

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

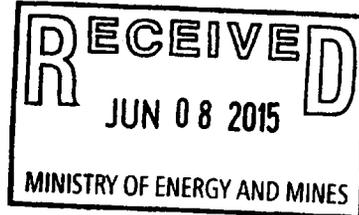
by

Andris Kikauka, P.Geo.  
4199 Highway 101,  
Powell River, BC V8A 0C7

**GEOLOGICAL SURVEY BRANCH**  
**ASSESSMENT REPORT**  
June 5, 2015

**35,436**

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:

\$2,752.24

AUTHOR(S): Andris Kikauka

SIGNATURE(S): A. Kikauka

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

YEAR OF WORK: 2015

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5554331

PROPERTY NAME: Marysville

CLAIM NAME(S) (on which the work was done): 1029860, 1033194, 1033236

COMMODITIES SOUGHT: Magnesite, MgCO<sub>3</sub>

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082GNW005

MINING DIVISION: Fort Steele

NTS/BCGS: 08242W, 082G.051

LATITUDE: 49° 34' 40" LONGITUDE: 115° 58' 33" (at centre of work)

OWNER(S):

1) Jared Lazerson

2) Andris Kikauka

MAILING ADDRESS:

303-1080 Howe St  
Vancouver, BC V6C 2T1

4199 Highway 101  
Powell R., BC V8A 0C7

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

1) MGX Minerals Inc

2)

MAILING ADDRESS:

303-1080 Howe St  
Vancouver, BC V6C 2T1

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

Layers and lenses 1-15 m wide of >40% MgO, occurring as sparry recrystallized texture magnesite interbedded with quartzites of Lower Cambrian, Cranbrook Fm, trending NE and ENE, dipping 50-80 degrees NW, along a 2,000 m strike length, magnesite interbedded with quartzite and siltstone occurs in a 20-50 m wide layer adjacent to the 1-15 m wide massive to semi-massive magnesite layer

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 30075, 24831, 31238, 31236

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	1:10,000 20 hectares	1029860, 1033194, 1033236	1,153.49
Photo interpretation			
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock	6 ME-XRF-06 Whole Rock Li Borate Fusion	1029860, 1033194	1,598.75
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>\$ 2,752.24</b>

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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 magnesite property consists of 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 to 600 meter strike lengths (including minor fault offsets in the order of 5-75 m). 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 (6 rock chip samples range 2.7-11.63% SiO<sub>2</sub>), as well as trace amounts of serpentine and talc. Quartz present in the magnesite was probably deposited as Cambrian chert and re-crystallized during Cretaceous deep burial low-grade regional metamorphism resulting in textures that include milky-white micro-veinlet quartz sweats, 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 March 26-28, 2015. Technical work is recorded in this assessment report, and reported as MEM Event number 5554331. 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 surface outcrop. Rock chip samples were analyzed by ALS Minerals, North Vancouver, BC, using Li Borate fusion, whole rock analysis ME-XRF-06 (XRF26). Highlights of significant results from Marysville South Zone are listed as follows:

SAMPLE	Al <sub>2</sub> O <sub>3</sub>	BaO	CaO	Fe <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	SiO <sub>2</sub>	TiO <sub>2</sub>	Total	LOI 1000
DESCRIPTION	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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	48.42
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

The relatively high MgO content (40.7-45% 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> may require beneficiation in order to remove these impurities. 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.

## **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 (March 26-28, 2015). 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 that are located 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	2017/nov/10	188.56
1033194	Mag 1	2015/jan/07	2017/nov/10	125.68
1033236	Marysville Magnesium	2015/jan/08	2017/nov/10	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 Andris Arturs Kikauka, and mineral tenure 1029860 and 1033236 are owned 100% by Jared Lazerson.

### 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.

## **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 2015 Field Program**

### **6.1 Scope & Purpose**

The 2015 geological mapping and geochemical sampling was carried out in order to evaluate mineral potential in a 200 X 1,200 m area (elongated north-northeast), located in the east portion of Marysville Magnesite property in the area where magnesite is partly exposed as sub-crop and outcrop (near Antwerp Creek canyon).

### **6.2 Methods and Procedures**

A total of 2 rock chip samples were taken across 1 to 2 meter intervals along exposures of bedrock near Antwerp Creek in the Marysville magnesite zones (Fig 4). A total of 4 of the 6 samples were taken in areas of no outcrop (northeast of Antwerp Creek), but did contain

abundant angular sub-crop. 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 20 hectares of 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 4), and at a scale of 1:40,000 (Fig 7).

### 6.3 Property Geology & Mineralization

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. The Marysville mineral property features high purity magnesite hosted in the Cranbrook Formation.

The writer performed fieldwork consisting of geochemical sampling and geological mapping on the south portion of Marysville magnesite. Fieldwork was carried out March 26-28, 2015. Technical work is recorded in this assessment report, and reported as MEM Event number 5554331. 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 surface outcrop. Rock chip samples were analyzed by ALS Minerals, North Vancouver, BC, using Li Borate fusion, whole rock analysis ME-XRF-06 (XRF26). Highlights of significant results from Marysville South Zone are listed as follows:

SAMPLE	Al2O3	BaO	CaO	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	TiO2	Total	LOI 1000
DESCRIPTION	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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	0.02	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

The relatively high MgO content (40.7-45% 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 ( $Al_2O_3$ , CaO) approach specifications required for producing deadburn, calcined and fused magnesia. The relatively high  $SiO_2$  and  $Fe_2O_3$  may require beneficiation in order to remove these impurities

## **7.0 Discussion of Results**

Based on the range of % MgO and impurities  $Al_2O_3$ ,  $SiO_2$ , CaO,  $Fe_2O_3$ , 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.

## **8.0 Conclusion**

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

- The Marysville magnesite is a significant magnesite resource, comparing 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, bulk sample metallurgical testing 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.
6. I have a direct interest in the Marysville Magnesite Property and MGX Minerals Inc. The recommendations in this report cannot 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*



June 5, 2015

**ITEMIZED COST STATEMENT-  
MARYSVILLE MINERAL TENURES 1029860, 1033194, 1033236  
FIELDWORK PERFORMED MARCH 26-28, 2015,  
WORK PERFORMED ON MINERAL TENURES 1029860, 1033194, 1033236  
FORT STEELE MINING DIVISION, NTS 82G 12W (TRIM 082G 051)**

**FIELD CREW:**

**A. Kikauka (Geologist) 3 days (surveying, mapping)      \$    1,500.00**

**FIELD COSTS:**

<b>Mob/demob/preparation</b>	<b>166.12</b>
<b>Meals and accommodations</b>	<b>191.20</b>
<b>Truck mileage &amp; fuel</b>	<b>198.60</b>
<b>Li Borate Fusion ICP AES geochemical analysis (6 rock samples)</b>	<b>246.32</b>
<b>Report</b>	<b>450.00</b>

**Total=      \$ 2,752.24**

# Appendix A



ALS Canada Ltd.  
2103 Dollarton Hwy  
North Vancouver BC V7H 0A7  
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www.alsglobal.com

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

Page: 1  
Total # Pages: 2 (A - B)  
Plus Appendix Pages  
Finalized Date: 6-APR-2015  
This copy reported on  
29-DEC-2015  
Account: MGXMIN

## CERTIFICATE VA15045959

Project: Marysville

This report is for 6 Rock samples submitted to our lab in Vancouver, BC, Canada on 31-MAR-2015.

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

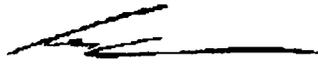
ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF26	Whole Rock By Fusion/XRF	XRF
OA-GRA05x	LOI for XRF	WST-SEQ

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



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
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**303-1080 HOWE STREET**  
**VANCOUVER BC V6Z 2T1**

Page: 2 - A  
 Total # Pages: 2 (A - B)  
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 Finalized Date: 6-APR-2015  
 Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA15045959**

Sample Description	Method Analyte Units LOR	WEI-21	ME-XRF26													
		Recvd Wt.	Al2O3	BeO	CaO	Cr2O3	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	SrO	TiO2
		kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%
		0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MARY-15-AR-1		0.78	0.47	0.02	1.02	<0.01	1.04	0.04	40.7	0.03	0.07	0.11	0.01	11.63	<0.01	0.03
MARY-15-AR-2		1.02	0.88	0.02	0.94	<0.01	0.67	0.06	44.8	0.01	0.07	0.14	0.02	3.53	<0.01	0.04
MARY-15-AR-3		1.44	0.67	0.01	0.56	<0.01	1.90	0.03	44.3	0.03	0.07	0.06	<0.01	2.91	<0.01	0.03
MARY-15-AR-4		1.58	1.10	0.01	0.62	<0.01	0.81	0.19	44.9	0.01	0.09	0.06	<0.01	3.20	<0.01	0.06
MARY-15-AR-5		1.84	0.60	0.01	0.56	<0.01	0.92	0.06	45.0	0.02	0.07	0.06	0.01	2.70	<0.01	0.02
MARY-15-AR-6		0.94	1.03	0.01	1.01	<0.01	1.07	0.04	42.7	0.02	0.06	0.19	<0.01	6.90	0.01	0.04

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



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Page: 2 - B  
 Total # Pages: 2 (A - B)  
 Plus Appendix Pages  
 Finalized Date: 6-APR-2015  
 Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA15045959**

Sample Description	Method Analyte Units LOR	ME-XRF26	OA-GRA05x
		Total %	LOI 1000 %
		0.01	0.01
MARY-15-AR-1		100.45	45.28
MARY-15-AR-2		100.35	49.14
MARY-15-AR-3		100.10	49.58
MARY-15-AR-4		100.50	49.42
MARY-15-AR-5		100.05	49.99
MARY-15-AR-6		100.20	47.10

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



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Page: Appendix 1  
Total # Appendix Pages: 1  
Finalized Date: 6-APR-2015  
Account: MGXMIN

Project: Marysville

**CERTIFICATE OF ANALYSIS VA15045959**

<b>CERTIFICATE COMMENTS</b>									
Applies to Method:	<p style="text-align: center;"><b>LABORATORY ADDRESSES</b></p> <p>Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.</p> <table><tr><td>CRU-31</td><td>LOG-22</td><td>ME-XRF26</td><td>OA-GRA05x</td></tr><tr><td>PUL-31</td><td>PUL-QC</td><td>SPL-21</td><td>WEI-21</td></tr></table>	CRU-31	LOG-22	ME-XRF26	OA-GRA05x	PUL-31	PUL-QC	SPL-21	WEI-21
CRU-31	LOG-22	ME-XRF26	OA-GRA05x						
PUL-31	PUL-QC	SPL-21	WEI-21						

## WHOLE ROCK GEOCHEMISTRY

# ME- XRF06

### SAMPLE DECOMPOSITION

50% - 50%  $\text{Li}_2\text{B}_4\text{O}_7$  -  $\text{LiBO}_2$  (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 %  $\text{Li}_2\text{B}_4\text{O}_7$  -  $\text{LiBO}_2$ ), 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	$\text{Al}_2\text{O}_3$	%	0.01	100
Barium Oxide	BaO	%	0.01	100
Calcium Oxide	CaO	%	0.01	100
Chromium Oxide	$\text{Cr}_2\text{O}_3$	%	0.01	100
Ferric Oxide	$\text{Fe}_2\text{O}_3$	%	0.01	100
Potassium Oxide	$\text{K}_2\text{O}$	%	0.01	100
Magnesium Oxide	MgO	%	0.01	100
Manganese Oxide	<del>MnO</del> $\text{MnO}_2$	%	0.01	100
Sodium Oxide	$\text{Na}_2\text{O}$	%	0.01	100
Phosphorus Oxide	$\text{P}_2\text{O}_5$	%	0.01	100
Silicon Oxide	$\text{SiO}_2$	%	0.01	100
Strontium Oxide	$\text{SrO}_2$	%	0.01	100
Titanium Oxide	$\text{TiO}_2$	%	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.

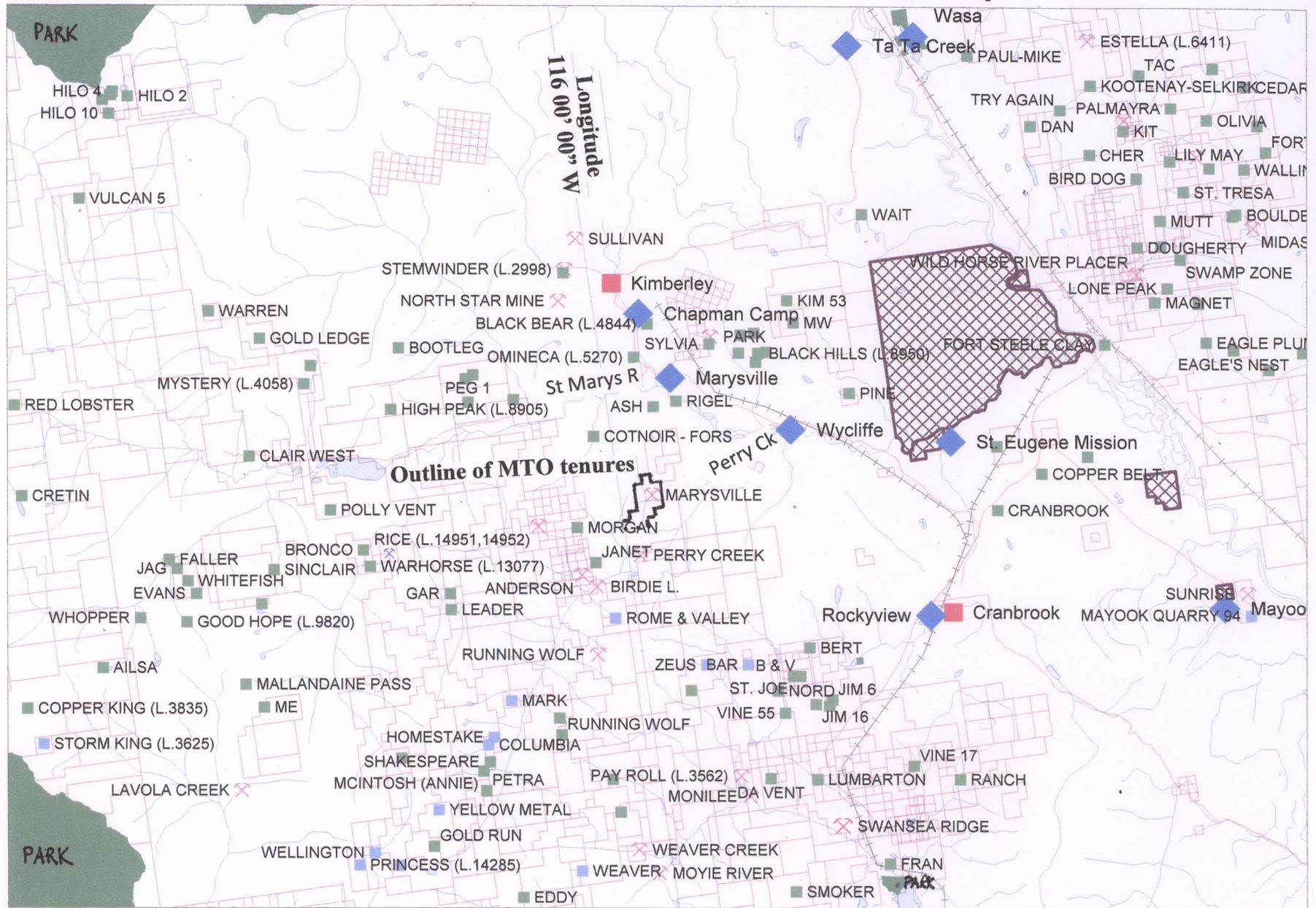
Sample ID	Zone name	Easting NAD 83	Northing NAD 83	Elev (m)	Sample Type	Lithology	Alteration
MARY-15-AR-1	South Zone	573582	5491627	1183	rock	sparry magnesite	weak qtz stringers, sweats <1 mm
MARY-15-AR-2	South Zone	573611	5491619	1188	rock	sparry magnesite	weak qtz stringers, sweats <1 mm
MARY-15-AR-3	South Zone	573849	5491961	1277	rock	sparry magnesite	weak qtz stringers, sweats <1 mm
MARY-15-AR-4	South Zone	573912	5492085	1297	rock	sparry magnesite	weak qtz stringers, sweats <1 mm
MARY-15-AR-5	South Zone	573994	5492239	1328	rock	sparry magnesite	weak qtz stringers, sweats <1 mm
MARY-15-AR-6	South Zone	574164	5492514	1366	rock	sparry magnesite	weak qtz stringers, sweats <1 mm

Sample ID	Mineralization	Comments	Bed Strike	Bed Dip	Width (cm)
MARY-15-AR-1	magnesite	outcrop	45 66 SW		100
MARY-15-AR-2	magnesite	outcrop	48 59 SW		200
MARY-15-AR-3	magnesite	subcrop			
MARY-15-AR-4	magnesite	subcrop			
MARY-15-AR-5	magnesite	subcrop			
MARY-15-AR-6	magnesite	subcrop			

Sample ID	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

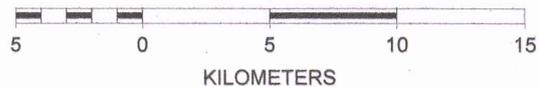
## Appendix C

# Fig 1A General Location Map

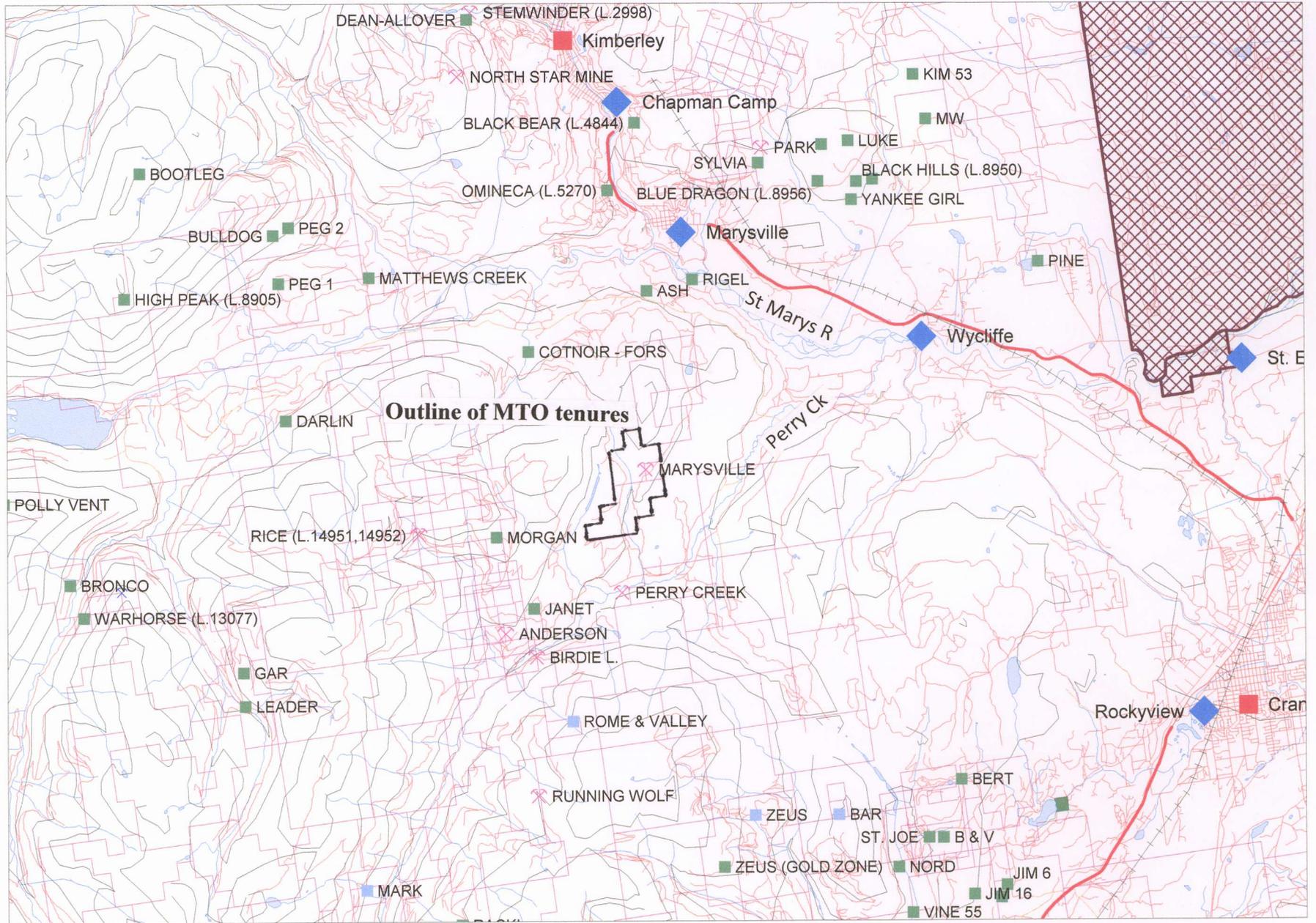


 First Nations

SCALE 1 : 300,000

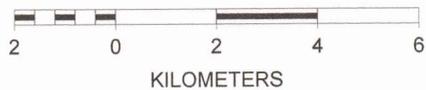


# Fig 1B Property Location Map



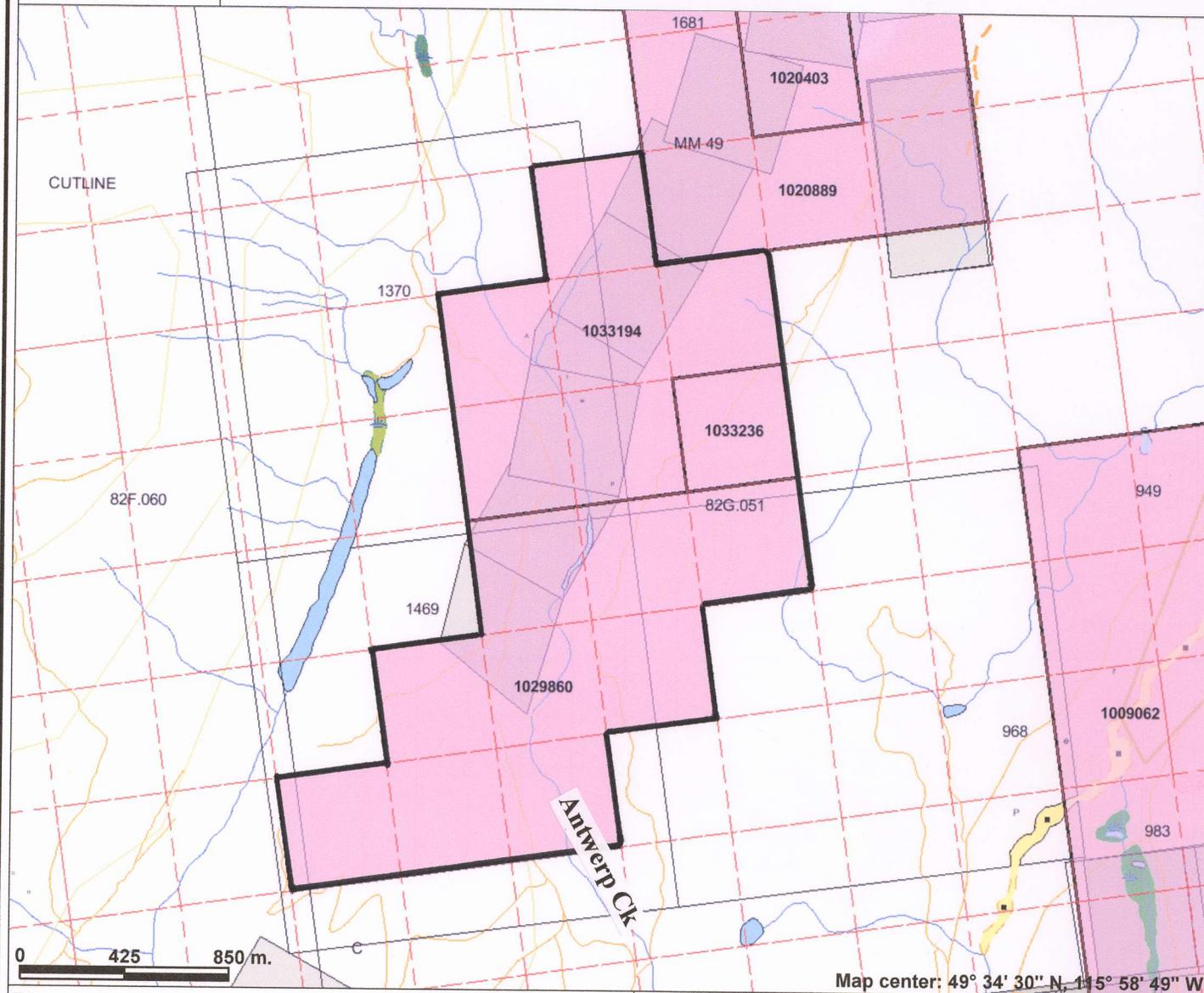
 First Nations

SCALE 1 : 150,000





# Fig 2 MTO Mineral Claim Location



### Legend

- Indian Reserves
- National Parks
- Conservancy Areas
- Parks
- Federal Transfer Lands
- MTO Grid (MTO)
- Mineral Tenure (current)
- Mineral Claim
- Mineral Lease
- Mineral Reserves (current)**
  - Placer Claim Designation
  - Placer Lease Designation
  - No Staking Reserve
  - Conditional Reserve
  - Release Required Reserve
  - Surface Restriction
  - Recreation Area
  - Others
- First Nations Treaty Related Lands
- First Nations Treaty Lands
- Integrated Cadastral Fabric
- Survey Parcels
- BCGS Grid
- Contours (1:250K)
  - Contour - Index
  - Contour - Intermediate
  - Area of Exclusion
  - Area of Indefinite Contours
- Annotation (1:20K)
- Transportation - Points (TRIM)

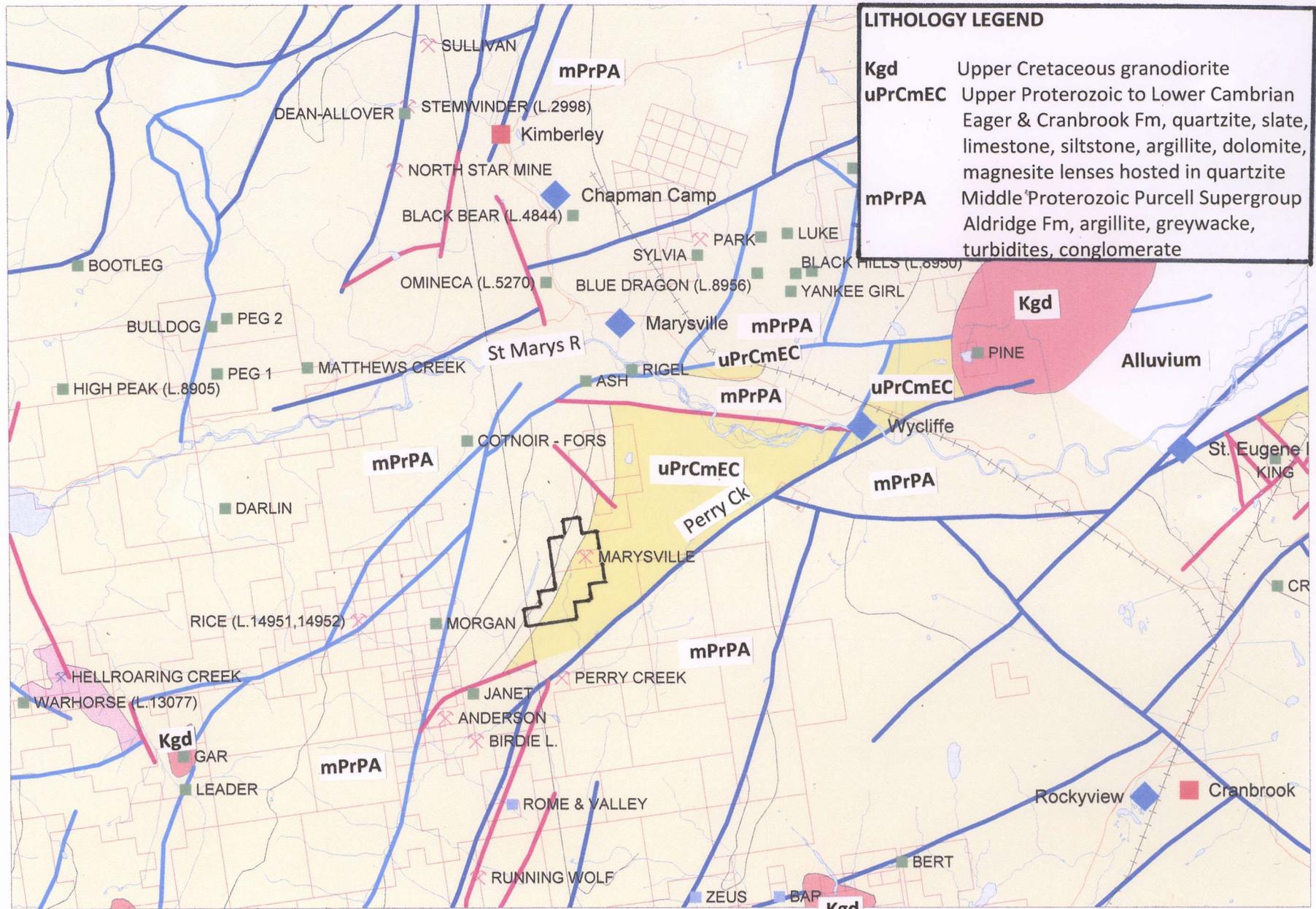
Map center: 49° 34' 30" N, 115° 58' 49" W

Scale: 1:24,479

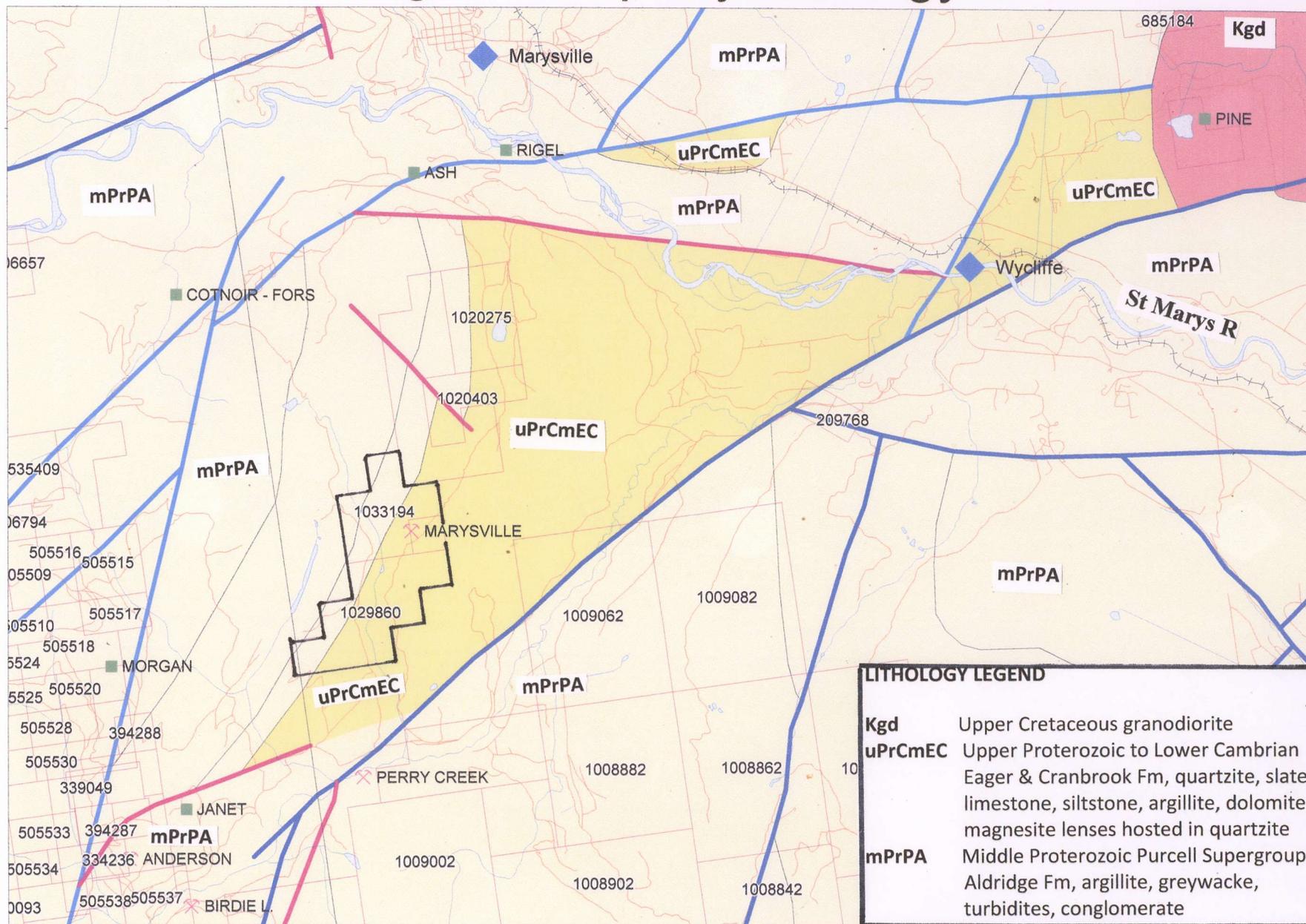
This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: BCGS 082G.051, NTS 082G012W, Fort Steele Mining Division

# Fig 3A General Geology



# Fig 3B Property Geology

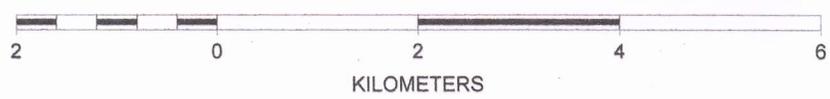


LITHOLOGY LEGEND	
<b>Kgd</b>	Upper Cretaceous granodiorite
<b>uPrCmEC</b>	Upper Proterozoic to Lower Cambrian Eager & Cranbrook Fm, quartzite, slate, limestone, siltstone, argillite, dolomite, magnesite lenses hosted in quartzite
<b>mPrPA</b>	Middle Proterozoic Purcell Supergroup Aldridge Fm, argillite,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

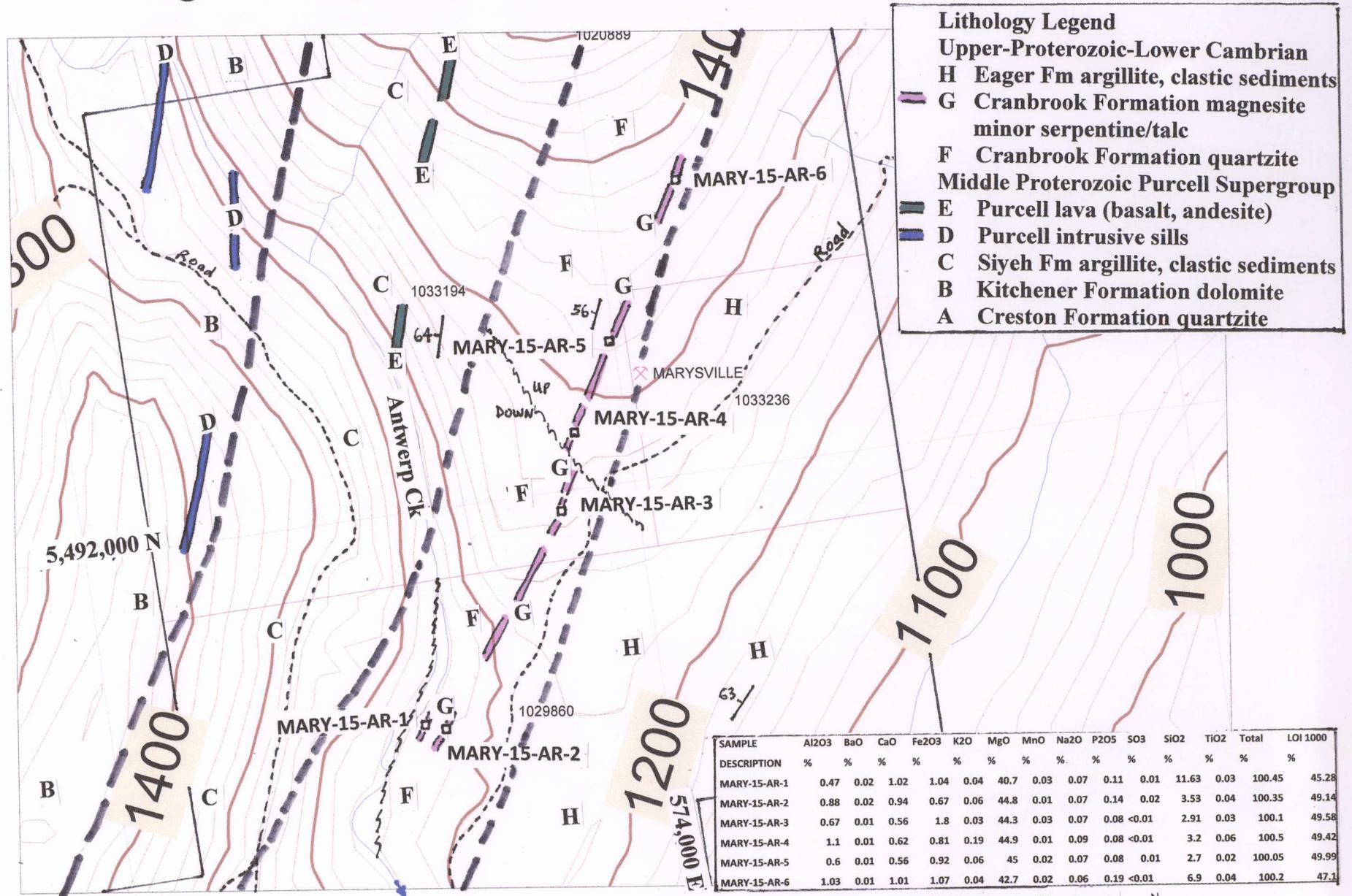
Marysville (Tenure 1029860, 1033194, 1033236)

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

SCALE 1 : 75,000



# Fig 4 Property Geology & Mineralization



**Lithology Legend**

Upper-Proterozoic-Lower Cambrian

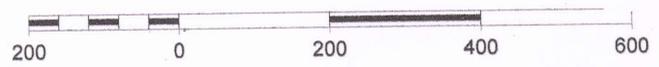
- H Eager Fm argillite, clastic sediments
- G Cranbrook Formation magnesite  
minor serpentine/talc
- F Cranbrook Formation quartzite

Middle Proterozoic Purcell Supergroup

- E Purcell lava (basalt, andesite)
- D Purcell intrusive sills
- C Siyeh Fm argillite, clastic sediments
- B Kitchener Formation dolomite
- A Creston Formation quartzite

SAMPLE	Al2O3	BaO	CaO	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	TiO2	Total	LOI 1000
DESCRIPTION	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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

SCALE 1 : 10,000



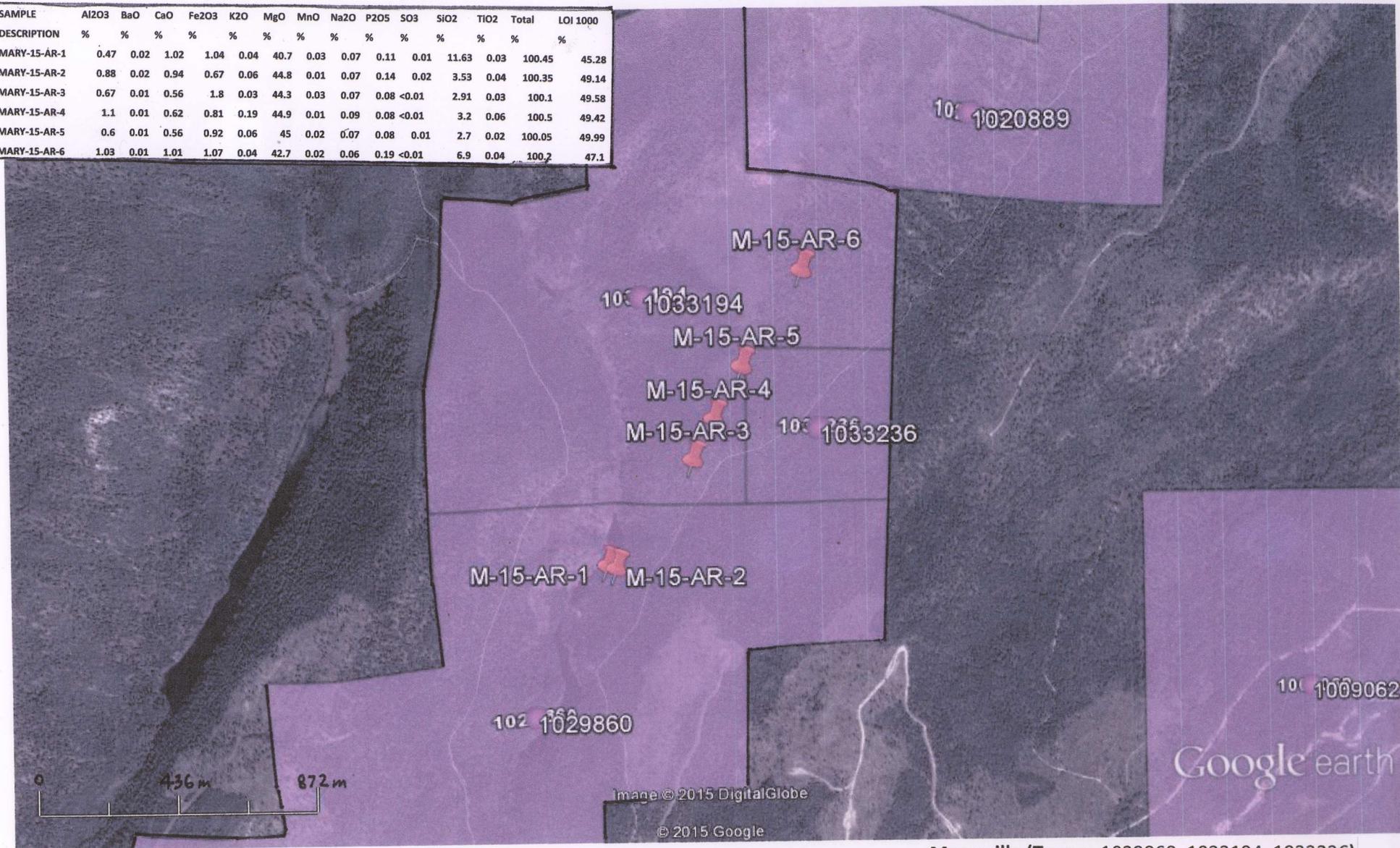
METERS  
UTM Zone 11, NAD 83 Datum

--- Fault    - - - Bedding    ● Lithology Contact  
Red line=Road    Blue line=Creek, lake



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

SAMPLE	Al2O3	BaO	CaO	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	TiO2	Total	LOI 1000
DESCRIPTION	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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



Google earth

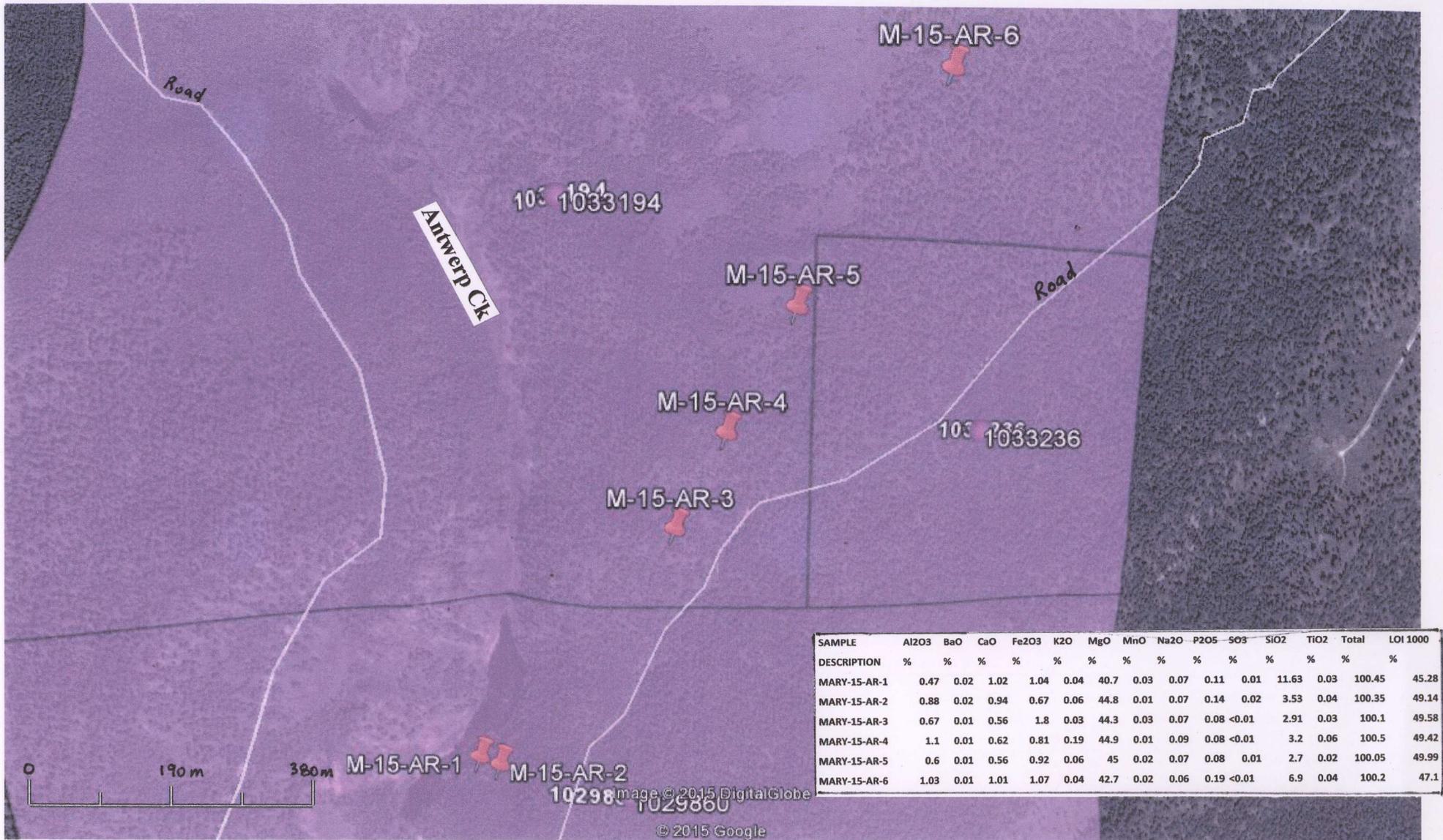


Marysville (Tenure 1029860, 1033194, 1033236)



FIG 5 Google Earth Image, 2015 rock chip sample locations

Ft Steele Mining Division, BCGS 082G.051, NTS 082G12W  
 Purple shaded area mineral tenure 1029860, 1033194, 1033236



Google earth

feet  
km



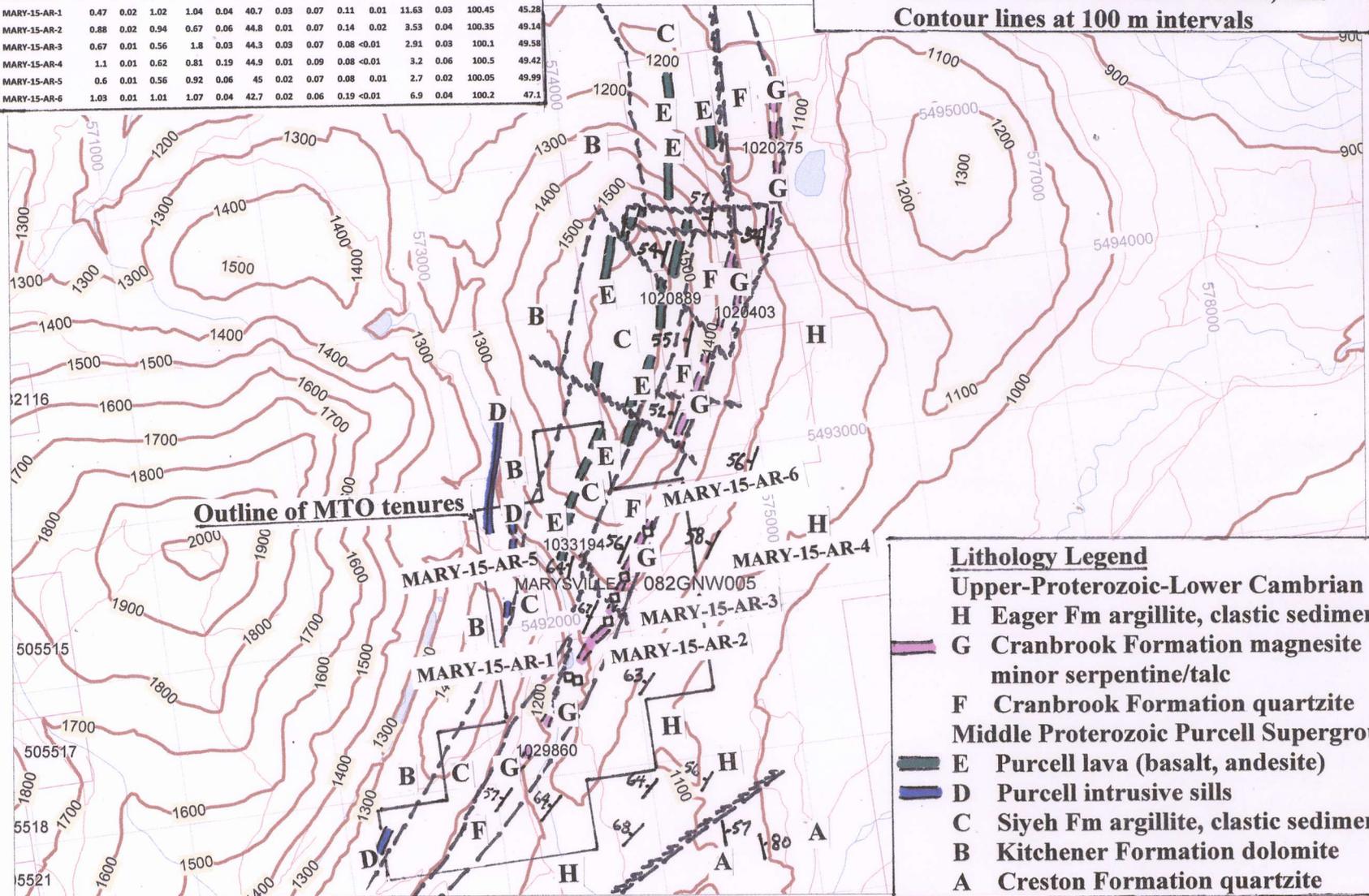
Fig 6 Google Earth Image 2015 Rock Chip Sample Locations

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

# Fig 7 Marysville Magnesite Compilation Map

SAMPLE	Al2O3	BaO	CaO	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	TiO2	Total	LOI 1000
DESCRIPTION	%	%	%	%	%	%	%	%	%	%	%	%	%	%
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

Fault   
 Bedding   
 Lithology Contact  
 Red line=Road    Blue line=Creek, lake  
 Contour lines at 100 m intervals



**Lithology Legend**

- H Upper-Proterozoic-Lower Cambrian 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 sills
- C Siyeh Fm argillite, clastic sediments
- B Kitchener Formation dolomite
- A Creston Formation quartzite

SCALE 1 : 40,000    Marysville Tenure #'s 1029860, 1033194, 1033236  
 Ft Steele Mining Division, BCGS 082G.051, NTS 082G12W



Ministry of **Energy and Mines**  
and Responsible for **Core Review**


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## MINFILE Record Summary

MINFILE No 082GNW005

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File Created: 24-Jul-85

by BC Geological Survey (BCGS)

Last Edit: 20-Apr-08

by Mandy N. Desautels(MND)

### SUMMARY

[Summary Help ?](#)

<b>Name</b>	MARYSVILLE, PERRY CREEK	<b>NMI</b>	<a href="#">082G12 Mg1</a>
<b>Status</b>	Past Producer	<b>Mining Division</b>	Fort Steele
<b>Latitude</b>	<a href="#">49° 34' 40" N</a>	<b>BCGS Map</b>	082G051
<b>Longitude</b>	<a href="#">115° 58' 33" W</a>	<b>NTS Map</b>	082G12W
<b>Commodities</b>	Magnesite	<b>UTM</b>	11 (NAD 83)
<b>Tectonic Belt</b>	Omineca	<b>Northing</b>	5492192
		<b>Easting</b>	574039
		<b>Deposit Types</b>	E09 : Sparry magnesite
		<b>Terrane</b>	Ancestral North America

**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.

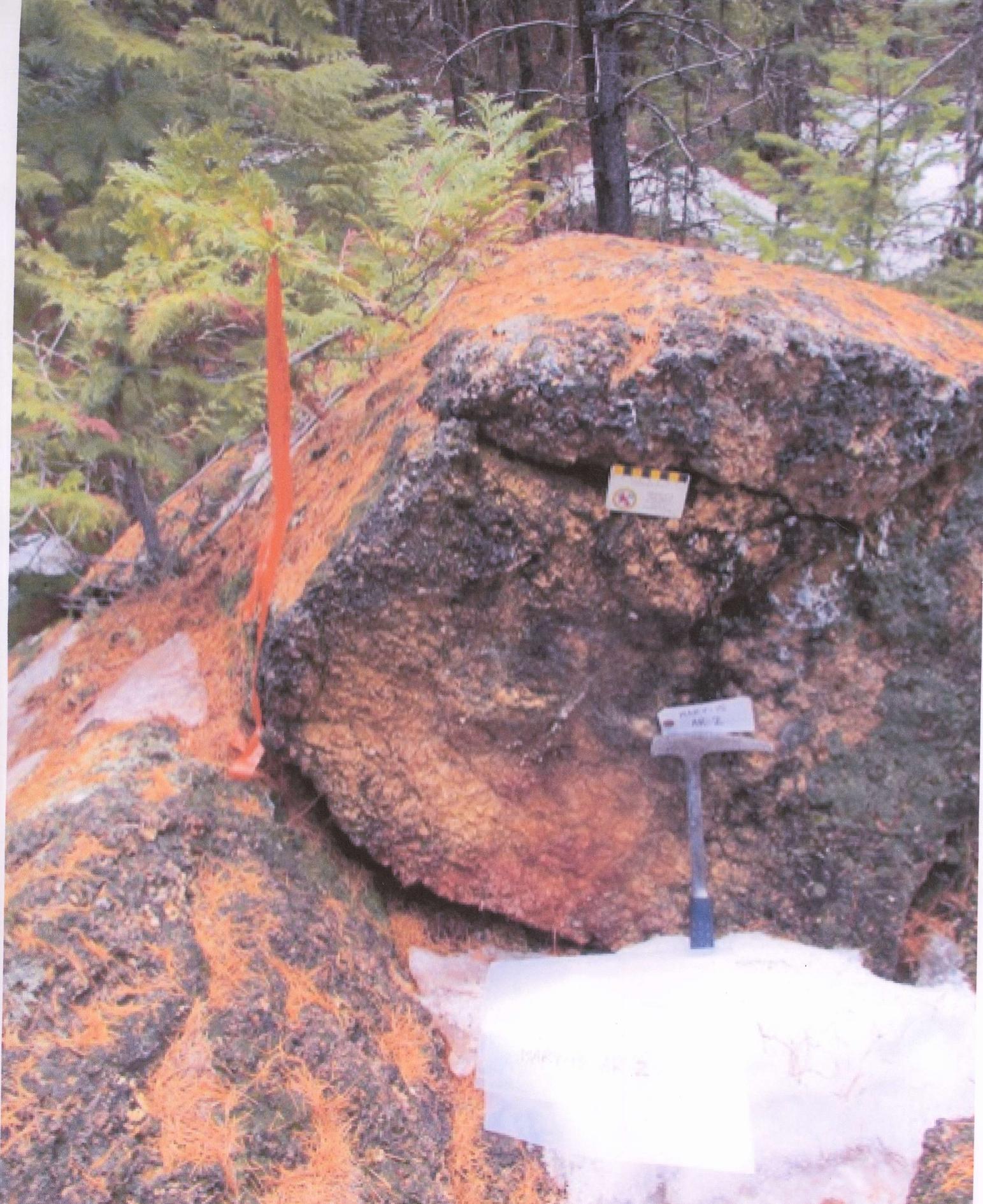
Minor production has been reported for the Marysville deposit (Z.D. Hora, personal communication, 1990), but no figures are available.

**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)

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Marysville South Zone from 1,400 m elevation looking SW (magnesite=red line, fault=black line)



Marysville South Zone outcrop sample MARY-15-AR-2 near Antwerp Creek  
(44.8% MgO, 3.53% SiO<sub>2</sub>, 0.94% CaO, 0.88% Al<sub>2</sub>O<sub>3</sub>, 0.67% Fe<sub>2</sub>O<sub>3</sub>, 0.14% P<sub>2</sub>O<sub>5</sub>)