BRITISH COLUMBIA The Best Place on Earth		T RECOLUMN STREET
Ministry of Energy and Mines BC Geological Survey		Assessment Report Title Page and Summary
TYPE OF REPORT [type of survey(s)]: Biogeochemical	τοτ	<b>al cost</b> : \$9,795.54
AUTHOR(S): D.G. MacIntyre, Ph.D., P.Eng.	SIGNATURE(S):	DMac ship
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): October 6-12		YEAR OF WORK: 2016
STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):	5649542 / May 16, 2017	
PROPERTY NAME: Lucky Ship		
CLAIM NAME(S) (on which the work was done): Lucky Ship claims 510	0116, 510117	
COMMODITIES SOUGHT: Mo MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 093L 053		
MINING DIVISION: Omineca	NTS/BCGS: <u>93L/3W</u> ,4E; 93L	. 003
LATITUDE: <u>54</u> ° <u>01</u> <u>28</u> " LONGITUDE: <u>127</u>	<sup>o</sup> <u>28</u> <u>'41</u> " (at cent	re of work)
OWNER(S): 1) Donald G. MacIntyre	2) Victor H. Parsons	
MAILING ADDRESS: 4129 San Miguel Close	3993 Hopesmore Drive	
Victoria, B.C., Canada, V8N 6G7	Victoria, B.C., Canada, V8N	6A2
OPERATOR(S) [who paid for the work]: 1) BM Moly Resources Ltd.	_ 2)	
MAILING ADDRESS: 7850 Mayfield St.		
Burnaby B.C. V5E 2J6		
PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure porphyry molybdenum deposit, Eocene Nanika intrusions, Haze		-
banded quartz-molybdenite vein stockwork, silica flooding, annu	llar zone 200 by 120 metres, ind	icate mineral resource 65.66 mi

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 16308, 21645, 23577, 28451, 29303, 29916

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for)			
Soil			
Silt			
Rock			
Other 12 tree bark samples	- 36 element ICP/MS	510116	\$9,795.95
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	\$9,795,95

### **ASSESSMENT REPORT**

# Biogeochemical Orientation Survey Lucky Ship Molybdenum Property West Central British Columbia, Canada

Mineral Tenures: 510116, 510117 Omineca Mining Division Houston Area, West-Central British Columbia NTS 93L/3W,4E; BCGS 93L 003 54°01'28" N, 127°28'41" W

Owners: D.G. MacIntyre (50%) & V.H. Parsons (50%)

Operator: BM Moly Resources Ltd., 7850 Mayfield St. Burnaby, B.C. V5E 2J6

Report prepared by D.G. MacIntyre Ph.D. P.Eng. Victoria, B.C., Canada, V8N 6G7

June 23, 2017

BC Geological Survey Assessment Report 36862

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- Photo 2. Sample site LS16-002. Note reddish area of bark scraping around metal sample tag. Ashed bark from this pine tree returned 156.27 ppm Mo. ...... 25

### 1 Summary

The Lucky Ship molybdenum property is located in west central British Columbia, Canada. The property is accessible via 85 kilometres of well maintained logging roads from the town of Houston which is located on trans-provincial highway 16. Houston is also on the CN rail line which traverses central British Columbia and terminates at the port of Prince Rupert.

The Lucky Ship property consisted of 2 mineral titles covering an area of 1,462.7 hectares in the Omineca Mining District of west-central British Columbia (Figure 1). These mineral titles are contiguous and cover the southeast facing slope of a northeast trending ridge between Morice Lake and the Nanika River. The mineral titles are held jointly by D.G. MacIntyre (50%) and H.V. Parsons (50%).

Lucky Ship is a porphyry Mo deposit with low concentrations of Cu and other base metals. The principal area of interest on the property is the 1000 x 600 metres, Eocene Lucky Ship plutonic complex which is comprised of two phases of porphyry intrusion and two breccia phases. Molybdenum mineralization, as molybdenite (MoS<sub>2</sub> disulphide), occurs in fractures, quartz veins, veinlets and stockworks best developed within an annular zone or shell marginal to a small (200 x 120 metres) porphyritic granite intrusion at the southeastern margin of a larger pluton of quartz-feldspar porphyry. Widths as defined by a 0.030% Mo cutoff grade range from 90 to 270 metres with the thickest portions developed along the eastern and western margins of the granite intrusion.

The Lucky Ship showings were first discovered in the 1950's by local prospectors. The property was subsequently explored by Amax Exploration between 1964 and 1968. Amax completed approximately 10,000 metres of diamond drilling in 23 holes. Between 2005 and 2008, an additional 24,712 metres of diamond drilling in 94 holes was completed by New Cantech, with an estimated total cost of \$9 million. In 2008, A.C.A. Howe International Ltd. calculated an indicated mineral resource of 65.66 million tones averaging 0.064% Mo and an inferred mineral resource of 10.22 million tones averaging 0.054% Mo using a cut-off grade of 0.03% Mo (NI43-101 technical report dated June 30, 2008).

In October, 2016 a total of 12 bark samples (LS16-001 to LS16-012) were collected from pine trees within and peripheral to the known subsurface extent of the Lucky Ship Mo deposit. The purpose of this survey was to demonstrate the applicability of tree bark as a sampling medium for detecting subsurface molybdenum mineralization. The analytical results showed that bark from pine trees located above the Lucky Ship deposit were strongly anomalous in Mo content compared to those collected away from the deposit which had

much lower Mo concentrations. Based on these results it is concluded that sampling of pine tree bark is an effective tool in searching for subsurface Mo mineralization at Lucky Ship. It is recommended that additional sampling be done especially in covered areas away from the main deposit where there may be additional zones of subsurface Mo mineralization.

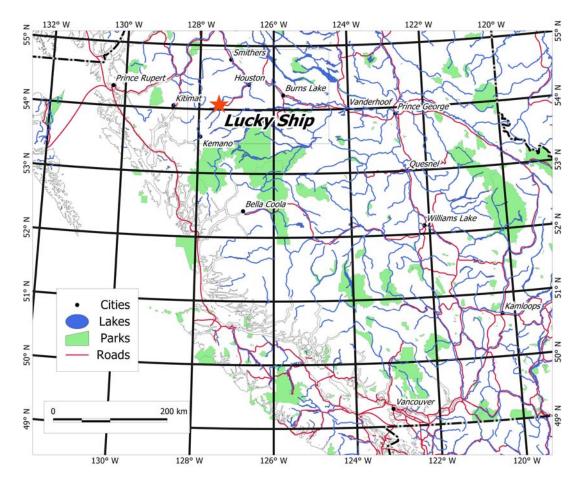


Figure 1. General location map, Lucky Ship Mo Property, west central British Columbia.

### 2 Introduction

This assessment report describes the results of a biogeochemical orientation survey conducted by D.G. MacIntyre & Associates Ltd. on the Lucky Ship porphyry Mo property in October 2016. This report is in support of a Statement of Work filed with the Mineral Titles Branch of the B.C. Ministry of Energy and Mines on May 16, 2017 (MTO Event 5649542) claiming \$9,795.54 in assessment credit for this work. The purpose of the biogeochemical survey was to determine the applicability of this technique in determining the presence of subsurface Mo mineralization in covered areas. As a test of the

technique, 12 tree bark samples were collected from pine trees above and peripheral to the area of known Mo mineralization.

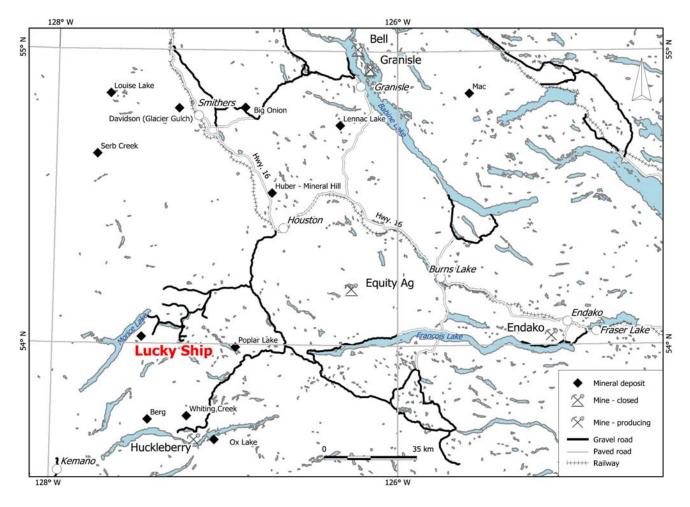


Figure 2. Detailed location and infrastructure map, Lucky Ship Property.

The units of measure used in this report are metric; monetary amounts are in Canadian dollars. All maps, with the exception of the general location map (Figure 1), are in Universal Transverse Mercator projection, Zone 9N and are based on the North American 1983 datum (NAD83) or World Geodetic 1984 datum (WGS84).

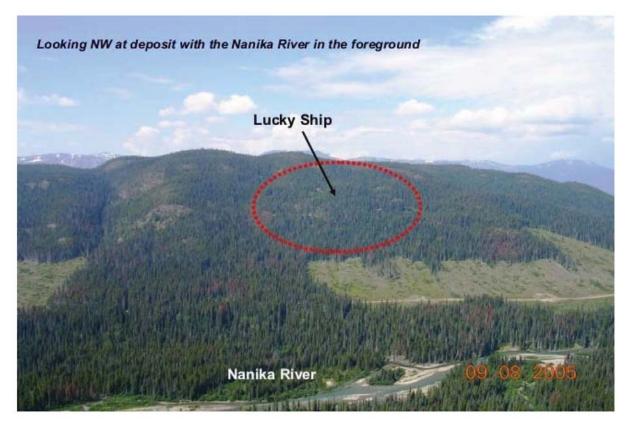


Photo 1. View northwest toward the area of Lucky Ship Mo mineralization and location of the 2016 biogeochemical orientation survey. Red coloured trees on the hillside are pine trees that were killed by the pine beetle infestation.

## **3** Property Description and Location

The Lucky Ship property consisted of 2 mineral titles covering an area of 1,462.69 hectares in the Omineca Mining Division of west-central British Columbia (Figure 1). All of the mineral claims are contiguous and cover an area on the southeast facing slope of a northeast trending ridge between Morice Lake and the Nanika River.

The mineral titles listed in Table 1 are owned 50% by Donald George MacIntyre (FMC # 146547) and 50% by Harold Victor Parsons (FMC # 146623). The initial claims were stacked in June of 2004 and consisted of eight two-post legacy claims which were converted to "cell" claims in April of 2005. The configuration of the current mineral title holdings is shown in Figure 3; details of the claims are listed in Table 1.

The property is on Crown Land and is open to mineral exploration providing a Notice of Work is filed with the Province of British Columbia for any physical disturbances and that local First Nations are consulted.

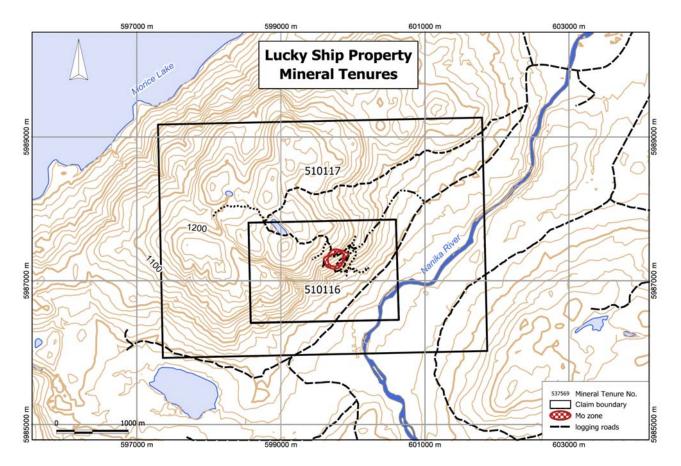


Figure 3. Mineral title map, Lucky Ship Property.

The mineral titles map shown in Figure 3 was generated from Geographic Information System (GIS) spatial data downloaded from the Province of B.C. GeoBC website. These spatial layers are the same as those incorporated into the MTO electronic staking system that is used to locate and record mineral titles in British Columbia. The information presented in Table 1 and Figure 3 is current as of May 2017.

Table 1. Mineral Titles, Lucky Ship Mo Property

Title Number	Title Holders	Issue Date	Good To Date	Area (ha)
510116	D.MacIntyre (50%) / V.Parsons (50%)	2005/APR/03	2018/OCT/04	284.97
510117	D.MacIntyre (50%) / V.Parsons (50%)	2005/APR/03	2018/OCT/04	1177.72
				1462.60

1462.69

The total area of the mineral titles listed in Table 1 is 1,462.69 hectares.

### 4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

#### 4.1 Access

The Lucky Ship property is accessible by way of 85 kilometres of well maintained logging roads from the town of Houston B.C. (Figure 2). Average driving time is approximately 1 hour and 30 minutes. Houston is on transprovincial highway 16 and on the CN Rail line that links Prince George with the port of Prince Rupert.

Access to the property is via the Morice Forest Service Road (FSR) which leaves highway 16 four kilometres west of Houston. At around kilometre 25 the road branches off to the west following the Morice River. At approximately 75 kilometres there is a junction with the Morice-Nanika FSR. Three kilometres south of this junction is a turnoff onto the Cutthroat FSR which leads to a bridge crossing of the Nanika River (Figure 2) and the southern margin of the Lucky Ship property some five kilometres further on. A 1.5 kilometre access road with an average grade of 10-15% provides access to the east end of the principal mineralized area.

#### 4.2 Climate and Vegetation

The Lucky Ship Property is located in a part of British Columbia that has short cool summers and long, relatively mild but snow filled winters. Annual temperature variation in the region is approximately -25 to +25 degrees Celsius and snowpack during the winter months ranges from 1 to 4 metres. Surface exploration is best carried out between early June and late October but diamond drilling can be carried out year round. A small lake at the old camp site, near the crest of the ridge in the western property area, plus several small streams can provide sufficient water for exploration purposes.

The Lucky Ship Property area is well forested by mature stands of pine, spruce, hemlock, balsam and alpine fir. There are a number of replanted clear cuts at lower elevations along the Cutthroat FSR (Photo 1).

#### 4.3 Local Resources

Mining and the forest industry are mainstays of the local economy. Supplies and services to sustain such operations are readily available in Houston, a town of approximately 3,100 people.

#### 4.4 Infrastructure

The Lucky Ship Property is well situated with regard to local logging road infrastructure. Adequate fresh water for a mining operation could be drawn from the Nanika River and its tributaries. There is a hydro transmission line servicing the Huckleberry Mine site, located approximately 50 kilometres northeast of the property.

#### 4.5 Physiography

The Lucky Ship property is at the western margin of the Nechako Plateau a subdivision of the Interior Plateau very near it boundary with the Coast Range mountains. Relief is moderate within the property area with the principal feature being a northeast-trending ridge rising some 500 metres above Morice Lake. This ridge is locally referred to as Nanika Ridge. Elevations within the claim area range from 840 metres above sea level along the Nanika River to about 1250 metres on Nanika Ridge in the western property area (Figure 3). Bedrock exposures are limited to drainages and some of the higher areas.

### 5 History

#### 5.1 Early History

The earliest references to exploratory work on the Lucky Ship property are contained in various Annual Reports of the BC Minister of Mines and Petroleum Resources. The 1957 Annual report (p.12) reports the staking of 15 claims by Matthew Sam and Bill McRae of Topley and a subsequent option agreement with Consolidated Mining and Smelting Company of Canada Limited who completed 60 metres of trenching on "a zone of quartz stringers containing molybdenite that cut quartz porphyry."

### 5.2 1963-1971

No further work is reported until 1963 when Plateau Metals Ltd. optioned the property and subsequently entered into an agreement with Southwest Potash Corporation (subsequently Amax Exploration Inc.). Over the next five years, this company increased the size of the property, constructed an access road, carried out a variety of surface surveys, undertook bulldozer trenching and completed 10,662 metres of diamond drilling in 23 holes. Most holes drilled were inclined holes to test the main molybdenum zone at various depths while one deep (1001 metres) vertical hole was completed northwest of the main mineralized zone. All of the core recovered was stored on the property in racks that had collapsed over time; salvageable core boxes have been cross-stacked for future reference.

Canamax Resources Inc., the successor company to Amax Exploration Inc., purchased the remaining Plateau Metals interest in the property for \$90,000 in 1971, subject to a 5% net profits interest from potential future production.

Interest in molybdenum waned following a sustained price decline in the early 1980s and the original Lucky Ship claims were allowed to lapse.

#### 5.3 1987-1994

The property was subsequently re-staked in 1987 as the Star Ship 1-4 claims by Eric Shaede and Lorne Warren, who re-examined the Amax core and undertook a prospecting program, discovering a showing of chalcopyrite and pyrite at the northern periphery of the intrusive where a grab sample of sulphide mineralization in an area of quartz veining returned values of 2% Cu, 207 g/t Ag and 1 g/t Au (Shaede, 1987). The original claims expired and in 1991 were re-staked by the same individuals as the Lucky Ship 1-4 claims. The owners collected 24 soil samples at 10 metre intervals from a small (40x40 metre) grid over the copper showing; most samples were found to be anomalous in copper, silver and molybdenum (Shaede, 1991).

The most recent work on the property prior to its acquisition by the current owners was prospecting and geochemical analyses undertaken in 1994 on behalf of the then owner, William R. Gilmour (Carpenter and Harrington, 1994). The claims were subsequently allowed to lapse.

#### 5.4 2004-2008

In June 2004, the Lucky Ship property was staked by D.G. MacIntyre and V.H. Parsons as 6 two post claims (Blue Sky 1-6). The property was then optioned to Candorado Operating Company who then added two additional four post claims of 20 units each. With the introduction of electronic staking in January 2005 all of these claims were converted to cell claims.

In June 2005, New Cantech Ventures Inc. acquired the Lucky Ship option agreement from Candorado.

Exploratory work completed on the Lucky Ship molybdenum property by New Cantech between June of 2005 and February of 2007 included the establishment of 30.8 kilometres of survey grid, Induced Polarization and magnetic geophysical surveys, rehabilitation of existing drill access roads, construction of 1.2 kilometres of new access road, bench scale metallurgical test work and 10,171 metres of diamond drilling in 45 holes.

The survey grid established in 2005 consisted of a 1400 metres long baseline oriented at an azimuth of  $055^{\circ}$  and twenty northwest-southeast cross lines of varying lengths established at 50 metres intervals off the baseline. Survey stations were established at 25 metres intervals along the cross lines. The grid in part replaced a 1960s vintage Amax Exploration grid.

Peter Walcott and Associates Limited carried out magnetic and Induced Polarization surveys over the newly-cut grid in July, 2005 (Walcott, 2006). The magnetic survey utilized a GSM 19 proton precession magnetometer and base station manufactured by GEM Instruments of Richmond Hill, Ontario. This instrument measures variations in the total intensity of the earth's magnetic field to an accuracy of plus or minus 1 nanotesla. A small, northerly trending magnetic high (150 nanoteslas) is coincident with the porphyritic granite plug which is central to the main, annular molybdenum zone. Flanking this feature on the east is a pronounced magnetic low which may be reflecting a northerly trending fault zone.

Porphyry deposits consist of disseminated sulphide minerals which respond well to Induced Polarization surveys. A pyrite halo surrounding the zone(s) of economic mineralization has a higher overall sulphide content which is usually reflected by a chargeability high. By contrast, the higher silica content in the central part of a typical molybdenum system is highly resistive.

The Induced Polarization survey undertaken in 2005 used a pulse type system manufactured by Huntec Limited and consisting of a receiver, transmitter and motor generator. The survey was carried out using a pole-dipole array with first to sixth separation readings obtained over the main molybdenum zone using a 25 metre dipole spacing. The horizontal position of the stations was recorded using a differential GPS while elevations were recorded to an estimated accuracy of 3 metres utilizing an altimeter and base station.

A 3-D modeling of the chargeability (IP) results obtained from the detailed survey conducted in the area of main molybdenum zone showed that the zone of higher chargeability is doughnut shaped in plan and is coincident with areas of higher sulphide concentration (pyrite halo) while the internal zone of low chargeability is some 450 metres in diameter with its centre some 200 metres northwest of the central part of the porphyritic granite plug. This is suggestive of the potential for additional molybdenum mineralization near the inner margins of the chargeability high.

Reconnaissance Induced Polarization surveying, undertaken in the central part of the Lucky Ship pluton utilizing a broader dipole spacing, identified zones of higher chargeabilities at depth beneath areas underlain by breccia complexes. In 2005, New Cantech completed 5,204 metres of diamond drilling in 28 drill holes (LS05-24-LS06-51). The results of this drilling have been described in a previous report by R.H. McMillan (McMillan, 2006). Between June 2006 and February 2007 New Cantech completed an additional 5,236.62 metres of NQ diamond drilling in16 drill holes (LS06-52-LS06-68). This work included completion of a deep hole to a depth of 1,020 metres (LS06-68). This hole was started in September 2006 but was not finished until February 2007. The results of the 2006 drilling program, including hole LS06-68 were included in MacIntyre (2007).

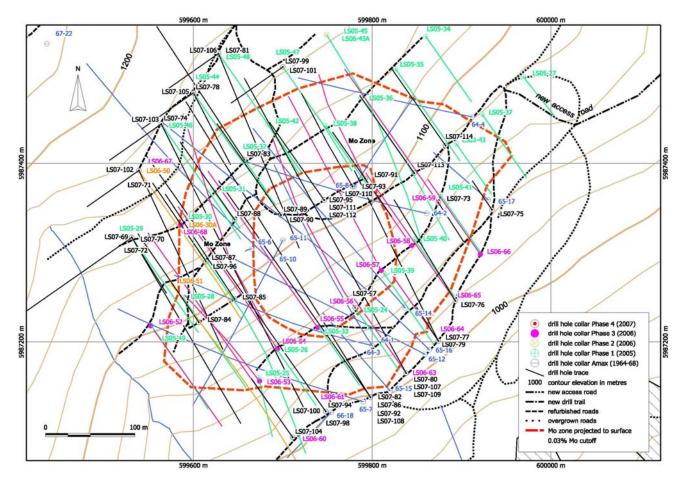


Figure 4. Drill Hole Plan, Lucky Ship Property

In 2006, Nanika Resources Inc. (formerly New Cantech Ventures Inc.) completed a preliminary NI 43-101 compliant mineral resource estimate for the Lucky Ship Molybdenum deposit. This technical report titled "Report on revised estimation of mineral resources, Lucky Ship Molybdenum Property" and dated January 23, 2007, was prepared by Dr. N.C. Carter (Carter, 2006) and. This report was filed on SEDAR on February 7, 2007. Carter's 2006 resource estimate was developed using the polygonal method. In 2007 A.C.A. Howe International Ltd. audited the Carter estimate by reviewing and verifying the

underlying geological digital database and geological model, and completed a revised mineral resource estimate dated May 1, 2007, using Micromine block modeling and the inverse distance square ("IDW2") interpolation technique.

Report Cut-	Material <sup>2</sup>	Class <sup>3</sup>	Density	Tonnes	Mo% <sup>5</sup> (uncut)	
$\mathrm{off}^1$			$(t/m^3)^4$	(Mt)		
		RESOURCE BY	Y CATEGORY			
0.020/ M-			2.5.0	65.66	0.064	
0.03% Mo	ALL MIN	INDICATED	2.569	(~92.6 millio	on pounds Mo)	
0.03% Mo	ALL MIN	INFERRED	2.569	10.24	0.054	
0.0370 1010			2.307	(~12.2 millio	on pounds Mo)	
INDICATED RESOURCE BY CUT-OFF						
>0.100 % Mo	ALL MIN	INDICATED	2.569	7.87	0.127	
>0.090 % Mo	ALL MIN	INDICATED	2.569	11.15	0.118	
>0.080 % Mo	ALL MIN	INDICATED	2.569	15.63	0.108	
>0.070 % Mo	ALL MIN	INDICATED	2.569	21.02	0.100	
>0.060 % Mo	ALL MIN	INDICATED	2.569	28.07	0.091	
>0.050 % Mo	ALL MIN	INDICATED	2.569	38.22	0.081	
>0.040 % Mo	ALL MIN	INDICATED	2.569	51.93	0.072	
>0.030 % Mo	ALL MIN	INDICATED	2.569	65.66	0.064	
>0.020 % Mo	ALL MIN	INDICATED	2.569	73.01	0.060	
>0.010 % Mo	ALL MIN	INDICATED	2.569	74.52	0.059	
>0.000 % Mo	ALL MIN	INDICATED	2.569	74.55	0.059	
	I	NDICATED RESOU	URCE BY DOMA	IN		
0.03% Mo	HG A	INDICATED	2.569	5.89	0.094	
0.03% Mo	HG B	INDICATED	2.569	16.06	0.082	
0.03% Mo	NW A	INDICATED	2.569	9.41	0.048	
0.03% Mo	NW B	INDICATED	2.569	11.42	0.047	
0.03% Mo	NW2 A	INDICATED	2.569	0.19	0.042	
0.03% Mo	NW2 B	INDICATED	2.569	0.41	0.045	
0.03% Mo	SE A	INDICATED	2.569	13.14	0.060	
0.03% Mo	SE B	INDICATED	2.569	9.14	0.059	

 Table 2. A.C.A. Howe 2008 Mineral Resource Estimate

 The 2008 Howe resource estimate was prepared by Galen White (B.Sc., FGS, MAusIMM), Howe Senior Geologist-Resources.). This resource estimation utilizes data from 14 AMAX holes (totalling 5,113.72 m) and 94 Company holes (totalling 23,889.07 m).

2. A lower cut-off grade of 0.03% Mo was chosen by considering the statistical characteristics of Mo grade data as well as assessing the natural grade boundary of the wireframe.

3. ALL MIN refers to total blocks contained within the mineralized wireframe. HG A, HG B, NW A, NW B, NW2 A, NW2 B, SE A and SE B refer to blocks within each of these sub-domains.

4. CIM classification categories of INDICATED and INFERRED mineral resource blocks. (note that Inferred resources cannot be used in reportable economic evaluation. Mineral resources are not reserves and therefore do not have demonstrated economic viability).

- 5. A density of 2.569 has been applied to all resource blocks. This value has been derived from specific gravity data from 79 drill core samples from the Company's 2005/06 drilling.
- 6. Mo% data remains uncut as part of this resource estimation. Top-cut analysis on raw sample data suggests no top cut is needed and removal of high grade outliers prior to estimation would not materially affect the global block model grade.

In April 2008, A.C.A. Howe International Ltd. conducted an update of resources following additional resource development drilling undertaken by Nanika in 2007. This work was designed to infill the existing drill pattern to facilitate conversion of a significant portion of Inferred resources to the Indicated resource category and to delineate depth extensions to the deposit. The Howe report (Lee and White, 2008) concludes that the drilling completed to date suggests that the Lucky Ship Molybdenum deposit remains open at depth (i.e. mineralization continues to depths below 500 m R.L.).

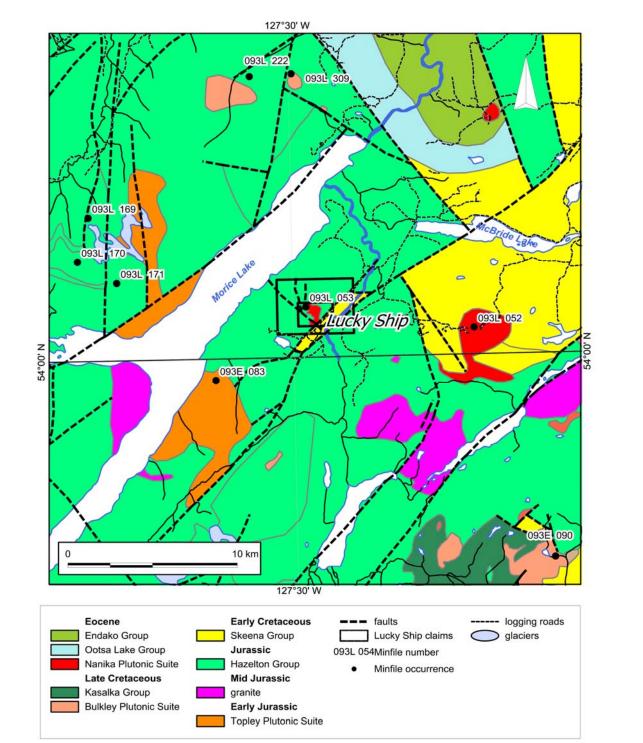
Howe's estimate of the Inferred and Indicated mineral resources at a cut-off grade of 0.030% Mo is summarized in Table 2. The table also summarizes the Indicated mineral resource estimate for cut-off grades greater than specified values (>0.100% Mo for example), and the Indicated mineral resource estimate by domain.

## 6 Geological Setting and Mineralization

### 6.1 Regional and Local Geology

The regional geological setting of the Morice Lake area is shown in Figure 5 which is based on a digital geological map of British Columbia prepared by Massey et al (2005). Detailed geological mapping of this particular area has been undertaken by Desjardins et al (1991) and by Diakow (1990).

The Morice Lake-Nanika Lake area is part of Stikine terrane, a subdivision of the Intermontane tectonic belt immediately east of its boundary with the Coast belt. Stikine terrane consists of a collage of Jurassic, Cretaceous and Tertiary magmatic arcs and related successor basins (Desjardins et al, 1991). Oldest rocks in the immediate area are Early to Middle Jurassic, calcalkaline, island arc-related volcanic, volcaniclastic and related sedimentary rocks of the Hazelton Group. Morice Lake is on or near the axis of the northeast-trending Skeena Arch and uplift of this structural feature between Middle Jurassic and Early Cretaceous time resulted in the deposition of thick deposits of clastic sediments within fault-controlled basins. A major plate collision from the west in the Middle Cretaceous resulted in uplift of the Coast belt, extensive folding of layered rocks to the east and the shedding of clastic sedimentary debris eastward from the rising Coast metamorphic-plutonic complex. This was followed by the growth of a north-trending volcanic arc in the Middle to Upper Cretaceous and subsequent development of an extensional tectonic regime



in Late Cretaceous to Early Tertiary time resulting in the basin and range geomorphology evident today.

Figure 5. Regional geological setting, Lucky Ship Property

As noted, the oldest layered rocks in the area illustrated in Figure 5 are volcanic and sedimentary rocks of the Hazelton Group of Lower Jurassic Age. Only the oldest unit, the Telkwa Formation, is present in this area where it is composed primarily andesitic pyroclastic rocks and massive augite-feldspar phyric basalts which are overlain well-bedded ash flows, ignimbrites and rhyolite flows and fossiliferous marine sediments. Clastic sediments of the Lower Cretaceous Skeena Group underlie the area southeast of the Lucky Ship property.

Erosional remnants of younger volcanic rocks including late Cretaceous andesitic volcanics of the Kasalka Group, felsic volcanics of the early Tertiary Ootsa Lake Group and mid Tertiary basalts of the Buck Creek Group overlie older sequences north and south of the Lucky Ship property.

The volcanic and sedimentary rocks underlying much of the Morice Lake-Nanika Lake area are intruded by a variety of plutonic rocks. Oldest of these are quartz monzonite, granodiorite and quartz diorite of the early Jurassic Topley Plutonic Suite and lesser granitic rocks of Mid-Jurassic age which border Morice Lake and occupy the axis of the Skeena Arch (Figure 4). Granitic rocks of similar age have been recognized further to the northeast in the vicinity of Babine Lake (Carter, 1981). Smaller porphyritic granodiorite and quartz monzonite stocks and plugs of the Late Cretaceous Bulkley Plutonic Suite and porphyritic quartz monzonite, hornblende-quartz-biotite-feldspar porphyry and granite porphyry of the early Tertiary (Eocene) Nanika Plutonic Suite cut older rocks north and south of Morice Lake (Figure 5). The pluton hosting the Lucky Ship molybdenum deposit is part of the Nanika Plutonic Suite.

This part of west-central British Columbia is well known for its number and variety of mineral deposits. Foremost among these are porphyry copper and molybdenum deposits which have been the focus of most exploration programs over the past 40 years. These porphyry deposits are related to granitic intrusions of three principal ages including those of the Eocene Nanika Plutonic Suite which host molybdenum and copper-molybdenum mineralization in a 300 kilometre long belt extending from north of Hazelton (Mount Thomlinson Mo prospect) south to Tweedsmuir Park and include such porphyry prospects as Big Onion copper-molybdenum, Lucky Ship molybdenum, Berg copper-molybdenum and Red Bird molybdenum.

Examples of porphyry deposits in the general area which are associated with granitic rocks of different ages include the Huckleberry porphyry copper-molybdenum deposit of late Cretaceous age (Bulkley Plutonic Suite) which is some 45 kilometres southeast of the Lucky Ship property. Huckleberry is currently being mined by open-pit methods by Imperial

Metals Corporation at a rate of 20,000 tonnes per day. Between 1997 and 2005, a total of 57.6 million tonnes were milled from which 280,000 tonnes copper, 3,300 tonnes molybdenum, and 924 kg. gold and 26,000 kg. silver were recovered. Reported reserves/resources in early 2006 (Imperial Metals AIF on SEDAR; NI 43-101 compliant) for the East Zone were 12.25 million tonnes grading 0.526% copper and 0.015% molybdenum.

Another producing property 160 kilometres east of Lucky Ship is the Endako porphyry molybdenum deposit, another open pit mine owned by Thompson Creek Mining Ltd. This deposit, is hosted by granitic rocks of the Francois Lake Plutonic Suite of late Jurassic age. Daily milling rate was 26,000 tonnes per day and between 1965 and 2005, Placer Dome Inc., and later Thompson Creek Mining Ltd. processed 308.6 million tonnes from which 210.3 million kilograms molybdenum were recovered. Reserves/resources are reported to include 74.0 million tonnes of proven and probable reserves grading 0.063% molybdenum and an indicated mineral resource of 51.8 million tonnes grading 0.070% molybdenum.

The Davidson (formerly Yorke-Hardy or Glacier Gulch) porphyry molybdenum deposit, located under Hudson Bay Mountain 5 kilometres west of Smithers and 90 kilometres north of the Lucky Ship Property, is related to a multiple phase intrusion of the Bulkley Plutonic Suite. The deposit hosts measured and indicated resources (NI 43-101 compliant) of 230 million tonnes grading 0.11% Mo at a cutoff grade of 0.06% Mo. The deposit also includes higher grade mineralization and Blue Pearl Mining Ltd. is investigating the feasibility of an underground mining operation.

#### 6.2 Property Geology and Mineralization

The geology of the Lucky Ship Property is shown in Figure 6 which is based on geological work undertaken by T.J. R. Godfrey (1967) and A. Sutherland Brown (1966). Intrusive rocks on the Lucky Ship Property are well exposed in outcrop, in trenches and road cuts and in creeks on the ridge between Morice Lake and Nanika River and are part of the regionally extensive, Early Tertiary Nanika Plutonic Suite as initially described by the writer (Carter, 1981) and Desjardins et al (1991). This writer (Carter, 1981) obtained a potassium/argon radiometric age date of 49.9 +/- 2.3 million years from a sample of biotite hornfels collected marginal to the northern contact of the Lucky Ship pluton.

The following descriptions are based on published (Sutherland Brown, 1966) and unpublished (Godfrey, 1967; McMillan, 2005, 2006) reports and personal observations.

As indicated on Figure 6, the  $1000 \times 600$  metres Lucky Ship high level (subvolcanic), composite pluton is elongate in a northwesterly direction and intrudes Lower Jurassic volcanic and lesser sedimentary rocks of the Hazelton Group, which, as previously noted,

have been converted to biotite hornfels marginal to the intrusion. The pluton is made up of several intrusive phases of which the oldest and most areally extensive is the central quartz porphyry of rhyolite or granite composition. This is a white aphanitic rock with sparse quartz, K-feldspar and plagioclase feldspar phenocrysts set in a very fine-grained quartz and feldspar matrix. The southernmost part of this intrusive phase consists of dykes and sills cutting Hazelton group rocks and northerly-trending dykes also project from the northern contact (Figure 6).

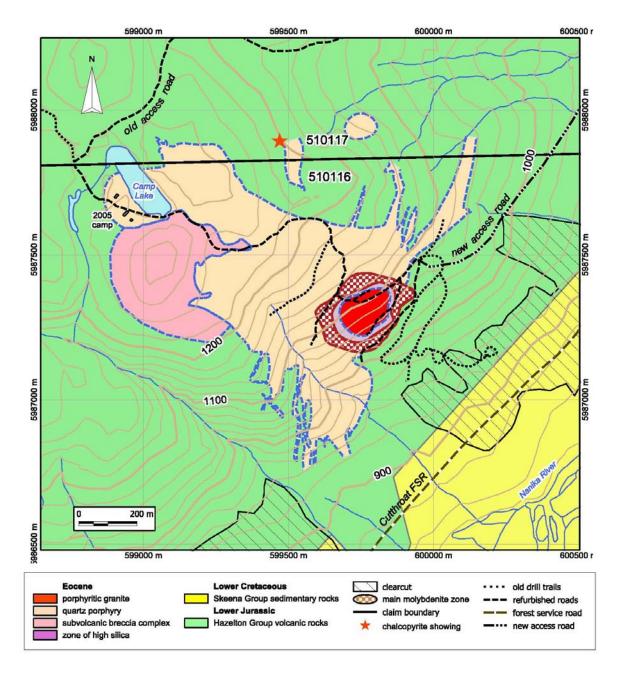


Figure 6. Property geology (after Godfrey, 1967)

The main, annular molybdenite zone is related to a subcircular, 200 x 120 metres porphyritic granite plug which is elongate in a northeasterly direction and intrudes the southeastern limits of the central quartz porphyry unit (Figure 6). Unaltered varieties of the granite feature plagioclase, quartz and K-feldspar phenocrysts in an aphanitic matrix. The elongate plug is enveloped by a 30 metres wide, highly silicified zone which is in part gradational outward to brecciated and hornfelsed Hazelton Group rocks. The granite plug dips steeply north and based on 1960s drilling is thought to extend from surface to a depth of at least 350 metres. A quartz monzonite porphyry intrusion was intersected in hole LS06-68 at a depth of 750 metres below surface and this intrusion is interpreted to be a coarser grained equivalent of the granite porphyry.

The northwestern half of the composite Lucky Ship pluton includes two breccia phases. One of these is an intrusive quartz porphyry breccia complex containing up to 70% rounded fragments of material petrographically similar to the central quartz porphyry. The breccia fragments include both quartz porphyry and wallrock (Hazelton Group) and are up to 10 centimetres in diameter.

A circular, subvolcanic breccia body measuring 250 to 300 metres in diameter makes up the southwestern part of the Lucky Ship pluton (Figure 6). Thought to be at least in part extrusive, this unit is interpreted as being the latest (and possibly post-mineral) phase of Lucky Ship pluton. Breccia fragments include quartz porphyry and hornfelsed Hazelton group volcanic rocks plus exotic clasts of non-hornfelsed volcanic and sedimentary rocks.

The southeastern contacts of the Lucky Ship pluton are irregular and feature a number of dyke offshoots which parallel bedding attitudes in the Hazelton Group sequences marginal to the pluton. By contrast, the breccia complexes in the northwestern part of the pluton crosscut structures in Hazelton group rocks.

Fault zones within and marginal to the Lucky Ship pluton, which postdate the intrusion, have not appreciably offset intrusive contacts. These are usually present as gouge zones extending over several metres in drill holes and some of these caused problems with some of the 1960s drilling.

#### 6.3 Molybdenite mineralization

The main molybdenite zone, as illustrated on Figure 6 is contained within a 300 x 200 metres, concentric, annular zone or shell surrounding the porphyritic granite plug near the southeastern margin of the Lucky Ship pluton. Like the central granite pluton, the annular molybdenite zone is elongate in a northeasterly direction and is subvertical with an apparent steep northerly dip or plunge. The zone extends outward from the 3 to 30 metres thick high

silica zone surrounding the granite plug into the central quartz porphyry unit on its north, west and south sides and into hornfelsed Hazelton Group volcanic sequences to the southeast.

Where exposed on surface, molybdenum mineralization occurs in up to 60 centimetres wide, banded quartz-molybdenite veins separated by several metres of barren quartz porphyry or Hazelton Group hornfelsed volcanic rocks. These veins appear to be radial with respect to the porphyritic granite plug and grade inward to a well developed quartz and quartz-molybdenite vein and veinlet stockwork. This stockwork varies from a well defined zone up to 60 metres wide in quartz porphyry in the north and northwest parts of the annular zone to a broader, more irregular zone, up to 125 metres thick in the southwestern part of the zone. Zone widths in the southeastern part of the annular structure are between 25 and 60 metres.

Molybdenite  $(MoS_2)$  within the annular zone is fine-grained and several styles of mineralization have been noted. These include molybdenite along narrow, dry fractures without quartz, quartz molybdenite veins and veinlets with preferred orientations and/or randomly oriented stockworks, banded quartz-molybdenite veins up to several centimeters wide, and very fine –grained molybdenite in fine-grained silica.

Other styles of molybdenite mineralization have been noted outside the main annular zone. These include finely disseminated molybdenite in fine-grained quartz porphyry southwest of the main zone. This disseminated mineralization was accompanied by poorly developed quartz stockwork mineralization. Within the intrusive quartz porphyry breccia in the northern part of the pluton, molybdenite occurs as fine disseminations in very fine-grained silica rock, as coatings on dry hairline fractures and in several different ways in quartz porphyry fragments. Molybdenite mineralization in breccia fragments was encountered throughout a deep hole (65-5 - 831.4 metres) completed by Amax Exploration in the mid-1960s.

The Lucky Ship pluton and related molybdenum mineralization feature many of the characteristics described as being typical of porphyry molybdenum deposits by Wallace et al (1968 and 1978), Soregaroli and Sutherland Brown (1976), and Sinclair (1995a and b).

Porphyry molybdenum deposits worldwide are relatively low-grade deposits that are amenable to either open pit or underground bulk mining techniques. The deposits are associated with high-level to subvolcanic felsic intrusive centers, and usually feature multiple stages of intrusive activity. Mineralization is almost exclusively molybdenite, which may be accompanied by minor amounts of chalcopyrite, scheelite, huebnerite, wolframite, cassiterite, and other sulphide minerals as well as fluorite and anhydrite. Molybdenum mineralization occurs in quartz veinlet stockworks associated with intensely silicified rock, and in veins, sheeted veins, breccias and as disseminations in pervasively silicified rock.

Silicification is the most common alteration product in porphyry molybdenum deposits and is best developed in the core of the mineralizing system. Potassic alteration, in the form of K-feldspar and/or secondary biotite is also an important alteration type. Phyllic (clay-sericite) alteration may surround or be superimposed on a high silica – potassic core and be replaced outward by propylitic (chlorite-epidote) alteration. These hydrothermal alteration envelopes are often extensive and commonly contain several percent pyrite which are referred to as pyrite haloes. Volcanic and sedimentary rocks marginal to host granitic intrusions may be converted to biotite hornfels by contact metamorphism. Breccias are a common component of porphyry systems and contain fragments of earlier, sometimes mineralized phases.

Porphyry molybdenum deposits vary in shape from an inverted cup to cylindrical or annular and sometimes elongate and highly irregular. As noted, most deposits feature multiple episodes of intrusion and associated hydrothermal alteration and some of the larger deposits, including Climax and Urad-Henderson in Colorado, feature two or more stacked ore bodies.

### 7 Biogeochemical Orientation Survey

Biogeochemical sampling is a well established technique in mineral exploration especially in glacially covered areas (Dunn, 2007). Therefore, it was decided to do an orientation survey at Lucky Ship to determine if this technique would be effective in detecting subsurface Mo mineralization. In October 2016 a total of 12 bark samples (LS16-001 to LS16-012) were collected from pine trees within and peripheral to the known subsurface extent of the Lucky Ship Mo deposit. These samples were collected by D.G. MacIntyre and were shipped to Bureau Veritas Laboratories in Vancouver B.C. for ashing, aqua regia digestion and ICP-MS multielement analyses. The purpose of this survey was to demonstrate the applicability of tree bark as a sampling medium for detecting subsurface molybdenum mineralization.

#### 7.1 Sample Preparation, Analyses and Security

Biogeochemical samples were collected by scraping the outermost layer of 'dead' bark from trees with a modified dust pan held below to catch the scrapings. Care was taken not to sample the live inner bark, and to clean the sampling equipment between stations. The scrapings were placed in labelled Kraft paper bags.

All sample sites were marked in the field with an aluminum metal tag with the sample number engraved by pen onto the surface of the tag. The tags were nailed onto the trees that were sampled. Field notes for each sample site were recorded in a notebook and later transferred to an Excel spreadsheet. Sample location coordinates were recorded using a Garmin GPSmap 60Cx GPS. As a backup, waypoints were also recorded with the field notes. The Garmin UTM coordinates for each station were downloaded to a notebook computer and cut and paste into the sample description database.

Concentration of the bark samples by ashing was undertaken prior to analysis. This was done to allow a larger, more representative sample size to be analyzed, as ashing reduces the sample volume and weight by an average factor of about 50x. This weight reduction effectively concentrates the sample and allows for the detection of elements in the bark that are at or below the detection limits of the instrumentation. There are several downfalls of ashing samples as a preparation procedure. The first is that many trace elements, including arsenic and mercury, are volatilized, and driven off in the exhaust of the oven. Ashing also adds a step to the analytical procedure which ultimately carries with it a source of error. In addition, the degree of concentration from ashing is highly variable, based on the density of the organic matter in the original sample. Therefore, before interpretation of the results can be carried out, the ash assay values must be levelled back to a dry bark equivalent, by the following formula:

Dry Bark Equivalent (DBE) = Ash Assay Value x <u>wt. after ashing (ash)</u> wt. before ashing (dry bark)

The bark samples from phase one were ashed by the following procedure:

#### Weight after ashing (ash)

- 1. A representativ Weight before ashing (dry bark) e aliquot (enough to fill a 150-mL beaker) was transferred onto a clean mixing surface.
- 2. Larger pieces were broken, by hand, into smaller pieces (approx 1cm in length).
- 3. Samples were mixed thoroughly and transferred to a weighed 150-mL glass beaker.
- 4. The Beaker & Sample was weighed and placed in a muffle furnace at room temperature.
- 5. Set furnace temperature at 250-300°C and turn on the furnace.
- 6. Gently, open furnace door at  $\frac{1}{2}$  hour intervals to allow air into the furnace.

- **7.** After 1<sup>1</sup>/<sub>2</sub> hours, increase temp to 350°C and continue heating until samples are completely charred (about 2<sup>1</sup>/<sub>2</sub> to 3 hours).
- 8. Increase temp to 550 °C and continue heating until ashing is complete.

A 0.25 g sample of ash is then digested under heat in an aqua regia solution. Following digestion, the sample was made up to volume with deionized water. The sample solution was then analyzed by both ICP-AES and ICP-MS.

Sample	Easting	Northing	Elevation (m.)	Species	Health	Tree Diameter (cm.)	Slope	Moisture	Rooted in
LS16-001	599874	5987415	1097	pine	live	59	steep	dry	sub- crop
LS16-002	599792	5987369	1103	pine	live	84	moderate	dry	sub- crop
LS16-003	599689	5987331	1121	pine	live	104	moderate	moderate	till
LS16-004	599679	5987391	1142	pine	dead	101	gentle	moderate	till
LS16-005	599738	5987446	1143	pine	dead	79	gentle	dry	outcrop
LS16-006	599851	5987538	1143	pine	dead	120	gentle	dry	orange soil
LS16-007	599640	5987392	1147	pine	live	67	steep	dry	outcrop
LS16-008	599573	5987338	1150	pine	live	88	steep	dry	till, talus
LS16-009	599531	5987329	1154	pine	dead	102	moderate	moderate	till
LS16-010	599613	5987303	1128	pine	live	106	steep	moderate	till
LS16-011	599613	5987303	1128	pine	live	106	steep	moderate	till
LS16-012	599540	5987212	1098	pine	dead	108	moderate	dry	til

Table 3. Tree bark samples collected in October, 2016

Due to the reduction in accuracy caused by sample ashing as discussed above, future sampling will skip the ashing procedure and instead directly analyze the dry bark. Although modern ICP-MS instruments are able to detect trace metals at very low levels, certain

elements, mostly the precious metals, are below detection limits and are often not distinguished when analyzing the dry vegetation. Molybdenum however, which is the main element of interest is still well above the detection limit in dry bark and it is on this basis that the decision was made to sacrifice the detection of gold and silver to achieve a much higher accuracy in the molybdenum values for the next phase of the survey.

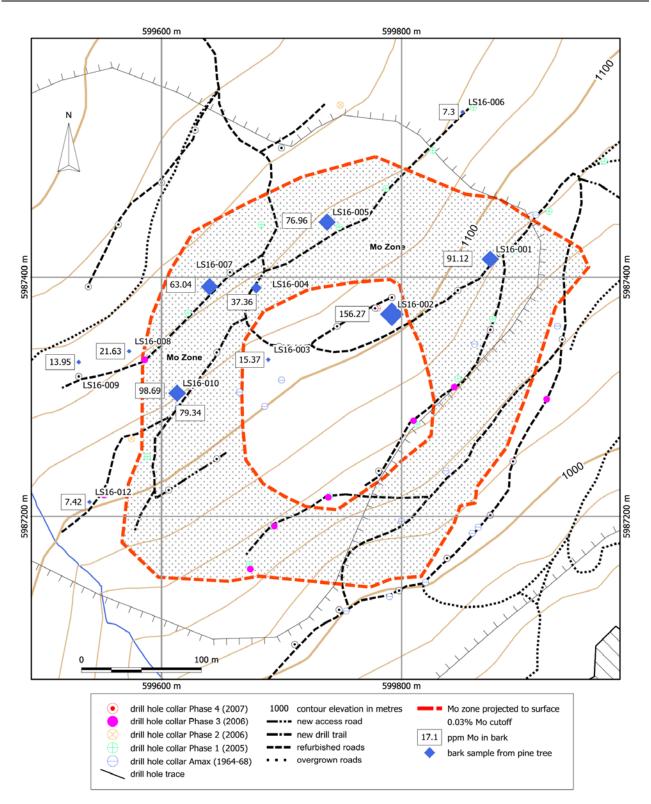


Figure 7. Location and analytical results for Mo in ashed pine tree bark samples, Lucky Ship Mo deposit. Symbol size is proportional to Mo concentration.

#### 7.2 Analytical Results

A total of 12 bark samples (LS16-001 to LS16-012) were collected from pine trees within and peripheral to the known subsurface extent of the Lucky Ship Mo deposit. Sample details are given in Table 3 and sample locations are shown in Figure 7. Analyical results are summarized in Tables 4 and 5. Original analytical certificates are included in Appendix A.

Sample	Pre Ash g.	Ashed g.	ash wt Mo ashed		Dry Bark Equiv.
			dry bark wt.	(ppm)	(DBE)
LS16-006	41.481	0.857	0.02066	7.3	0.15
LS16-012	29.228	0.865	0.029595	7.42	0.22
LS16-009	33.399	0.665	0.019911	13.95	0.28
LS16-003	24.308	0.725	0.029826	15.37	0.46
LS16-008	34.837	1.118	0.032092	21.63	0.69
LS16-004	27.737	0.602	0.021704	37.36	0.81
LS16-007	21.352	0.476	0.022293	63.04	1.41
LS16-005	26.678	0.604	0.02264	76.96	1.74
LS16-010	21.422	0.474	0.022127	79.34	1.76
LS16-001	32.925	0.962	0.029218	91.12	2.66
LS16-011	17.576	0.378	0.021507	98.69	2.12
LS16-002	26.549	0.708	0.026668	156.27	4.17

 Table 4. Summary of Mo concentrations in ashed bark samples

Table 5. Summary of Analytical Results for ashed tree bark samples

Sample	Mo PPM	Cu PPM	Zn PPM	Ag PPB	Cd PPM	Ba PPM	Sr PPM	Mn PPM
LS16-001	91.12	98.04	992.6	237	24.62	1066.3	429.2	3150
LS16-002	156.27	116.7	1388.4	162	43.92	543.1	475.5	4868
LS16-003	15.37	90.42	1277.8	189	60.42	966.7	369.8	5908
LS16-004	37.36	150.52	2663	443	60.38	869.3	531.8	>10000
LS16-005	76.96	173.63	2154.4	1084	66.04	887.5	413.8	7076
LS16-006	7.3	115.57	1868.6	2391	43.56	1052.4	850.5	3865
LS16-007	63.04	123.31	2043.3	1437	75.62	1804.2	567	9334
LS16-008	21.63	76.79	710.7	114	26.2	568.5	563.2	2436
LS16-009	13.95	116.94	1594.1	322	23.64	605.2	415	5120
LS16-010	79.34	117.14	2861.8	5127	203.44	1718.1	737.4	6896
LS16-011	98.69	132.51	2952.7	4985	216.87	1694.3	702.4	7682
LS16-012	7.42	89.39	2089.5	381	84.89	1078.7	432.6	6517



*Photo 2. Sample site LS16-002. Note reddish area of bark scraping around metal sample tag. Ashed bark from this pine tree returned 156.27 ppm Mo.* 

### 8 Interpretation and Conclusions

The purpose of the work done in 2016 was to demonstrate the applicability of tree bark as a sampling medium for detecting subsurface molybdenum mineralization. The analytical

results showed that bark from pine trees located above the Lucky Ship deposit had concentrations ranging from 37.36 to 156.24 ppm Mo whereas those collected away from the deposit had much lower Mo concentrations ranging from 7.3 to 21.63 ppm Mo (Figure 7, Table 4). Other elements, such as Cu, Zn, Ag, Cd, Ba, Sr and Mn were also concentrated in the ashed bark samples but there is only a weak correlation with Mo values (Table 5). Based on these results it is concluded that sampling of pine tree bark is an effective tool in detecting subsurface Mo mineralization at Lucky Ship.

### 9 Recommendations

It is recommended that additional sampling be done especially in covered areas away from the main deposit where there may be additional zones of subsurface Mo mineralization that have not been previously detected. One of the primary target areas for future sampling should be downslope and east of the deposit. There may be a north trending listric normal fault along the eastern slope of Nanika Ridge that formed in Eocene time during a regional extensional event. It is possible that east of the deposit is a graben and within the graben is a downdropped and rotated fault block that contains the upper part of the Lucky Ship deposit. Tree bark sampling may be effective in detecting subsurface Mo mineralization in this covered area.

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### **11 Statement of Qualifications**

I, Donald George MacIntyre, Ph.D., P.Eng., do hereby certify that:

- 1. I am an independent consulting geologist providing services through D.G. MacIntyre and Associates Ltd. a wholly owned company incorporated December 10, 2004 in the Province of British Columbia (registration no. BC0710941). My residence and business address is 4129 San Miguel Close, Victoria, British Columbia, Canada, V8N 6G7.
- 2. I graduated with a B.Sc. degree in geology from the University of British Columbia in 1971. In addition, I obtained M.Sc. and Ph.D. degrees specializing in Economic Geology from the University of Western Ontario in 1975 and 1977 respectively.
- 3. I have been registered with the Association of Professional Engineers and Geoscientists of British Columbia since September, 1979, registration number 11970.
- 4. I have practiced my profession as a geologist, both within government and the private sector, in British Columbia and parts of the Yukon for over 35 years. Work has included detailed geological investigations of mineral districts, geological mapping, mineral deposit modeling and building of geoscientific databases. I have directly supervised and conducted geologic mapping and mineral property evaluations, published reports and maps on different mineral districts and deposit models and compiled and analyzed data for mineral potential evaluations.

Dated this 23rd day of June, 2017



D.G. MacIntyre, Ph.D. P.Eng.

## **12 Statement of Expenditures**

Exploration Work type	Comment	Days			Totals
Personnel	Field/Travel Days	Days	Rate	Subtotal*	
D. MacIntyre - geologist	October 6-12, 2016	5	\$700.00	\$3,500.00	
J. MacIntyre - field assistant	October 6-12, 2016	5	\$350.00	\$1,750.00	
		-		\$5,250.00	\$5,250.00
Office Studies	Personnel				· ·
Report preparation	D. MacIntyre	2.5	\$700.00	\$1,750.00	
				\$1,750.00	\$1,750.00
Geochemical Surveying	Number of Samples	No.	Rate	Subtotal	
Biogeochemistry	Bark samples	12.0	\$32.82	\$393.80	
				\$393.80	\$393.80
Transportation		No.	Rate	Subtotal	
BC Ferries - Oct. 6	Swartz Bay to Tsawwassen			\$93.67	
BC Ferries - Oct. 12	Tsawwassen to Swartz Bay			\$76.05	
truck "mileage" @\$0.60/km	Victoria-Smithers-property return	2422.00	\$0.60	\$1,453.20	
				\$1,622.92	\$1,622.92
Accommodation & Food	Rates per day				
Hotel - Prince George -Oct. 6				\$88.11	
Hotel - Cache Creek - Oct. 11				\$74.26	
Meals	daily rate per person day	10.00	\$60.00	\$600.00	
				\$762.37	\$762.37
Freight, rock samples		_		\$16.45	_
				\$16.45	\$16.45

TOTAL Expenditures

\$9,795.54

## **Appendix A. Analytical Certificates**



MINERAL LABORATORIES Canada

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158

### CERTIFICATE OF ANALYSIS

#### **CLIENT JOB INFORMATION**

Project:	None Given
Shipment ID:	
P.O. Number	
Number of Samples:	13

#### SAMPLE DISPOSAL

DISP-PLP	Dispose of Pulp After 90 days
DISP-RJT	Dispose of Reject After 90 days

Bureau Veritas does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

D.G. MacIntyre & Associates Ltd. Invoice To: 4129 San Miguel Close Victoria British Columbia V8N 6G7 Canada

CC:

This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only.

"\*" asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

Re er Re Re 16

### VAN16002040.1

#### Number of Procedure **Code Description** Test Report Lab Code Samples Wgt (g) Status BAT01 1 Batch charge of <20 samples VAN VA475 13 Vegetation Ashing at 475 50 Completed VAN Split Ash from VA475 13 Analysis sample split/packet VAN VG104 13 1:1:1 Aqua Regia Digestion - Ultratrace ICP-MS analysis 0.5 Completed VAN DRPLP 13 Warehouse handling / disposition of pulps VAN DRRJT 13 Warehouse handling / Disposition of reject VAN

#### **ADDITIONAL COMMENTS**



#### Client: D.G. MacIntyre & Associates Ltd.

4129 San Miguel Close Victoria British Columbia V8N 6G7 Canada

Submitted By:	Don MacIntyre
Receiving Lab:	Canada-Vancouve
Received:	October 24, 2016
Report Date:	November 18, 201
Page:	1 of 2

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

												Clier	nt:	4129	San Mig	uel Close	<b>8 &amp; As</b> e ia V8N 60			l.	
B U R E A U V E R I T A S	MINERAL LABORATOR Canada	RIES		www	.burea	uverita	s.com/	um				Project: None Given									
Bureau Veritas	Commodities Canada Lt	d.										Repor	t Date:	Nove	mber 18	, 2016					
9050 Shaughn PHONE (604) 3	essy St Vancouver Britis 253-3158	h Colum	ibia V6I	P 6E5 (	Canada							Page:		2 of 2	2				Pa	art: 1	of 2
CERTIF	ICATE OF AN	JALY	′SIS													VA	AN16	6002	2040	.1	
	Method	VA475	VA475	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104
	Analyte	e Ash Wtus	shed Wt	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	v
	Unit	g	g	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.001	0.001	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	2
LS16-001	Vegetation	32.925	0.962	91.12	98.04	14.37	992.6	237	10.2	2.8	3150	0.45	1.3	0.2	3.1	0.3	429.2	24.62	0.33	0.40	10

162

189

443

1084

2391

1437

114

322

5127

4985

381

907

19.1

11.4

22.5

26.6

22.5

11.7

5.8

14.5

10.6

12.9

7.6

15.6

4868

5908

7076

3865

9334

2436

5120

6896

7682

6517

0.8 >10000

8.3 >10000

0.31

0.28

0.37

0.23

0.12

0.27

0.12

0.14

0.28

0.28

0.14

0.44

1.6

2.0

1.1

1.9

0.6

1.4

0.8

0.9

1.2

1.5

0.8

2.8

<0.1

< 0.1

0.2

<0.1

<0.1

<0.1

<0.1

<0.1

0.1

0.1

1.8

<0.1

0.9

0.8

0.7

5.3

1.3

1.4

1.7

1.9

6.3

1.0

1.1

1.3

5.5

3.7

5.5

4.8

2.7

3.5

3.3

4.3

5.0

4.3

475.5

369.8

531.8

413.8

850.5

567.0

563.2

415.0

432.6

618.5

0.1

0.2

0.2

0.1

<0.1

0.1

<0.1

0.1

0.2

0.2

<0.1

0.8

43.92

60.42

60.38

66.04

43.56

75.62

26.20

23.64

84.89

0.24

737.4 203.44

702.4 216.87

0.36

0.19

0.24

0.44

0.15

0.24

0.19

0.30

0.46

0.48

0.26

1.44

0.09

0.03

0.06

0.06

0.03

0.05

0.03

0.06

0.09

0.08

0.05

0.16

0.708 156.27 116.70

15.37

21.63

7.42

2.60

37.36 150.52

76.96 173.63

7.30 115.57

63.04 123.31

13.95 116.94

79.34 117.14

98.69 132.51

90.42

76.79

89.39

46.53

14.81 1388.4

11.51 1277.8

9.10 2663.0

16.05 2154.4

5.38 1868.6

11.16 2043.3

9.83 1594.1

16.34 2861.8

17.86 2952.7

7.28 2089.5

8.37 1602.8

710.7

5.93

LS16-002

LS16-003

LS16-004

LS16-005

LS16-006

LS16-007

LS16-008

LS16-009

LS16-010

LS16-011

LS16-012

OVEN STD-2

Vegetation

26.549

24.308

27.737

26.678

41.481

21.352

34.837

33.399

21.422

17.576

29.228

30.874

0.725

0.602

0.604

0.857

0.476

1.118

0.665

0.474

0.378

0.865

0.885



	Method	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104	VG104
	Analyte	Ca	Р	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Sc	ті	S	Se	Те	Ga
	Unit	%	%	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	0.01	0.001	0.5	0.5	0.01	0.5	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	0.1	0.02	0.1
LS16-001	Vegetation	30.83	0.680	1.9	6.6	0.73	1066.3	159	121	1.69	0.092	1.73	0.2	1.7	0.04	0.33	0.8	0.04	1.4
LS16-002	Vegetation	29.27	0.785	1.4	3.3	1.33	543.1	123	148	2.77	0.072	1.81	<0.1	1.3	0.11	0.40	0.3	0.05	1.0
LS16-003	Vegetation	31.91	0.703	1.2	5.4	0.91	966.7	127	242	2.00	0.111	2.24	<0.1	1.7	0.10	0.44	<0.1	0.05	1.1
LS16-004	Vegetation	27.47	0.856	1.7	5.7	2.37	869.3	157	286	2.64	0.119	4.06	<0.1	1.9	0.17	0.58	0.1	0.05	1.3
LS16-005	Vegetation	27.22	1.064	1.2	7.8	1.72	887.5	111	184	2.64	0.111	7.27	<0.1	1.1	0.04	0.71	0.8	0.04	0.9
LS16-006	Vegetation	31.39	0.738	1.0	2.3	1.49	1052.4	60	252	5.43	0.057	2.53	<0.1	0.8	0.06	0.18	0.5	0.04	0.5
LS16-007	Vegetation	31.13	0.830	1.2	3.2	0.96	1804.2	106	200	3.09	0.081	1.99	<0.1	1.5	0.08	0.62	<0.1	0.06	1.0
LS16-008	Vegetation	35.21	0.414	0.8	3.3	0.48	568.5	51	116	2.25	0.053	0.68	<0.1	0.8	0.06	0.08	0.2	0.05	0.5
LS16-009	Vegetation	29.24	0.901	0.9	3.1	1.67	605.2	71	211	4.28	0.125	2.88	<0.1	0.9	0.06	0.41	0.5	0.02	0.6
LS16-010	Vegetation	30.11	0.887	1.6	14.4	1.36	1718.1	115	152	3.89	0.137	1.96	0.1	1.7	0.07	0.76	<0.1	0.03	1.1
LS16-011	Vegetation	29.73	0.955	1.7	10.3	1.74	1694.3	122	200	4.01	0.127	2.36	0.2	1.7	0.05	0.80	0.5	0.04	1.2
LS16-012	Vegetation	30.31	0.746	0.7	2.1	1.65	1078.7	79	123	2.10	0.056	2.69	<0.1	1.0	0.06	0.25	0.2	0.03	0.7
OVEN STD-2	Vegetation	24.31	2.837	1.4	25.6	2.36	245.9	131	348	0.14	0.113	9.59	1.1	1.4	0.24	0.77	<0.1	0.04	1.2

**Client:** D.G. MacIntyre & Associates Ltd. 4129 San Miguel Close Victoria British Columbia V8N 6G7 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: VERITAS Canada None Given Report Date: November 18, 2016 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 1 of 1 Part: 1 of 2 Page: QUALITY CONTROL REPORT VAN16002040.1 Method VA475 VA475 VG104 Analyte Ash Wt\shed Wt Zn Ni Co Мо Cu Pb Ag Mn Fe As U Au Th Sr Cd Sb Bi Unit % g g ppm ppm ppm ppm ppb ppm ppm ppm ppm ppm ppb ppm ppm ppm ppm ppm ppm 2 0.02 MDL 0.001 0.001 0.01 0.01 0.01 0.1 0.1 0.1 1 0.01 0.1 0.1 0.2 0.1 0.5 0.01 0.02 Pulp Duplicates LS16-008 Vegetation 34.837 1.118 21.63 76.79 5.93 710.7 114 5.8 3.5 2436 0.12 0.8 <0.1 1.7 <0.1 563.2 26.20 0.19 0.03 **REP LS16-008** QC 22.40 78.21 5.57 709.4 113 6.1 3.0 2370 0.12 0.4 <0.1 1.4 < 0.1 526.7 26.55 0.16 0.03 **Reference Materials** STD ASH-1 Standard 0.78 78.50 9.08 178.8 126.4 17.7 1165 2.24 4.1 0.7 3.6 4.1 981.1 0.31 0.12 0.13 49 39 STD DS10 41 148.47 70.5 12.9 2.66 44.2 51.6 Standard 13.86 148.12 364.8 1600 865 2.6 7.4 72.1 2.82 7.38 13.13

49

43

<2

0.84

13.6

< 0.01

73

154.61

< 0.01

8.83

150.55

< 0.01

175

370

<0.1

35

<2

2020

133

74.6

<0.1

17.2

12.9

<0.1

1134

<1

2.28

< 0.01

875 2.7188

4.1

46.2

<0.1

0.6

2.59

<0.1

5

91.9

<0.2

3.7

7.5

<0.1

944

67.1

<0.5

0.27

2.62

0.03

0.17

< 0.02

9

0.13

11.65

< 0.02

STD ASH-1 Expected

STD DS10 Expected

Blank

BLK

Client: D.G. MacIntyre & Associates Ltd. 4129 San Miguel Close Victoria British Columbia V8N 6G7 Canada **BUREAU** MINERAL LABORATORIES www.bureauveritas.com/um Project: VERITAS Canada None Given Report Date: November 18, 2016 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 Page: 1 of 1 Part: 2 of 2 QUALITY CONTROL REPORT VAN16002040.1 Method VG104 VG104

	Analyte	Ca	Р	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Sc	ті	S	Se	Те	Ga
	Unit	%	%	ppm	ppm	%	ppm	ppm	ppm	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	0.01	0.001	0.5	0.5	0.01	0.5	1	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	0.1	0.02	0.1
Pulp Duplicates																			
LS16-008	Vegetation	35.21	0.414	0.8	3.3	0.48	568.5	51	116	2.25	0.053	0.68	<0.1	0.8	0.06	0.08	0.2	0.05	0.5
REP LS16-008	QC	34.52	0.416	0.7	3.0	0.45	552.8	45	106	2.16	0.050	0.66	<0.1	0.8	0.06	0.08	0.1	0.04	0.4
Reference Materials																			
STD ASH-1	Standard	17.52	0.241	14.0	146.7	2.01	107.7	211	322	3.01	0.598	1.25	<0.1	9.7	0.13	0.38	0.3	0.06	7.0
STD DS10	Standard	0.98	0.082	18.1	51.5	0.76	430.9	831	20	1.04	0.072	0.32	2.6	3.2	4.80	0.26	2.0	4.66	4.8
STD ASH-1 Expected		18.54	0.24	12.8	159	1.91	94.5	200	294	2.95	0.55	1.17	0	8.5	0.12	0.41	0.5	0.06	6.1
STD DS10 Expected		1.0625	0.0765	17.5	54.6	0.775	412	817		1.0259	0.067	0.338	3.32	2.8	5.1	0.29	2.3	5.01	4.3
BLK	Blank	<0.01	<0.001	<0.5	<0.5	<0.01	<0.5	<1	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<0.1	<0.02	<0.1