2.78     | <0.01    | 0.04   |
| 17 MARY-5          |                          | 1.68         | 1.29     | <0.01    | 0.80     | <0.01    | 0.47     | 0.03     | 44.2     | 0.01     | 0.14     | 0.04     | <0.01    | 4.95     | <0.01    | 0.05   |
| 17 MARY-6          |                          | 2.16         | 1.08     | <0.01    | 0.87     | <0.01    | 0.66     | 0.07     | 45.8     | 0.02     | 0.15     | 0.08     | <0.01    | 2.26     | <0.01    | 0.05   |
| 17 MARY-7          |                          | 2.16         | 0.96     | <0.01    | 0.99     | <0.01    | 0.84     | 0.02     | 44.3     | 0.01     | 0.15     | 0.09     | 0.01     | 5.93     | <0.01    | 0.05   |
| 17 MARY-8          |                          | 1.46         | 0.77     | <0.01    | 0.51     | <0.01    | 0.95     | 0.03     | 45.0     | 0.02     | 0.14     | 0.08     | <0.01    | 3.05     | <0.01    | 0.05   |

\*\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*\*



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 Plus Appendix Pages  
 Date: 22-JUN-2017  
 Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA17113306**

| Sample Description | Method Analyte Units LOR | ME-XRF26 | OA-GRA05x  |
|--------------------|--------------------------|----------|------------|
|                    |                          | Total %  | LOI 1000 % |
|                    |                          | 0.01     | 0.01       |
| 17- MARY-1         |                          | 99.97    | 47.30      |
| 17 MARY-2          |                          | 100.40   | 48.60      |
| 17 MARY-3          |                          | 99.89    | 50.14      |
| 17 MARY-4          |                          | 99.99    | 49.66      |
| 17 MARY-5          |                          | 99.61    | 47.60      |
| 17 MARY-6          |                          | 100.45   | 49.37      |
| 17 MARY-7          |                          | 100.05   | 46.66      |
| 17 MARY-8          |                          | 99.72    | 49.10      |

\*\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*\*



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Page: Appendix 1  
Total # Appendix Pages: 1  
Date: 22-JUN-2017  
Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA17113306**

**CERTIFICATE COMMENTS**

**LABORATORY ADDRESSES**

Applies to Method:

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

CRU-31  
PUL-31

LOG-22  
PUL-QC

ME-XRF26  
SPL-21

OA-GRA05x  
WEI-21

**SAMPLE PREPARATION PACKAGE**

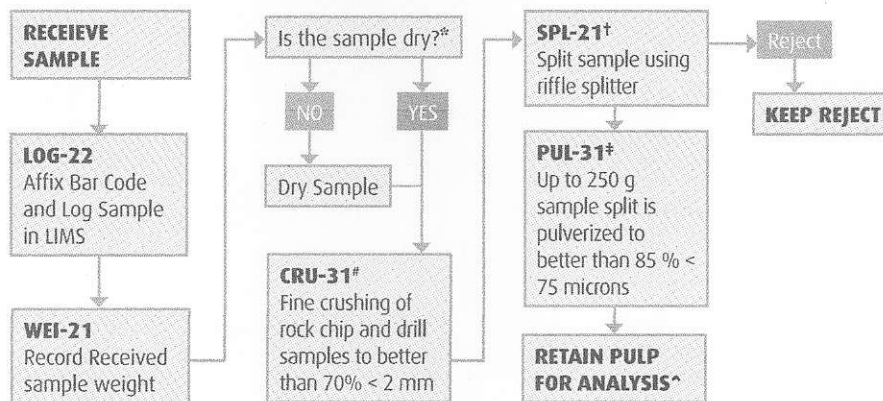
**PREP- 31**

**STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE**

Sample preparation is the most critical step in the entire laboratory operation. The purpose of preparation is to produce a homogeneous analytical sub-sample that is fully representative of the material submitted to the laboratory. The sample is logged in the tracking system, weighed, dried and finely crushed to better than 70 % passing a 2 mm (Tyler 9 mesh, US Std. No.10) screen. A split of up to 250 g is taken and pulverized to better than 85 % passing a 75 micron (Tyler 200 mesh, US Std. No. 200) screen. This method is appropriate for rock chip or drill samples.

| METHOD CODE | DESCRIPTION   |
|-------------|---|
| LOG-22      | Sample is logged in tracking system and a bar code label is attached.   |
| DRY-21      | Drying of excessively wet samples in drying ovens. This is the default drying procedure for most rock chip and drill samples. |
| CRU-31      | Fine crushing of rock chip and drill samples to better than 70% of the sample passing 2 mm.                                   |
| SPL-21      | Split sample using riffle splitter.   |
| PUL-31      | A sample split of up to 250 g is pulverized to better than 85% of the sample passing 75 microns.                              |

**FLOW CHART - SAMPLE PREPARATION PACKAGE – PREP-31  
STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE**



\*If samples air-dry overnight, no charge to client. If samples are excessively wet, the sample should be dried to a maximum of 120°C. (DRY-21)

#QC testing of crushing efficiency is conducted on random samples (CRU-QC).

†The sample reject is saved or dumped pending client instructions. Prolonged storage (> 45 days) of rejects will be charged to the client.

‡QC testing of pulverizing efficiency is conducted on random samples (PUL-QC).

\*Lab splits are required when analyses must be performed at a location different than where samples received.

**WHOLE ROCK GEOCHEMISTRY**

# ME- XRF06

**SAMPLE DECOMPOSITION**
**50% - 50% Li<sub>2</sub> B<sub>4</sub> O<sub>7</sub> - LiBO<sub>2</sub> (WEI- GRA06)**
**ANALYTICAL METHOD**
**X-Ray Fluorescence Spectroscopy (XRF)**

A calcined or ignited sample (0.9 g) is added to 9.0g of Lithium Borate Flux (50 % - 50 % Li<sub>2</sub> B<sub>4</sub> O<sub>7</sub> - LiBO<sub>2</sub>), mixed well and fused in an auto fluxer between 1050 - 1100°C. A flat molten glass disc is prepared from the resulting melt. This disc is then analysed by X-ray fluorescence spectrometry.

| ELEMENT          | SYMBOL                         | UNITS | LOWER LIMIT | UPPER LIMIT |
|------------------|--------------------------------|-------|-------------|-------------|
| Aluminum Oxide   | Al <sub>2</sub> O <sub>3</sub> | %     | 0.01        | 100         |
| Barium Oxide     | BaO                            | %     | 0.01        | 100         |
| Calcium Oxide    | CaO                            | %     | 0.01        | 100         |
| Chromium Oxide   | Cr <sub>2</sub> O <sub>3</sub> | %     | 0.01        | 100         |
| Ferric Oxide     | Fe <sub>2</sub> O <sub>3</sub> | %     | 0.01        | 100         |
| Potassium Oxide  | K <sub>2</sub> O               | %     | 0.01        | 100         |
| Magnesium Oxide  | MgO                            | %     | 0.01        | 100         |
| Manganese Oxide  | MgO                            | %     | 0.01        | 100         |
| Sodium Oxide     | Na <sub>2</sub> O              | %     | 0.01        | 100         |
| Phosphorus Oxide | P <sub>2</sub> O <sub>2</sub>  | %     | 0.01        | 100         |
| Silicon Oxide    | SiO <sub>2</sub>               | %     | 0.01        | 100         |
| Strontium Oxide  | SrO <sub>2</sub>               | %     | 0.01        | 100         |
| Titanium Oxide   | TiO <sub>2</sub>               | %     | 0.01        | 100         |
| Loss On Ignition | LOI                            | %     | 0.01        | 100         |
|                  | Total                          | %     | 0.01        | 101         |

**NOTE:** Since samples that are high in sulphides or base metals can damage Platinum crucibles, a ME- ICP06 finish method can be selected as an alternative method.

APPENDIX C ROCK CHIP SAMPLE DESCRIPTIONS AND WHOLE ROCK GEOCHEMICAL ANALYSIS

| Sample ID | Zone name       | Easting NAD 83 | Northing NAD 83 | Elev (m) | Type        | Lithology        |
|-----------|-----------------|----------------|-----------------|----------|-------------|------------------|
| 17Mary-1  | South extension | 573564         | 5490871         | 1160     | outcrop 3 m | sparry magnesite |
| 17Mary-2  | Main Zone South | 573584         | 5491625         | 1183     | outcrop 3 m | sparry magnesite |
| 17Mary-3  | South extension | 573615         | 5490639         | 1188     | outcrop 3 m | sparry magnesite |
| 17Mary-4  | Main Zone South | 573697         | 5491899         | 1241     | outcrop 3 m | sparry magnesite |
| 17Mary-5  | Main Zone South | 573723         | 5491938         | 1251     | outcrop 3 m | sparry magnesite |
| 17Mary-6  | Main Zone South | 573758         | 5491983         | 1276     | outcrop 3 m | sparry magnesite |
| 17Mary-7  | South extension | 573295         | 5490521         | 1177     | subcrop     | sparry magnesite |
| 17Mary-8  | South extension | 573184         | 5490743         | 1220     | subcrop     | sparry magnesite |

| Sample ID | Alteration                       | Mineralization | Bed Strike | Bed Dip | Width (cm) |
|-----------|----------------------------------|----------------|------------|---------|------------|
| 17Mary-1  | weak qtz stringers, sweats <1 mm | magnesite      |            |         | 300        |
| 17Mary-2  | weak qtz stringers, sweats <1 mm | magnesite      | 37         | 67 NW   | 300        |
| 17Mary-3  | weak qtz stringers, sweats <1 mm | magnesite      |            |         | 300        |
| 17Mary-4  | weak qtz stringers, sweats <1 mm | magnesite      | 33         | 62 NW   | 300        |
| 17Mary-5  | weak qtz stringers, sweats <1 mm | magnesite      |            |         | 300        |
| 17Mary-6  | weak qtz stringers, sweats <1 mm | magnesite      | 30         | 66 NW   | 300        |
| 17Mary-7  | weak qtz stringers, sweats <1 mm | magnesite      |            |         |            |
| 17Mary-8  | weak qtz stringers, sweats <1 mm | magnesite      |            |         |            |

| Sample ID | Al2O3% | CaO% | Fe2O3% | K2O% | MgO% | Na2O% | P2O5% | SO3%  | SiO2% | Total% | LOI%  |
|-----------|--------|------|--------|------|------|-------|-------|-------|-------|--------|-------|
| 17Mary-1  | 0.65   | 0.61 | 2.12   | 0.05 | 42.4 | 0.14  | 0.11  | <0.01 | 6.48  | 99.97  | 47.3  |
| 17Mary-2  | 0.65   | 0.54 | 2.43   | 0.06 | 43.8 | 0.14  | 0.11  | <0.01 | 3.96  | 100.4  | 48.6  |
| 17Mary-3  | 0.81   | 0.95 | 0.53   | 0.24 | 45   | 0.15  | 0.06  | <0.01 | 1.89  | 99.89  | 50.14 |
| 17Mary-4  | 0.7    | 0.57 | 0.88   | 0.13 | 45   | 0.15  | 0.03  | <0.01 | 2.78  | 99.99  | 49.66 |
| 17Mary-5  | 1.29   | 0.8  | 0.47   | 0.03 | 44.2 | 0.14  | 0.04  | <0.01 | 4.95  | 99.61  | 47.6  |
| 17Mary-6  | 1.08   | 0.87 | 0.66   | 0.07 | 45.8 | 0.15  | 0.08  | <0.01 | 2.26  | 100.45 | 49.37 |
| 17Mary-7  | 0.96   | 0.99 | 0.84   | 0.02 | 44.3 | 0.15  | 0.09  | 0.01  | 5.93  | 100.05 | 46.66 |
| 17Mary-8  | 0.77   | 0.51 | 0.95   | 0.03 | 45   | 0.14  | 0.08  | <0.01 | 3.05  | 99.72  | 49.1  |




[MINFILE Home page](#) | [ARIS Home page](#) | [MINFILE Search page](#) | [Property File Search](#)
**MINFILE Record Summary**  
**MINFILE No 082GNW005**

# APPENDIX D

## MINFILE DESCRIPTION

|                               |           |                                |  |
|-------------------------------|-----------|--------------------------------|--|
| <a href="#">Print Preview</a> | PDF       | -- SELECT REPORT --            | <input checked="" type="checkbox"/> New Window |
| File Created:                 | 24-Jul-85 | by BC Geological Survey (BCGS) |  |
| Last Edit:                    | 20-Apr-08 | by Mandy N. Desautels(MND)     |  |

[XML Extract](#)
**SUMMARY**
[Summary Help](#) 
**Name** MARYSVILLE, PERRY CREEK

**Status** Past Producer  
**Latitude** 49° 34' 40" N  
**Longitude** 115° 58' 33" W
**Commodities** Magnesite  
**Tectonic Belt** Omineca

**Capsule Geology** Magnesite forms a bed which is conformably interbedded with quartzites of the Lower Cambrian Cranbrook Formation. It is underlain by a sequence of thinly banded, reddish quartzitic and buff magnesite beds and is overlain by magnesite interstratified with thin, greenish argillite beds and locally thin limestone. It varies from coarse to finely crystalline, weathers rough and commonly has a rusty brown surface. Fresh surfaces are pearly grey, white or cream-coloured and are cut by minor quartz veins or host to knots of quartz. The best bed of magnesite is about 15 metres thick and samples indicate the following chemistry: 4.54 per cent SiO<sub>2</sub>, 2.4 per cent Fe<sub>2</sub>O<sub>3</sub>, 0.4 per cent Al<sub>2</sub>O<sub>3</sub>, 0.79 per cent CaO, 43.7 per cent MgO and 48 per cent Loss On Ignition.

Minor production has been reported for the Marysville deposit (Z.D. Hora, personal communication, 1990), but no figures are available.

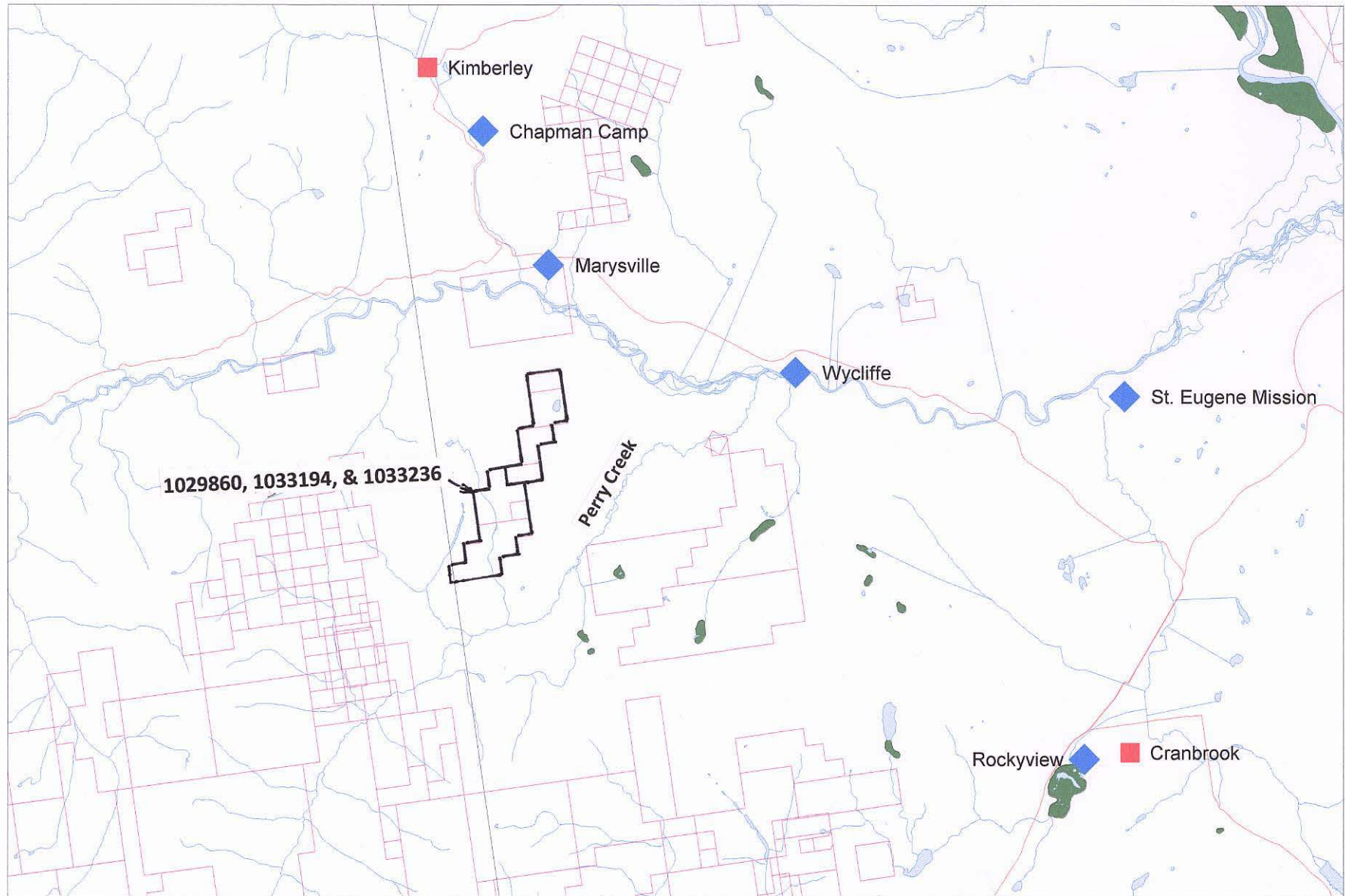
**Bibliography** EMPR AR 1937-A25; \*1941-78; 1947-219; \*1959-176; 1961-150; \*1964-187  
 EMPR BULL 76 p. 77  
 EMPR OF 1987-13; \*1988-14  
 EMPR PF (Letter and graph from Richard B. Berg to Kirk Hancock, October 27, 1994)  
 GSC MAP 396A; 15-1957; 11-1960  
 GSC MEM 76; \*207, pp. 18,56  
 GSC SUM RPT 1932, Part AII, p. 101  
 WWW [http://www.infomine.com/index/properties/FORT\\_STEELE.html](http://www.infomine.com/index/properties/FORT_STEELE.html)

|                        |                         |
|------------------------|-------------------------|
| <b>NMI</b>             | <u>082G12 Mg1</u>       |
| <b>Mining Division</b> | Fort Steele             |
| <b>BCGS Map</b>        | 082G051                 |
| <b>NTS Map</b>         | 082G12W                 |
| <b>UTM</b>             | 11 (NAD 83)             |
| <b>Northing</b>        | 5492192                 |
| <b>Easting</b>         | 574039                  |
| <b>Deposit Types</b>   | E09 : Sparry magnesite  |
| <b>Terrane</b>         | Ancestral North America |

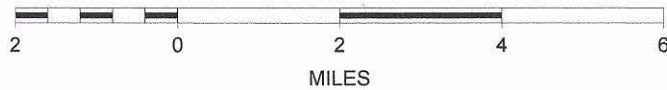




# Fig 1B General Location Map

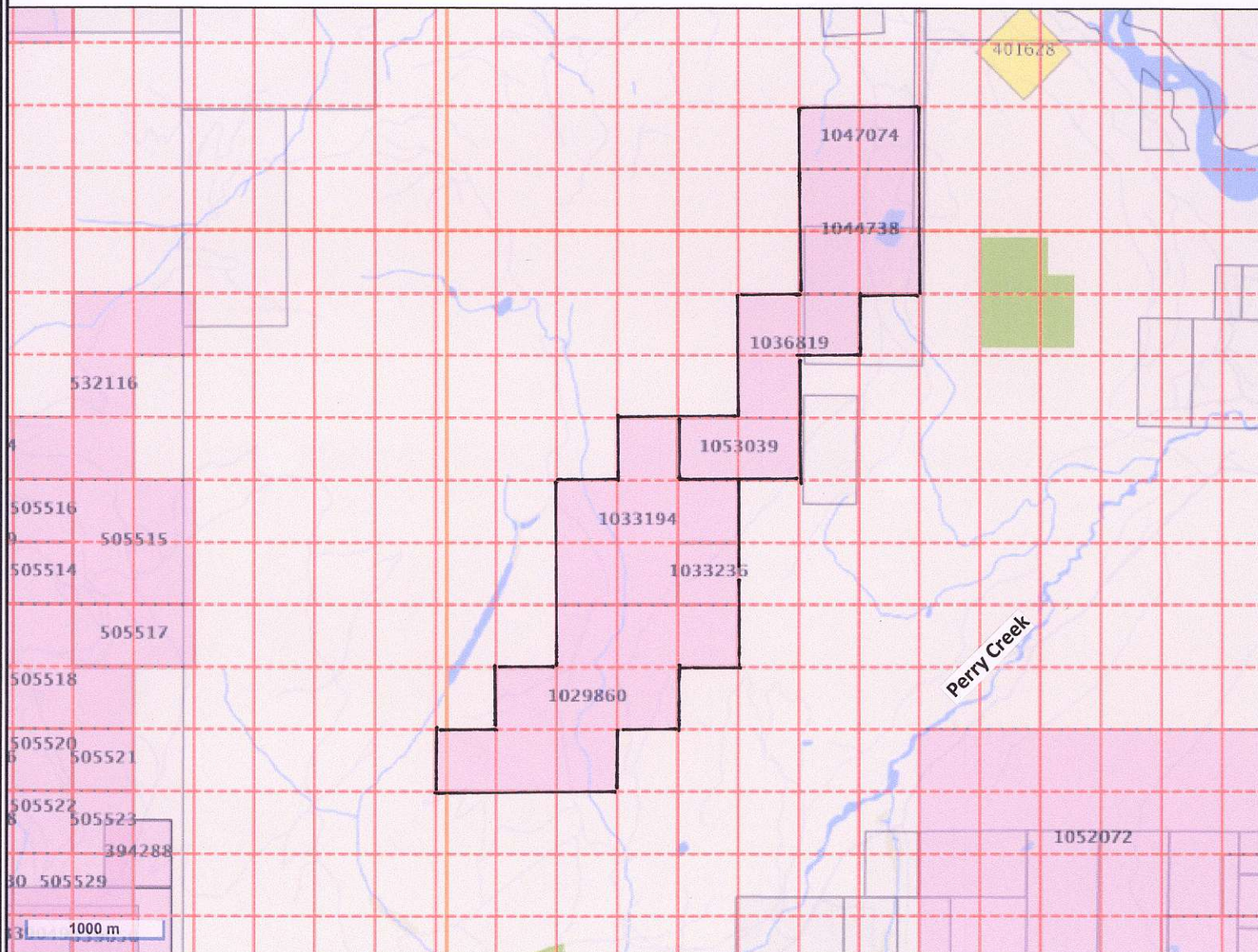


SCALE 1 : 150,000





# Fig 2 MTO Mineral Tenure Map



## Legend

### Mineral Titles (MTO)

MTO Grid

Title (current)

LEASE  
CLAIM

Reserves

No Registration  
Conditional  
Heritage/Historic Site

### Crown Land Layers (Tantalis)

Land Act Survey Parcels - Tantalis - Legal Descriptions  
Label Text

Land Act Survey Parcels - Tantalis - Outlined

### Administrative Boundaries

Federal Transfer Lands - Outlined  
Federal Transfer Lands - Colour Filled

National Parks - Outlined  
National Parks

Labels  
Labels  
National Parks - Colour Filled

Conservancy Areas - Tantalis - Colour Filled  
Conservancy Areas

Labels  
Ecological Reserves - Tantalis - Colour Filled

*This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.  
THIS MAP IS NOT TO BE USED FOR NAVIGATION.*

Printed using the Mineral Titles Online (MTO) application. BCGS 082G.051, Ft Steele Mining Division

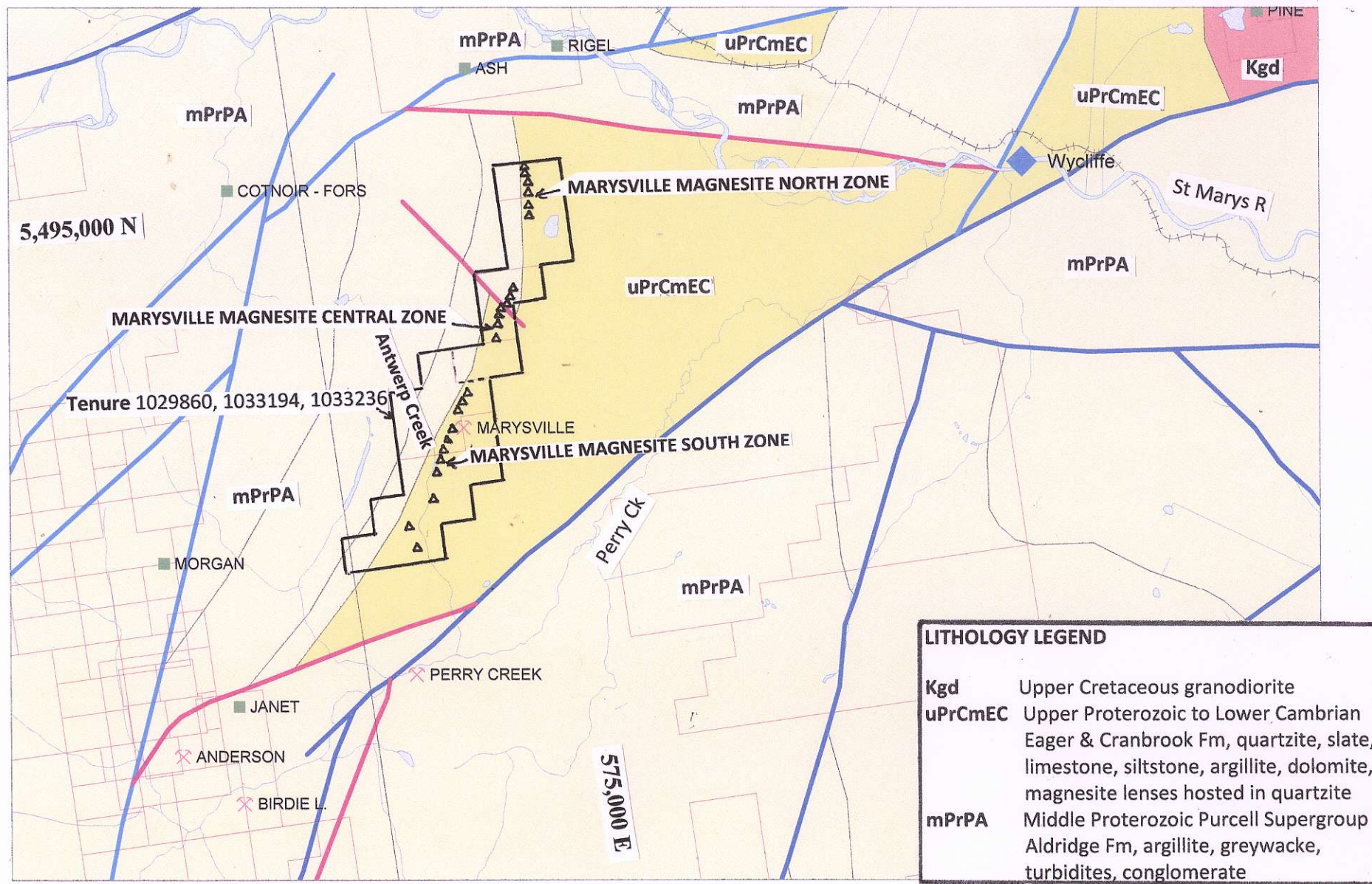
**Center:** 49°34'60", -115°58'48"  
**Scale:** 1 : 67,710  
**SRS:** EPSG:3857  
**UTM Zone:** 11





# Fig 3 Marysville Magnesite General Geology

Fault (Blue=Normal, Red=Unknown Type, Turquoise=Thrust)



| LITHOLOGY LEGEND |  |
|------------------|--|
| Kgd              | Upper Cretaceous granodiorite  |
| uPrCmEC          | Upper Proterozoic to Lower Cambrian<br>Eager & Cranbrook Fm, quartzite, slate,<br>limestone, siltstone, argillite, dolomite,<br>magnesite lenses hosted in quartzite |
| mPrPA            | Middle Proterozoic Purcell Supergroup<br>Aldridge Fm, argillite, greywacke,<br>turbidites, conglomerate  |

0 3 Km SCALE 1 : 75,000 ▲ sparry magnesite  
 1 0 1 2 3  
 MILES UTM Zone 11, NAD 83 Datum

Ft Steele Mining Division,  
 BCGS 082G.051, NTS 082G12W

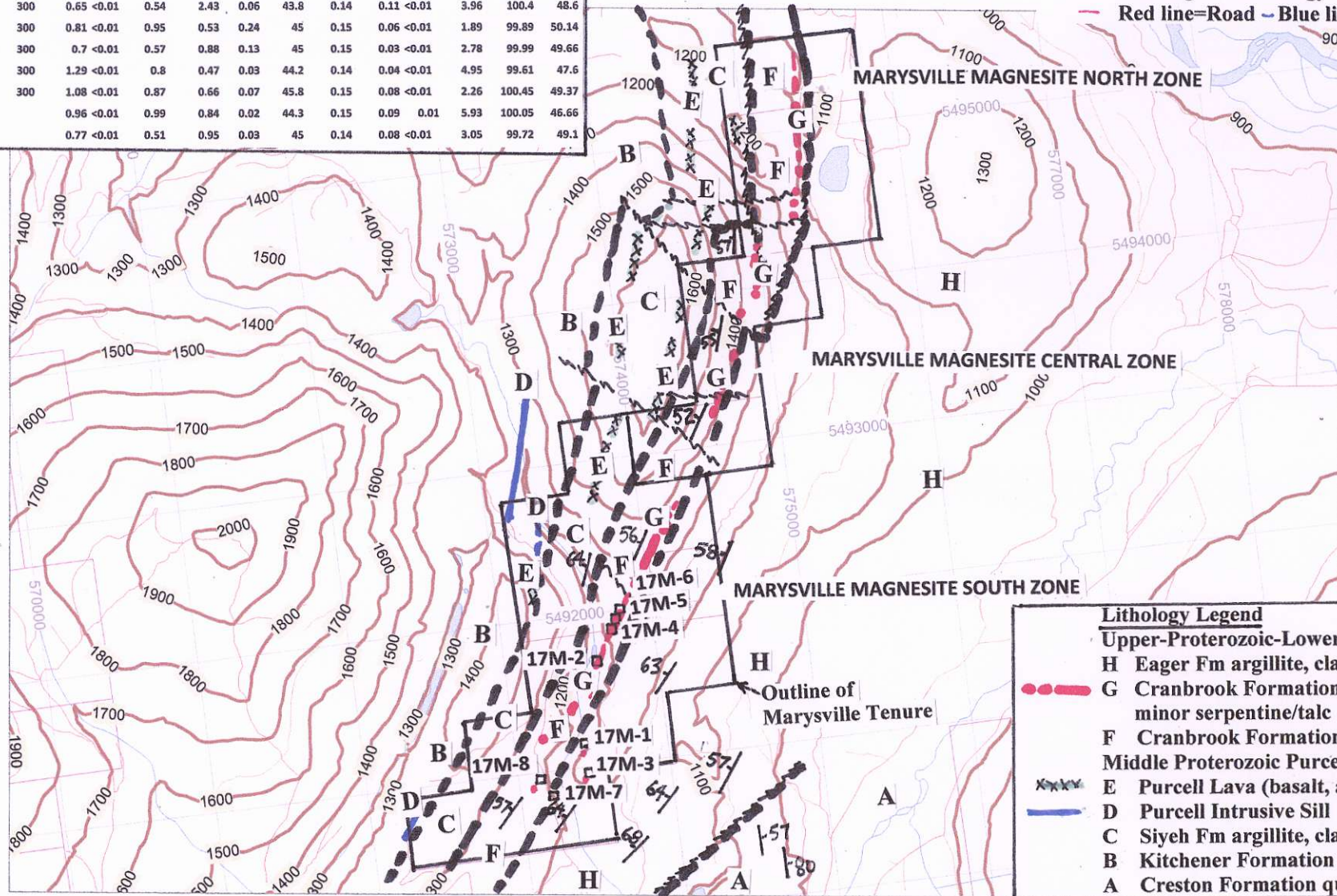




# Fig 4 Property Geology & Rock Sample Location Map

| Sample ID | Width (cm) | Al2O3%     | BaO% | CaO% | Fe2O3% | K2O% | MgO% | Na2O%      | P2O5% | SO3%   | SiO2%  | Total% | LOI% |
|-----------|------------|------------|------|------|--------|------|------|------------|-------|--------|--------|--------|------|
| 17Mary-1  | 300        | 0.65 <0.01 | 0.61 | 2.12 | 0.05   | 42.4 | 0.14 | 0.11 <0.01 | 6.48  | 99.97  | 47.3   |        |      |
| 17Mary-2  | 300        | 0.65 <0.01 | 0.54 | 2.43 | 0.06   | 43.8 | 0.14 | 0.11 <0.01 | 3.96  | 100.4  | 48.6   |        |      |
| 17Mary-3  | 300        | 0.81 <0.01 | 0.95 | 0.53 | 0.24   | 45   | 0.15 | 0.06 <0.01 | 1.89  | 99.89  | 50.14  |        |      |
| 17Mary-4  | 300        | 0.7 <0.01  | 0.57 | 0.88 | 0.13   | 45   | 0.15 | 0.03 <0.01 | 2.78  | 99.99  | 49.66  |        |      |
| 17Mary-5  | 300        | 1.29 <0.01 | 0.8  | 0.47 | 0.03   | 44.2 | 0.14 | 0.04 <0.01 | 4.95  | 99.61  | 47.6   |        |      |
| 17Mary-6  | 300        | 1.08 <0.01 | 0.87 | 0.66 | 0.07   | 45.8 | 0.15 | 0.08 <0.01 | 2.26  | 100.45 | 49.37  |        |      |
| 17Mary-7  |            | 0.96 <0.01 | 0.99 | 0.84 | 0.02   | 44.3 | 0.15 | 0.09       | 0.01  | 5.93   | 100.05 | 46.66  |      |
| 17Mary-8  |            | 0.77 <0.01 | 0.51 | 0.95 | 0.03   | 45   | 0.14 | 0.08 <0.01 | 3.05  | 99.72  | 49.1   |        |      |

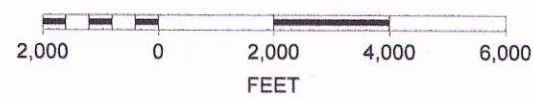
- Fault (regional, dextral displacement)
- Bedding
- Lithology Contact
- Red line=Road
- Blue line=Creek, lake



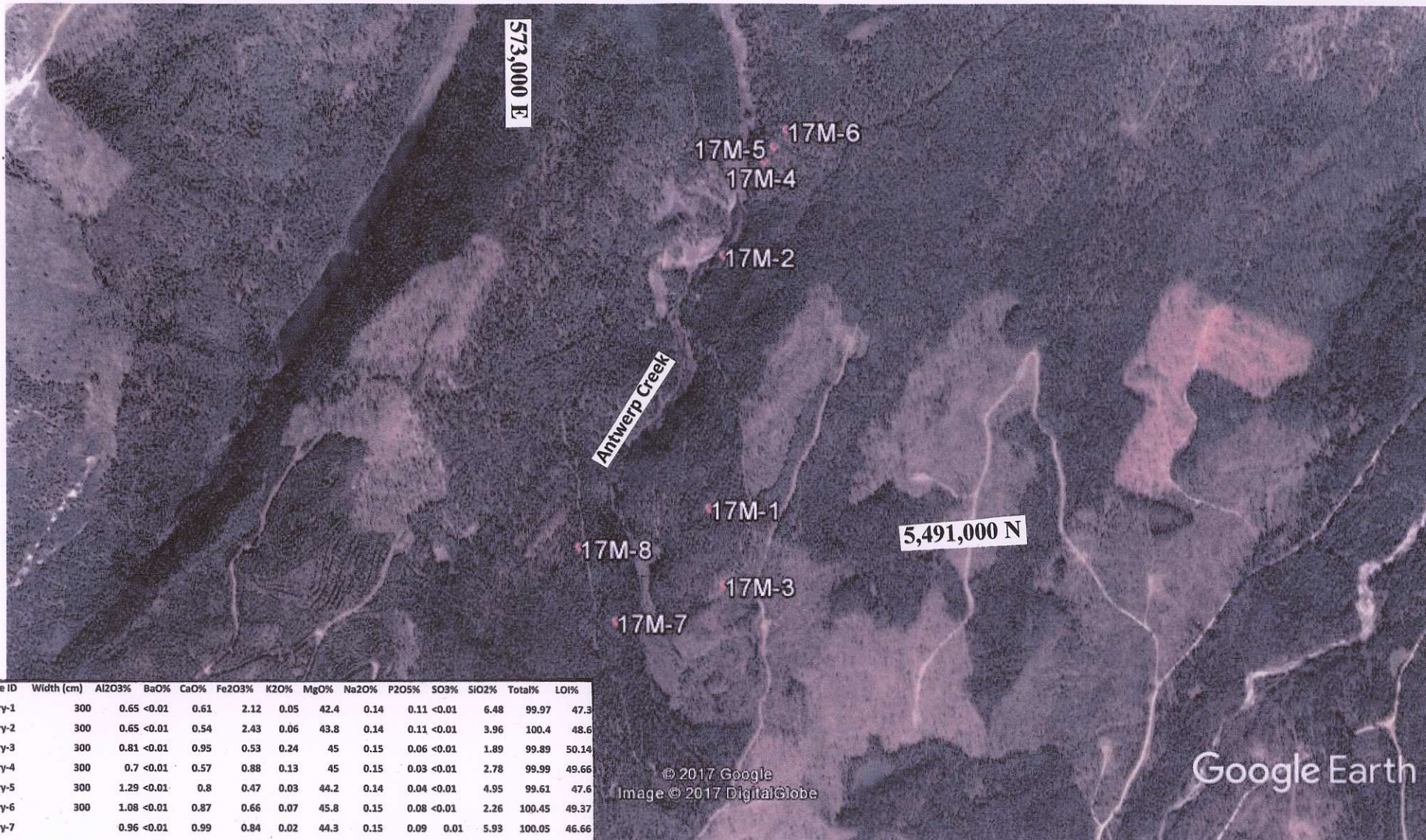
**Lithology Legend**

- Upper-Proterozoic-Lower Cambrian
- H Eager Fm argillite, clastic sediments
- G Cranbrook Formation magnesite minor serpentine/talc
- F Cranbrook Formation quartzite
- Middle Proterozoic Purcell Supergroup
- E Purcell Lava (basalt, andesite)
- D Purcell Intrusive Sill
- C Siyeh Fm argillite, clastic sediments
- B Kitchener Formation dolomite
- A Creston Formation quartzite

2 Km SCALE 1 : 40,000 Ft Steele Mining Division, BCGS 082G.051, NTS 082G12W







| Sample ID | Width (cm) | Al2O3%     | BaO% | CaO% | Fe2O3% | K2O% | MgO% | Na2O%      | P2O5% | SO3%   | SiO2% | Total% | LOI% |
|-----------|------------|------------|------|------|--------|------|------|------------|-------|--------|-------|--------|------|
| 17Mary-1  | 300        | 0.65 <0.01 | 0.61 | 2.12 | 0.05   | 42.4 | 0.14 | 0.11 <0.01 | 6.48  | 99.97  | 47.3  |        |      |
| 17Mary-2  | 300        | 0.65 <0.01 | 0.54 | 2.43 | 0.06   | 43.8 | 0.14 | 0.11 <0.01 | 3.96  | 100.4  | 48.6  |        |      |
| 17Mary-3  | 300        | 0.81 <0.01 | 0.95 | 0.53 | 0.24   | 45   | 0.15 | 0.06 <0.01 | 1.89  | 99.89  | 50.14 |        |      |
| 17Mary-4  | 300        | 0.7 <0.01  | 0.57 | 0.88 | 0.13   | 45   | 0.15 | 0.03 <0.01 | 2.78  | 99.99  | 49.66 |        |      |
| 17Mary-5  | 300        | 1.29 <0.01 | 0.8  | 0.47 | 0.03   | 44.2 | 0.14 | 0.04 <0.01 | 4.95  | 99.61  | 47.6  |        |      |
| 17Mary-6  | 300        | 1.08 <0.01 | 0.87 | 0.66 | 0.07   | 45.8 | 0.15 | 0.08 <0.01 | 2.26  | 100.45 | 49.37 |        |      |
| 17Mary-7  | 300        | 0.96 <0.01 | 0.99 | 0.84 | 0.02   | 44.3 | 0.15 | 0.09 0.01  | 5.93  | 100.05 | 46.66 |        |      |
| 17Mary-8  | 300        | 0.77 <0.01 | 0.51 | 0.95 | 0.03   | 45   | 0.14 | 0.08 <0.01 | 3.05  | 99.72  | 49.1  |        |      |

Google Earth



Marysville Tenure #'s 1029860, 1033194, 1033236  
 Ft Steele Mining Division, BCGS 082G.051, NTS 082G12W

UTM Zone 11, NAD 83 Datum

Fig 5 Google Earth Image  
 & Rock Chip Geochemistry

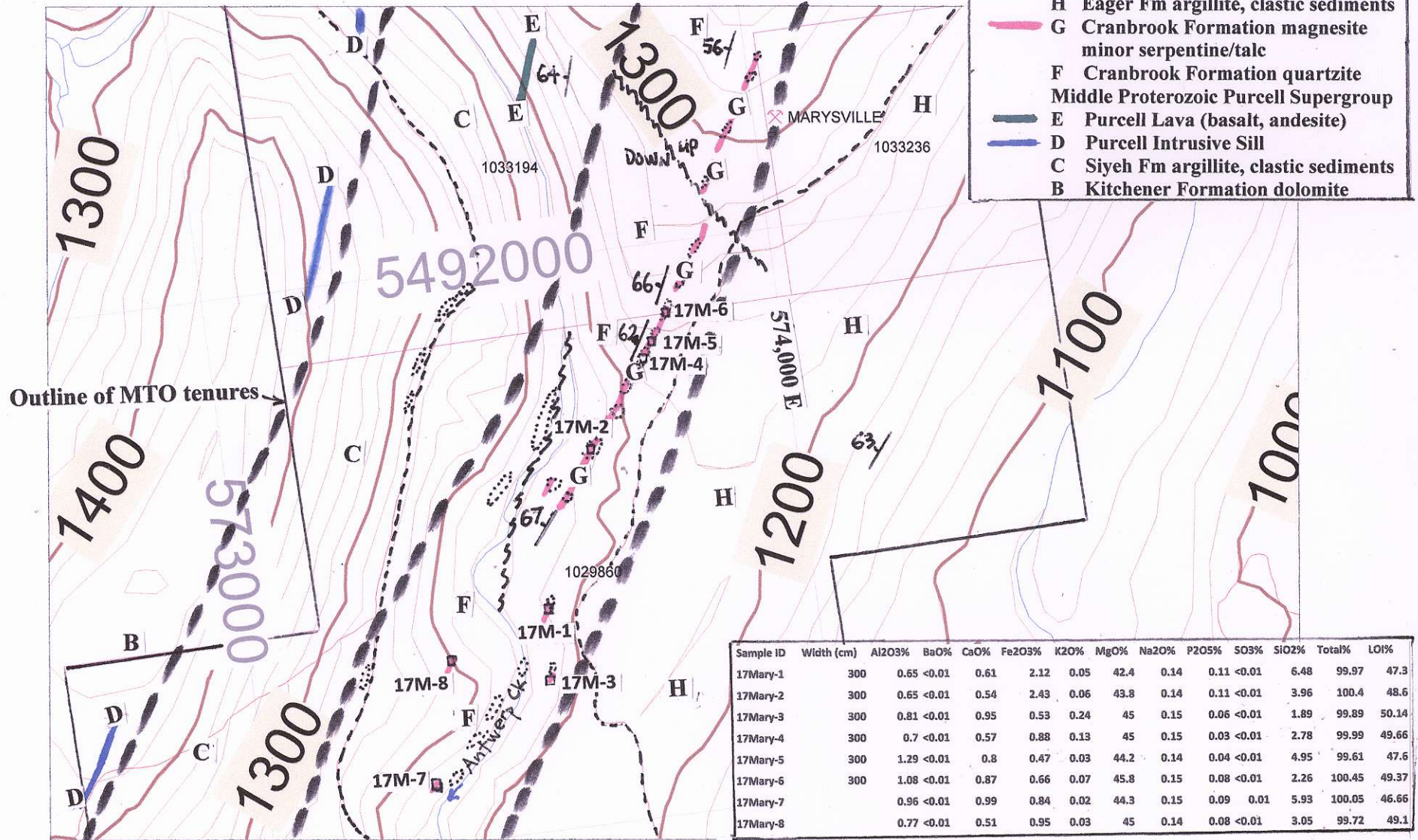


Fig 6 Property Geology & Mineralization

# Marysville South Detail

Marysville Tenure 1029860, 1033194, & 1033236  
 Ft Steele Mining Division, BCGS 082G.051, NTS 082G12W

Contour lines at 20 m intervals



**Lithology Legend**

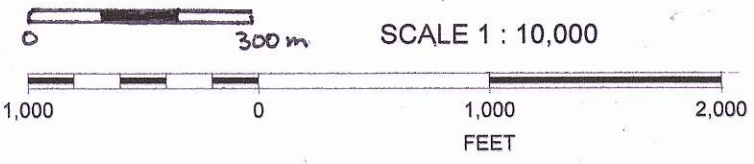
Upper-Proterozoic-Lower Cambrian

- H Eager Fm argillite, clastic sediments
- G Cranbrook Formation magnesite minor serpentine/talc
- F Cranbrook Formation quartzite

Middle Proterozoic Purcell Supergroup

- E Purcell Lava (basalt, andesite)
- D Purcell Intrusive Sill
- C Siyeh Fm argillite, clastic sediments
- B Kitchener Formation dolomite

| Sample ID | Width (cm) | Al2O3% | BaO%  | CaO% | Fe2O3% | K2O% | MgO% | Na2O% | P2O5% | SO3%  | SiO2% | Total% | LOI%  |
|-----------|------------|--------|-------|------|--------|------|------|-------|-------|-------|-------|--------|-------|
| 17Mary-1  | 300        | 0.65   | <0.01 | 0.61 | 2.12   | 0.05 | 42.4 | 0.14  | 0.11  | <0.01 | 6.48  | 99.97  | 47.3  |
| 17Mary-2  | 300        | 0.65   | <0.01 | 0.54 | 2.43   | 0.06 | 43.8 | 0.14  | 0.11  | <0.01 | 3.96  | 100.4  | 48.6  |
| 17Mary-3  | 300        | 0.81   | <0.01 | 0.95 | 0.53   | 0.24 | 45   | 0.15  | 0.06  | <0.01 | 1.89  | 99.89  | 50.14 |
| 17Mary-4  | 300        | 0.7    | <0.01 | 0.57 | 0.88   | 0.13 | 45   | 0.15  | 0.03  | <0.01 | 2.78  | 99.99  | 49.66 |
| 17Mary-5  | 300        | 1.29   | <0.01 | 0.8  | 0.47   | 0.03 | 44.2 | 0.14  | 0.04  | <0.01 | 4.95  | 99.61  | 47.6  |
| 17Mary-6  | 300        | 1.08   | <0.01 | 0.87 | 0.66   | 0.07 | 45.8 | 0.15  | 0.08  | <0.01 | 2.26  | 100.45 | 49.37 |
| 17Mary-7  |            | 0.96   | <0.01 | 0.99 | 0.84   | 0.02 | 44.3 | 0.15  | 0.09  | 0.01  | 5.93  | 100.05 | 46.66 |
| 17Mary-8  |            | 0.77   | <0.01 | 0.51 | 0.95   | 0.03 | 45   | 0.14  | 0.08  | <0.01 | 3.05  | 99.72  | 49.1  |



- ⚡ Fault (regional, dextral displacement)
- Bedding
- Lithology Contact
- Road Blue line=Creek, lake
- Contour lines at 20 m intervals
- Outline of Outcrop

