

Ministry of Energy & Mines Energy & Minerals Division

Geological Survey Branch

# T COLORAL SHIEL

# ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)] Prospecting and Geological Mapping Re	eport <b>TOTAL COST</b> \$19, 250.86
AUTHOR(S)Jim_Chapman	SIGNATURE(S)
NOTICE OF WORK PERMIT NUMBER(S)/DATE(S)	N/A YEAR OF WORK 2009
STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S	3) 4386288 / October 27, 2009
PROPERTYNAME Robb Lake	
CLAIM NAME(S) (on which work was done) 509595, 537804	
COMMODITIES SOUGHTPb , Zn	
MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN 094B	005
MINING DIVISION Liard	NTS_94B/13E BCGS: 094B092
LATITUDE 56 0 56 . 01 " LONGITUDE	o42 51" (at centre of work)
OWNER(S)	
1) Selkirk Metals Corp.	_ 2)
MAILING ADDRESS	
200-580 Hornby Street	
Vancouver, BC V6C 3B6	
OPERATOR(S) [who paid for the work]	
1)Selkirk Metals Corp.	_ 2)
MAILING ADDRESS	
200-580 Hornby Street	
Vancouver, BC V6C 3B6	
PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure	re, alteration, mineralization, size and attitude):
The property is located within a N-NW	trending belt of Paleozoic carbonates
and shales which outcrop in a series	of thrust slices. Zn-Pb occurrences ar
contained within a massive dolostone	thought to be Devonian in age and
generally referred to as the Pine Poi	nt Formation.
	NT REPORT NUMBERS 04554, 05313, 05705.
08392, 09374, 10707, 28060	

TYPE OF WORK IN	EXTENT OF WORK		PROJECT COSTS
	(IN METRIC UNITS)	ON WHICH CLAIMS	APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping <u>1:5000 /</u>	4 square km	509595, 537804	\$ 9,576.18
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL			
(number of samples analysed for)			
Soil			
Silt			
Rock 5 / Acme Group /	AR (26 element)	509595, 537804	\$ 9,576.18
Other			
DRILLING (total matres: number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaving Acme Labs	s Group 7AR	509595, 537804	98.50
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric			
(scale, area)			
Legal surveys (scale, area)	·····		
Road, local access (kilometres)/trail _			
Trench (metres)			
Underground dev. (metres)			
Other	· · · · · · · · · · · · · · · · · · ·		
		TOTAL COS	T \$19,250.86

# PROSPECTING AND GEOLOGICAL MAPPING

ASSESSMENT REPORT

on the

# **ROBB LAKE LEAD-ZINC DEPOSIT**

TENURE NUMBERS 509595 and 537804

LIARD MINING DIVISION

NTS: 94 B/13E

BCGS: 094B092

Latitude 56° 56' 01" North; Longitude 123° 42' 51" West

UTM (NAD 83 - Zone 10N): 456 546 E; 6 310 208 N

DATE STARTED: AUGUST 21, 2009

DATE COMPLETED: AUGUST 28, 2009

**OWNER/OPERATOR: SELKIRK METALS CORP.** 

AUTHOR: Jim Chapman, P.Geo.

**JANUARY 21, 2010** 

BC Geological Survey Assessment Report 31318

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#### 1.0 SUMMARY

The Robb Lake property is host to Mississippi Valley Type lead and zinc mineralization located in the Rocky Mountains of northwestern British Columbia. The project is owned and operated by Selkirk Metals Corp. ("Selkirk"). This reports details the results and interpretations from a prospecting and geological mapping program conducted by Selkirk between August 21 and August 28, 2009.

All field work was helicopter supported and based out of a camp operated by Canada Zinc Metals Corp at their Akie Project. The camp is located at NAD83 coordinates of 6,351,666N, 379,432E, Elev. 943 m. The camp was managed by Nick Johnson and Gil Graham. Helicopter support was provided by Pacific Western Helicopters and the pilot was Mike MacLellan.

From the Akie camp to the Robb Lake Property is 87 km at a bearing of 118.5 degrees. The initial flyby indicated that the airstrip is probably useable with minor upgrades and that a guide, with horses present, has re-built the mining camp into a hunting camp.

The 2009 Robb Lake program was initiated to verify and evaluate the existence of Pb-Zn mineralization on the property, which Selkirk had acquired during the takeover of Doublestar Resources Ltd. ("Doublestar") in 2007. The intent of the program was to determine whether the mineralization at Robb Lake is associated with particular stratigraphic intervals or structural settings, as opposed to a classic Mississippi Valley Type, solution collapse environment. This theory was proposed by a joint Geological Association of Canada – British Columbia Geological Survey project in 1999 (BGSC OPEN FILE 2000-1).

The exploration program consisted of locating and sampling known showings, prospecting between these showings and a general study of the property structure and lithologies. All drill holes, survey points, and claim posts encountered were located with hand held GPS and compared to existing maps.



A total of 5 samples were collected of the different styles of mineralization encountered during the traverses. All samples were analysed at Acme Labs in Vancouver, BC, by ICP method 1D.

The presence of potentially stratabound mineralization would offer a much greater degree of lateral continuity for any potential deposit, as opposed to solution breccia collapse zones which are generally limited laterally but may be more extensive in the vertical dimension. Re-examination of the historical diamond drilling records has indicted that where drillholes were collared above the postulated mineralized strata, significant Zn-Pb mineralization was in fact intersected. This is consistent with the GSC-BGGS theory of mineralization emplacement.

### 2.0 INTRODUCTION

#### 2.1 Location and Access

The Robb Lake Property is located in northeastern British Columbia, 200 km northwest of Fort St. John and 200 km north of Mackenzie (Figure 2-1). The Alaska Highway passes within approximately 75 km of the property to the east-northeast. The centre of the property lies on NTS map sheet 094B/13E at approximately 56° 56' 01" North latitude; 123° 42' 51" West longitude. (UTM NAD 83, Zone 10N; coordinates 456 546 E, 6 310 208 N; BCGS 094B092)

Access to the property is afforded by fixed wing aircraft or helicopter. A 900 m long gravel airstrip is located approximately 2.5 km southeast of the main showings at the junction of Mississippi Creek and the Halfway River. This strip will require some rehabilitation before any future use could be made of it. When it was in operation, the airstrip was suitable for DC-3 aircraft. Alternatively, float planes can land on Robb Lake located 6 km west of the showings.

# 2.2 Climate, Topography and Vegetation

The Robb Lake project is located along the eastern side of the rugged Northern Rocky Mountains. Elevations on the property range from 1,300 to 2,200 m above sea level. Vegetation cover includes relatively open mountainous forest to alpine meadows and large scree/talus slopes. Snow cover remains until the beginning of June and can return by October in appreciable amounts. No permafrost was encountered during the historic drilling but has been reported at the higher elevations of the property (Gifford, 1974). The Halfway River, draining from Robb

Lake, lies near the southern edge of the property. Long sharp ridges and high tabletop type mountains define the morphology of the area. The bare hillsides drop steeply into wide, deeply glaciated valley bottoms (Graham and Bending, 1980).

# 2.3 Ownership and Claim Status

The Robb Lake Property was purchased by Doublestar from Falconbridge Limited in late 1999 and subsequent to the takeover of Doublestar by Selkirk in 2007, is now held 100% by Selkirk Metals Corp. In 2009 the property was reduced in size to the core claims as shown in Table 2-3 below.

Tenure			Good To			Annual
No.	Map No.	<b>Record Date</b>	Date	Cells	Area (ha)	Work
508829	094B092	2005/Mar/11	2011/Oct/31	23	406.22	\$3,249.76
509595	094B092	2005/Mar/24	2011/Oct/31	45	794.30	\$6,354.40
509604	094B092	2005/Mar/24	2011/Oct/31	1	17.66	\$141.28
509608	094B092	2005/Mar/24	2011/Oct/31	3	52.97	\$423.76
537804	094B092	2006/Jul/25	2011/Oct/31	25	441.33	\$3,530.62
TOTAL				97	1712.48	\$13,699.82

 Table 2-3: Robb Lake Property Mineral Claim Tenure Status

The "good to" dates shown are based on the Statement of Work registered on October 27, 2009 as Event #4386288 and assume that the work contained in this report will be accepted for assessment purposes.

# 2.4 Exploration History

Lead-zinc mineralization was discovered in the Robb Lake area in 1971 which was followed by a protracted staking rush. In the fall of 1971 three companies who had independently staked adjoining claim groups in the Robb Lake area formed a Joint Venture consisting of Arrow Inter-America Corp., Barrier Reef Resources Ltd., and Texasgulf Canada Ltd (Texasgulf Inc., 1974). From 1972 – 1975 annual exploration programs were conducted on the property consisting of geochemical sampling, geological mapping, geophysical surveys and diamond drilling. The property lay dormant from 1976 until 1980, when a more favourable market and political environment allowed exploration activities to recommence, work which lasted for two years (Graham and Bending, 1981). Between 1972 and 1982, several major drill programs totaling



119 holes (24,182 m) were drilled, as shown in Table 2-4. Exploration expenditures by Falconbridge through 1999 total in excess of C\$2,000,000.

<b>Table 2-4:</b>	Summary	of Major	Exploration	Work on the Ro	bb Lake Property
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Year	Exploration Activity
1971	Prospecting, discovery and staking > 900 claims
1972	Joint Venture formed, 29 drill holes totaling 4,548 m; 915 m airstrip constructed; 72 km <sup>2</sup> geologically mapped at 1:500 and 1:1,000 scale. 16 mineral showings mapped at 1:100 scale. Claim surveying. Geophysical test (3,000 line m). 90 km grid cut and sampled with 1,604 soil samples.
1973	11 Dill holes totaling 2,735.58 m; I.P. Survey (18.5 line km)
1974	26 AQ drill holes (5,222.4 m); portable drill holes (41 m); Metallurgical tests on 37 kg sample; Prospecting; Trenching; Soil geochemistry survey.
1975	14 drill holes (745.8 m); geological mapping 1:200 on main showings; prospecting.
1980	10 BQ drill holes (3,502.77 m).
1981	13 BQ drill holes (3,812.5 m).
1982	16 BQ drill holes (3,592.9 m); Mineral Inventory Calculated.
1992	Limited reclamation.
1993	Over 300 claims dropped.
1995	Further reclamation.
2005	Prospecting, sampling and mapping

# 3.0 GEOLOGIC SETTING

# 3.1 Regional Geology

The Robb Lake area is located in northeastern British Columbia, within a north-northwest trending belt of Paleozoic carbonates and shales which outcrop in a series of folded thrust slices (Figure 3-1). Zinc-lead occurrences in the region are contained within a massive dolostone which is Late Silurian to Devonian in age.



There are no basement rocks exposed in the Robb Lake area and no information regarding basement lithology or structure is available. The Robb Lake area may overlie the southwesterly projection of the Hay River/MacDonald fault system, which underlies the Pine Point deposits approximately 770 km to the northeast.

The Robb Lake and similar mineralization located along a north-northwesterly trend, is situated near the western edge of the ancestral North American Craton, and along the western edge of the Paleozoic carbonate facies (Nelson et al., 1999).

Rock units underlying the Robb Lake area consist of Paleozoic strata ranging in age from Ordovician in the west to Permian in the east. Mesozoic sediments unconformably overlie the most easterly Paleozoic units. The Paleozoic strata are composed mainly of marine and non-marine sedimentary units with a total thickness in excess of 3500 m. Mineralization within the property is hosted by the Devonian Pine Point Formation.

Each of the Devonian formations represents a cycle of platform carbonate deposition, and each has a barrier reef: Each cycle was ended by drowning and transgression of the shale basin. Devonian deposition in Northeastern British Columbia is characterized by the facies pattern of shales (Funeral Formation in extreme west) passing to carbonates (Dunedin Formation in the western part) passing to evaporites (Upper Chinchaga in the eastern part).

Rock units in the Robb Lake area have been deformed by extensive folding along an axis having a general trend of 330°, and by thrust faults that generally parallel the axis of the folds. This results in elongate northwest trending, west dipping exposures of the various rock units.

#### 3.2 Property Geology

The Robb Lake project is located within a north – northwest trending belt of Paleozoic carbonates and shales which outcrop as a series of thrust slices (Figure 3-2). Zinc-lead occurrences are contained within a massive dolostone which is thought to be Devonian in age, and is generally referred to as the Pine Point Formation. The Pine Point Formation is thought to be middle Devonian in age and has been subdivided into the following units.



Early Devonian is known as Unit D and consists of a basal sand, approximately 70 m thick, consisting of sandstone and sandy dolomite which is commonly cross bedded. Unit C which overlies the basal sand consists of 200 to 350 m of dolostone, minor limestone and abundant breccias. Unit B consists of 300 to 400 m of dolostone with commonly arenaceous limestone which is locally brecciated. The upper portion of the Pine Point Formation consists of 15 to 50 m of dolostone and dark gray fossiliferous limestone, Unit A.

The principal stratigraphic markers on the property are the B/C contact and the Angular Sand.

The Pine Point Formation of Middle Devonian age is host to zinc-lead mineralization at Robb Lake (Fig. 3-2). The basis for this is a provisional identification on the property of the Givetian zone fossil Stringocephalus. The common occurrence of amphipora, in contrast to its general lack in the underlying Stone Formation, also lends support to this contention.

The change from platform carbonates to slope and basinal environments is marked by the barrier facies, or highest energy zone, of the Pine Point Formation. To the south such change appears abrupt and takes place within less than a mile for individual formations (MacQueen 1974). At Robb Lake an inshore higher energy condition related to this carbonate-shale facies change is suggested by the general lack of fossils coupled with local well-preserved accumulations of Stringocephalus, Amphipora fragments and giant Gastropods.

The lithological succession principally concerns Unit B and Unit C, the prime hosts to mineralization. Unit A, the overlying member is identified as Middle Devonian based on microfossils (Thompson 1975). Unit C, the oldest host rock is identified as probable Late Silurian based on brachiopods collected from the property. Unit B, the intermediate member, remains unclassified and may represent a period of continuous deposition between its enclosing members.

The belief is that the lead-zinc occurrences at Robb Lake are contained within platform carbonate rocks adjacent to a Silurian-Devonian quartz sandstone facies lying to the west. This rapid change in lithologies is interpreted to trend northwesterly somewhat oblique to the structural grain of the region (Graham 1975, Thompson 1976). Further reflection of this facies front is seen within the property by the impressive change from Silurian platformal facies to deposits of debris

flow breccias and chert-bearing carbonaceous limestone, as vividly seen in outcrop of the Nonda Formation at the head of Sidenius Creek.

Further refinement in the synthesis of local conditions suggests a general Offshore Bar-Landward Lagoon relationship. In this setting Unit B and Unit C are mainly lagoonal, and have been deposited in environments varying from subtidal to tidal flat and in places supratidal. Within this is recognized a euxinic lithofacies notable for its distinct lead-zinc association, as well as its close interrelationship with both faunal accumulations and limestone masses.

In Unit C for the interval below the Angular Sand Marker it is inferred that sedimentary deposition was decidedly less in the North Texas area, and water probably deepened to the south and west. For the interval above the Angular Sand a persistent zone of low sedimentation exists on a northerly trend through the Waterfall and North Texas areas.

# 3.3 Structure

Previous field work has concentrated on the Angular Sand and B/C structural contour maps. Local dislocation of the B/C contact was encountered in the Union area with apparent offset of 45 m. Other small-scale offsets of similar magnitude have been previously observed in the Upper Showing area, and it is likely that further such faults will be documented through additional mapping.

Fracture patterns were examined for three stratigraphic levels bounding the mineralized zone. These levels were selected on the basis of (i) closely underlying the two main zones of breccia development, i.e. AS 100 level, (ii) lying intermediate between the two zones, i.e. BC 100 level, and (iii) overlying both the zones, i.e. BC 500 level.

1. Orientation work suggests that for a given site the nature and kind of fractures are independent of both the thickness and grade of crystallinity for individual dolostone beds.

2. The major anticline through Tennessee Mountain appears to be a principal influence on fracture directions. Tenuous grouping of fractures can be noted related to longitudinal, cross, and diagonal directions associated with the anticline.

3. Extension fractures, as characterized by irregular and rough surfaces, are most common in the crestal and west flank sectors of the Tennessee Mountain anticline. No preferred orientation to the extension fractures was noted. This type of fracturing could be associated with breccia development on the property, either by tectonism or collapse.

4. Shear fractures, as distinguished by smooth-straight or smooth-curving surfaces, are common throughout the property. No preferred orientation to the fractures was noted.

5. Not all fracture sets for a given site were filled with secondary material, and for a few sites no filling at all was present. No preferred orientation related to the filled fractures was noted. In addition: (i) sparry dolomite was the predominant filling, isolated instances of quartz and calcite filling were noted, and in no instance was lead-zinc filling noted, and (ii) the occurrence of sparry dolomite filling appears independent of the stratigraphic levels observed, and also independent of areas of know mineralization as exemplified at the Webb and TGS sites.

# 3.4 Mineralization

Sulphide mineralization at Robb Lake is largely confined to dolomite breccias in Units B and C, and is predominantly pale to medium brown sphalerite with lesser galena and minor pyrite. The sulphides occur as rims around dolomite fragments and as large crystals and crystal aggregates within the sparry dolomite filling. Pyrite, where present, occurs as thin, fine-grained fragment coatings. The dolomite breccia zones are locally traversed by vertical, north striking fractures with little or no apparent displacement. Some of the better grade material appears to occur near the intersections of these fracture zones with the breccias bodies.

The Zn-Pb mineralization at Webb Ridge is intimately related to the stratabound breccias but the breccias are much more widespread than the sulphide bearing zones. Most of the mineralization in Unit C, including much of the East Webb zone, occurs near the Angular Sand Marker. The Cascade and North Face showings occur in the B/C breccias and provide further indications that this stratigraphic interval has significant potential north and east of Webb Ridge and to the property as a whole.

The mineralization appears to occur in discrete north-northwest trending zones, however the continuity of the mineralization along the trend and between different stratigraphic levels is still uncertain. This is exemplified in hole 84-80, where the best intersection occurs 18-23 m below the Angular Sand Marker, and in 92-81, where the best mineralization is 35-55 m above the ASM. Mineralization occurs at both levels in the central part of the trend, but at the north end, hole 97-81 has ore grade intersections only in the B/C breccias 55 to 80 m above the Angular Sand marker horizon.

Along and immediately peripheral to the mineralized trends, breccias and minor sulphide occurrences are notably abundant throughout the stratigraphic section. Hole 103-81 contains 100 m of sparsely mineralized crackle and mosaic breccia in lowermost Unit B and a thick interval with low grade sphalerite in rubble breccias in Unit C, well above the significant intersections near the Angular Sand Marker. Similar widely scattered mineralization is present in most holes with ore grade intersections. This suggests that mapping minor sulphide occurrences could be used as a guide to mineralized trends in areas where the favourable horizons are not exposed. Settling associated with collapse along these trends may also be reflected by the presence of a very local syncline-like sag in otherwise undisturbed beds overlying the breccia zones. This feature is apparent along the south flank of Tennessee Mountain immediately north of the East Webb trend and above the outcrop of the West Webb breccia.

Within these general trends the details of the geometry and grade distribution of the mineralization is not readily predictable. The data available for the East Webb trend indicates an irregular, possibly sinuous zone of sulphide cement along the bottom and lower periphery of the brecciated belt. In some instances the highest grades are in and associated with accumulations of pyrobituminous insoluble residues at the base of the breccias.

The 1980 summary report (Graham and Bending, 1981) stressed the possible significance of the spatial relationship between the West Webb breccia and the locally rich mineralization encountered in the West Webb zone in Unit B, and hole 81-80 in Unit C. This led to speculation that significant discordant mineralization along the periphery of the West Webb breccia may have been missed by the vertical holes drilled to date. This idea is supported by the observation that the rich galena in Unit C of hole 81-80 occurs within steep fractures. Holes 99-81 and 100-81 were drilled to test this model. No significant discordant mineralization was encountered in either hole. The stratabound mineralization that was encountered in Unit C in hole 99-81 was very low in grade, in contrast to a high grade intersection less than fifty m away in hole 81-80. This raises serious questions about the overall grade and continuity of the sulphide occurrences in Unit C in the West Webb area, but much more work is necessary before this can be resolved.

# 4.0 2009 EXPLORATION PROGRAM

The program was initiated to familiarize Selkirk with the logistics, geology, mineralization, and status of the property. In BCGS Open File 2000-1 Joanne Nelson et al suggested that mineralization at Robb Lake may be associated with stratabound karst zones as opposed to solution collapse breccias. Previous work has shown the known mineralization to be limited in lateral extent, however the exploration concept was based on the solution collapse model which would have greater vertical continuity than lateral.

During the course of the property inspection, five rock chip samples were collected from the core showings, Cascade, Camp, Canyon, Lower, Upper, Waterfall and Webb Ridge. All fieldwork was conducted by Jim Miller-Tait, P.Geo., and Jim Chapman, P.Geo. Appendix B contains the certificate of analysis from Acme Labs and the analytical methodology. The sample locations are shown on Figure 4-1.

Table 4.1Sample Locations and Descriptions (UTM NAD 83, Zone 10N)

Sample No.	Northing	Easting	Elev. (m)	Notes		
780204	6311805	453965	1891	Sooty dolo. Honey-red Sph. + $Ga > 10\%$ .		
				Float sample		
780205	6311885	454013	1924	Hi-Grade Sph/Ga float, >25% combined.		
780206	6311967	453897	1968	3 m chip of min bx zone. Dissem and blebby		
				sp and ga		
				With zones of black carbonaceous trash		
780207	6311531	454477	1781	Lower Sh. Diss. Sph/Ga in dolomite <5%.		
780208	6311542	455318	2011	Waterfall/Upper Zones crackle breccia,		
				gossan.		

|--|

Sample	Northing	Easting	Elevation (m)		Lead	Silver
780204	6311805	153065	1801	11.08	2 50	2 ppm
780204	6211005	453905	1024	11.90	2.39	3
780205	0311885	454015	1924	40.78	2.10	4
780206	6311967	453897	1968	4.29	0.25	<2
780207	6311531	454477	1781	3.87	0.64	<2
780208	6311542	455318	2011	18.31	5.20	7

Northing	Easting	Elev.	Notes
		( <b>m</b> )	
6311661	453807	1902	McElhanney survey pin #8817.
6312030	453989	1995	Dolo bedding 150/SW
6311535	454390	1814	3 photos of DD sites at Lower showing.
6311531	454477	1780	Lower showing photo looking NE.
6311468	454597	1781	McElhanney survey pin #8151.
6310597	456148	1694	Camp/Breccia showing, solution black carb? Infill. Dolo.
6309808	456345	1817	Vertical DD hole, Webb Ridge.
6309798	456578	1794	Vertical DD hole Webb Ridge, SE of above hole.
6309849	456354	1805??	Ga in Dolo breccia, Webb Showing? Elevation wrong.
6311783	455368	2131	Claim post, drill pad and survey pin on Tennessee Ridge
6311542	455318	2011	Waterfall drill pad on bench between upper and lower zones
6311220	456269	2008	Probable fault zone in creek, 040/50SE

Table 4.3Survey Locations (UTM NAD 83, Zone 10N)

# 5.0 DISCUSSION

Within the most continuous supratidal intervals of the Devonian carbonate complex, stratabound collapse breccias developed their greatest thickness and permeability along north-northwest trending, roughly linear zones. Another less obvious trend of breccia development is oriented east-west, parallel to the axis of Webb Ridge. The distribution of the breccias generally reflects the trends of the mineralization in Unit B and in the Angular Sand Marker zone of Unit C. The B/C breccias are much more widespread than the associated mineralized zones, but show a roughly similar pattern.

The gross regularity of the East Webb breccias and mineralization along the north-northwest trend and the lack of prominent corresponding facies variations indicate that some crosscutting structures have likely influenced brecciation. The observation that comparable trends occur in three vertically stacked breccia zones supports this suggestion.

One hypothesis is based on the observation that the trend of the breccia zones is parallel to the regional facies pattern and the Silurian platform margin which projects beneath the Devonian carbonates at the Robb lake property. The general pattern is shown in Figure 3-1. Because shales compact much less than carbonates, the Silurian platform margin would serve as a hinge for differential compaction. This could lead to development of north-northwest trending fractures

and minor faults in the Devonian dolostone and development of solution-collapse breccias along soluble horizons accessible to fluids introduced along these fracture systems.

The south end of the East Webb trend is apparently terminated by the lagoonal facies encountered in holes 91-81 and 94-81 in the Halfway River Valley. The north end of the trend as presently known is terminated by the Mississippi Creek Fault but a displaced extension will probably continue northward, into Tennessee Mountain. The relationship of the mineralization in hole, 103-81 to the East Webb trend is unclear. If it represents a separate north-northwest trend, the potential of the Sheep Creek area and adjacent parts of Tennessee Mountain is very significant.

The West Webb mineralization in Units B and C appears to be less continuous than the East Webb zone. Although the limited data available for the breccias and mineralization in Unit C reflect a comparable (if weakly defined) trend, the significance of northward projections from the West Webb Zone is unclear.

# 6.0 <u>CONCLUSIONS</u>

Sampling on the Robb Lake property has shown the existence of high grade lead – zinc mineralization typical of carbonate controlled deposits. The style of this mineralization and the styles of brecciation observed are consistent with the karst association theory forwarded by Nelson et al., 1999. Systematic prospecting of talus slopes below and in between known showings bolsters the idea of a possible stratabound horizon(s), which is hidden under a more competent dolostone unit.

The zinc-lead mineralization in Webb Ridge follows a pattern controlled by the distribution of the breakthrough stratabound breccias, although it constitutes a small proportion of the breccias. The breakthrough stratabound breccias along Webb Ridge occur at three stratigraphic levels, characterized by persistent supratidal depositional environments with maximum breccia thickness developed along discrete north-northwest and subordinate east-west trending zones within these stratigraphic intervals.

If this pattern is extrapolated to the Robb Lake property as a whole, then the north-northwestward extensions of the West Webb, East Webb, and Sheep Creek areas become significant targets. Because of the characteristic discontinuous and erratic nature of carbonate hosted Zn-Pb

mineralization this approach must be applied carefully, but the interpretation that the breccia trends are predictable and reflect a fundamental control for mineralization improves the apparent potential of the property and provides direction for future exploration.

# 7.0 RECOMMENDATIONS

A two phase program of exploration is recommended for the Robb Lake property:

Phase I requires a digital compilation of all the historic data to be compiled into a single GIS software package. This should include all drill data, soil and rock geochemistry, geophysical information and geologic mapping. During the implementation of this work, an evaluation of all drill holes should be carried out to determine if the target horizons were intersected. Additional drill targets will be defined based on this compilation.

Additional prospecting will be required along the northwesterly trends from the known showings to determine if mineralization follows a stratabound model. Detailed lithological descriptions of the type and style of mineralization and brecciation at each showing should be undertaken to verify the stratabound nature of the mineralization.

An I.P. geophysical survey should be conducted over the inferred strike of the mineralized horizon based on the above described work.

## Phase II:

Subject to positive results in the Phase I program, a 1500 - 2000 m wide spaced (300 m centres) diamond drill program would be required to test the lateral continuity of the stratabound mineralization theory.

Respectfully submitted,

CHAPLE **Jim Chapman** 

# 8.0 REFERENCES

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# 9.0 STATEMENT OF AUTHOR

Jim Chapman 2705 West 5<sup>th</sup> Avenue Vancouver, BC V6K 1T5 Telephone: 604-733-6335 jchapman@pendergroup.ca

## I, Jim Chapman, P.Geo. do hereby certify that:

- I am currently employed as a Consulting Geologist by: Selkirk Metals Corp.
   Suite 200 – 580 Hornby Street Vancouver, BC, V6C 3B6
- 2 I graduated with a B.Sc. in Geology from the University of British Columbia in 1976.
- 3 I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, Licence # 19871.
- 4 I have worked as an exploration geologist since graduation from university. I supervised the exploration work carried out in 2009 as described in this report.
- I am the author of the Assessment Report titled Prospecting and Geological Mapping Report on the Robb Lake Property, Liard Mining Division, British Columbia, January 21, 2010.
- 6. I have no personal interest, direct or indirect, in the securities of Selkirk Metals Corp. or in the Robb Lake property, nor do I expect to receive such interest.



# APPENDIX – A: EXPENDITURES

Item	Work Performed	Quantities / Rates	Amount		
Geological Survey:					
Personnel:					
Project Manager:	Period: Aug 22-28, 2009	7 days @ \$625.00	\$4,375.00		
Jim Miller-Tait, P.Geo					
Project Geologist:	Period: Aug 21, 23-28, 2009	7 days @ \$600.00	\$4,200.00		
Jim Chapman, P.Geo					
Subtotal			\$8,575.00		
Room and Board					
Canada Zinc Metals	J. Miller-Tait and J. Chapman	8 man days @\$180	\$1,440.00		
Corp.: Akie Camp	Period: Aug 23-26, 2009				
Vancouver to Akie	J. Miller-Tait and J. Chapman		636.01		
Camp and return					
			\$2,076.01		
Transportation:					
J. Miller-Tait Vehicle:	Vancouver to Akie Camp and	2,600 km @ \$0.40/km	\$1,040.00		
Ford F-150 Pickup	return	Fuel	<u>410.35</u>		
			1450.35		
J. Chapman	Air transport from Vancouver to		143.50		
	Prince George on Aug 23 2009				
Pacific Western	Air transport from Akie Camp to				
Helicopters:	Robb Lake Property and return				
Bell 206	Aug 24 2009: 2.6 hours				
	Aug 25 2009: 1.6 nours	4.2 hours @ \$967.26	\$4,062.50		
Subtotal			\$5,656.35		
Field Supplies:	Survey supplies, sample bags		25.00		
Analytical Services:					
Acme Analytical	Analysis of rock samples:				
Laboratories Ltd.	Acme analytical code				
Vancouver, BC	7AR: 26 element (ICP-ES) - 5	5 @ \$19.70	98.50		
Map Preparation:					
Mike Davies,	Base map preparation, data	10.0 hrs. @ \$65.00	650.00		
Moonraker Multimedia	plotting,				
Printing	Map printing		<u>50.00</u>		
Subtotal			\$700.00		
<b>Report Preparation:</b>					
Jim Chapman, P.Geo.	Data review, interpretation and	3 days @ \$600.00	1,800.00		
Project Geologist	report preparation				
Erik Andersen,	Data and report compilation and	8.0 hours @ \$40.00	320.00		
Land Administrator	editing				
Subtotal			\$2,120.00		
Total Survey			\$19,250.86		

# APPENDIX – B 2009 SAMPLE ASSAY INFORMATION

1. Analyses carried out by Acme Analytical Laboratories Ltd. of Vancouver, B.C.

File Number	Date of Certificate	No. of Samples	Sample Type	Analytical Procedure
VAN09004057.1	Sep 17 2009	5	Rock	7AR

2. Statement of Analytical Procedures: 1 data sheet

- Group 7AR; Multi-Element (23) Assay by ICP-ES; Aqua Regia Digestion

# AcmeLabs 1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Acme Analytical Laboratories (Vancouver) Ltd.

Method

Code

R200

7AR

7AR.1

www.acmelab.com

Selkirk Metals Holdings Corp. Suite 800 - 1199 W. Hastings Street

Vancouver BC V6E 3T5 Canada

Submitted By: Jim Miller-Tait Receiving Lab: Received: Report Date: Page: 1 of 2

Crush, split and pulverize rock to 200 mesh

1:1:1 Aqua Regia digestion ICP-ES analysis

1:1:1 Aqua Regia Digestion ICP-ES Finish

Client:

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

**Code Description** 

Number of

Samples

5

5

2

**ADDITIONAL COMMENTS** 

Canada-Vancouver September 04, 2009 September 17, 2009

# VAN09004057.1

Test

1

0.1

Wgt (g)

Report

Status

Completed

Completed

Lab

VAN

VAN

VAN

#### **CLIENT JOB INFORMATION**

Project:	ROBB LAKE
Shipment ID:	2009-01
P.O. Number	4-SEP-09
Number of Samples:	5

Phone (604) 253-3158 Fax (604) 253-1716

CERTIFICATE OF ANALYSIS

#### SAMPLE DISPOSAL

STOR-PLP	Store After 90 days Invoice for Storage
STOR-RJT	Store After 90 days Invoice for Storage

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

Invoice To:	Selkirk Metals Holdings Corp.
	Suite 800 - 1199 W. Hastings Street
	Vancouver BC V6E 3T5
	Canada

CC:

Erik Andersen Jim Chapman



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. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only.

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

#### Client:

Page:

Selkirk Metals Holdings Corp. Suite 800 - 1199 W. Hastings Street

Vancouver BC V6E 3T5 Canada

Part 1

AcmeLabs

Acme Analytical Laboratories (Vancouver) Ltd.

Project:	ROBB LAKE
Report Date:	September 17

ber 17, 2009

2 of 2

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# VAN09004057.1

# CERTIFICATE OF ANALYSIS

	N	Nethod	WGHT	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR
	А	Analyte	Wgt	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Sr	Cd	Sb	Bi	Ca	Р	Cr	Mg	AI
		Unit	kg	%	%	%	%	gm/mt	%	%	%	%	%	%	%	%	%	%	%	%	%	%
		MDL	0.01	0.001	0.001	0.01	0.01	2	0.001	0.001	0.01	0.01	0.01	0.001	0.001	0.001	0.01	0.01	0.001	0.001	0.01	0.01
780204	Rock			<0.001	0.004	2.59	11.98	3	<0.001	<0.001	0.04	1.30	<0.01	0.003	0.045	0.002	<0.01	12.04	0.052	<0.001	6.59	0.10
780205	Rock			<0.001	<0.001	2.39	>20	4	<0.001	<0.001	0.02	0.96	<0.01	0.001	0.111	0.006	<0.01	5.36	0.008	<0.001	2.85	0.02
780206	Rock			<0.001	0.003	0.25	4.29	<2	<0.001	<0.001	0.07	0.26	<0.01	0.004	0.016	<0.001	<0.01	19.16	0.032	<0.001	10.86	0.09
780207	Rock			<0.001	0.002	0.64	3.87	<2	<0.001	<0.001	0.05	0.66	<0.01	0.004	0.012	<0.001	<0.01	19.55	0.009	<0.001	11.55	0.03
780208	Rock			<0.001	0.004	>4	17.45	7	<0.001	<0.001	0.03	5.17	<0.01	0.003	0.035	0.003	<0.01	11.77	0.026	<0.001	6.88	0.04



Client:

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Vancouver BC V6E 315 Cana

Project: ROBB LAKE Report Date: September 17, 2009

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# 2 of 2

# CERTIFICATE OF ANALYSIS

	Method	7AR	7AR	7AR	7AR	7AR	7AR.1	7AR.1
	Analyte	Na	κ	w	Hg	S	Pb	Zn
	Unit	%	%	%	%	%	%	%
	MDL	0.01	0.01	0.001	0.001	0.05	0.01	0.01
780204	Rock	<0.01	0.06	<0.001	<0.001	7.29		
780205	Rock	<0.01	0.01	<0.001	<0.001	10.31	2.16	46.78
780206	Rock	0.01	0.04	<0.001	<0.001	1.80		
780207	Rock	0.01	0.01	<0.001	<0.001	2.15		
780208	Rock	<0.01	0.02	<0.001	<0.001	13.33	5.20	18.31

# VAN09004057.1

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Part 1

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ROBB LAKE

1 of 1

ort Date: Se

September 17, 2009

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# QUALITY CONTROL REPORT

	Method	WGHT	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR	7AR
	Analyte	Wgt	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Sr	Cd	Sb	Bi	Ca	Р	Cr	Mg	AI
	Unit	kg	%	%	%	%	gm/mt	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	MDL	0.01	0.001	0.001	0.01	0.01	2	0.001	0.001	0.01	0.01	0.01	0.001	0.001	0.001	0.01	0.01	0.001	0.001	0.01	0.01
Pulp Duplicates																					
780207	Rock		<0.001	0.002	0.64	3.87	<2	<0.001	<0.001	0.05	0.66	<0.01	0.004	0.012	<0.001	<0.01	19.55	0.009	<0.001	11.55	0.03
REP 780207	QC		<0.001	0.002	0.64	3.87	<2	<0.001	<0.001	0.05	0.67	<0.01	0.004	0.012	<0.001	<0.01	19.51	0.008	<0.001	11.51	0.03
Reference Materials																					
STD CCU-1C	Standard																				
STD CZN-3	Standard																				
STD GBM997-6	Standard																				
STD PTC-1A	Standard																				
STD R4A	Standard		0.062	0.514	1.54	3.29	88	0.358	0.040	0.06	23.49	0.02	0.004	0.018	0.014	<0.01	0.96	0.044	0.013	0.86	1.27
STD R4A	Standard		0.062	0.512	1.54	3.29	88	0.357	0.040	0.06	23.42	0.02	0.004	0.018	0.014	<0.01	0.96	0.043	0.013	0.86	1.27
STD R4A Expected			0.062	0.502	1.5	3.31	86	0.334	0.04	0.06	23.38	0.023	0.004	0.017	0.0135	0.0024	0.94	0.042	0.012	0.83	1.25
STD CZN-3 Expected																					
STD PTC-1A Expected																					
STD CCU-1C Expected																					
STD GBM997-6 Expected																					
BLK	Blank		<0.001	<0.001	<0.01	<0.01	<2	<0.001	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.01	<0.01	<0.001	<0.001	<0.01	<0.01
BLK	Blank																				
Prep Wash																					
G1	Prep Blank		<0.001	<0.001	<0.01	<0.01	<2	<0.001	<0.001	0.05	1.86	<0.01	0.005	<0.001	<0.001	<0.01	0.51	0.077	<0.001	0.51	0.79



Acme Analytical Laboratories (Vancouver) Ltd.

Client:	Selkirk Metals Holdings Corp.
	Suite 800 - 1199 W. Hastings Street
	Vancouver BC V6E 3T5 Canada

Project: ROBB LAKE Report Date:

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# QUALITY CONTROL REPORT

	Method	7AR	7AR	7AR	7AR	7AR	7AR.1	7AR.′
	Analyte	Na	ĸ	w	Hg	S	Pb	Zr
	Unit	%	%	%	%	%	%	%
	MDL	0.01	0.01	0.001	0.001	0.05	0.01	0.0
Pulp Duplicates								
780207	Rock	0.01	0.01	<0.001	<0.001	2.15		
REP 780207	QC	0.01	0.01	<0.001	<0.001	2.15		
Reference Materials								
STD CCU-1C	Standard						0.30	4.01
STD CZN-3	Standard						0.09	48.90
STD GBM997-6	Standard						23.04	15.74
STD PTC-1A	Standard						0.04	0.10
STD R4A	Standard	0.06	0.50	<0.001	<0.001	16.14		
STD R4A	Standard	0.06	0.50	<0.001	<0.001	16.08		
STD R4A Expected		0.07	0.51	0.0011	0.001	16.7		
STD CZN-3 Expected							0.113	50.92
STD PTC-1A Expected							0.05	
STD CCU-1C Expected							0.34	3.99
STD GBM997-6 Expected							24.9095	16.1944
BLK	Blank	<0.01	<0.01	<0.001	<0.001	<0.05		
BLK	Blank						<0.01	< 0.0
Prep Wash								
G1	Prep Blank	0.05	0.45	<0.001	<0.001	<0.05		

VAN09004057.1





# METHODS AND SPECIFICATIONS FOR ANALYTICAL PACKAGE GROUP 7AR – MULTI-ELEMENT ASSAY BY ICP-ES • AQUA REGIA DIGEST



# Comments

# **Sample Preparation**

Assaying is warranted for representative well-mineralized samples (eg. Cu > 1%). Samples are dried at 60°C. Soil, sediment and moss mats (after pounding) are sieved to -80 mesh (-180  $\mu$ m). Vegetation is dried (60°C) and pulverized or ashed (475°C). Rock and drill core is jaw crushed to 80% passing 10 mesh (2 mm), a 250 g aliquot is riffle split and pulverized to 85% passing 200 mesh (75  $\mu$ m) in a mild-steel ring-and-puck mill. Aliquots of 1.000 ± 0.002 g are weighed into 100 mL volumetric flasks.

# **Sample Digestion**

30 mL of Aqua Regia, a 1:1:1 mixture of ACS grade concentrated HCl, concentrated HNO<sub>3</sub> and de-mineralised H<sub>2</sub>O, is added to each sample. Samples are digested for one hour in a hot water bath (>95°C). After cooling for 3 hrs, solutions are made up to volume (100 mL) with dilute (5%) HCl. Very high-grade samples may require a 1 g to 250 mL or 0.25 g to 250 mL sample/solution ratio for accurate determination. Acme's QA/QC protocol requires simultaneous digestion of a regent blank inserted in each batch.

## Sample Analysis

Sample solutions are aspirated into a Spectro Ciros Vision or Varian 735 ICP emission spectrograph to determine 21 elements: Ag, Al, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, W, Zn.

# **Quality Control and Data Verification**

QA/QC protocol incorporates a sample-prep blank (G-1) as the first sample in the job which is carried through all stages of preparation to analysis. An Analytical Batch comprises 36 client samples and incorporates a pulp duplicate to monitor analytical precision, a -10 mesh rejects duplicate to monitor sub-sampling variation (drill core only), a reagent blank to measure background and aliquots of in-house Reference Materials. Data undergoes a final verification by a British Columbia Certified Assayer who then validates results before it is released to the client.





# GROUP 7AR - MULTI-ELEMENT ASSAY BY ICP-ES • AQUA REGIA DIGEST

Det. Lim.		
Ag	2	g/t
Al*	0.01	%
As	0.01	%
Bi*	0.01	%
Ca*	0.01	%
Cd	0.001	%
Co*	0.001	%
Cr*	0.001	%
Cu	0.001	%
Fe*	0.01	%
Hg	0.001	%
<b>K</b> *	0.01	%
Mg*	0.01	%
Mn*	0.01	%
Мо	0.001	%
Na*	0.01	%
Ni*	0.001	%
Р	0.001	%
Pb	0.01	%
Sb	0.001	%
Sr*	0.001	%
W*	0.001	%
Zn*	0.01	%

# Group 7AR

Sample minimum 1 g pulp. \*indicate partial digestion if refractory minerals are present.

