MINERAL RESOURCE ESTIMATE
TECHNICAL REPORT
ON THE
LUNDBERG DEPOSIT
BUCHANS AREA, NEWFOUNDLAND, CANADA

For
Buchans Minerals Corporation
And
Centrerock Mining Limited
(A Wholly-Owned Subsidiary of Minco Plc)

Located at
510,000mE
5,407,900mN
UTM NAD 83, Zone 21

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Summary

Buchans Minerals Corporation (BMC) is the registered owner of a 100 percent interest in Exploration Licence 10551M, which covers the Lundberg base metal deposit, located in the community of Buchans, Newfoundland and Labrador, Canada. Minco Plc (Minco), an Irish exploration and development company listed on the Alternative Investment Market (AIM), holds an option to earn a 51% interest in this exploration property, which consists of 215 claims having a combined surface area of 5,375 hectares.

This Technical Report was prepared by Mercator Geological Services Limited (Mercator) on behalf of Minco and BMC to meet the reporting requirements of National Instrument 43-101 (NI 43-101) - Standards of Disclosure for Mineral Projects and conforms with the Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards on Mineral Resources and Mineral Reserves (CIM Standards).

On April 30, 2012, BMC entered into an option agreement with Minco over BMC's exploration licence holdings covering several volcanogenic massive sulphide-related base metal prospects in the Buchans region of Central Newfoundland, including Exploration Licence 10551M (Buchans Property) that covers the Lundberg Deposit. Minco can a 51% interest in the subject properties by making expenditures of $8 million over 4 years and delivering a pre-feasibility study for the Lundberg Deposit. Properties included under the BMC-Minco agreement are registered to 7980736 Canada Inc., a wholly-owned subsidiary of BMC, and include Buchans, Tulks North and Tulks Hill. Of these, the Buchans property hosts the Lundberg Deposit plus several key exploration prospects for higher grade Buchans-style base metal deposits. The Tulks North property hosts the Daniels Pond base metal deposit, which has NI 43-101 compliant Indicated and Inferred resources, and the Tulks Hill project. Tulks Hill is currently joint ventured with Prominex Resource Corp., which is 49% owned by 7980736 Canada Inc., and hosts the Tulks Hill base metal deposit that also has NI 43-101 compliant indicated and inferred resources.

The Lundberg Deposit as defined in this report is comprised of two mineralized zones, these being the Lundberg Zone and the Engine House Zone, both of which are hosted by felsic volcanic rocks of the Buchans Group and lie within the NE-SW trending Central Mobile Belt (CMB) of Central Newfoundland. The Buchans Group is a Lower Ordovician volcanic sequence that ranges in composition from basalt to rhyolite and shows relative increase in its felsic component with height in the stratigraphic section. The five historic ore bodies mined at Buchans occur within a single felsic stratigraphic horizon of the Buchans Group.

Volcanogenic sulphide mineralization in the Buchans area occurs in three main, genetically related styles, these being as in situ massive sulphides, as transported clasts of sulphide in debris flow deposits, and as in situ feeder zone stockwork sulphides. The past-producing Lucky Strike

and Oriental #1 orebodies are the best known examples of in situ type mineralization and represent the highest grade ore mined to date in the Buchans area. Massive in situ mineralization presents various textures, the most common being massive to finely layered sulphide that consists of aggregates of sphalerite, galena and barite plus lesser chalcopyrite. Transported mineralization is characterized by sulphide and sulphide-bearing fragments that occur as density flow deposits in elongate, paleotopographic lows that extend down-depositional slope from in situ sulphide zones. The historically mined MacLean, Rothermere, Clementine and Oriental #2 orebodies contain transported style mineralization. This style and massive sulphide mineralization account for 98% of material historically mined and milled at Buchans. Stockwork mineralization is typically associated with in situ ore and the best examples on the BMC property are the Lundberg and Engine House zones that are the subject of this report. Due to relatively low metal grades, this style of mineralization was not historically mined to a substantial degree.

In 2008, a NI43-101 compliant resource estimate was prepared for the Lundberg and Engine House zones by Mercator. The Lundberg Zone was reported to contain Inferred resources totaling 15,690,000 tonnes grading 1.96% Zn, 0.83% Pb, 0.38% Cu, 6.57 g/t Ag, 0.08 g/t Au and 2.36% $BaSO_4$, and the Engine House Zone was separately reported to contain Inferred resources totaling 890,000 tonnes grading 2.37% Zn, 0.95% Pb, 0.96% Cu, 11.29 g/t Ag, 0.15 g/t Au and 4.40% $BaSO_4$ (Webster and Barr, 2008). In August 2011, a NI 43-101 Preliminary Economic Assessment (PEA) of the Lundberg and Engine House zones was completed by Wardrop Engineering Inc. (a Tetra Tech company), based on the 2008 resource estimate by Mercator. This study determined that the combined deposits have potential to support a stand-alone, 5,000 tonne per day open pit mining and milling operation having a 10 year mine life.

Since April, 2012, Minco and BMC have completed 8,184 metres of additional diamond drilling in 58 holes that targeted the Lundberg and Engine House zones. The current mineral resource estimate by Mercator for the combined Lundberg and Engine House zones includes results for this new drilling and is reported below as the “Lundberg Deposit”.

Lundberg Deposit Resource Statement* - February 22nd, 2013								
NSR Cut-off ($US)	**Category**	**Rounded Tonnes**	**Zn %**	**Pb %**	**Cu %**	**Ag g/t**	**Au g/t**	**$BaSO_4$ %**
15	Indicated	23,440,000	1.41	0.60	0.35	5.31	0.07	1.26
	Inferred	4,310,000	1.29	0.54	0.27	4.47	0.08	0.89

**Notes:*

1. *The Lundberg Deposit includes both the Lundberg Zone and the Engine House Zone*
2. *Tonnages have been rounded to the nearest 10,000 tonnes.*
3. *Net Smelter Return (NSR) values were determined by calculating the value of each resource model block using 3 year trailing average metals prices of $0.95/lb Zn, $1.00/lb Pb, $3.68/lb Cu, $29.00/oz Ag, and $1,493.65/oz Au, metallurgical recoveries to concentrate are as projected in the 2011 Preliminary Economic Assessment Of the Lundberg Deposit carried out by Wardrop Engineering Inc. (a Tetra Tech company), plus current concentrate shipping and smelting terms for similar concentrates.*
4. *All pricing reflects US currency.*
5. *The resource statement cut-off grade of $15 NSR approximates a breakeven cost for an open pit mining and milling operation at Lundberg, and is comparable to the $14.80 operating cost for open pit mining and milling defined in the 2011 Preliminary Economic Assessment by Tetra Tech Wardrop.*
6. *Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.*

Based upon work programs carried out in support of the current resource estimate, Mercator has concluded that the Lundberg Deposit has been sufficiently delineated by drilling to date to support pre-feasibility and feasibility level studies. Mercator has also concluded that potential exists to upgrade Inferred resources beneath the Lucky Strike Glory Hole to Indicated status and that the need do so can be evaluated during the pre-feasibility study that is recommended below. Remaining deposit extension drilling opportunities are considered to be limited in scope at this time and not critical to economic evaluation of the deposit. On that basis, further deposit extension drilling has not been recommended.

Mercator has recommended that pre-feasibility and feasibility level evaluations of economic viability of the Lundberg Deposit be pursued within a two phase future work program. Phase I consists of completion of a pre-feasibility study for the deposit and Phase II consists of completion of a feasibility study. Commitment to Phase II is largely dependent on positive results being returned from Phase I. Estimated budgets for recommended Phase I and Phase II programs total $1.43 million and $4.53 million respectively.

1 Introduction and Terms of Reference

This report was prepared by Mercator on behalf of Minco and BMC in accordance with requirements of National Instrument 43-101 and in compliance with the CIM Standards. The purpose of the report is to provide an exploration update and an updated mineral resource estimate for the Lundberg Deposit in support of regulatory filings by BMC. Terms of reference were established through discussions between BMC staff and Mercator and it was determined that the current resource estimate and associated report would be based on previously compiled and validated drilling information plus the results of new deposit delineation drilling programs carried out on the deposit by Minco and BMC since disclosure of the last resource estimate in 2008.

The material found in this report summarizes property assessment report information filed, to a large extent by BMC, with the Newfoundland and Labrador Department of Natural Resources (NLDNR). Where applicable, various government assessment reports filed by companies other than BMC have also been consulted, along with pertinent academic publications, government reports, and associated maps. These sources are cited as necessary throughout the report and Mercator takes responsibility for their use herein. Most aspects of the subject property and associated mineral resources were described in a previous resource estimate technical report completed by Mercator for BMC (Webster and Barr, 2008) and in a Preliminary Economic Assessment (PEA) reported by Coley et al. (2011) and completed for BMC by Wardrop Engineering Inc. (a Tetra Tech company) (Wardrop). New exploration program results presented in the current technical report are restricted to drilling program activities carried out by Minco and BMC on the Lundberg Deposit since disclosure of the last resource estimate in 2008.

Mr Andrew Hilchey, P. Geo., of Mercator completed a site visit to the Buchans area in January of 2013, at which time a review of 2012 BMC drilling program core was carried out and a suite of quarter core samples were collected for independent check sample purposes.

Both authors of this report are Qualified Persons as defined under NI 43-101 and the authors and Mercator worked strictly on a fee for service basis. The BMC mineral resource estimation project described in this report was one of numerous contracts under management by Mercator at the time of preparation. The authors have specific experience in the geology and mineralization types detailed in this report that reflects participation in exploration and development projects in Newfoundland and Labrador and New Brunswick, Canada and elsewhere.

2 Reliance on Other Experts

2.1 Scope of Reliance

The current report was prepared by Mercator staff for Minco and BMC and the information and conclusions contained herein are based upon information available to Mercator at the time of report preparation. This includes data made available by both BMC and third party sources. Information contained in this report is believed reliable, but in part the report is based upon information not within control of the authors and Mercator. However, they have no reason to question the quality or validity of data used in this report. Comments and conclusions presented herein reflect the best judgment of Mercator at the time of report preparation and are based upon information available at that time.

Mercator has relied upon Mineral Processing and Metallurgical Testing information previously disclosed by BMC in the Coley et al. (2011) Preliminary Economic Assessment (PEA) technical report prepared by Wardrop and takes responsibility for its use in this report.

This report also expresses opinions regarding exploration and development potential for the project, and recommendations for further analysis. These opinions and recommendations are intended to serve as guidance for future development of the property, but should not be construed as a guarantee of success.

Mercator is not a Qualified Person with respect to comments on environmental liability, validity of mineral exploration and surface rights titles and terms of agreement between Minco and BMC. Mercator has relied upon BMC for information presented in this report that addresses these items.

2.2 Abbreviations and Units of Measure

The abbreviations, units of measure and conversion factors presented in Table 2.1 have been used throughout this report.

Table 2.1: Listing of Abbreviations and Conversions

Abitibi-Price	Abitibi-Price Company		
Acadian	Acadian Mining Corporation		
Acme	Acme Analytical Laboratories		
AND Company	Anglo-Newfoundland Development Company		
ASARCO	American Smelting and Refining Company Limited		
Billiton	Billiton Resources Canada Incorporated		
BMC	Buchans Minerals Corporation		
BP	BP Resources Canada Limited		
BRJV	Buchans River Joint Venture		
BRL	Buchans River Limited		
CBM	CBM Exploration Incorporated		
CDN	Canadian		
CIM	Canadian Institute of Mining and Metallurgy		
CMB	Central Mobile Belt		
CSA	Canadian Securities Administrators		
DCIP	Direct Current Resistivity and Induced Polarization		
GT	GT Exploration Limited		
HRF	Harbour Round Formation		
IRR	Internal Rate of Return		
LOM	Life of Mine		
Mercator	Mercator Geological Services Limited		
Minco	Minco Plc		
MOD	Mineral Occurrence Database		
MT	Magneto-telluric		
Newminex	Newfoundland Mining & Exploration Limited		
NI43-101	National Instrument 43-101		
NLDNR	Newfoundland & Labrador Department of Natural Resources		
NPV	Net Present Value		
NSR	Net Smelter Returns		

PEA	Preliminary Economic Assessment		
PR	Press Release		
Prominex	Prominex Resources Corporation		
QA/QC	Quality Control and Quality Assurance		
Quantec	Quantec Geoscience Limited		
RRO	Royal Roads Corporation		
TVB	Tulks Volcanic belt		
UBC	United Bolero Development Corporation		
VMS	Volcanogenic Massive Sulphide		
Wardrop	Wardrop Engineering Inc., (a Tetra Tech company)		
mm	millimetre		
cm	centimetre		
m	metre		
km	kilometre		
ha	hectare		
C	Celsius	Oxygen	O
oz	troy ounce (31.04 g)	Zinc	Zn
g	gram (0.03215 troy oz)	Sulphur	S
kg	kilogram	Lead	Pb
lb	pound	Iron	Fe
t	tonne (1000 kg or 2,204.6 lb)	Barium	Ba
T	ton (2000 lb or 907.2 kg)	Manganese	Mn
Oz/T to g/t	1oz/T = 34.28 g/t	Arsenic	As
Au	Gold	Potassium	K
Cu	Copper	Aluminum	Al
Ag	Silver	Sodium	Na
Sb	Antimony	Silica	Si
ASL	Above sea level		

3 Property Description and Location

3.1 Exploration Holdings

The Lundberg deposit is located within Exploration Licence No. 10551 M that is centered at 510,000mE 5,407,900mN UTM NAD 83 Zone 21 (Figure 3.1). The property is comprised of 215 mineral claims that cover approximately 5,375 hectares of surface area and is registered to 7980736 Canada Inc., a wholly-owned subsidiary of BMC. Details of the holding are summarized in Table 3.1 below.

At the time of writing, Mercator was advised by BMC that 7980736 Canada Inc. had applied for two mining leases covering significant portions (i.e., 1,287.5 hectares) of Licence 10551M as that licence reached its 20th anniversary on February 1, 2013 and 7980736 Canada Inc. was therefore required to either have the licence converted to a Mining Lease or allow it to lapse. The two mining lease applications cover essential portions of licence 10551M including the Lundberg Deposit and all significant undeveloped prospects having historic resources. The lease applications were submitted on February 28th, 2013 and acknowledged by the Manager of Mineral Lands (NLDNR) on February 6th, 2013. The Manager of Mineral Lands also confirmed that 7980736 Canada Inc. has until August 1, 2013 to submit boundary surveys for the proposed leases. It is understood that upon submission of the surveys, the NL Department of Natural Resources will proceed with finalization of the leases and cancel the remainder of Licence 10551M. BMC has advised that it will complete the surveys as required and that upon issuance of the leases, 7980736 Canada Inc. will be required to make annual lease rental payments equal to $80 per hectare to maintain the mining leases for an initial 5 year term. After the initial 5 year term, the leases may be extended for additional 5 year terms by application to the NL Department of Natural Resources.

Table 3.1: Summary of Buchans Property Mineral Rights

Licence No.	Registered Owner	No. of Claims	No. of Hectares	NTS Map	Expiry Date
10551M	*7980736 Canada Inc.	215	5,375	12A/15	**February 1, 2013

**7980736 Canada Inc. is a wholly-owned subsidiary of BMC*

*** Under government legislation, mineral claims cannot be maintained beyond their 20th anniversary and must at that time either be converted to a mining lease or be allowed to lapse. On January 31, 2013, 7980736 Canada Inc., applied for two mining leases under Section 30 (3) of the Mineral Act. The proposed leases cover portions of Licence 10551M, including 9.375 km^2 area covering the Lundberg Deposit and 3.5 km^2 area covering the undeveloped Clementine deposit. The leases are not expected to be issued before August 1st, 2013.*

3.2 Conditions of Exploration Title

As a licence holder, the company has the exclusive right to explore for designated minerals within the boundaries of the mineral claims comprising the exploration licence but this right does not reflect ownership of corresponding title to surface rights. However, BMC has advised Mercator that it has secured land access agreements with surface right holders for the purpose of mineral exploration within Licence 10551M. Licence boundaries for the mineral properties have not been legally surveyed.

Work requirements of the Newfoundland government include a work expenditure of $200.00 per claim in the first year, rising by $50.00 per claim until year 5. The work requirement then rises to $600.00 per claim per year from year 6 to year 10, 900.00 per claim per year for years 11 to 15, and $1,200.00 per claim per year for years 16 to 20. The type of acceptable work for assessment purposes is defined under the Mineral Regulations 1983 of the Province of Newfoundland, and Labrador and includes most conventional exploration survey methods.

Mining Leases are maintained in good standing through payment of annual lease rental fees equivalent to $80 per hectare, to the NL Department of Natural Resources. Mining Leases have an initial 5 year term and are renewable after five years. If production has not commenced on the leases within 5 years, an extension for another 5 year term may be sought, and is routinely granted, provided the lease holder can demonstrate the extension to be warranted.

3.3 Status of BMC Title

BMC advised Mercator that at the effective date of this report Licence 105551M was in its 21^{rst} year of issue and was in good standing with respect to obligations for work program performance and filing of associated documentation with provincial authorities. BMC further advised that applications under Section 30 of the Minerals Act of Newfoundland and Labrador had been filed to convert two portions of the licence to Mining Lease status, details of which are described in preceding section of this report. Mercator verified basic licence information, including application for Mining Leases, through the on-line minerals title management system maintained by the NLDNR but did not otherwise verify title. For current report purposes, Mercator has relied upon the opinion provided by BMC with regard to currency, status and ownership of the Licence 10551M mineral title that covers the Lundberg Deposit.

3.3.1 Encumbrances and Agreements

On April 30, 2012, BMC entered into a letter agreement with Minco plc. (Minco) with respect to BMC's mineral licence holding that covers the Lundberg Deposit plus the company's other base metal property holdings held by BMC that are located near Buchans in Central Newfoundland.

These include the Tulks North property, owned 100% by BMC's wholly-owned subsidiary, 7980736 Canada Inc., as well as a 49% interest in the Tulks Hill joint venture property registered to Prominex Resource Corp. Under terms of that agreement, Minco can earn a 51% interest in BMC's base metal properties, including Licence 10551M, that hosts the Lundberg Deposit. To earn that interest Minco must incur $8.0 million in exploration expenditures over four years to advance the Lundberg Deposit to the feasibility stage and further explore the other BMC properties covered by the agreement. Minco is also committed to expenditure of $3.5 million of the above total in the first two years of the agreement, with these expenditures being related to advancement of the Lundberg project to the pre-feasibility stage.

3.4 Access to Lands For Future Exploration and Development Purposes

To date, BMC has accessed lands in the Buchans area for the purpose of exploration activities under terms of exploration permits issued by the provincial government. The company has also accessed lands controlled by the municipality of Buchans and is required to advise the municipality of on-going activities of this nature that occur within its boundaries. BMC held a community meeting in July of 2011 to inform residents of the scope of the most recent drilling programs and intends to maintain a good relationship with the community. The company is reported to have received a positive response from the community at this meeting.

With respect to drilling work program components recommended in this report, BMC informed Mercator that it has not applied to authorities for specific permission to carry out such work and, therefore, does not currently have permission for its completion. Similarly, agreements have not been established to access any lands for the purposes of future mine development and establishment of associated infrastructure. Mercator has not reviewed any BMC access agreements in association with preparation of the current report and has relied upon BMC's opinion and information in this regard.

Based upon its knowledge of the site and community, Mercator's opinion is that sufficient lands exist in the deposit area to potentially accommodate future open pit mine development and establishment of required milling infrastructure plus tailings impoundment and waste rock storage areas.

3.5 Environmental Liability for Historic Mining Operation Impacts

Environmental liability for past mining in Buchans by precursor firms related to Abitibi Consolidated Inc. was addressed in a Supreme Court of Canada ruling handed down on December 7th, 2012. That decision assigned responsibility to the provincial government for environmental clean-up of impacts associated with past mining activities at Buchans. This reflects expropriation by the province of various assets of Abitibi Consolidated Inc. The provincial government had already spent approximately $12 million to address impacts associated with presence of lead in dust within the community and to stabilize the historic tailings dam.

BMC advised Mercator that its liability at the effective date of this report was limited to the activities carried out under their exploration permits issued by the NL government. These cover site activities related to core drilling and general site access but do not include impacts associated with historic site use. If a decision to pursue mining at Buchans is made by BMC at some time in the future, the issue of site liabilities will be addressed in the related mining and environmental permitting process.

BUCHANS MINERALS CORPORATION

Figure 3.1

Property Location Map

Date: April 2013

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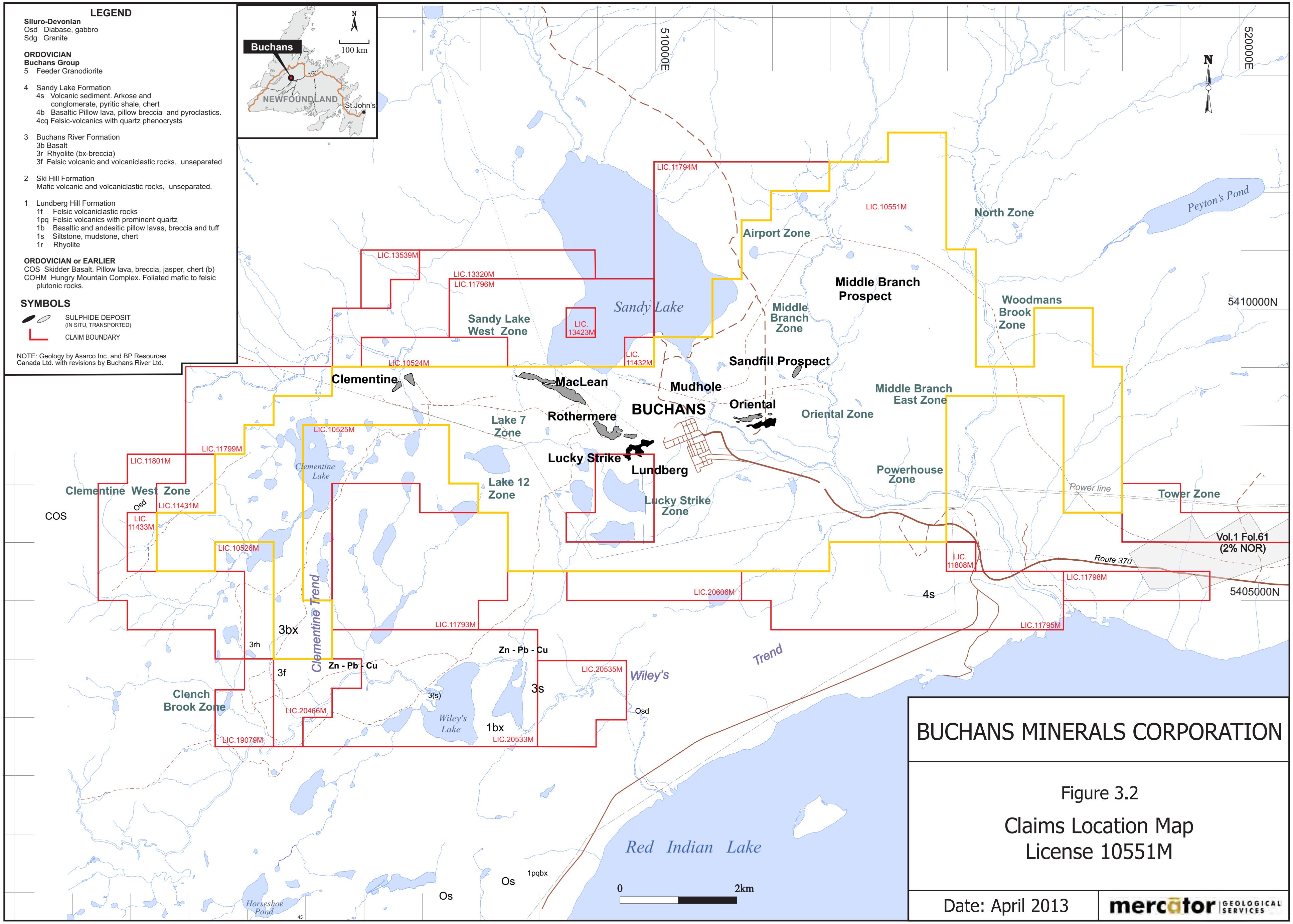

BUCHANS MINERALS CORPORATION

Figure 3.2
Claims Location Map
License 10551M

Date: April 2013

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4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Accessibility

The Lundberg Deposit is situated within the community of Buchans in Central Newfoundland. Buchans is located approximately 530 km by highway west of the provincial capital city of St. Johns and is accessible via paved Route 370 from its junction with the Trans-Canada Highway at the town of Badger, approximately 70 km north of Buchans. The nearest major airports are Gander International Airport and Deer Lake Regional Airport, which are located 128 km east and 181 km west of the town of Badger, respectively. The community of Buchans is located on the north shore of Red Indian Lake, which measures approximately 60 km in maximum length and 5.5 km in maximum width. The Lundberg Deposit is situated at the southwest periphery of the community of Buchans, north of Red Indian Lake, and largely within lands associated with the past-producing Lucky Strike mine.

Access to the deposit area for exploration purposes is excellent, with most of the area required for drilling assessment being cleared and no longer developed. However, the broader extents of Licence 10551M include undeveloped forested lands that are substantially more difficult to access due to relatively sparse road coverage and presence of extensive areas of boggy ground conditions. The primary means of accessing the more isolated parts of the property is by a forestry access road network. Winter access typically necessitates use of snowmobiles, since forestry road networks that are not being actively used are not typically cleared of snow.

4.2 Climate

The climate in Central Newfoundland is characterised by relatively cool, northern Atlantic temperate conditions with a short summer season from July through early September and a long winter period from November through late March or early April. Environment Canada records show the daily mean temperature during the winter months to be -5° C, ranging from 0° C to -10°C, and daily mean temperature from May to October is 10° C, range from 5° C to 15° C. Daily winter minimums can exceed -30° C and summer daily maximum values in the 25° C + also occur. Average annual precipitation ranges from 200 cm to 300 cm with much of this occurring as snow.

Exploration activities can be carried out in all seasons in this area, assuming that appropriate allowances are made for heavy snow conditions during winter months and thawing ground during Spring break-up. The latter period can present substantial challenges due to wet and soft ground conditions that can make certain less developed roads temporarily impassable. However, this is not the case in the immediate area of the Lundberg Deposit, where no impediments to exploration exist in relation to weather conditions.

4.3 Physiography

The Buchans area is generally flat to gently rolling with elevation ranging from 155 m to 165 m asl at Red Indian Lake to approximately 350 m asl inland. There are numerous bogs and small brooks which drain into Red Indian Lake with spruce and fir growing on the slopes and in upland areas. The northern portion of the property is poorly drained and covered by areas of shallow bogs and extensive muskeg in the flat areas. The depth of till is typically less than 5 metres and the area is generally considered to have less than 5% outcrop exposure. Red Indian Lake occupies a large northeast trending valley immediately southeast of Buchans and measures approximately 60 km in length by 1.5 km to 5.5 km in width.

4.4 Local Resources

The town of Buchans has a population of approximately 760 people and is supported by services such as a medical clinic, a hotel, a gravel air strip, and groceries and supplies services. Field supplies, fuel and logistical support are available in Buchans and contract geotechnical personnel including drill companies and analytical laboratories are available in either Grand Falls or Springdale. Other supplies and heavy equipment can be brought to Buchans by highway from Deer Lake, Corner Brook, or St. John's. The closest deep-water port is 125 km to the northeast at Botwood, which was formerly used as the concentrate loading terminus for the past-producing Buchans Mine. The main power line from Grand Falls to Corner Brook passes through the Buchans area and the town itself has full industrial electrical services.

4.5 Infrastructure

Two main arteries of the provincial power grid cross the property, these being a 230 kV transmission line that extends approximately 40 km southwest of Buchans to an 18.4 MW hydroelectric plant at Star Lake, and an east-west, 230 kV line that runs between Grand Falls and Corner Brook. The later provides full service to the town of Buchans and crosses the property less than 2 km south of the Lundberg Deposit. Water, both industrial and potable, is in ample supply and is drawn from Buchans Lake and Red Indian Lake as well as several nearby ponds. The Duck Pond copper-zinc mine operated by Teck Resources Ltd. is located approximately 20 km east of Red Indian Lake and is vehicle accessible by approximately 60 km of public secondary roads.

A core storage and logging facility operated by the Newfoundland and Labrador government is also available for use at Buchans. This facility is used by government, industry and academic interests and much of the core from historic drilling on the Buchans area properties is stored at this location. Viewing and re-sampling of core can be arranged under government supervision. Historic mine buildings and two large tailing ponds remain on the property from past mining by Asarco. The tailings ponds are not currently permitted for use.

Historic mining infrastructure in the form of various shafts exists in the Buchans area, along with the existing Lucky Strike Glory Hole open pit that is central to the Lundberg Deposit resource area.

5 History

5.1 Introduction

The earliest report of lead-zinc mineralization in the Buchans area was in 1905, when local prospector Matty Mitchell discovered a boulder with high grade base metal mineralization along the Buchans River shoreline, east of the current Buchans mine site. Anglo-Newfoundland Development Company (AND Company) owned mineral rights at that time in Central Newfoundland, including the Buchans area, and formed a joint venture with American Smelting and Refining Corp. (Asarco) in 1926 to pursue evaluation of the area. This resulted in development of mining operations at Buchans that continuously operated from 1928 until mine reserves were considered to be depleted in 1984 (Neary, 1981). In total, Buchans deposits are reported to have produced 16,196,876 tonnes of ore from the five major orebodies. The average grade of total production is reported to be 14.51% zinc, 7.65% lead, 1.33% copper, 126 g/t silver, and 1.37 g/t gold (Kirkham, 1987).

The following chronological summary of exploration history in the Buchans area was substantially excerpted or summarized from the 2008 Mercator NI 43-101 resource estimate technical report (Webster and Barr, 2008) unless otherwise indicated.

5.1.1 Summarized Exploration History

5.1.1.1 Early Work (1911-1926)

In 1911 a report was commissioned by the New York firm Weed and Probert to assess the economic value of the main Buchans sulphide deposit and to make recommendations for further exploration. In 1925, a geological examination was conducted simultaneously with an economic feasibility assessment by J.G. Baragwanath, a consulting engineer (Thurlow, 1991). It was stated that the area held great potential for finding further ore. In 1926 further exploration was conducted under the Swedish American Prospecting Company while the main orebody was being prepared for mining. At that time, Mr. Hans Lundberg perfected an exploration technique using an electrical survey called the equipotential line method and used this to define two anomalies over the known deposits. Trenching and a small amount of diamond drilling were conducted over these areas. Dr. W. H. Newhouse was commissioned to create a geological map of the area surrounding the mine in 1927. The expectation was that this map would help determine the source of the Pb-Zn boulders in Wileys River. Fieldwork, examination of the mine workings and drill core logging was conducted over the next few years to facilitate the report. The result of this work was that focus was placed on the presence of quartz porphyry as an indicator of proximity to a sulphide mineralized zone. Further exploration was recommended to the north of Wiley's River and in the Clementine Lake area. The manager of the mine changed these parameters in 1934, focusing instead on tracing mineralization, structural trends, and hydrothermal alteration away from the known orebodies at Lucky Strike and Oriental. These activities were conducted from surface and from underground workings and resulted in discovery of the southwest extensions of the Lucky Strike deposit. Small scale spot drilling programs were also carried out in the region to the south and southwest of the Lucky Strike orebody (Thurlow, 1991).

5.1.1.2 1928–1985 Asarco

Asarco started exploration of the Buchans Mine property in 1928. Between 1930 and 1984 extensive drilling programs produced more than 400 local surface and underground holes, leading to the discovery of most of the known mineralized zones and orebodies. Despite the scale of exploration, it was widely recognised that substantial gaps in the drill pattern could have overlooked additional targets. It was also recommended that shallow historic drill holes be extended, since surface and underground holes during this period were drilled to varying depths, with many measuring only 200 m or less, and the deepest reaching about 1,100 m. All surface diamond drilling was vertical, with core sizes varying from 22 mm (EX core) to 47.6mm (NQ core). Because much of the mineralization was previously defined as sub-economic, it was not sampled from drill core and limited assay data is available from this period. The earlier Asarco drilling program was closely spaced and concentrated primarily on the near surface equipotential anomalies outlined by Hans Lundberg that resulted in the discovery of the Lucky Strike and Oriental orebodies. Later expansion of the program by way of systematic outward extension of drilling led to the discovery of the Rothermere, Maclean and Maclean Extension orebodies in the mid-1940s (Swanson, 1981).

Gravity and Induced Polarization (IP) surveys were conducted primarily on the adjoining properties in the 1940s, and these yielded no new targets. In the 1960s, soil and till sampling southwest of the main Buchans property detected an anomalous trend believed to be derived from the Lucky Strike area, but at the time it was not considered to be significant enough to warrant further exploration. Asarco also conducted exploration in the region of Buchans West and in 1970 two diamond drill holes intersected mineralized and altered mafic and felsic volcanics in this area. These holes, numbers 2811 and 2813, were later re-logged by Newminex Ltd. in 1993, and flagged as showing similarity to the main mineralized horizon in the Buchans River Formation. The presence of strong stockwork mineralization and chloritic alteration plus pyrite, sphalerite, galena and chalcopyrite were key factors in this comparison. This mineralized zone is now termed the Clementine West deposit.

BP Resources Canada Inc. (BP) acquired exploration titles to the Buchans area properties in 1985 and in 1986 and completed an Input Airborne EM survey over the entire Buchans camp as well as down hole EM surveys on 13 historic diamond drill holes (Wallis 2002). Between 1985 and 1991 BP completed additional ground and airborne geophysical surveys, soil geochemistry and at least 3 diamond drill holes. During the period of 1991 to 1997 BP allowed mineral titles in the central Buchans property area to lapse.

5.1.1.3 1992-2001 GT/Newminex/Buchans River Joint Venture

In 1992 GT/Newminex/BRJV staked much of then available Buchans area lands and through additional options and joint ventures assembled the current property holdings. Their exploration work began in 1997 with a core re-logging program dedicated to re-interpreting the results of past drilling programs. The re-logging was initiated by GT when it was realised that the effect of thrusting on the stratigraphy was not fully understood at the time of Asarco's early diamond drilling. The majority of the surface drill holes in the Buchans Mine Property were re-logged during the 1997 to 2000 period. This program identified several potential targets not tested by previous drilling and several previously intercepted mineralized and altered zones were identified as new potential targets for further drilling. Finally, an updated geological database was compiled to support lithogeochemical and structural/stratigraphic studies.

Billiton Resources Canada Inc. (Billiton), Buchans River Ltd., Newfoundland Mining & Exploration Ltd., and GT Exploration Ltd. formed the Buchans River Joint Venture (BRJV) in September of 1998. This agreement stipulated that Billiton would spend $3,500,000 on exploration, and earn 51% interest in all the claims held by the joint venture partners in the Buchans area. When the joint venture was terminated in September 2001, Billiton did not retain or earn any interest in the property (Halpin, 2001).

The BRJV conducted an airborne EM survey in 1998 which defined a weak anomaly in conductivity in the Clementine West region. The two holes drilled by Asarco (2811 and 2813, that had been flagged previously for the presence of possible ore horizon indicators) occur within the anomaly. To further assess this relationship, hole BR-11-01 was drilled and returned promising results that led to completion of further Induced Polarization (IP), soil geochemistry surveys and diamond drilling.

A notable turning point in the exploration of this property occurred between 1997 and 2001, when results of lithogeochemical sampling provided differentiation between footwall and hanging wall signatures in the mineralized horizon sequence. This development resulted in re-interpretation of the local stratigraphy and re-assessment of target priorities. The new structural interpretation also defined several new areas having potential to contain untested ore horizon sequences. Based on this work and the re-logging of Asarco and BP era drill holes, new targets were finalized for testing and a drilling assessment program began in 1999. Over the next two years, significant new intersections of alteration and mineralization were discovered at Clementine West, the HAG Zone, Middle Branch, and the Airport Zone. Of particular interest was the area to the southeast of the Lucky Strike Mine known as the HAG Zone, which has a unique style of structurally modified mineralization. More specifically, numerous holes drilled in this area intersected high grade sulphide clasts that occur within late shear zones. While the source area of such clasts had not yet been confirmed, their presence was interpreted as supporting the revised structural model for the area and on this basis further drilling tests were recommended.

In 2000-2001 ERA-Maptec Ltd, a company based in Dublin, Ireland, conducted a structural reinterpretation of the Buchans mine site with on-site geologists working for Billiton. The study utilized the results of 3D modeling, with the goal of validating or developing the location of the historic ore horizon sequence within the existing structural model. Refinement of the model resulted in modification of the originally proposed antiformal stack structure into a nappe-like structure overturned to the south (Millar, 2001). This new model indicated that significant regions were present where ore horizon potential had not been tested at potentially exploitable depths on the overturned limb of the fold.

The structural reinterpretation of the region also included re-examination of the relationships between the local major faults and their control on the area's mineralization. The study proposed that synvolcanic faults trending northeast had been major feeders for the in situ Buchans deposits. This concept implies that the intersections of these faults with the modeled mineralized horizon represent important exploration target areas.

The developments in the structural and stratigraphic interpretations of the area prompted the BRJV to carry out several drilling programs. Six new holes were drilled on the Buchans mine property between 1999 and 2000 and two of these holes intersected what is now known as HAG-type (shear zone hosted massive sulphide clasts) mineralization. The best result from these holes was a 40 cm clast assaying 14.4% zinc, 7.6% lead, 0.4% copper, 5.6 g/t gold and 253 g/t silver. In the Middle Branch Trend and the Airport Zone, the four holes completed all encountered low grade sulphide mineralization.

Clementine West was the subject of an IP survey in 1999 and 2000 by Geoscott Exploration Consultants and Discovery Geophysics. The surveyed area measured 4.8 km in length and surveying was carried out at either 200 m or 400 m line spacing. Results were interpreted for Billiton by consulting geophysicist L. Reed, who identified several anomalous trends. The most significant trend was a one kilometre long chargeability high, with low resistivity. This response was believed to be caused by disseminated and stinger sulphides and could be traced by diamond drilling results.

Soil sampling and analysis was conducted over the Clementine West region using the Mobile Metal Ion (MMI) method and this study area covered a strike length of 2.4 km at a line spacing of between 200 m and 700 m. Samples were spaced at 50 m and totalled 240 in number. The results of this sampling program defined anomalies in four areas, two of which fall along the projected trend of the Clementine West mineralized zone.

The Newminex Buchans Project initiated a lithogeochemical sampling program in 1997 which continued through 2001. D. Wilton, L. Winter and G. Jenner of Memorial University of Newfoundland conducted the work over various time periods and 83 samples in total were collected and analyzed by XRF or ICP/MS at the university. Results of this work indicated that hanging wall and footwall rocks from the Lucky Strike deposit area can be differentiated from one another through major and trace element signatures. The transition between tholeiitic rocks and calc-alkaline marks the change from footwall to hanging wall rocks, and also marks the occurrence of the main ore horizon stratigraphic sequence. A model of the chemical stratigraphy for the Buchans area was also developed on the basis of major, trace, and rare earth element geochemistry. The purpose of this model was to aid in identification of areas where unexplored ore horizon stratigraphy could be found under hanging wall stratigraphy that had been previously mis-identified as footwall stratigraphy (Jenner, 2001).

Based on comparisons with host rocks of the known Buchans orebodies, and on the geochemical results regarding base metal and barium content, the Clementine West area was considered highly prospective. Most of the samples from Clementine West contained footwall signatures, with two anomalous results coming from a 1994 drill hole. These two samples contain hanging wall signatures, which could suggest a possible exploration vector in the opposite direction of this hole (Wilton, 2001). Further sampling was recommended to confirm the findings in this area. Galena samples from Clementine West were found to have lead isotope signatures identical to those from the former Lucky Strike Mine, which infers a common source of lead for both areas.

Billiton spent $2.4 million exploring the property before selecting drilling targets as part of a detailed compilation and re-interpretation of the geology hosting the former Buchans mines. Billiton authored a report in May 2001 and presented a list of 126 high priority targets totalling 46,020 m of drilling. These targets were based on potential to host high-grade massive sulphide deposits similar in size and grade to the former Lucky Strike mine. When the joint venture was terminated in September 2001, Billiton did not retain or earn any interest in the property (Halpin, 2001).

5.1.1.4 2007–2008 Buchans River Limited

In the fall of 2007 Buchans River Limited (BRL) reviewed the Billiton report and the list of potential drill targets in the area adjacent to the previously operated mine sites and selected 8 locations for drilling. These were in the area of the former Lucky Strike Mine and in an area to the north of the former Old Buchans and Oriental mine sites. BRL completed the 8 hole drill program, comprising 3,850 m, and all holes intersected favourable felsic volcanic rocks but failed to identify significant sulphide accumulations as either massive sulphides or transported sulphide clasts typical of ores previously mined at Buchans. Intersected mineralization was limited to disseminated and stringer sulphide mineralization, as well as minor sections hosting altered and sulphide-mineralized clasts.

The three most easterly drill holes, H-07-3348 (500 m), H-07-3349 (500 m) and H-07-3350 (550 m) penetrated a series of interbedded basalt flows, felsic breccias, rhyolites, agglomerates and sandstones. Visible traces of pyrite, chalcopyrite, galena and sphalerite were observed as disseminated mineralization, in small blebs and in thin fracture fillings in the core. Stratigraphic correlation between these three holes was difficult but the agglomerate and sandstone sequences intersected in lower intervals appeared correlative. Primary sedimentary features, such as graded bedding, were occasionally noted in the sandstone units and indicated that the sequence was upright.

Drill holes H-07-3351 and H-07-3352, adjacent to and southwest of the first three holes, were completed to depths of 507 m and 500 m respectively. This drilling penetrated a similar interbedded volcanic/sedimentary package as recorded in the first three holes of the program. Trace amounts of pyrite, chalcopyrite, galena and sphalerite were observed in the core as disseminated mineralization, small blebs and fracture fillings. A felsic breccia intersected in drill hole H-07-3351, and to a lesser extent in drill hole H-07-3352, contained visible galena. The sandstone horizons identified in the bottom sequences in these two holes appeared correlative with sandstone units recorded in the earlier three holes (H-07-3348, 3349 & 3350) completed to the northeast. Graded bedding identified in the sandstone sequence also indicated that stratigraphy was upright.

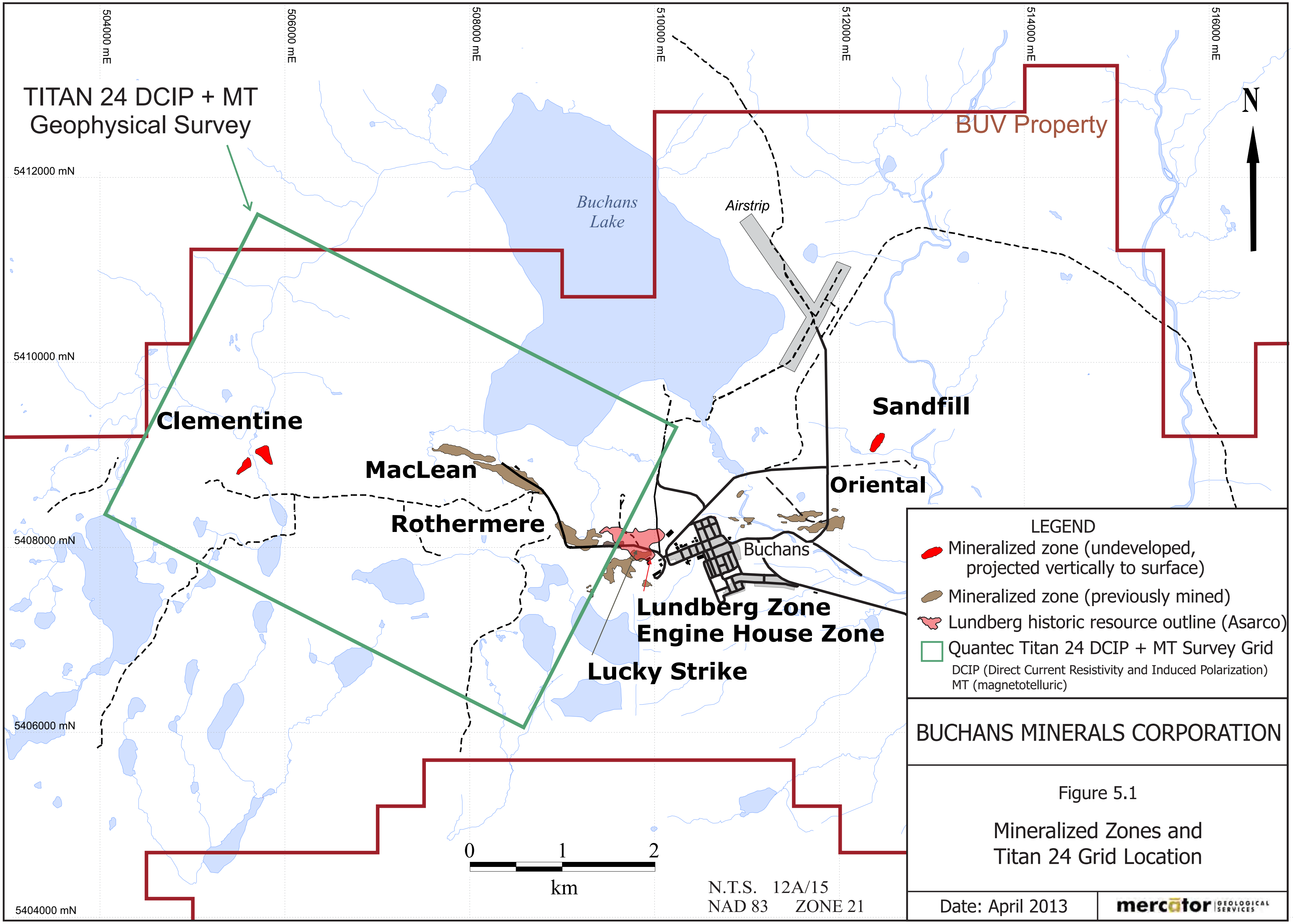
The final three drill holes in the program were located to the south (H-07-3353), north (H-07-3354) and northeast (H-07-3355) of the former Lucky Strike mine. The holes were drilled vertically to depths of 450 m (H-07-3353), 501 m (H-07-3354) and 551 m (H-07-3355).Hole H-07-3353, located to the south of Lucky Strike, penetrated a sequence of siltstones, sandstones and basalts and intercepted traces of pyrite as small blebs and thin fracture fillings. No primary sedimentary indicators of top direction were recorded. One sample returned slightly elevated Pb (0.33%), Cu (0.69%), Zn (1.17%) and Au (960 ppb) values over a 1.01 m core length within a felsic agglomerate unit postulated to be a debris flow.

Drill hole H-07-3354, located to the north of Lucky Strike, drilled through a series of basalt flows. Trace amounts of pyrite were identified in the core but no samples of core were collected for analyses due to the lack of observed base metal content.

The last hole in the program, H-08-3355, was located to the northeast of Lucky Strike. This hole penetrated a series of interbedded agglomerates, sandstones, rhyolites, basalts and felsic breccias. Traces of pyrite, chalcopyrite, galena and sphalerite were observed in the core as disseminated mineralization and as small blebs and fracture fillings. Core samples sent for analyses returned background values for the elements tested.

The best assay results returned from the program included an interval in hole H-07-3351, located approximately 400 m northwest of the former Oriental Mine and 2 km northeast of the former Lucky Strike Mine. This hole cut a 1.5 m section of mineralized felsic volcanic rocks that assayed 1.34% Zn, 2.95% Pb, 0.13% Cu, 24.4 g/t Ag and 0.68 g/t Au. Included in this was an interval grading 1.50% Zn, 4.40% Pb, 0.13% Cu, 38.0 g/t Ag and 1.82 g/t Au over a core length of 0.50 m.

In June of 2007, BRL contracted Quantec Geoscience Limited (Quantec) to complete a Titan 24 Direct Current Resistivity and Induced Polarization (DCIP) & Magnetotelluric (MT) survey to cover a 3.6 x 5.1 km portion of the Buchans area covering the past producing Lucky Strike, Rothermere and MacLean deposits as well as the undeveloped Clementine deposit and the northwest portion of the Lundberg zone (Figure 5.1). This area accounts for a large proportion of the historical production at Buchans and was considered to have significant potential for further base metal discoveries both down plunge and adjacent to known deposits. Historical geophysical surveys at Buchans were considered to have tested to maximum depths of up to 250 m but, the Titan 24 DCIP & MT surveys was selected due to its capability to locate deep sulphide rich zones at depths between 500 m and 750 m for the DCIP component and at depths to 1,500 m depth using the MT component.


TITAN 24 DCIP + MT
Geophysical Survey
504000 mE
506000 mE
508000 mE
510000 mE
512000 mE
514000 mE
516000 mE
5412000 mN
5410000 mN
5408000 mN
5406000 mN
5404000 mN
BUV Property
N
Buchans
Lake
Airstrip
Clementine
MacLean
Rothermere
Sandfill
Oriental
Buchans
Lundberg Zone
Engine House Zone
Lucky Strike
0
1
2
km
N.T.S. 12A/15
NAD 83 ZONE 21
LEGEND
Mineralized zone (undeveloped, projected vertically to surface)
Mineralized zone (previously mined)
Lundberg historic resource outline (Asarco)
Quantec Titan 24 DCIP + MT Survey Grid
DCIP (Direct Current Resistivity and Induced Polarization)
MT (magnetotelluric)
BUCHANS MINERALS CORPORATION
Figure 5.1
Mineralized Zones and
Titan 24 Grid Location
Date: April 2013
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In 2007 BRL retained Mercator to undertake an extensive compilation of available geoscientific information relating to its holdings in the Buchans area. This program was designed to convert historic hard copy files into a comprehensive digital record and to assist with the identification of new targets on the property.

This program included a detailed review and compilation of government assessment reports, government and industry technical reports, digital government data, published maps and diamond drill logs. All reviewed information was compiled and cross-checked with original survey files. The compilation particularly focused on compiling and digitizing historical diamond drilling information, which includes logs for over 3000 historical drill holes that date back to 1928. Hard copy drill logs were acquired from a number of sources including company files, Department of Natural Resources assessment files and website resources and historic government archives. A digital drill hole database was established for the project and all pertinent information was extracted and entered into the database. The collar co-ordinates for each hole, along with metadata, sample assay and interval information, structure information and lithologies were recorded in the database and approximately 490 drill holes were compiled from the areas of active BRL exploration interest such as the Titan 24 Grid and the Little Sandy, Clementine, Clementine West and the Lundberg Zone areas (Figure 3.2).

In addition to the above compilation, results from two historic digital drill hole databases developed for earlier Billiton 3D modeling and work by Billiton/BRL were also assessed and incorporated into the larger compilation project database prepared by Mercator.

In addition to the historical drill hole compilation, information pertaining to previous exploration work on the Buchans property was compiled in a MapInfo GIS database. This includes results of past ground and airborne surveys and information was obtained from previous assessment reports, the online Newfoundland and Labrador Department of Natural Resources (NLDNR) Mineral Occurrence Database (MOD) and various internal company documents.

5.1.1.5 2008-2010 Royal Roads Corporation

On May 30, 2008, Royal Roads Corp. (RRO), BRL, and a wholly-owned subsidiary of RRO combined their assets and operations covering a total of 33,700 hectares within Central Newfoundland and Labrador's Victoria Lake and Buchans mining camps. This included the historic Buchans mine area held by BRL and the Daniels Pond Zn-Pb-Cu deposit held by RRO. The business combination was such that all outstanding securities of BRL not already owned by RRO were exchanged for common shares, common share purchase warrants and options of RRO. The purpose of this amalgamation was to create a stronger position from which to advance exploration and development efforts on the various mineral properties and to generate a greater value for all shareholders between the two companies. Both BRL and RRO announced in a joint press release on July 28, 2008 that BRL had amalgamated with a wholly-owned subsidiary of RRO with the effective date of this arrangement being July 25, 2008. This arrangement gave RRO 100 % control of the associated exploration activities (RRO/BRL Joint New Release PR #09-08/PR #12-08 May 30, 2008).

From January 4, 2008 to January 8, 2009, Mercator undertook a compilation of previous and current drilling on the Buchans property, with assistance from RRO staff. This work was primarily undertaken to assist to (i) evaluate the area surveyed by Titan 24 geophysical survey completed in 2007 and early 2008 (Section 5.5), (ii) aid review of the Clementine West prospect, and (iii) support resource estimates for the Lundberg and Engine House deposits. During this work period, results for a total of 3,594 drill holes occurring within or on the immediate periphery of RRO's Buchans property were compiled, of which 2,264 were underground drill holes (Lundberg deposit area) and 1,330 were surface drill holes. All surface holes had geological information compiled in addition to assay and directional survey information. Compiled Lundberg deposit underground drill holes were entered to assist with estimation of resources within the deposit area and were subsequently used by Mercator in deposit modeling and resource estimation programs carried out in 2008. A detailed account of this compilation is described by Moore and Butler (2009).

Mercator undertook re-logging of archived drill core that was available at the Buchans core library operated by the NL Government. This program led to identification of two new target areas requiring further follow-up. These were: (i) an area extending south of the Clementine prospect, between Clementine and Clementine West, and (ii) an area south and west of the Engine House deposit. Within these areas, untested chargeability anomalies are present that extend outward from known zones of anomalous sulphide mineralization. In the case of the Clementine target, a corridor of high chargeability extends southwest of the Clementine deposit. The second area located south of the former Lucky Strike and Engine House mines consists of a zone of higher chargeability that extends south from lower grade stringer stockwork mineralization south of historic hole H-777. The lower part of this hole hosts mineralized volcanic rocks with traces of base metals that may be associated with the thin, up dip edge of a larger chargeability anomaly that remains untested to the south. A detailed account of this reassessment is described in a report by Moore and Butler (2010).

In early 2008, Paul O'Brien, P. Eng., of Buchans Enterprises, an unrelated company, was contracted by RRO to assess possible alternative sites for disposal of historic tailings and concentrate spill material located immediately south of the former Buchans mill site. Abitibi Bowater (now Abitibi Consolidated Inc.) had proposed to dispose of contaminated material in the Lucky Strike glory hole but this location was considered detrimental to potential future development at the Lundberg deposit. Mr. O'Brien suggested that workings associated with the Rothermere shaft had sufficient accessible volume to accommodate the spill material but RRO was subsequently advised by Abitibi Bowater that their preferred means of cleaning up the approximately 30,000 cubic metres of spill was to construct an in situ engineered cap. A detailed account of this assessment is described by Moore and Butler (2009).

In July of 2008, the results of the Titan 24 survey were received by RRO. The survey covered a portion of the Buchans area including the former Lucky Strike, Rothermere and MacLean mines as well as the undeveloped Clementine prospect. Details of the Titan 24 survey are discussed by Moore and Butler (2010). Most of the 130 targets initially selected by Quantec were associated with chargeability highs that were subsequently determined to coincide with hematitic mafic volcanic and intrusive rocks. Additionally, it was observed that underground rails and wiring associated with two underground access levels of the mines had essentially rendered the survey blind near the former orebodies and caused initial processing of the Titan data to wash out and overlook weaker responses throughout the entire survey area that may be associated with new economic accumulations of base metal sulphide mineralization. As a result, a request was made to Quantec to reprocess the Titan data in early September of 2008 to diminish the effects of the underground culture, even if it meant removal of the compromised data (near the former mines) form the larger dataset.

On February 18th, 2009, RRO was notified by Quantec that some of the surveys from 2007 and 2008 may be flawed as field operators may have copied data to replace or substitute actually survey data that was failing to meet survey specifications. Review of the data by Quantec was conducted over several months. Quantec dispatched a field crew to Buchans to recollect Titan MT data in the affected areas using the Spartan Tensor Magnetotelluric Survey system during the period of June 25 to July 13, 2009. Quantec issued a logistics report along with revised dataset which was subsequently forwarded to Mira Geosciences of West Mount, Quebec.

From January 2009 to June 2010, RRO advanced its ongoing compilation of historic drill holes into a modern digital database. Given the scale of this task, RRO had previously requested permission to file additional compilation on an annual basis as the sheer volume of historic data available prevented RRO from being able to compile the project in a single year. During this time, remaining assay data from historic drill holes were obtained from Asarco archival documents (scanned logs and assay sheets) and were entered into an excel spreadsheet and imported into RRO's Microsoft Access (™) drilling database for the project. The database was then re-imported into RRO's 3D digital GOCAD(™) model. Of the 2,120 drill holes checked, approximately 592 had no associated analytical data or other useful record information. All compiled holes were located within licence 10551M but the updated GOCAD model covered a more extensive project area.

Mira Geosciences subsequently completed the 3D GOCAD compilation update of various digital datasets including the Quantec Geoscience Titan 24 results and diamond drilling using the

Mercator database and 3D geological contact surfaces, plus other available digital data that includes bedrock geology, archived airborne and ground geophysical data, and registered topography and imagery.

5.1.2 Lundberg Deposit

The following account of exploration history relevant to the Lundberg Deposit was taken from two NI 43-101 technical reports prepared previously by Mercator, the first for BRL (Webster et al., 2008) and the second for RRO (Webster and Barr, 2008), unless otherwise indicated. In the current report, the Lundberg Deposit is considered to include both the Lundberg Zone and the Engine House Zone. Previous reporting by Webster and Barr (2008) dealt with these as contiguous but separate deposits.

In September 2007, BRL announced that it had located archived documents outlining an historic, uncategorized mineral resource estimate for a zone of stockwork style base metal mineralization peripheral to the former Lucky Strike mine. This historic, uncategorized resource estimate reported approximately 13.1 million short tons (11.9 million tonnes) with an average grade of 1.83% zinc, 0.67% lead, 0.38% copper, 0.16 ounces per ton silver (5.5 g/t) and trace amounts of gold (Asarco, 1974; BRL PR #14-07). The associated 1974 Asarco documents, plans and sections detail a mineralized zone referred to as the “Lucky Strike Low Grade” mineralization, which BRL renamed the “Lundberg zone”. This resource estimate is considered historic in nature, is not National Instrument 43-101 compliant and therefore cannot be relied upon. At that time, sufficient work by a Qualified Person had not been carried out to define the nature of additional work required to allow re-classification of the estimate under NI 43-101.

The mineralized zone was described by Thurlow and Swanson (1981) as a network of sulphide veins cutting strongly altered and sulphide impregnated host rocks occurring under the Lucky Strike deposit at Buchans. They describe a wedge shaped zone of mineralization that is 360 m wide that extends 600 m down dip and has a thickness of up to 100 m. The zone subcrops under shallow (<1.5m depth) surface material at the east end of the Lucky Strike pit, where it contains sulphide-rich mineralization intercepted in historic drill holes completed by Asarco and BRL.

Mercator was retained by RRO and predecessor Buchans River Ltd. in 2007 and 2008 to help plan, manage and carry out a diamond drilling program to support a mineral resource estimate on the Lundberg and Engine House stockwork zone. During the 2007 and 2008 period, 53 surface drill holes were completed on the Lundberg and Engine House zones (H-08-3356 to H-08-3409; Figure 5.2), totalling 8,058 m of NQ size core (4.76 cm diameter). The program was designed to specifically test the grade and extent of the known stockwork mineralization.

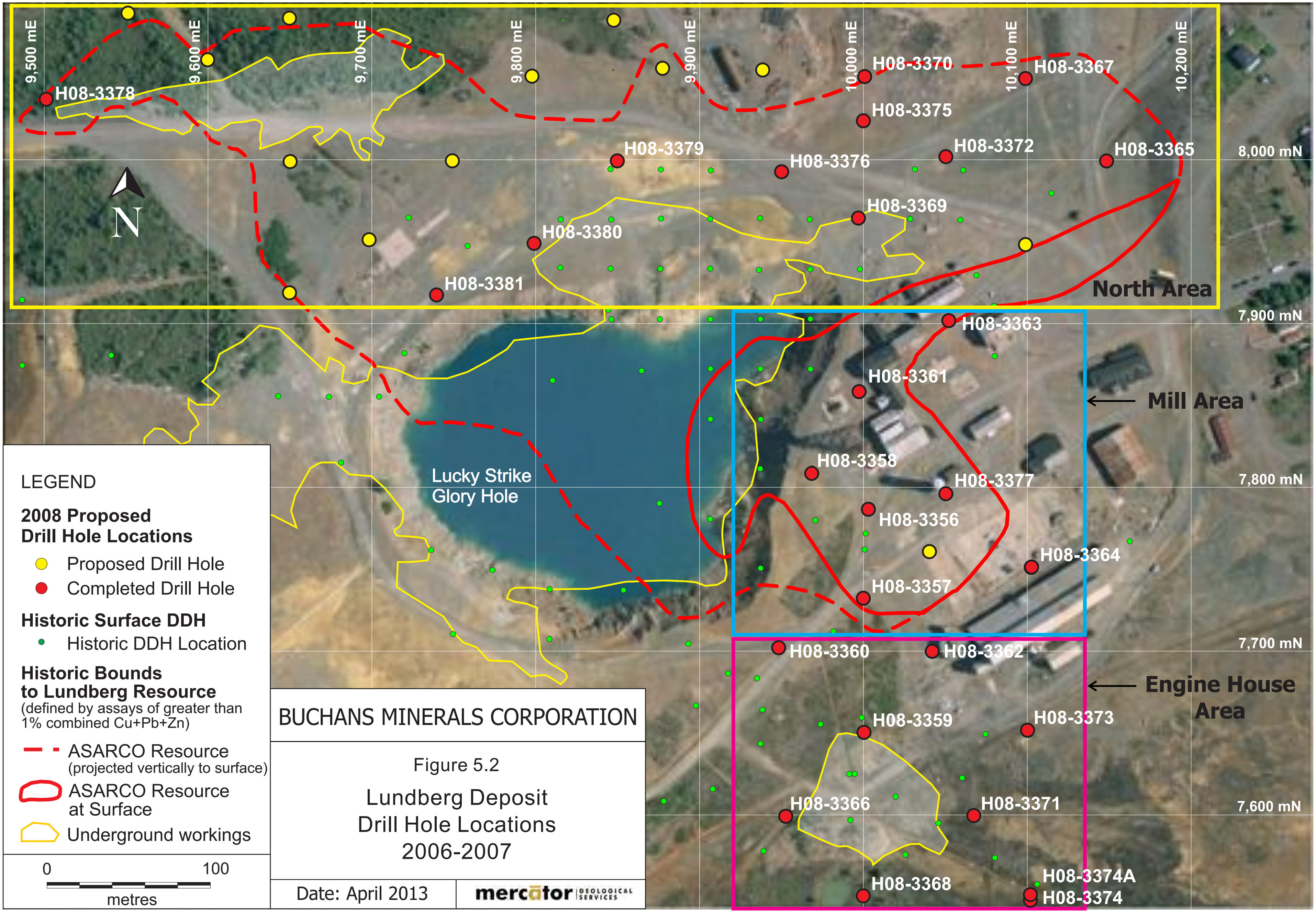

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Figure 5.2

Lundberg Deposit
Drill Hole Locations
2006-2007

Date: April 2013

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A total of 43 drill holes totalling 6,853 metres were completed on the Lundberg deposit during this BRL program. The true widths of the mineralization have not been estimated from drill holes intersections due to stockwork and disseminated nature of mineralization, however, a predominant sub-horizontal mineral trend exists in the stockwork system beneath the Lucky Strike glory hole.

The Engine House zone has been defined as a separate mineralized body located immediately adjacent to the main Lundberg zone and, for the purpose of the 2008 resource estimate by Mercator, was modelled as a separate zone. A total of 10 drill holes totalling 1,205 m were completed on the Engine House zone during this BRL program.

Mercator compiled analytical data for zinc, lead, copper, silver, gold and barite from this drilling in addition to historical assay results from previous drilling on the property. Results of this work resulted in an Inferred Mineral Resource Estimate (effective date of November 3, 2008) that was compliant with disclosure requirements of NI 43-101 as well and the Canadian Institute of Mining and Metallurgy Standards for Mineral Resources and Mineral Reserves: Definitions and Guidelines. This resource estimate was superseded by the current estimate and should no longer be relied upon. In addition to the resource estimate, an estimate was made that outlined the percentage of the resource tonnage that lies within 100 vertical metres of surface. These numbers did not constitute or suggest the amenity of economics or mineability of the contained mineralized material, but did offer insight into the spatial distribution of minerals within the block model. The results of the resource estimate are as follows:

Table 5.1: Lundberg Zone Inferred Resource Estimate – November 3, 2008

Zn % Threshold	Tonnes Rounded	Zn %	Pb %	Cu %	Combined Zn+Cu+Pb %	Ag g/t	Au g/t	$BaSO_4$ %	Percentage of Tonnage within 100 m of Surface
1.00	**15,690,000**	**1.96**	**0.83**	**0.38**	**3.17**	**6.57**	**0.08**	**2.36**	**61.79%**
1.50	9,300,000	2.46	1.03	0.43	3.92	8.26	0.10	2.84	66.40%
2.00	5,340,000	3.02	1.25	0.49	4.76	10.27	0.12	3.47	70.62%
2.50	3,170,000	3.56	1.46	0.53	5.55	12.28	0.14	4.65	72.83%
3.00	1,880,000	4.13	1.66	0.57	6.36	14.32	0.14	6.20	75.68%
3.50	1,090,000	4.79	1.93	0.62	7.34	16.46	0.15	8.64	81.35%

Table 5.2: Engine House Zone Inferred Resource Estimate – November 3, 2008

Zn % Threshold	Tonnes Rounded	Zn %	Pb %	Cu %	Combined Zn+Cu+Pb %	Ag g/t	Au g/t	$BaSO_4$ %	Percentage of Tonnage within 100 m of Surface
1.00	**890,000**	**2.37**	**0.95**	**0.96**	**4.28**	**11.29**	**0.15**	**4.40**	**58.73%**
1.50	600,000	2.89	1.10	1.05	5.04	12.17	0.16	4.87	60.56%
2.00	370,000	3.62	1.27	0.97	5.86	12.71	0.19	5.51	60.40%
2.50	240,000	4.35	1.41	0.94	6.70	12.34	0.22	5.56	52.04%
3.00	190,000	4.77	1.50	0.93	7.20	12.32	0.23	5.63	56.35%
3.50	140,000	5.28	1.56	0.91	7.75	12.33	0.23	5.60	56.28%

In completion of the Lundberg and Engine House resource estimates, Mercator also tabulated tonnage and grade figures for the Lundberg (Table 5.4) and Engine House (Table 5.5) zones based on a 1% combined base metal grade cut-off (Zn%+Pb%+Cu%). This tabulation does not constitute part of the 2008 resource statement and prepared to provide comparison between Asarco's historic tonnage and grade estimate with general modelling parameters used in the 2008 resource estimate described above. The results of the 1% combined base metal cut off tabulation are as follows:

Table 5.3: Lundberg Zone - 1% Zn+Pb+Cu Threshold – November 3, 2008

Zn+Cu+Pb % Threshold	Tonnes Rounded	Zn %	Pb %	Cu %	Combined Zn+Cu+Pb %	Ag g/t	Au g/t	$BaSO_4$ %
1.00	20,700,000	1.68	0.72	0.38	2.78	5.92	0.07	2.11

Table 5.4: Engine House Zone - 1% Zn+Pb+Cu Threshold – November 3, 2008

Zn+Cu+Pb % Threshold	Tonnes Rounded	Zn %	Pb %	Cu %	Combined Zn+Cu+Pb %	Ag g/t	Au g/t	$BaSO_4$ %
1.00	1,120,000	2.04	0.85	0.82	3.71	9.79	0.12	3.74

All 2008 figures noted above were reported from a three-dimensional deposit block model developed by Mercator using Surpac© Version 6.0.3 deposit modelling software. Analytical results for 178 diamond drill holes were used in the estimate, of which 42 drill holes are from 2007-2008 drilling and 136 drill holes are from validated historic data. The model utilized 1 meter down-hole assay composites individually calculated for Zn(%), Pb(%), Cu(%), Ag(g/t), Au (g/t) and $BaSO_4$ % database values.

6 Geological Setting and Mineralization

The following descriptions of geological setting and mineralization were substantially excerpted from Webster et al. (2008a) and Webster et al. (2008b) unless otherwise indicated.

6.1 Regional Geology

Newfoundland is comprised of several tectono-stratigraphic zones which include from north to south, the Humber Zone, Dunnage and Gander zones of the NE-SW trending Central Mobile Belt (CMB), and the Avalon Zone (Figure 6.1). The current BMC property holdings described in this report all lie within the Dunnage Zone.

The Dunnage Zone represents volcanic vestiges of Cambro-Ordovician continental and intra-oceanic crust, back-arc basins, and ophiolites that formed in the Iapetus Ocean (Williams, 1979; Kean et al., 1981; Swinden, 1990, Williams 1995). The zone is divided by an extensive fault system (the Red Indian Line) into a western peri-Laurentian segment (Notre Dame and Dashwoods subzones), and an eastern peri-Gondwanan segment (Exploits Subzone) (Figure 6.1). In the immediate property area, the Red Indian Line separates the Notre Dame Subzone (Buchans Group), which formed on the Laurentian or North American side of the Iapetus Ocean, from the Exploits Subzone (Victoria Lake Supergroup), which formed on the Gondwanan side of Iapetus.

Deformation associated with the final closure of Iapetus culminated during the Late Silurian, at which time thrusting and folding juxtaposed these initially geographically distinct volcanic belts (Colman-Sadd et al., 1992). The two main subzones of the Dunnage Zone (i.e., Notre Dame and Exploits subzones) have been conclusively differentiated based on stratigraphic, structural, faunal, and isotopic characteristics (Williams et al., 1988).

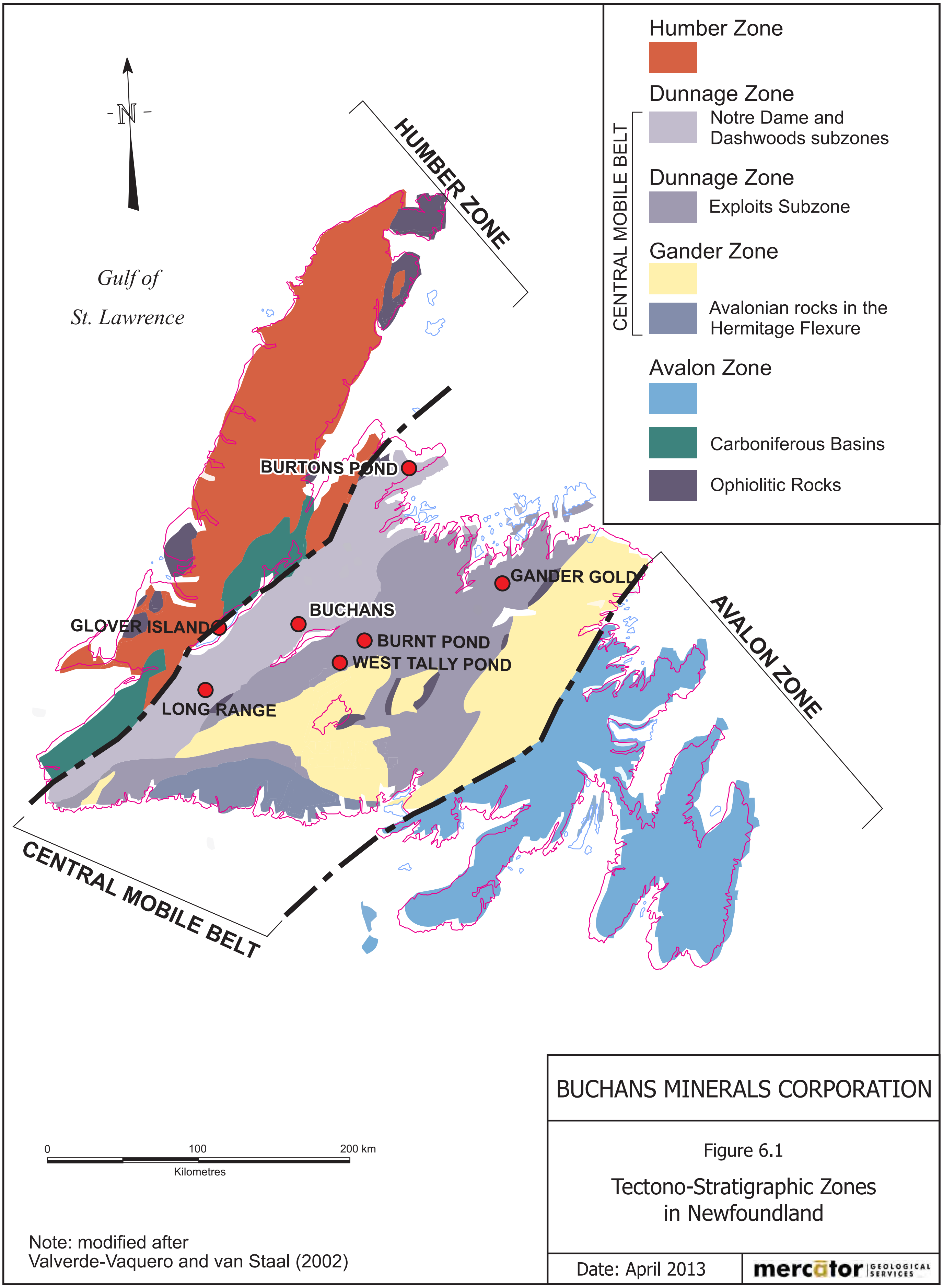

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Figure 6.1

Tectono-Stratigraphic Zones
in Newfoundland

Date: April 2013

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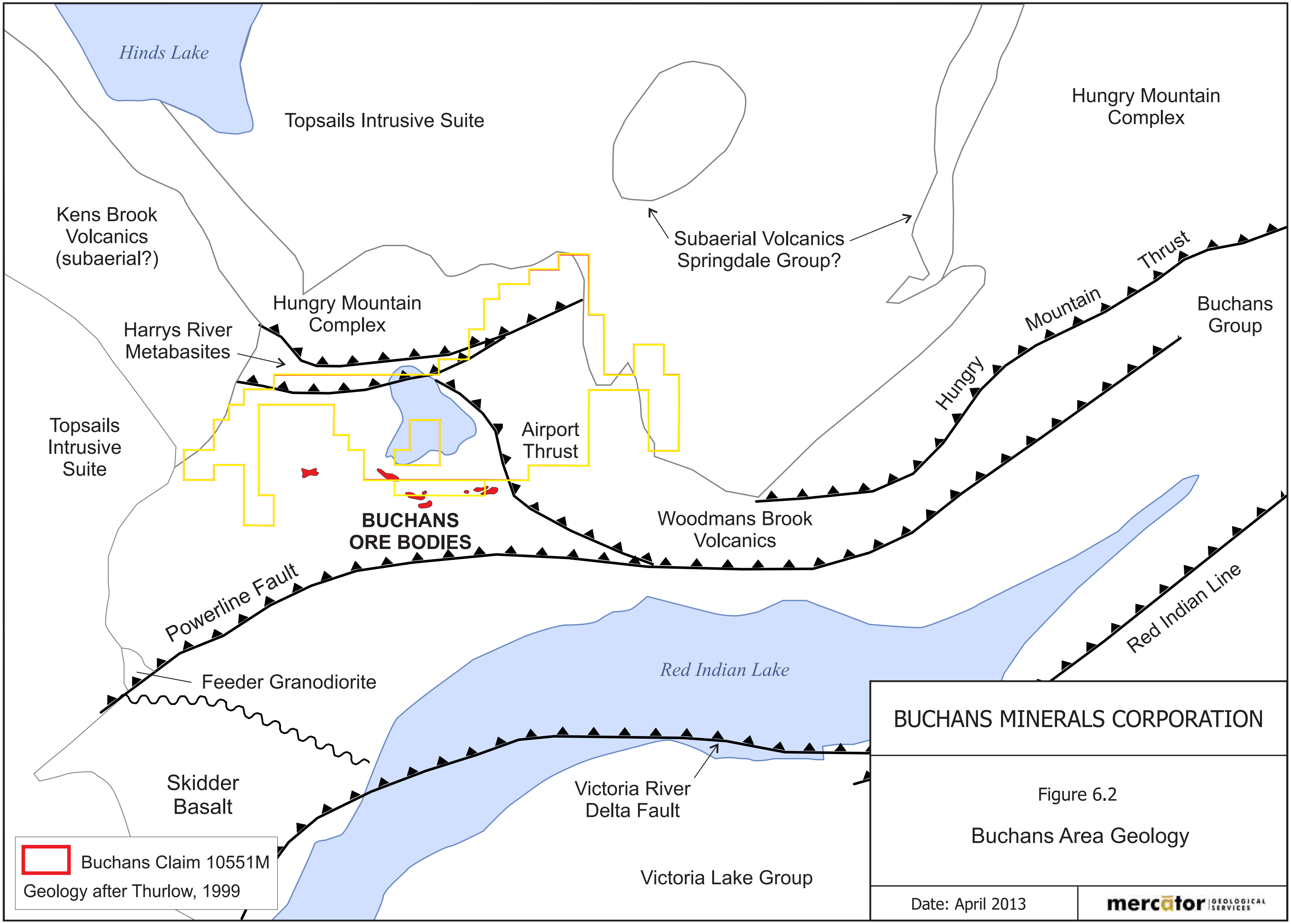
6.2 Local Geology

6.2.1 Buchans Area

The Dunnage Zone volcanics range in composition from basalt to rhyolite. They become increasingly felsic with height in the stratigraphy and may be correlative with the Roberts Arm Group of Notre Dame Bay area to the north (Thurlow and Swanson, 1981). This variation from mafic to felsic volcanism is repeated several times within the Buchans Group and repetition was originally interpreted as repeating volcanic cycles (e.g. Thurlow et al., 1975). A revised and more generally accepted geological interpretation explains this repetition as being largely attributable to thrusting (Thurlow and Swanson, 1981).

The five main ore bodies historically mined at Buchans are thought to occur within a single felsic stratigraphic horizon within the Buchans Group. The Buchans Group lies structurally above the ophiolitic Skidder Basalt in the southwest, and the Victoria Lake Supergroup of Cambro-Ordovician origin to the southeast (Figure 6.2). The Feeder Granodiorite is an intrusive body that represents part of the subvolcanic magma chamber which fed the Buchans Group in some areas. Geochemical evidence suggests the Feeder Granodiorite is the source of granitic boulders found within the breccia-conglomerate deposits within the transported ores at Buchans (Thurlow and Swanson, 1981).

Poly-deformed intrusive rocks of the Cambro-Ordovician Hungry Mountain complex are thrust over the Buchans Group in the north and are intruded by the Devonian Topsails Granite in the northeast. In the northwest, Silurian subaerial volcanics unconformably overlie the Buchans Group and carboniferous red beds overlie the Buchans Group in the Red Indian Lake basin. The Kens Brook Volcanics are also thought to overlie the Buchans Group, but this relationship is not clearly understood (Thurlow and Swanson, 1987 and Thurlow, 1999). The rocks in the Buchans area are metamorphosed to low grade prehnite-pumpellyite facies and were originally determined to have an age of 473 +/- 2Ma derived from U-Pb zircon age dating of Buchans Group rhyolite (Dunning et al., 1987). Subsequent age dating by the Geological Survey of Canada now suggests the Buchans rocks have ages closer to 462±3 Ma and 465±3 Ma (Zagorevski and Rogers, 2008; Zagorevski et al., 2007) based on U-PB zircon dating conducted on rhyolites near the former Oriental Mine.



BUCHANS MINERALS CORPORATION

Figure 6.2

Buchans Area Geology

Date: April 2013

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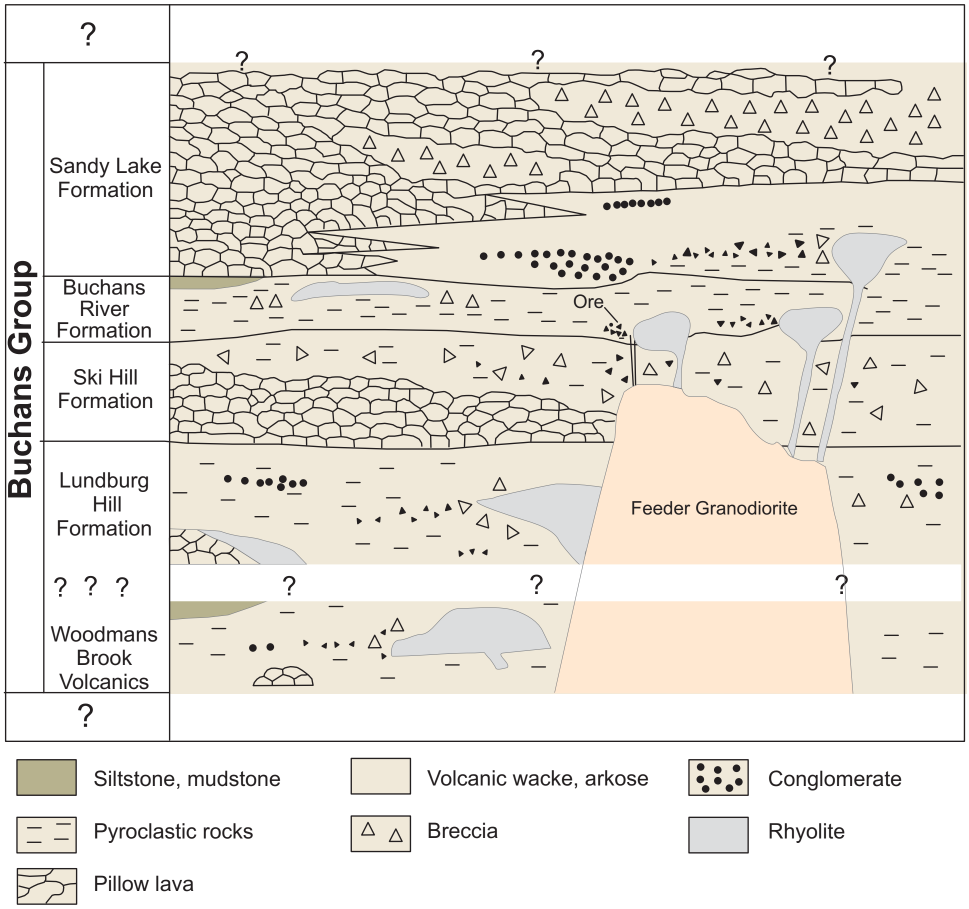
6.3 Property Geology

6.3.1 Buchans Area

As mentioned above, the five main ore bodies historically mined at Buchans are thought to occur within a single felsic stratigraphic horizon within the Buchan Group, but recognition of this stratigraphy on a regional basis is difficult. Thurlow et al. (1975) noted that the mafic to felsic volcanism was repeated several times within the Buchans Group and initially explained this as cyclical re-occurrence. Subsequent studies following the closure of mining operations in 1984 resulted in recognition of regional thrusting and structural repetition of geology which resulted in re-interpretation of Buchans Group stratigraphy (Thurlow and Swanson, 1987). The stratigraphic re-interpretation of the Buchans Group was largely based on the relationship of fault bound mineralized blocks and led to the establishment of four sub-units within the Buchan Group. These are felsic and mafic volcanic sequences identified as the Lundberg Hill, Ski Hill, Buchans River, and Sandy Lake Formations, in addition to the Feeder Granodiorite and an unresolved unit named the Woodmans Brook Volcanics (Thurlow, 1999) (Figure 6.3).

The lowermost unit of the Buchans Group is the Lundberg Hill Formation, which is characterized by felsic pyroclastic rocks, coarse pyroclastic breccia, rhyolite, tuffaceous wacke, siltstone, and lesser basalt with minor chert and magnetic iron-formations. The Lundberg Hill Formation has a maximum thickness which ranges from 200 to 1000 m (Dunning et al. 1987). The Lundberg Hill Formation is conformably overlain by the Ski Hill Formation which is dominantly composed of dark green mafic pillow lavas, breccias and pyroclastic rocks (Dunning et al. 1987).

The Buchans River Formation hosts the historic ore deposits mined at the Lucky Strike, Engine House, Oriental, Rothemere and MacLean mines and is comprised of felsic tuff, rhyolite breccia, pyritic siltstone, wacke, polylithic breccia-conglomerate and granite boulder conglomerate, plus both in situ and transported sulphide zones. This Formation ranges from 200-400 m in thickness in the mines area and smaller amounts of the formation are found locally throughout the Buchans area (Dunning et al. 1987) (Figure 6.3).



Stratigraphy of the Buchans Group

Formation	Maximum Thickness in Orientall Block	Maximum Thickness	Lithologies
Sandy Lake Formation	200m	2000m?	Basaltic pillow lava, pillow breccia intertonguing with coarse grained, redeposited clastic rocks of felsic volcanic derivation (arkosic conglomerate, arkose, wacke, siltstone). Local abundant tuff, breccia, polylithic pyroclastic breccia and tuffaceous sedimentary rocks.
Buchans River Formation	200m	400m?	Felsic tuff, rhyolite breccia, pyritic siltstone, wacke, polylithic breccia-conglomerate, granite boulder conglomerate, high-grade in situ and transported orebodies.
Ski Hill Formation	1000m	1000m?	Basaltic to andesite hyaloclastic breccia, pillow lava and massive flow with local polylithic breccia near the stratigraphic top. Minor felsic tuff.
Lundburg Hill Formation	200m minimum	1000m?	Felsic pyroclastic rocks, coarse pyroclastic breccia, rhyolite, tuffaceous wacke, siltstone, lesser basalt, minor chert and magnetic iron-formation

Geology after Thurlow, 1999

BUCHANS MINERALS CORPORATION

Figure 6.3

Generalized Stratigraphy of the Buchans Group

Date: April 2013

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The Buchans Group has been subjected to two major periods of deformation. The first was a Silurian episode of south-easterly-directed thrusting during which the Hungry Mountain Complex, which consists largely of pre-deformed granitoid rocks, was emplaced upon the Buchans Group. In addition, this period of thrusting caused repetition of units within the Buchans Group, including the possible repetition of an originally continuous sulphide bearing sequence that hosts the past-producing ore deposits. The second deformational event resulted in development of broad open folds during the Devonian, which show associated weak, northeast-trending axial planar cleavage in all rock types. A large northeast-trending syncline in the Buchans Group is related to this event (Thurlow, 1981).

In 2001, a new structural model was proposed to explain the repetition of geology within the Buchans Group. This re-interpretation suggested that instead of an imbricated thrust stack, the structural geology could be explained by recumbent nappe structures that show over turned limbs to the south. This model was thought to provide a clearer understanding of the inter-relationship between the various faults and thrusts that controlled emplacement and deformation of the Buchans sulphide mineralization (Millar, 2001).

Lithogeochemical studies throughout the Buchans area also led to a new interpretation of stratigraphy. The new hierarchy is based solely on geochemical parameters as opposed to the more subjective previous criteria of lithologies and textures (Jenner, 2001). These studies have identified two separate volcanic cycles and the felsic rocks which host the Buchans sulphide deposits are interpreted to occur near the interface of Cycle 1 and Cycle 2. An important implication of this work is that recumbent, overturned folds may define untested zones where the important sulphide bearing horizon could be present (Jenner, 2001).

6.4 Mineralization

6.4.1 Buchans Area

Mineralization in the Buchans area is associated with the three main genetically related mineral deposit types: 1) massive in situ sulphide; 2) transported sulphide clasts; and 3) stockwork and stringer sulphides. The Lucky Strike and Oriental #1 deposits are the best known examples of the in situ sulphide style of mineralization, contain the highest metal grades mined in the Buchans area and occur on the current BMC property. Massive in situ sulphides exhibit various textures, but massive, fine grained, streaky texture is most common and occurs in aggregates of sphalerite, galena, barite and lesser chalcopyrite. Thurlow et al. (1975) reported presence of trace amounts of enargite, native silver and argentite, ruby silver and gold tellurides, in addition to native silver and gold in this style of mineralization. Minor sulphides also include tetrahedrite-tenantite, chalcocite and bornite. Pyrite forms a relative minor part of the massive sulphide assemblage but is more common in association with stockwork sulphides (Thurlow and

Swanson, 1981). The paragenetic sequence of mineral deposition is complex and includes resorption, fracturing and re-deposition. Pyrite appears to be the first mineral deposited and sphalerite, chalcopyrite and galena are thought be deposited at the same time. However, chalcopyrite is also seen as blebs, lamellae and veins (Strong, 1981).

Transported mineralization occurs as elongate, tabular accumulations of discrete high grade fragments (Thurlow and Swanson, 1981). These deposits reflect transport by density flows that were controlled by paleo-topographic lows that extended down slope from in situ sulphide zones. The MacLean, Rothermere, Clementine and Oriental #2 deposits are examples of transported sulphide styles of mineralization. Together with the massive style, they represent 98% of the production from Buchans deposits. The transported mineralization occurs as mechanically transported sulphide breccia lenses composed of sulphide bearing fragments derived from in situ sulphide zones (Thurlow and Swanson, 1981). These deposits demonstrate transport of as much as 2 km from source areas. Sulphide fragments range from angular to sub-rounded and display streaky textures, with sphalerite, galena, chalcopyrite and barite being the main minerals. Unlike the in situ sulphide, these deposits have no associated stockwork zone. All of these deposit types occur on the BMC property.

6.4.1.1 Lundberg and Engine House Zones

Stockwork mineralization is typically associated spatially with in situ sulphide zones and the best example on the BMC property is the Lundberg zone. This zone sits below the historic Lucky Strike deposit and consists of sulphide veins and veinlets plus disseminated sulphide mineralization hosted by strongly altered felsic volcanics. The stockwork mineralization comes to surface on the eastern edge of the zone and forms an elongate, wedge shaped body that is 250 m deep on the western end. The highest concentration of sulphide mineralization lies in close proximity to the Lucky Strike massive sulphide zone and mineralization is more diffuse away from the zone. Unlike the in situ sulphides, fine to coarse grained euhedral pyrite is the dominate sulphide and occurs with varying amounts of chalcopyrite, sphalerite, galena and barite (Thurlow and Swanson, 1981). A second zone of stockwork mineralization is associated with the Engine House zone, which is located immediately south of the Lucky Strike deposit, and this zone has a higher proportion of chalcopyrite.

Mineralization is also found in association with high grade clasts noted from drilling within the Buchans area and their source is not clearly understood. Clasts range in size from grains and pebbles to 30 cm boulders of high grade sulphide mineralization. The clasts contain galena, sphalerite, pyrite, chalcopyrite and gold and silver and are similar in metal grades to the in situ Buchans ores. They occur in polylithic conglomerates within the same stratigraphic horizon as he in situ ore but also at distances of up to 6.7 km away from any know in situ ore body (Thurlow and Swanson, 1981).

7 Deposit Type

The following description regarding deposit types found on BMC base metal holdings was excerpted with modification from the previous technical report prepared by Mercator for BMC's predecessor, BRL (Webster and Barr, 2008).

7.1 Buchans Area

The Buchans area deposits and showings are generally classified as being of volcanogenic massive sulphide (VMS) association, being primarily comprised of base-metal sulphides and barite and show strong similarities to the Kuroko style deposits of Japan (Thurlow, 1981). The Buchans deposits include three distinct but genetically related deposit types, and occur as in situ sulphides, mechanically transported sulphides, and stockwork sulphides (Thurlow and Swanson, 1981). The high grade in situ and transported styles were the focus of historic mining in the area and the stockwork style, which tends to be lower grade, has been the focus of recent exploration programs by BMC and Minco.

The zoned massive sulphides of the in situ deposits are interpreted to have formed in close proximity to volcanic discharge zones. They consist of thick lenses of high grade sulphide and form the largest deposits in the Buchans area. The in situ sulphides are overlain by a cap of massive barite that is characteristic of the Buchans deposits and may provide an important lithogeochemical exploration tool. The felsic volcanics also host lower grade, base metal enriched sulphide systems of hydrothermal alteration that manifest as stockwork mineralization (Thurlow et al., 1975).

Stockwork mineralization consists of a network of sulphide veins and veinlets that cut strongly altered and sulphide impregnated hosts rocks. The largest known concentration of stockwork and disseminated mineralization is the Lundberg zone that underlies the Lucky Strike deposit. The stockwork mineralization has a higher ratio of pyrite to base metal sulphides than the in situ sulphide zones and is typified by presence of fine to coarse grained pyrite with lesser amounts of chalcopyrite, sphalerite, galena and barite. This mineralization occurs within felsic volcanic rocks of the Buchans River Formation below the Lucky Strike deposit and extends well into the underlying Ski Hill Formation, where sulphide-bearing stockwork mineralization occurs at tens to hundreds of meters below the deposit. In that instance, mineralization thins and feathers out into lower grade, semi-conformable zones of alteration (Moore, pers. com., 2013).

Transported sulphide deposits are coarser grained and are interpreted to be debris flows originating from the in situ deposits that have accumulated in paleo-channels and other downslope regions. The transported sulphide deposits at Buchans are elongate, tabular accumulations of high grade massive sulphide fragments and lithic fragments that most commonly occur within paleo-topographic channels. Six of these channels, containing at least seven economic and sub-economic sulphide deposits have been recognized in the Buchans area. Massive sulphide and lithic fragments in a matrix of finer grained material that is compositionally similar to the fragments characterize the deposits. Clasts include various volcanic, sedimentary and plutonic lithologies, all of which are interpreted to have been locally derived. Granitoid fragments show an anomalous composition and a higher degree of rounding then other fragments. Massive sulphides and barite occur both as clasts and matrix material (Thurlow, 2001).

The original sulphide deposit model for Buchans suggests that mineralization formed within a submarine exhalite caldera setting, that was bounded by a major structure to the south of Buchans (Thurlow, 1999). However, a revised interpretation invokes northeast-trending, synvolcanic normal faults that provided primary discharge zones for mineralizing fluids (Millar, 2001). It is thought that main sulphide-rich horizons and alteration zones acted as loci for thrusting, which resulted in the major sulphide deposits being fault bounded. It has also been suggested that massive sulphide clasts found along such faults in some areas may have been derived from undiscovered sulphide bodies along or near the feeder structures.

8 Exploration

Royal Roads Corporation (RRO) changed its name to Buchans Minerals Corporation (BMC) with an effective date of July 5, 2010 (BMC PR #16-10 Jul 2, 2010) and work programs carried out by BMC are described below. Details of work programs carried out by BMC predecessors, including RRO and BUV, were presented previously in report section 5.0 “History”.

8.1 2011 Preliminary Economic Assessment

8.1.1 Introduction

In August 2010, BMC engaged Wardrop Engineering Inc. (a Tetra Tech company) (Wardrop) to complete a N I43-101 compliant preliminary economic assessment (PEA) of the Lundberg and Engine House zones, based on the N I43-101 compliant mineral resource estimate prepared by Mercator in 2008 (Webster and Barr, 2008b). Highlights and conclusions of the Wardrop PEA (Coley et al., 2011) are summarized below.

8.1.2 Highlights of Wardrop PEA

The PEA was based on Inferred Mineral Resources only and not Mineral Reserves, and these Inferred Mineral Resources do not have demonstrated economic viability. Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable then to be categorized as Mineral Reserves and there is no certainty that the conclusions of the PEA will be realized.

To accommodate pit design and optimization by Wardrop, Mercator modified their original NI 43-101 technical compliant sub-blocked resource model by re-blocking at constant 5 m x 5 m x 5 m block size. The modified block model contained an Inferred resource of 22.21 million tonnes with average grades of 1.62% Zn, 0.69% Pb, 0.38% Cu, and 5.81 g/t Ag at a combined Zn-Pb-Cu cut off grade of 1%.

Both the Lundberg and Engine House zones are located close to surface and, after evaluation, Wardrop determined that underground mining options would not be viable on the resources as currently defined. As a result, assessment was restricted to open pit scenarios. The open pit design process was optimized using the Lerchs-Grossman pit optimization method, which included design of catch berms and in-pit ramps. Once open pit mine development and production schedules were developed, mine equipment items were selected, and capital and operating costs were estimated.

SGS Canada Inc. completed a two phase metallurgical test work program to support the PEA project and results of this work appear in report section 13.0.

The PEA identified the combined Lundberg and Engine House deposits as having potential to support stand-alone 5,000 t per day open pit mining and milling operations over a 10 year life of mine (LOM). The overall stripping ratio of 3.06 t/t (waste/resource) would feed a flotation mill to produce separate zinc, copper and lead concentrates with silver credits in both the lead concentrate, and to a lesser degree, the copper concentrate. The mining schedule showed that a total of 52.93 Mt of waste material would be moved over the 10 year LOM.

The Daniels Pond Zn-Cu-Pb deposit, located approximately 90 km from Buchans and also owned by BMC was noted in the PEA as being a potential source of additional mill feed for a future mining and milling complex established in Buchans to process material from the Lundberg and Engine House zones. Additional potential for future mill feed was recognized as being present in the nearby Buchans North, Clementine West and Little Sandy prospects. .

8.2 2012 Minco and BMC Programs

8.2.1 Introduction

On April 30, 2012, BMC announced that it had entered an agreement with Minco under which Minco could earn 51% interest in BMC's base metal properties in Newfoundland. These properties are held by BMC's wholly owned subsidiary, 7980736 Canada Inc., and include the Buchans property, inclusive of the Lundberg Deposit, the Tulks North property, inclusive of the Daniels Pond sulphide deposit, and a 49% interest in the Tulks Hill joint venture with Prominex Resources Inc. Minco becomes vested in its 51% interest by spending $8.0 million CDN over four years to advance the Lundberg Deposit to feasibility and to further explore BMC's other properties in the Buchans camp ("Lundberg Joint Venture"). Minco is required to spend the first $3.5 million CDN over a two year period ending in 2014, to advance the Lundberg project to the prefeasibility stage. Minco became operator of the project under terms of the option agreement with BMC, with BMC providing site staff for all field programs.

8.2.2 Minco and BMC Exploration and Assessment Programs

8.2.2.1 2012 Diamond Drilling

During 2012 Minco funded an 8,184 m diamond drilling program consisting of 58 holes. This program was conducted and overseen by BMC with a primary goal of providing sufficient drilling coverage to support future upgrading of Inferred resources to Indicated status in the Lundberg and Engine House zones .This program was planned by Mercator, in cooperation with Minco and BMC. On completion it provided sufficient drill hole density in the main deposit area, which, when combined with drilling results from earlier programs, allowed Mercator to subsequently prepare the current mineral resource estimate, including both Indicated and Inferred categories. Further details of the drilling program are presented in report of section 9.0.

9 Drilling

9.1 Introduction

The history of diamond drilling on the Buchans property prior to the program carried out by Minco and BMC was summarized previously in section 8.0 of this report and addressed more extensively by Webster and Barr (2008) in the previous NI 43-101 resource estimate technical report prepared by Mercator. Drilling on the Lundberg deposit completed since the 2008 report is restricted to that carried out by Minco and BMC in 2012, a description of which is presented below. Collar coordinates plus azimuth, inclination and depth data for all Lundberg Deposit holes are tabulated in Appendix 1 and a collar plan for all surface holes appears in Appendix 2.

9.2 2012 Minco and BMC Program

9.2.1 Summary and Logistics

From July to October 2012, Minco and BMC completed 8,184 m of core drilling in 58 diamond drill holes (H-12-3426 to H-12-3483), all of which were completed on the Lundberg and Engine House zones (Figure 9.1). Collar coordinates plus azimuth, inclination and depth data for these holes are tabulated in Appendix 1.

Springdale Forestry Resources Ltd. of Springdale, Newfoundland was contracted to provide core drilling services for the program and supplied two diesel-powered, Durolite 500 wire-line drilling rigs equipped to recover NQ size core (4.76 cm in diameter). One drill was skid-mounted, while the other was mounted on a tracked vehicle. The drilling company also provided all necessary support equipment, including an excavator and bulldozer, for drill moves and site preparation work. Drilling was typically carried out on a 24 hour per day basis. Drill collar locations were defined by Universal Transverse Mercator (UTM) Zone 21 grid coordinates using North American Datum 83 (NAD 83) and established in the field by handheld GPS units. All holes were tested for inclination and azimuth variation at intervals of approximately 50 m using Flex-it© down hole survey instruments and results were incorporated in the project database after checking. Gemcom Gems-Logger software was used for logging and project drilling database purposes.

BMC staff provided technical and professional support for the 2012 drilling program under direction of Paul Moore, P. Geo. and Vice President of Exploration for BMC and David Butler, P.Geo., Exploration Manager for BMC. BMC was responsible for management of day to day drilling program operations and relied on geologist Melissa Lambert, GIT, and technician Derrick Keats, as key field personnel during the program. Drill core was logged and sampled at the secure BMC core logging facility in Buchans, NL, where logging and layout of sampling was carried out by qualified BMC geologists. Staff technicians were responsible for cutting of logged core to create half and quarter core samples and also for subsequent bagging, insertion of quality control samples, preparation of sample shipment documentation and transport of samples to Eastern Analytical Ltd. in Springdale, NL, where initial sample preparation and analysis were completed. Core and pulp materials are currently stored at the company's secure archive in Buchans.

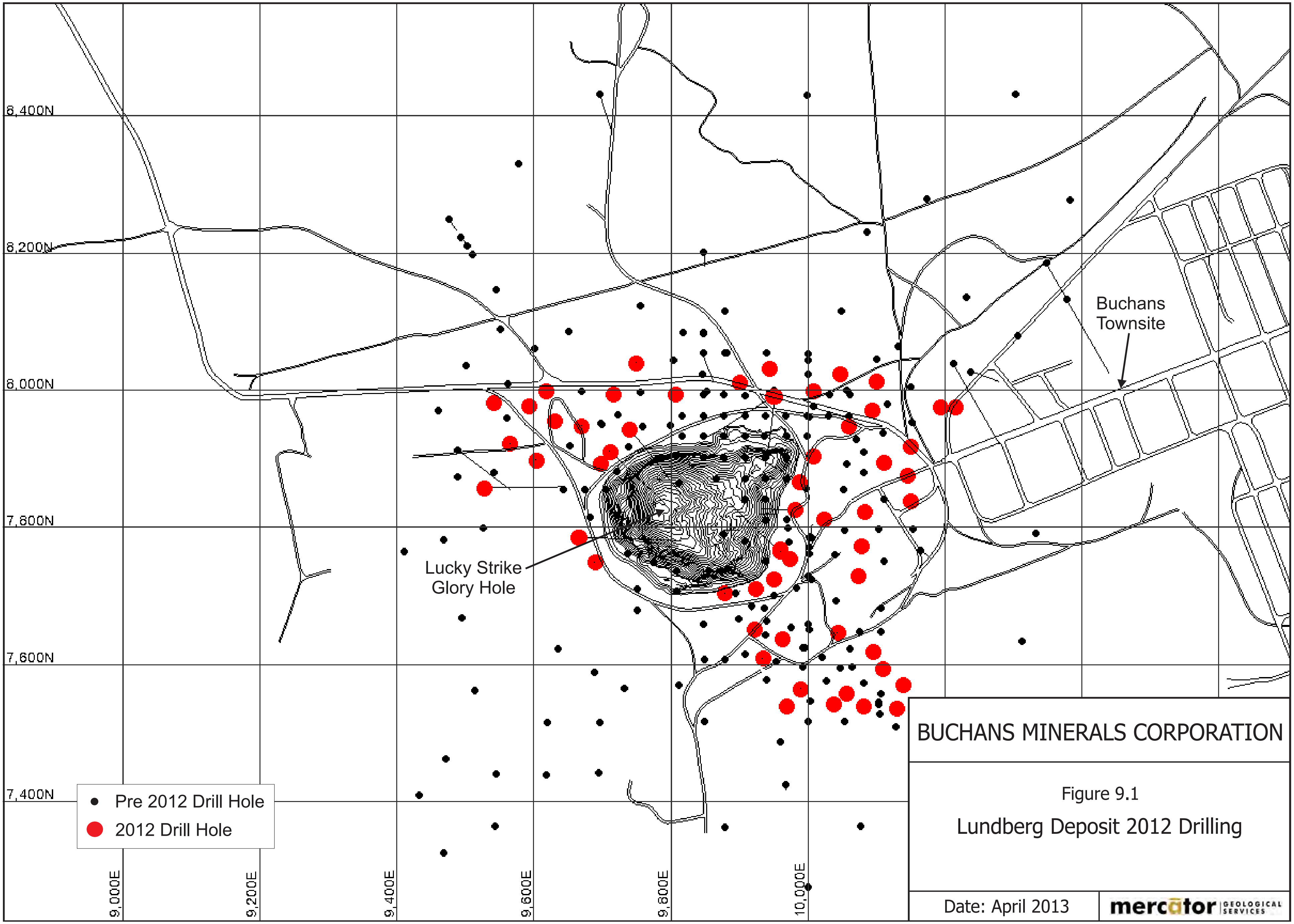


Figure 9.1
Lundberg Deposit 2012 Drilling

9.2.2 Lundberg Zone Drilling

A total of 45 of the 58 drill holes were completed within the Lundberg Zone and Figure 9.1 presents hole locations. Drill hole results, within the northwestern area of the Lundberg zone, identified additional thick mineralization extending to depth and also confirmed that mineralization extends further east than previously interpreted, where two shallow step-out holes intersected the zone, beneath overburden east of the previously defined resource limit.

Highlights from 2012 Lundberg Zone drilling included 50.15 m averaging 0.36% Cu, 0.52% Pb, 1.54% Zn and 3.5 g/t Ag in drill hole H-12-3465 and 30.0 m averaging 0.27% Cu, 0.29% Pb, 0.87% Zn and 1.38 g/t Ag in drill hole H-12-3458. Higher-grade intersections were returned from certain holes along the southern margin of the Lundberg deposit and include an intercept of 4.0 m grading 2.06% Cu, 5.94% Pb, 11.62% Zn, 119.0 g/t Ag and 0.72% Au in drill hole H-12-3453. These higher grade intercepts are interpreted to represent remnants of the high grade Lucky Strike ore body that were either ignored because of their narrow width and location relative to infrastructure, or because they were not known to exist at the time of mining.

Drill intercepts quoted above are core lengths and true widths have not been estimated, due to the stockwork and disseminated nature of mineralization intersected. However, previous drilling suggests that mineralization consists largely of a shallow dipping “stratigraphically controlled blanket” so vertical core length intercepts are expected to be close to true widths.

9.2.3 Engine House Zone Drilling

A total of 13 drill holes were completed within the Engine House Zone and Figure 9.1 above presents hole locations. Results of this drilling indicate that the zone subcrops along its eastern margin and that modest potential for expansion of higher grade mineralization is present along the deposit’s south margin, near drill holes H-12-3445 and H-12-3443. Drilling highlights from this area include an intercept in drill hole H-12-3445 of 17.0 metres, that averaged 4.47% combined base metals, including a section of 1.6 m averaging 0.43% Cu, 2.08% Pb, 6.55% Zn, 12.4 g/t Ag and 0.20 g/t Au, between 75.0 and 76.6 m depth. Additional significant results include: 18.0 metres averaging 1.10% Cu, 0.44% Pb, 1.93% Zn, 6.1 g/t Ag and 0.05% g/t Au in drill hole H-12-3454 and 13.0 m averaging 0.58% Cu, 0.31% Pb, 0.61% Zn, 3.9 g/t Ag and 0.07 g/t Au in hole H-12-3449. Based on the 2012 drill program results, the Engine House zone is interpreted as remaining open to the southwest.

As was the case for Lundberg Zone drilling, Engine House Zone intercepts quoted above are core lengths and true widths have not been estimated, due to the stockwork and disseminated nature of mineralization intersected. However, previous drilling suggests mineralization consists largely of a shallow to moderately dipping “stratigraphically controlled blanket” and vertical core length intercepts are expected to be close to true widths. No substantive core loss issues within mineralized zones or other geological sections were encountered during the 2012 Lundberg drilling program.

10 Sample Preparation, Analysis and Security

10.1 Introduction

Sample preparation, analysis and security aspects of both historic and BMC programs prior to 2012 drilling were presented in the previous resource estimate technical report (Webster and Barr, 2008) by Mercator. That discussion showed that various levels of documentation were available for the various programs, with the most detailed information with respect to sample preparation, analysis and security being found in recent reporting such as that by BMC and related predecessors. After consideration of all factors, it was concluded that the major drilling programs reflected in the resource estimate drilling database had been carried out under protocols assumed to be consistent with industry standards of the respective times. The authors concur with this conclusion with respect to pre-2012 drilling programs and address the 2012 program below.

10.2 2012 Minco and BMC Program

10.2.1 Program Overview and Security

Core logging, sampling and quality control and assurance (QA/QC) programs were carried out by BMC personnel during the 2012 Lundberg and Engine House exploration drilling programs under direction of Minco and BMC Mr. Paul Moore, P. Geo. and Vice President of Exploration for BMC. All logging, sampling and sample shipment preparation activities were carried out under secure conditions at the BMC core logging and storage facility in Buchans. Drill core was under custody of BMC personnel from the time it was delivered from the drill site by the contractor to the time associated samples were delivered to the primary laboratory for preparation and analysis.

After mark-up by BMC geologists, core was sawn by BMC staff technicians to create quarter core samples, that were then separately bagged, assigned a unique sample number and recorded in the digital logging database. Sulphide mineralized samples were nominally one metre in length, except where specific geologic parameters required a smaller interval to be sampled. Assay samples consisted of quartered NQ-size diamond core (47.6 mm diameter core). The remaining half, plus quarter of sampled core, were preserved together in core boxes with corresponding sample tag affixed for future reference and stored at the secure BMC facility. BMC chose to submit quartered core for assaying, so as to preserve a larger volume material for future metallurgical testing. All mineralized intercepts from the program are stored indoors in racks and the remaining, non mineralized, sections are stacked on pallets outside. Sample reject material from the program is scheduled for disposal later in 2013, unless otherwise determined. Pulp materials from all samples are returned from the labs and stored at the BMC facility.

After insertion of QA/QC materials, samples were grouped in batches, sample submission documents were prepared, and bagged shipments were typically transported to Eastern Analytical Limited (Eastern) in Springdale, Newfoundland by BMC staff. Eastern Analytical served as the primary sample preparation and analysis facility for the 2012 program and is a reputable, independent commercial firm that has provided analytical services to the mining and exploration industries since 1987. It was not accredited by the National Association of Testing Authorities (NATA) or certified by the International Standards Organization (ISO) at the effective date of this report, but hopes to be accredited later in 2013. The firm incorporates standard QA/QC procedures that include use of certified reference materials, blanks, internal standards, duplicate pulp splits and external laboratory check sampling. Eastern also sub-contracts analysis of some elements, such as S, Pt and Pd to Acme Analytical Laboratories (Acme) of Vancouver British Columbia (Acme) which is an accredited, independent, commercial firm registered to ISO 9001 and ISO/IEC 17025 standards.

After preparation, initial analysis and completion of assay quality determinations as required at Eastern, pulp splits of samples exceeding 0.22% Zn were re-analyzed by ALS Chemex (ALS) in Vancouver, BC. ALS Chemex is an internationally accredited laboratory with NATA certification and is registered to standards of ISO 9001:2000 and ISO 17025:1999.

10.3 Sample Security

Drill core was collected from each drill site by BMC staff on completion of each hole and transported to BMC's secure core facility in Buchans where it was processed as described above. All samples were bagged, tagged and sealed in plastic shipment bags before delivery, by BMC, to Eastern, or shipment by commercial carrier to ALS. Both core and samples were under the secure custody of BMC staff at all times prior to transfer of custody to the commercial carrier or Eastern. All drill logs, digital program records and associated analytical results were maintained under confidential and secure conditions by BMC site staff and all digital data was subject to systematic backup protocols at both site and head office levels.

10.4 Sample Preparation and Analyses

Initial sample preparation and analytical work was completed by Eastern as the primary project laboratory. At Eastern samples were organized and labelled when they entered the lab and then placed in drying ovens. After drying, they were weighed and then crushed in a Rhino Jaw Crusher to approximately 75% minus 10 mesh material. The complete sample was riffle split to produce 250 – 300 grams of material for pulverization and the remainder was bagged for storage.

The retained 250 – 300 gram split was pulverized using a ring mill to approximately 98% minus 150 mesh material and both ring pulverizers and jaw crushers are cleaned with silica sand between client sample sequences.

All samples were submitted for analysis by Inductively Coupled Plasma–Optical Emission Spectroscopy (ICP-OES) methods for Ni, Cu, Co, Pb, Zn and Ag and if upper detection limits for the ICP method were exceeded (ie: Cu 10,000 ppm, Pb 2,200 ppm, Zn 2,200 ppm, Ag 6 ppm) samples were re-assayed by "Ore Grade" methods using an Atomic Absorption Spectrometry (AA) finish. Silver assays at Eastern were completed using a 1,000 mg sample digested in nitric and hydrochloric acid and analyzed by the AA method. Gold assays at Eastern reflect a standard ½ assay ton split and AA finish after fire assay fusion. Samples requiring analysis by the "Ore Grade" method were also sent to ALS Chemex for check assaying purposes for Cu, Pb, Zn Ag and Au as well as determinations of Ba and SG.

Analyses carried out on high grade pulp split materials submitted to ALS were analysed using that firm's ore grade ME-OG46 protocol that employs Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-ES) analysis after digestion in 75% aqua regia for 120 minutes. This protocol may default to gravimetric or titration techniques if very high metal levels (>15-20%) are present. Check assays for gold were completed using ALS's AA25 protocol whereby samples are analysed by fire assay fusion using Atomic Absorption Spectroscopy. Barium determinations were completed by ALS's ME-XRF10 protocol that involved Lithium Borate fusion to a glass disc analysed by X-ray fluorescence spectrometry.

10.5 2012 Quality Control and Assurance Program

10.5.1 Summary

The purpose of a quality assurance and control program is to monitor accuracy and precision of results and to detect instances of potential sample contamination. The QA/QC program carried out during the 2012 BMC exploration programs included blind insertion of blank and certified reference material samples, analysis of pulp duplicate split samples and analysis of mineralised pulp samples as project check samples, at an independent laboratory. As noted previously in this report section, Eastern provided primary analytical services and ALS provided independent, third party, check analysis services. Duplicate splits, blanks, certified reference materials and in-house standard samples were also analyzed by both laboratories for internal QA/QC purposes.

The 2012 QA/QC sample program carried out by BMC was designed to include the following sampling components and nominal insertion or testing intervals:

- Certified reference materials inserted in sample stream at 1 in 20 frequency
- Blank samples inserted in sample stream at 1 in 20 frequency
- Duplicate pulp splits prepared at 1 in 20 frequency
- Duplicate coarse rejects prepared at 1 in 20 frequency
- Third party check assays for all mineralized samples grading greater than 10,000 ppm Cu, or 2,200 ppm Pb, or 2,200 ppm Zn, or 6 ppm Ag.

Results of each program component are addressed separately below.

10.5.2 2012 Certified Reference Material Program

Canadian Resource Laboratories of Delta, BC provided certified reference material samples for use in the 2012 drilling program and these were selected by BMC on the basis of mineral composition and grade range. Materials CDN-HLHZ, CDN-FCM-4 and CDNSE-1 were used and certified values for these appear in Table 10.1.

Table 10.1: Certified reference materials for 2012 program

	Certified Mean Value ± 2 Standard Deviations					
Certified Material	**Au g/t**	**Ag g/t**	**Cu %**	**Pb %**	**Zn %**	**Number Used**
CDN-FCM-4	0.97 ± 0.08	54.9 ± 6.4	0.702 ± 0.042	0.34 ± 0.028	1.28 ± 0.08	390
CDN-HLHZ	1.31 ± 0.16	101.2 ± 10.8	0.76 ± 0.097	0.815 ± 0.06	7.66 ± 0.36	320
CDN-SE-1	0.480 ± 0.034	712 ± 57	0.097 ± 0.005	1.92 ± 0.09	2.65 ± 0.20	320
Total Used						1030

Samples were inserted blindly in the analytical core sample stream, at every even 20th sample number and marked accordingly in the sample record book. Results returned for each were checked by BMC staff during the program to monitor trends on an on-going basis. Figures 11.2 through 11.9 present 2012 results for samples submitted to both Eastern and ALS laboratories. A total of 1030 determinations by both ALS and Eastern are included in the 2012 program.

Project control limits for review of data were set by Mercator as the certified mean value, plus or minus 2 and 3 standard deviations. On a laboratory comparative basis, results returned from Eastern for Zn, Pb, and Au consistently fall near the lower mean minus 2 standard deviations control limit and those for Cu define a consistent trend, below the mean minus 3 standard deviations limit. These results define a systematic low reporting bias for Eastern. ALS data, for both CRM materials, more closely reflect mean values.

Figure 10.1: HLHZ Standard – 2012 Program Zn (N=64)

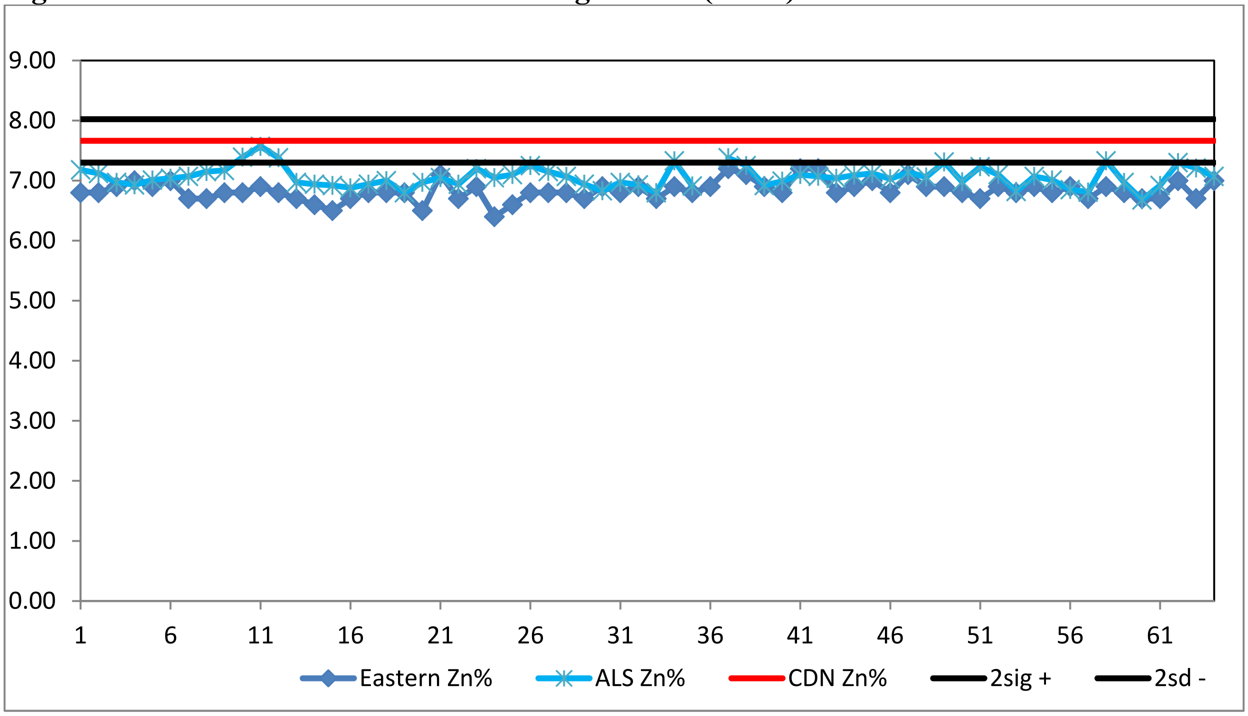


Figure 10.2: FCM-4 Standard Evaluation – 2012 Program Zn (N=78)

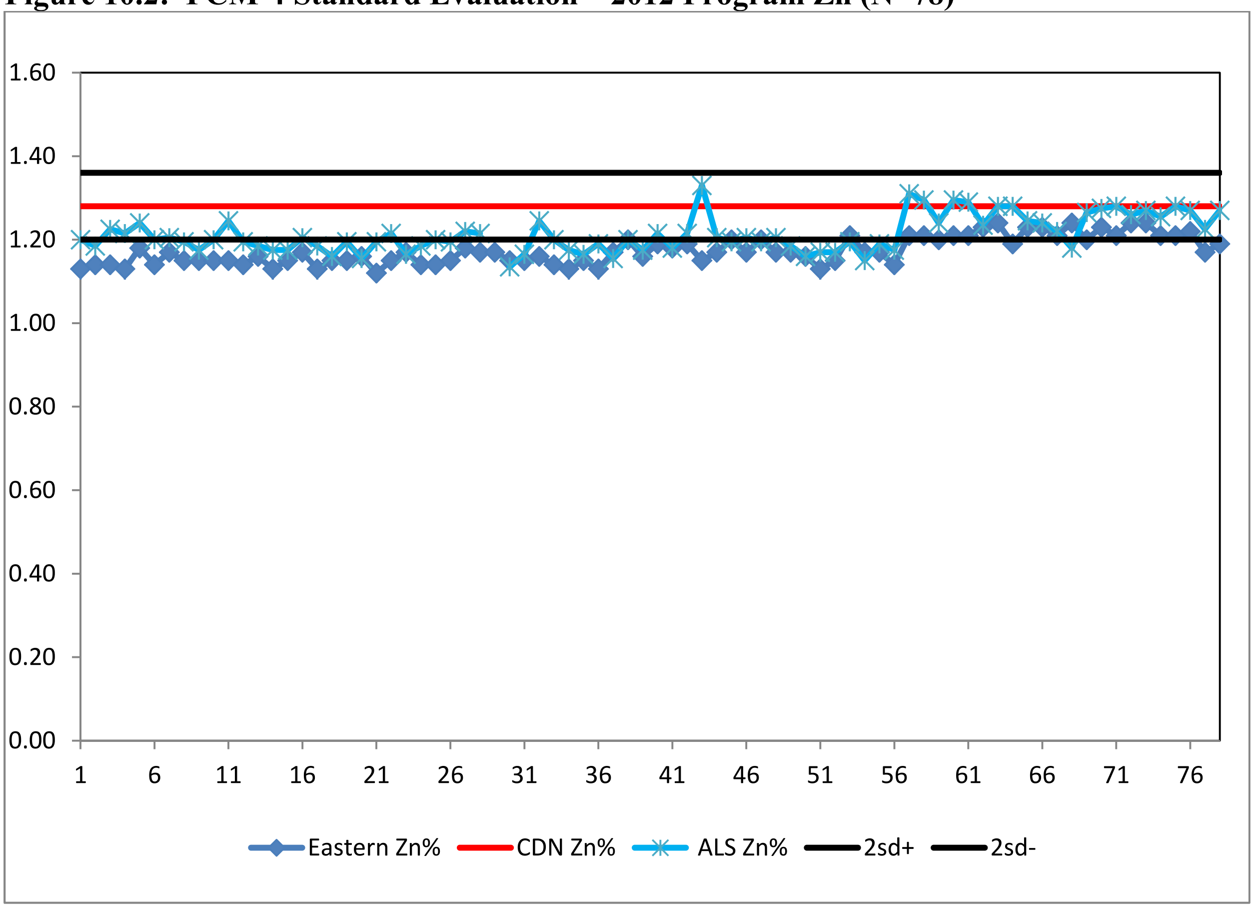


Figure 10.3: CDN-SE-1Standard Evaluation – 2012 Program Zn (N=64)

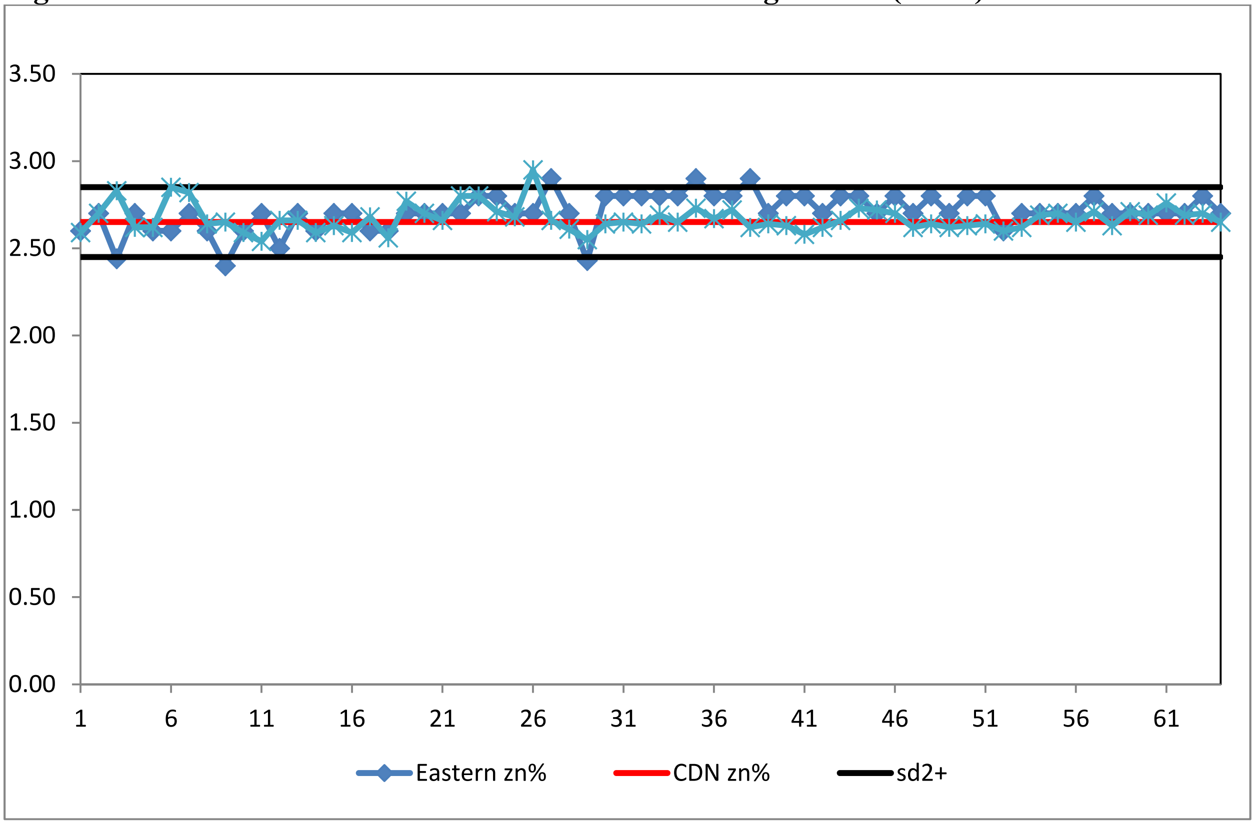


Figure 10.4: HLHZ Standard Evaluation – 2012 Program Pb (N=64)

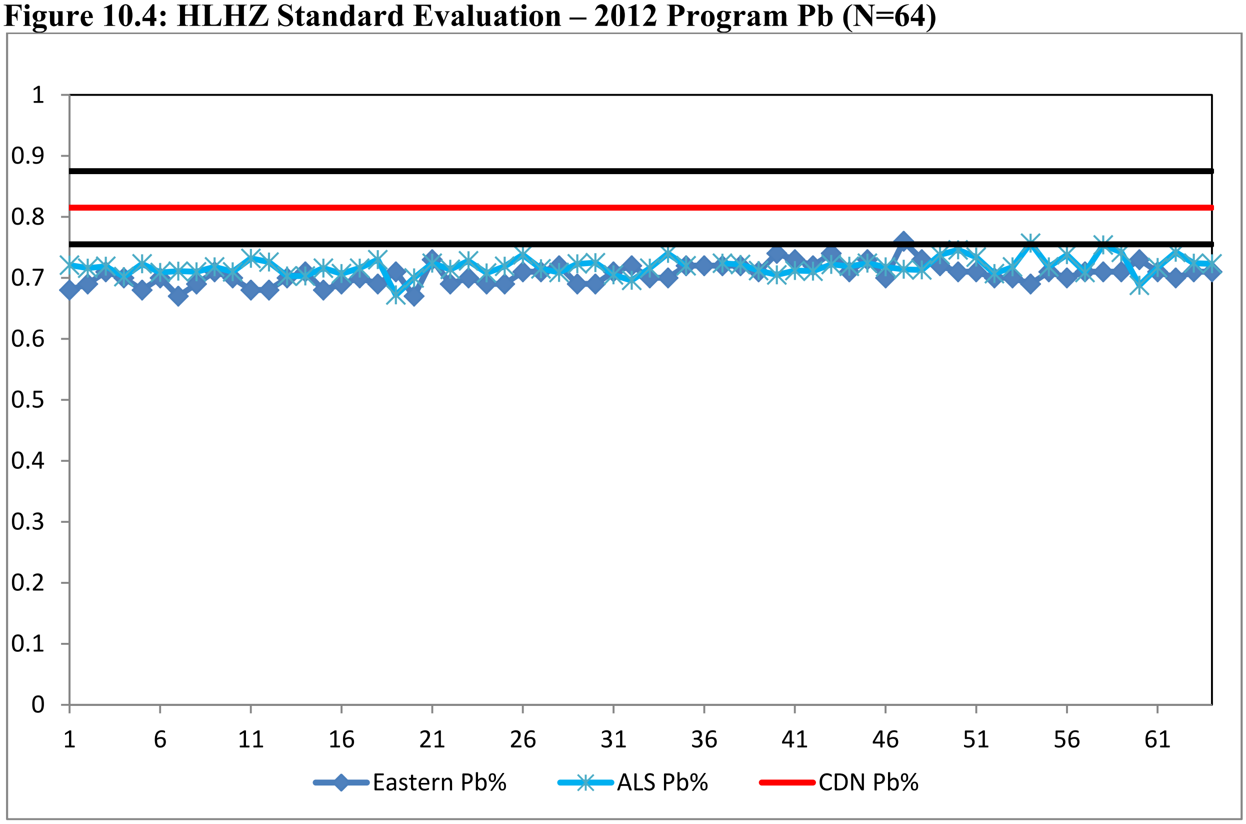


Figure 10.5: FCM-4 Standard Evaluation – 2012 Program Pb (N=78)

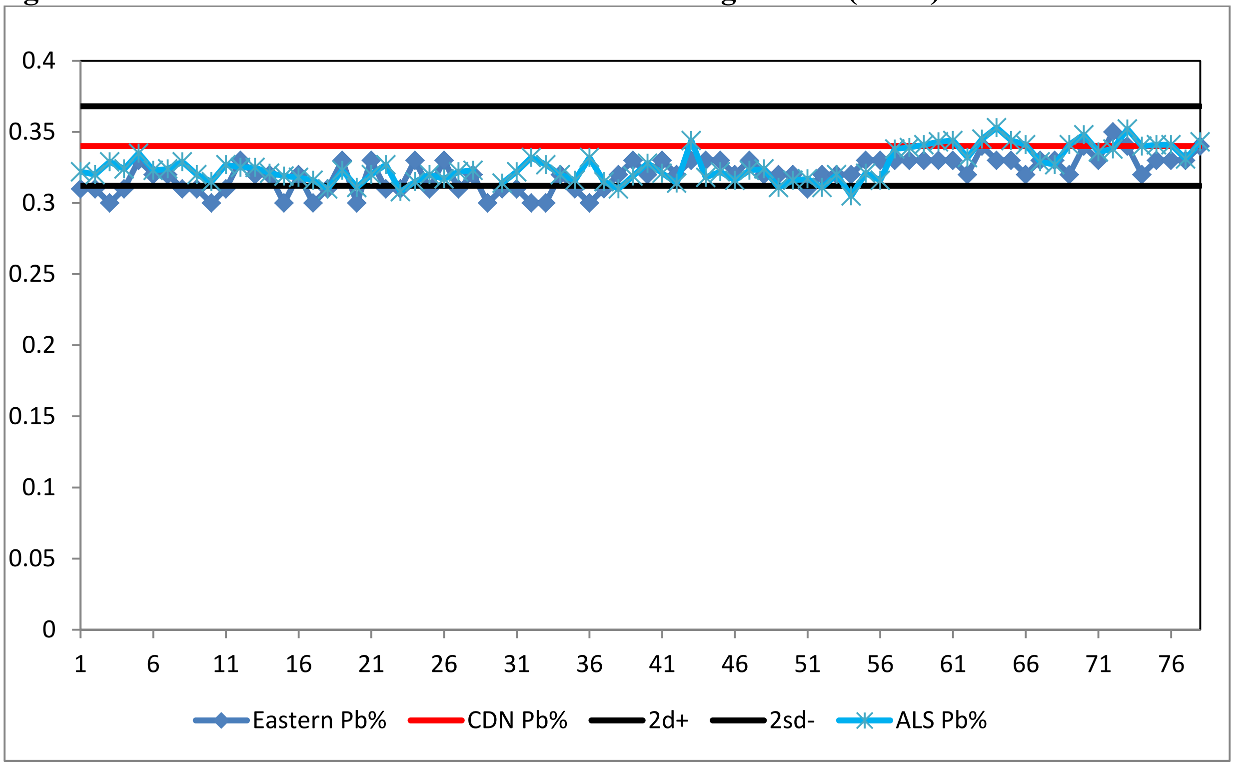


Figure 10.6: CDN-SE-1 Standard Evaluation – 2012 Program Pb (N=64)

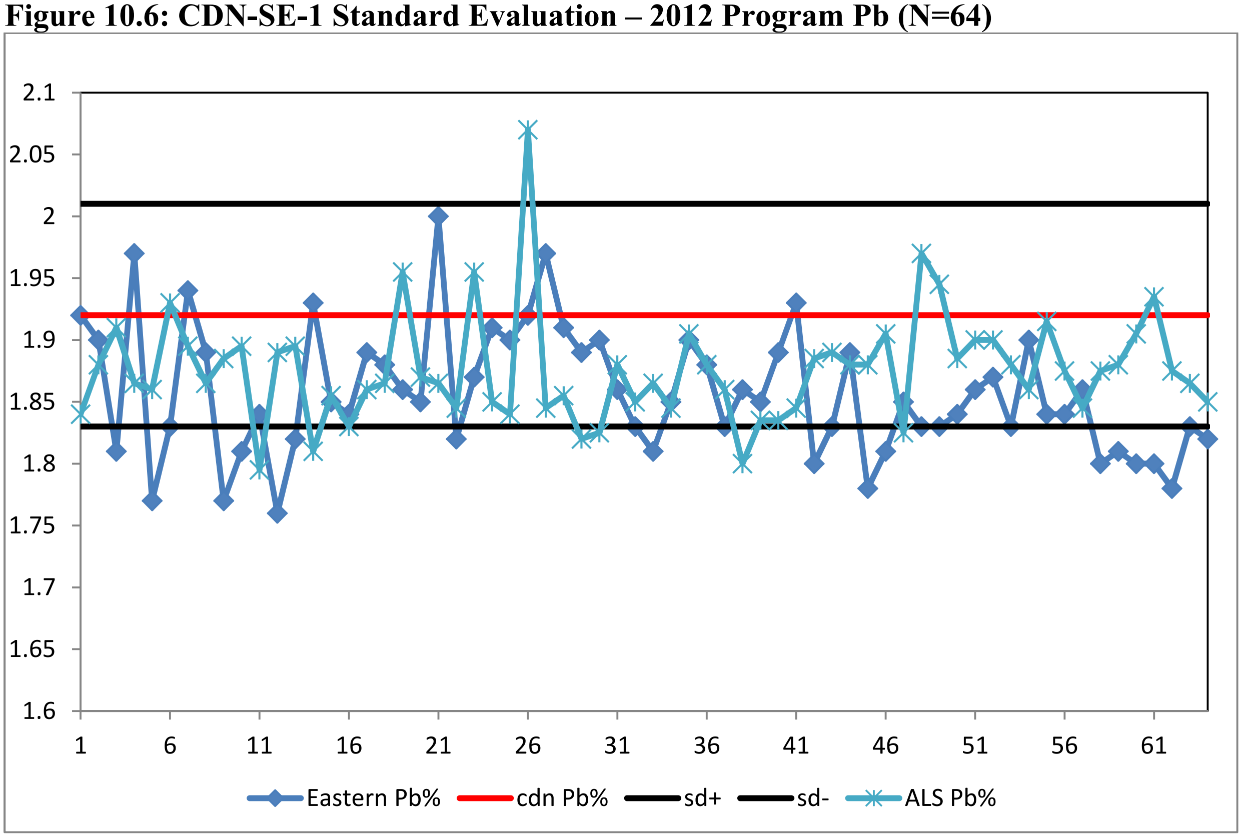


Figure 10.7: HLHZ Standard Evaluation – 2012 Program Cu (N=64)

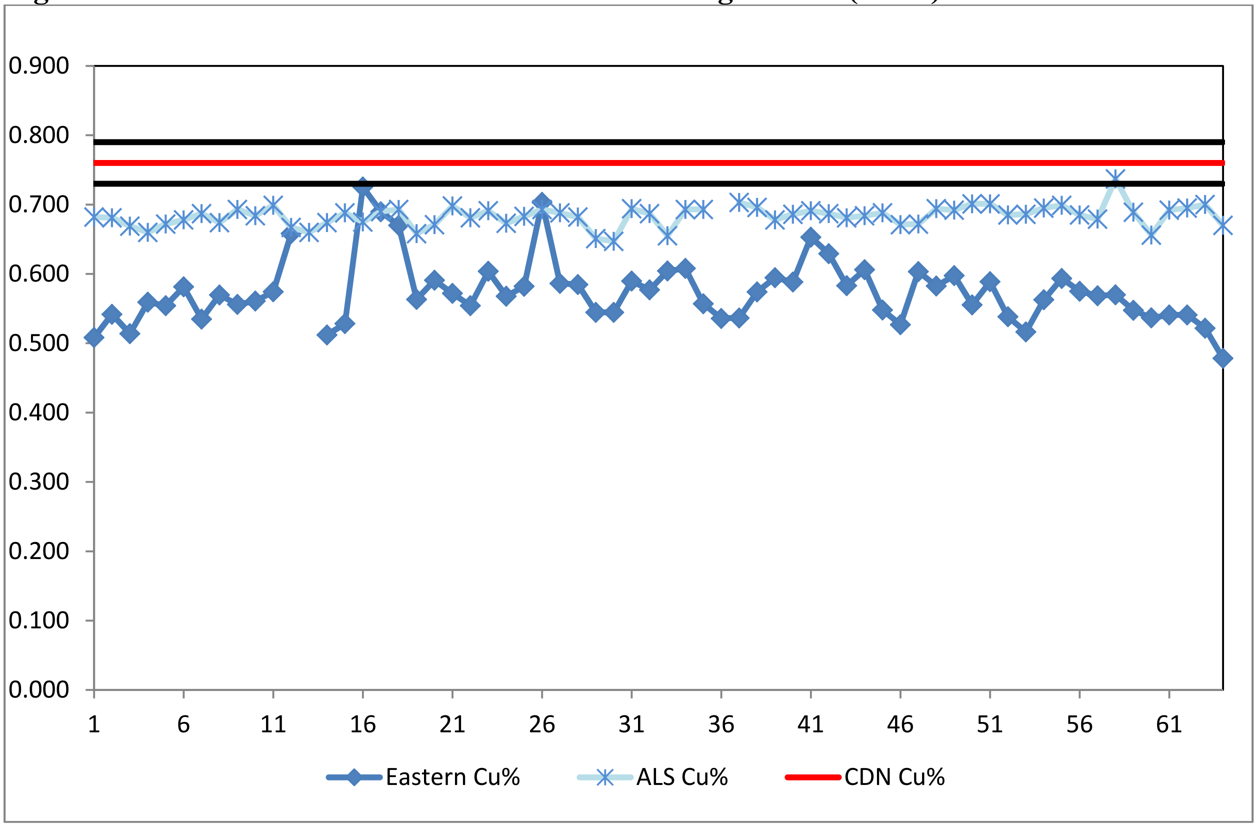


Figure 10.8: FCM-4 Standard Evaluation – 2012 Program Cu (N=78)

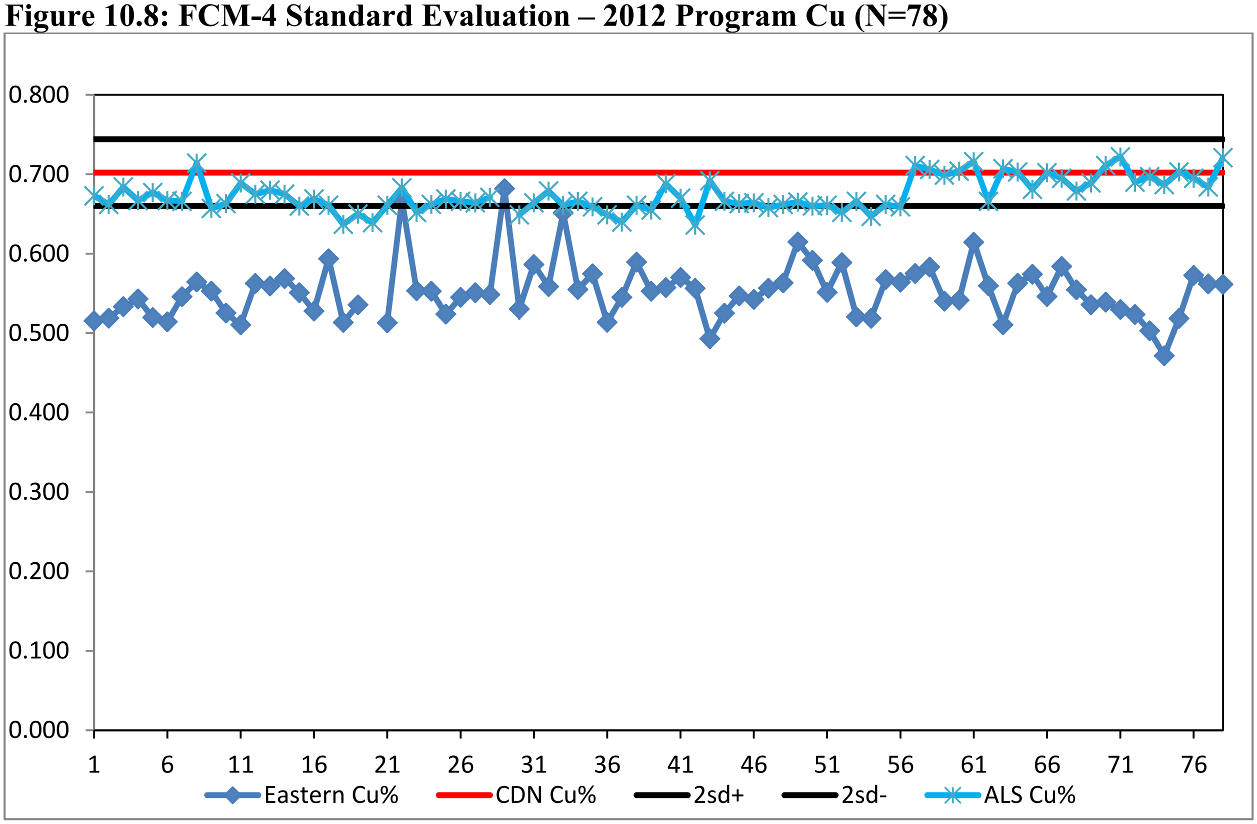


Figure 10.9: CDN-SE-1 Standard Evaluation – 2012 Program Cu (N=64)

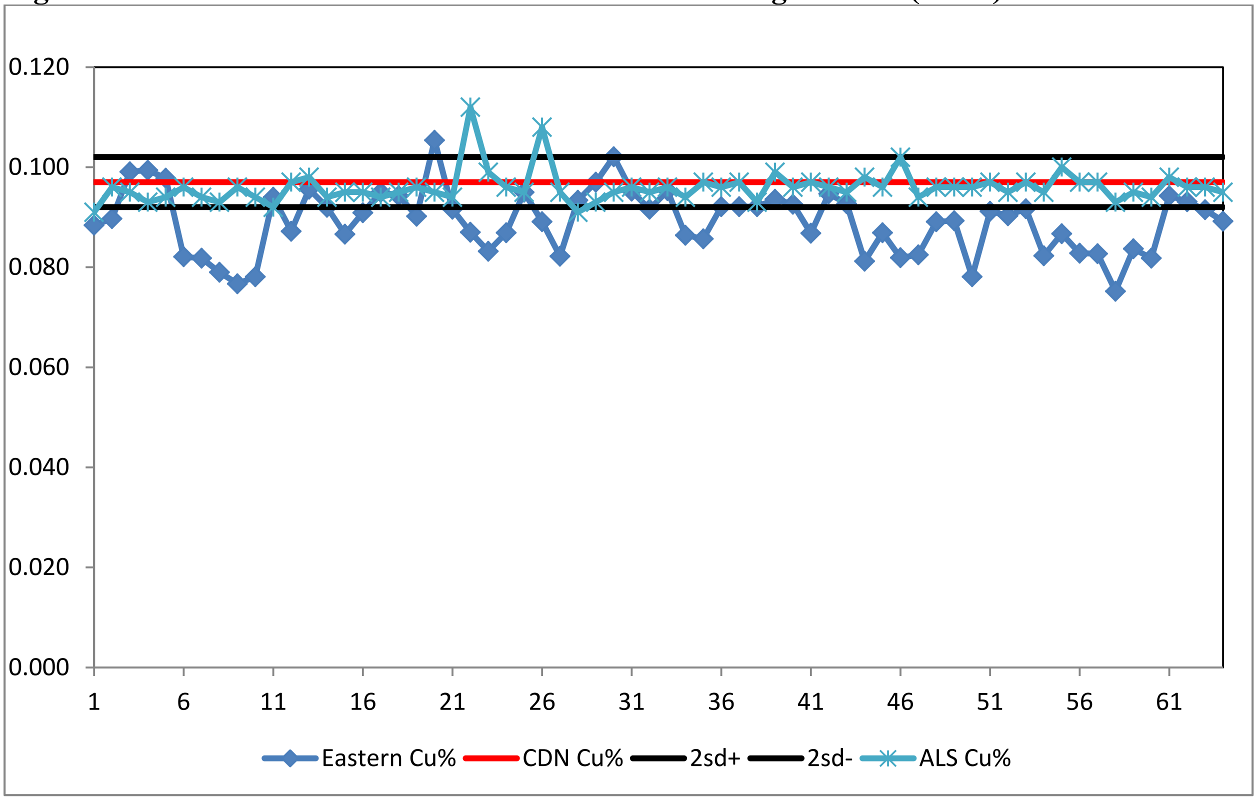


Figure 10.10: HLHZ Standard Evaluation – 2012 Program Ag (N=64)

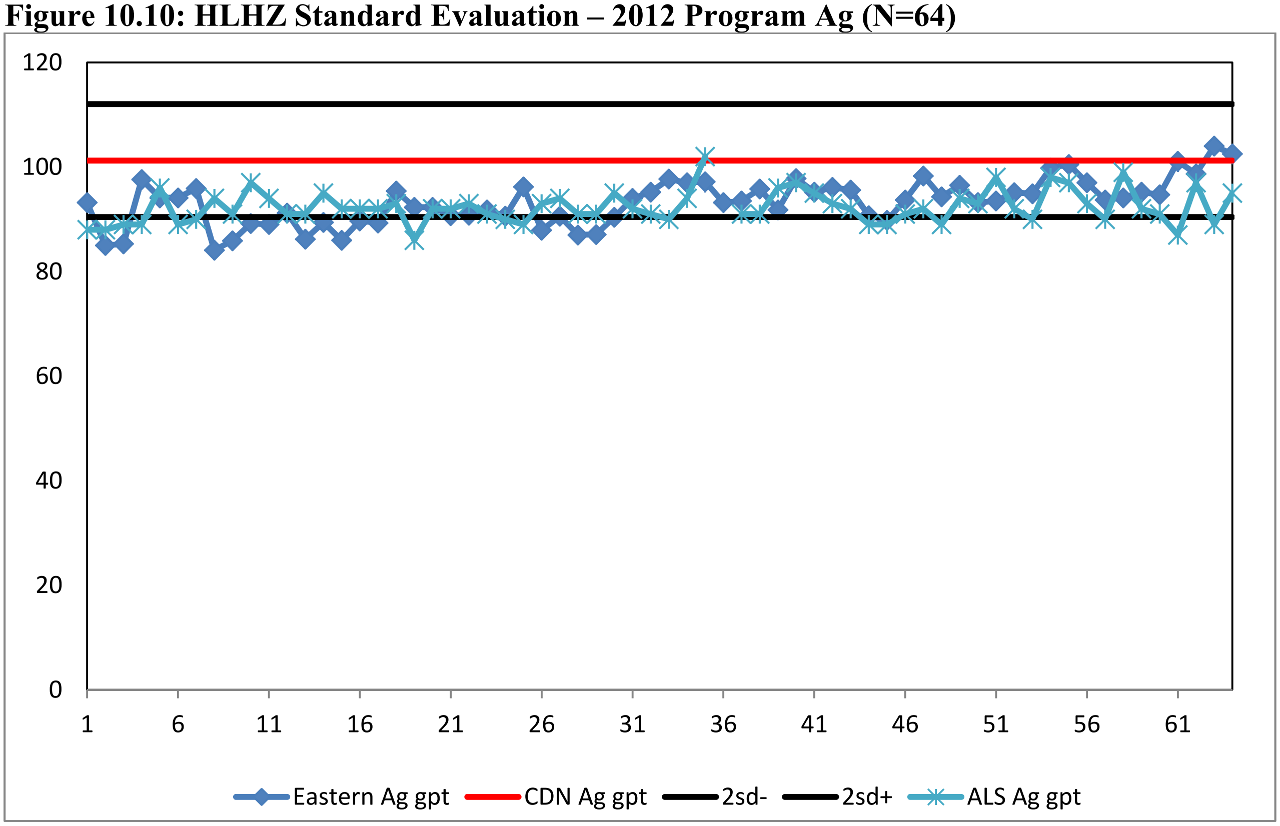


Figure 10.11: FCM-4 Standard Evaluation – 2012 Program Ag (N=78)

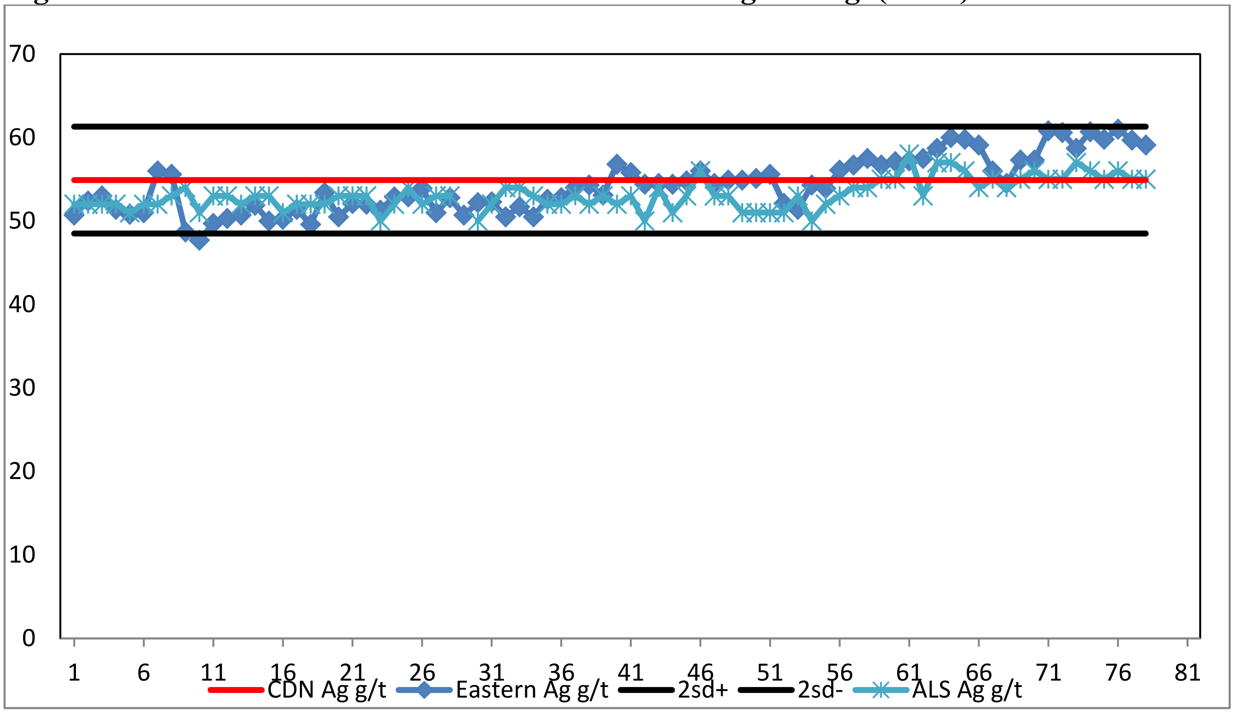


Figure 10.12: CDN-SE-1 Standard Evaluation – 2012 Program Ag (N=64)

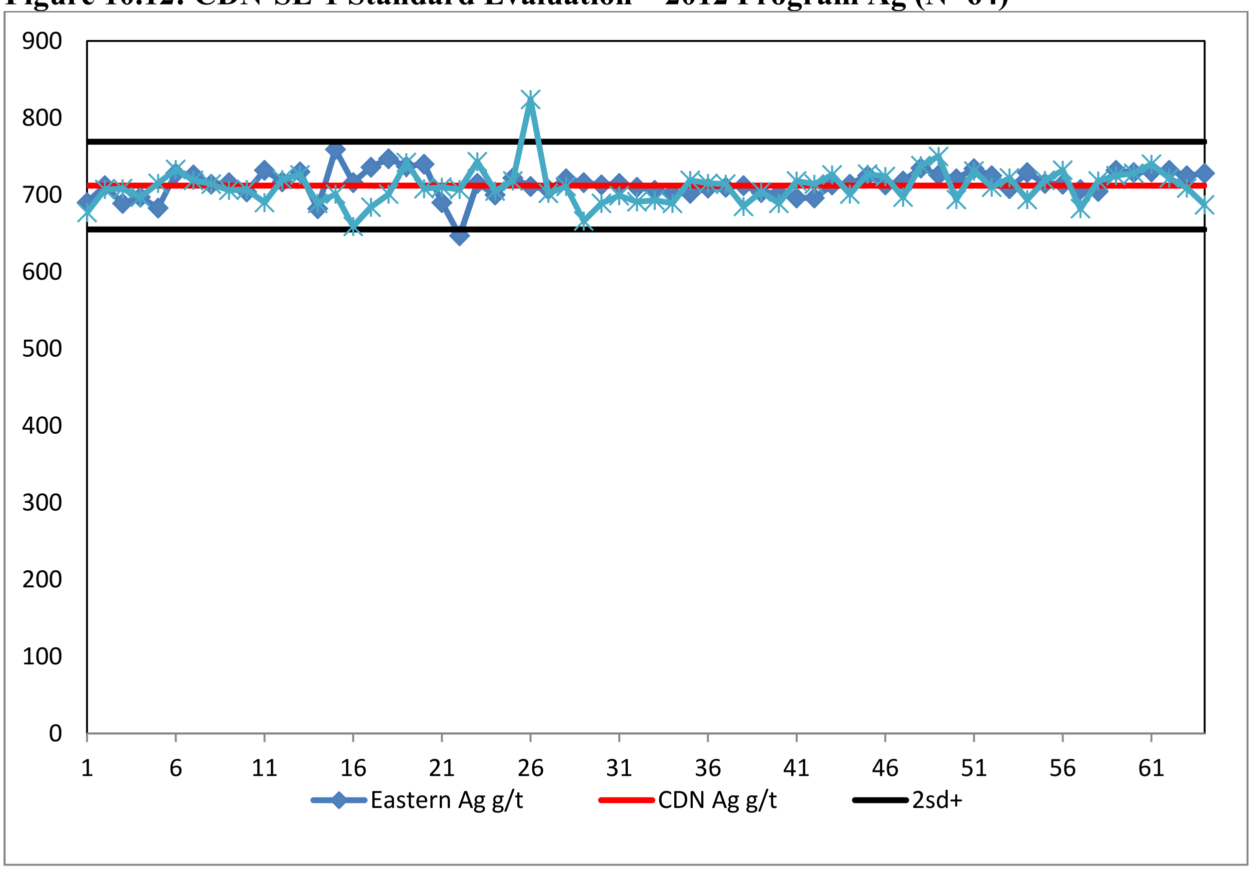


Figure 10.13: HLHZ Standard Evaluation – 2012 Program Au (N=64)

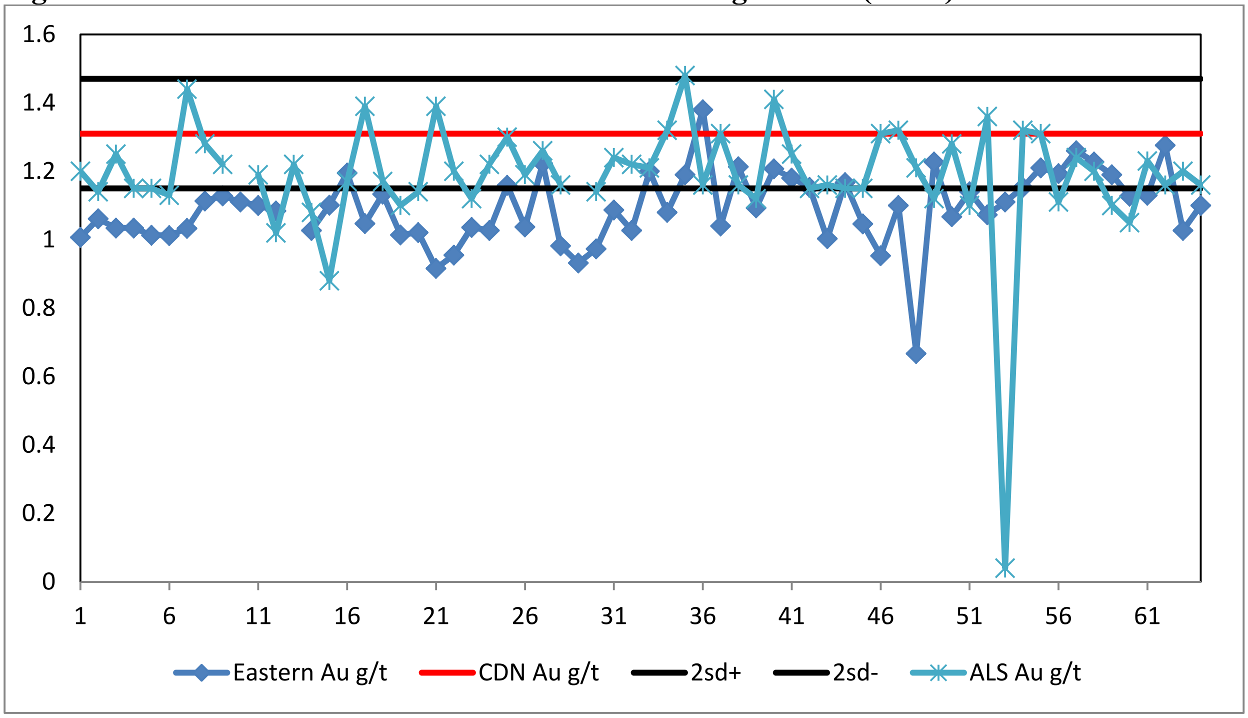


Figure 10.14: FCM-4 Standard Evaluation – 2012 Program Au (N=78)

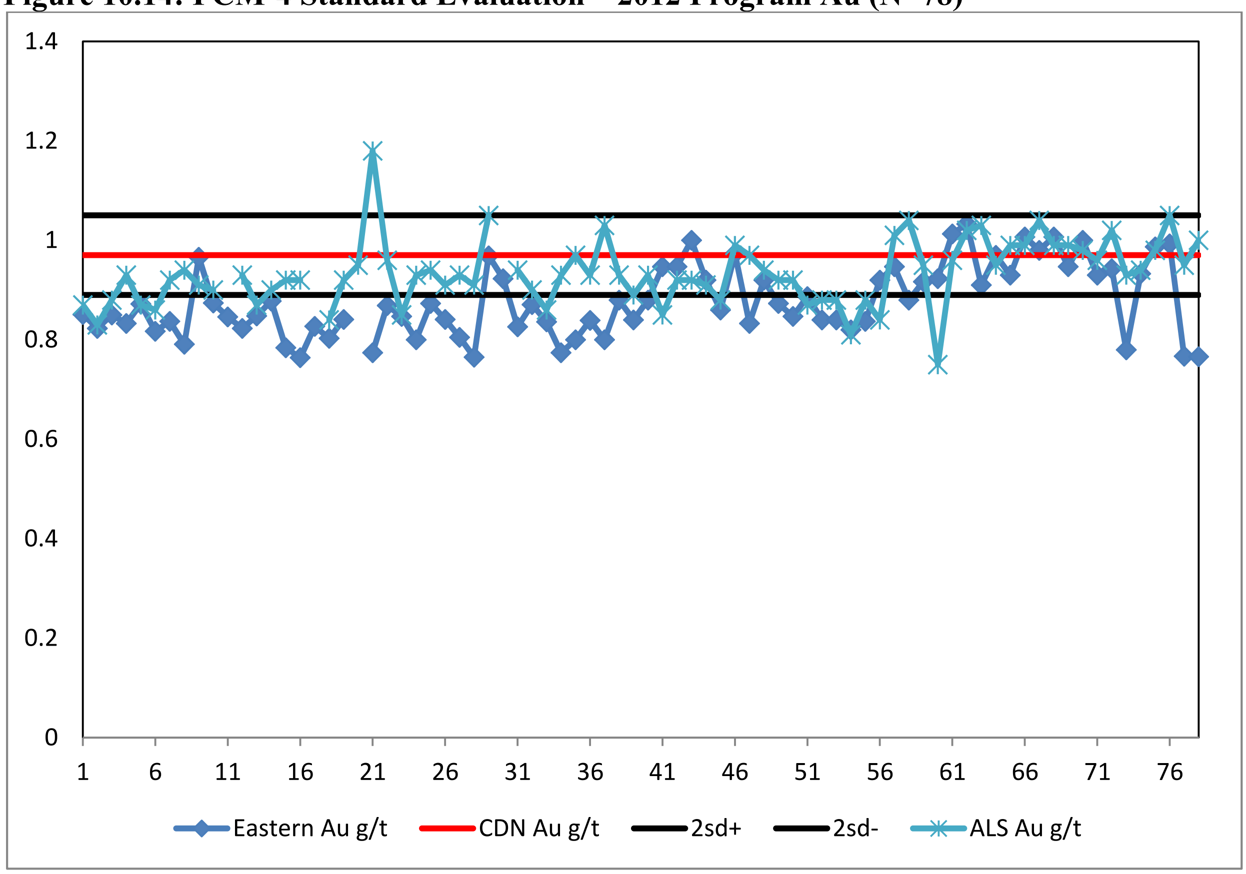
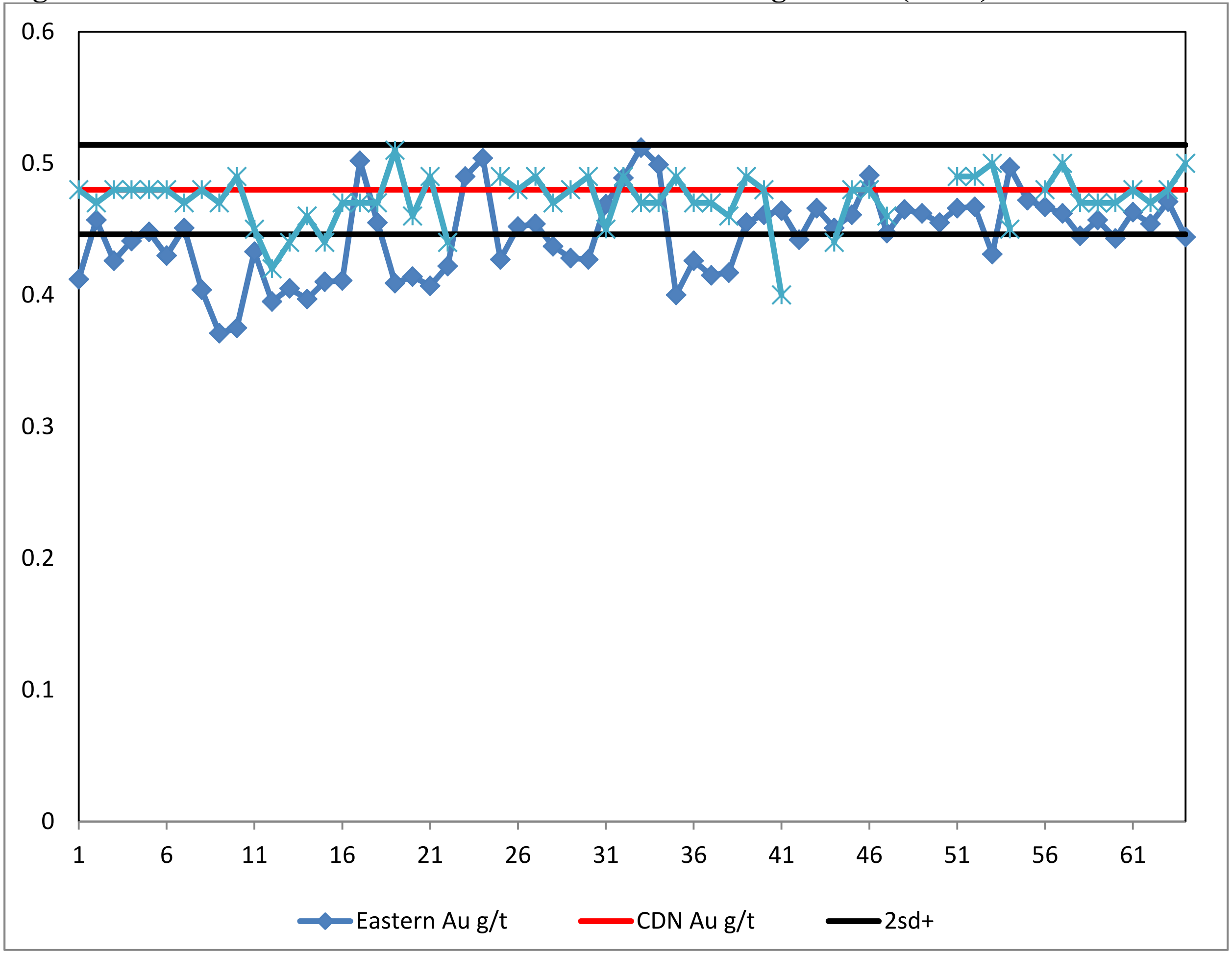


Figure 10.15: CDN-SE-1 Standard Evaluation – 2012 Program Au (N=64)



10.5.3 2012 Duplicate Pulp Split Program

Duplicate sample pulps were prepared, in the laboratory setting, by Eastern for every 20th sample, and were used by BMC and Eastern Analytical for quality control purposes. Results for the 2012 duplicate pairs for Zn, Pb, Cu, Ag and Au are presented below in Figures 10.16 through 10.20. Duplicate split pairs correlate well along a 1:1 trend, with Cu, Pb and Ag having R^2 values of 0.999, Zn having an R^2 value of 0.998 and Au having an R^2 value of 0.975. This is interpreted as indicating that pulp splits are homogenous and that associated analyses reflect acceptable precision.

Figure 10.16: 2012 duplicate pulp split results - Zn (N=464)

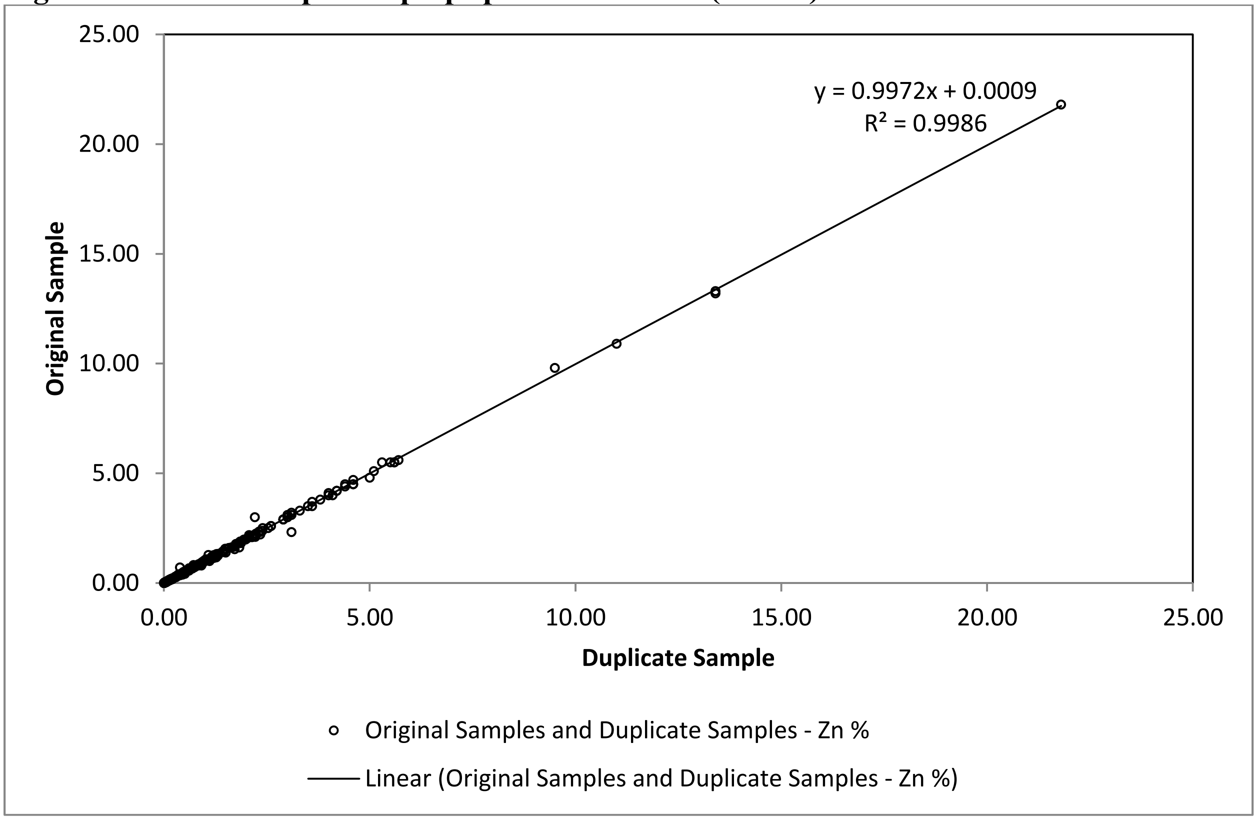


Figure 10.17: 2012 duplicate pulp split results - Pb (N=464)

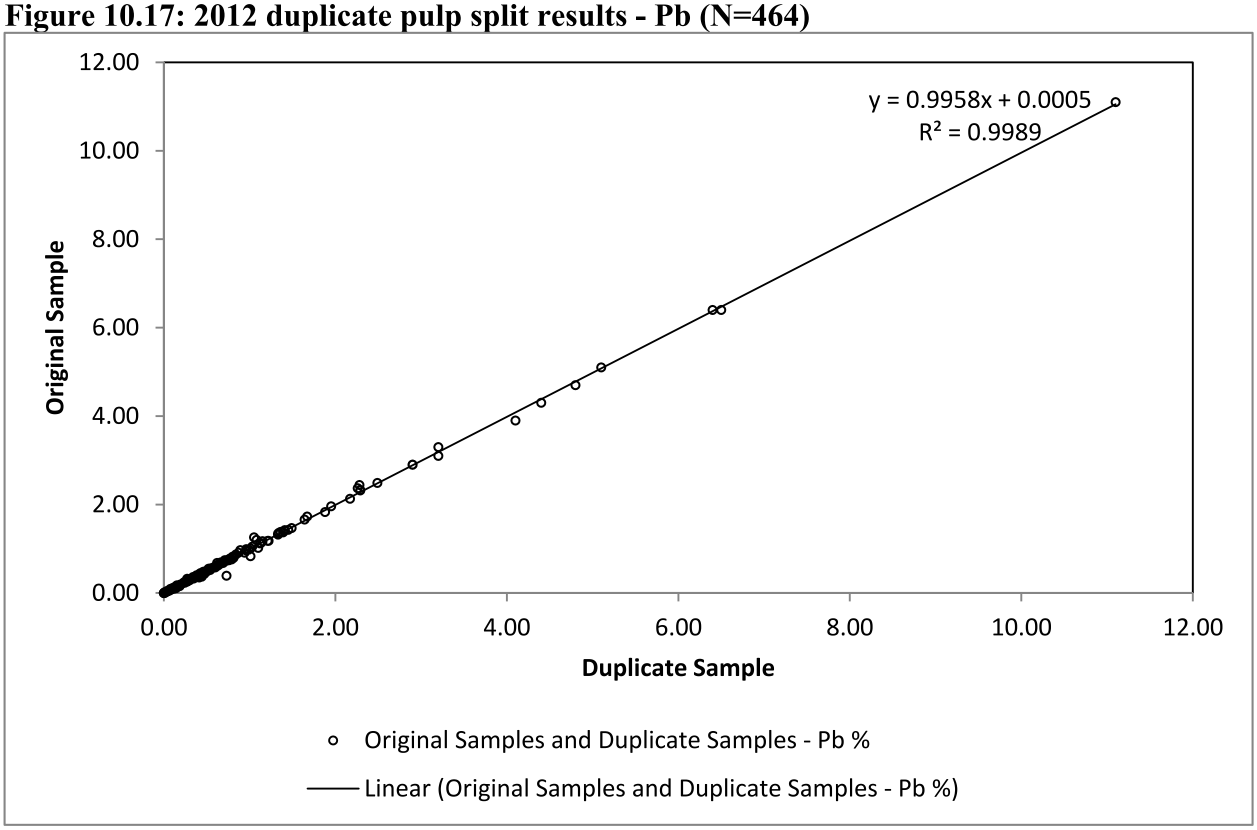


Figure 10.18: 2012 duplicate pulp split results - Cu (N=464)

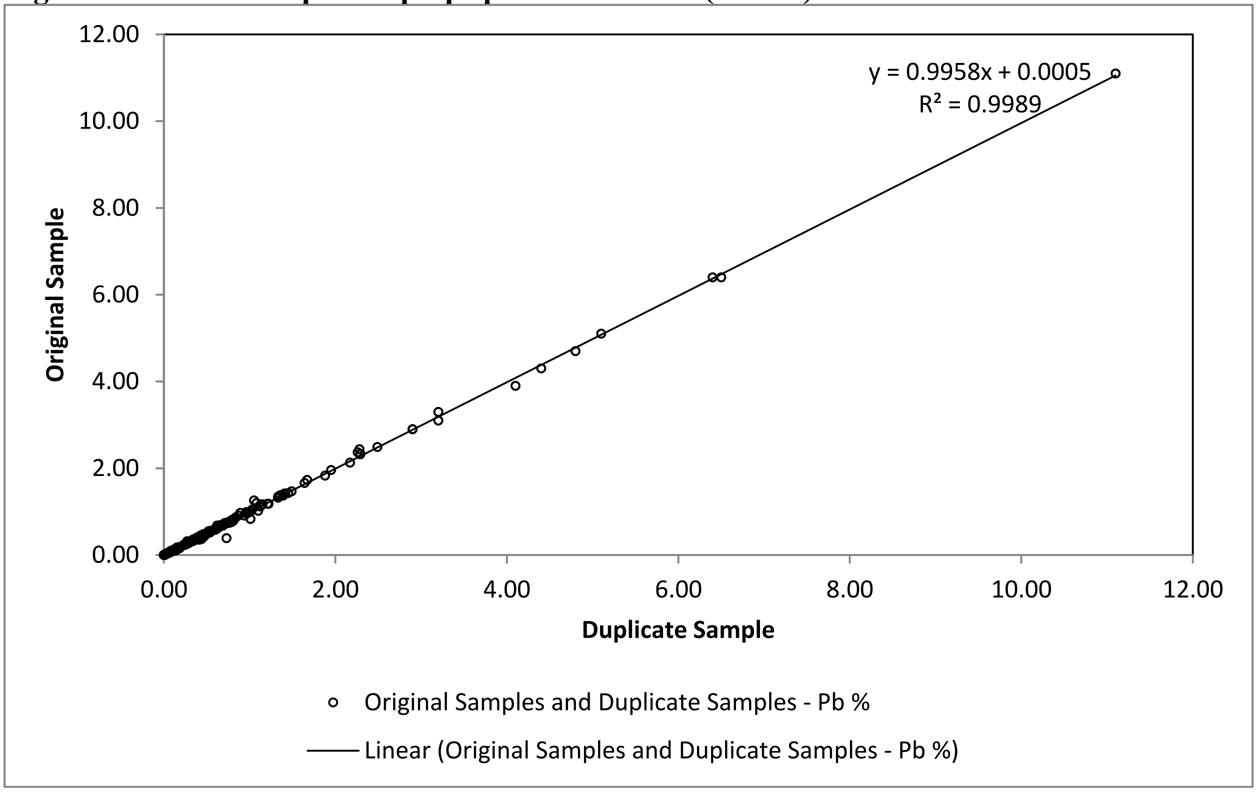


Figure 10.19: 2012 duplicate pulp split results - Ag (N=464)

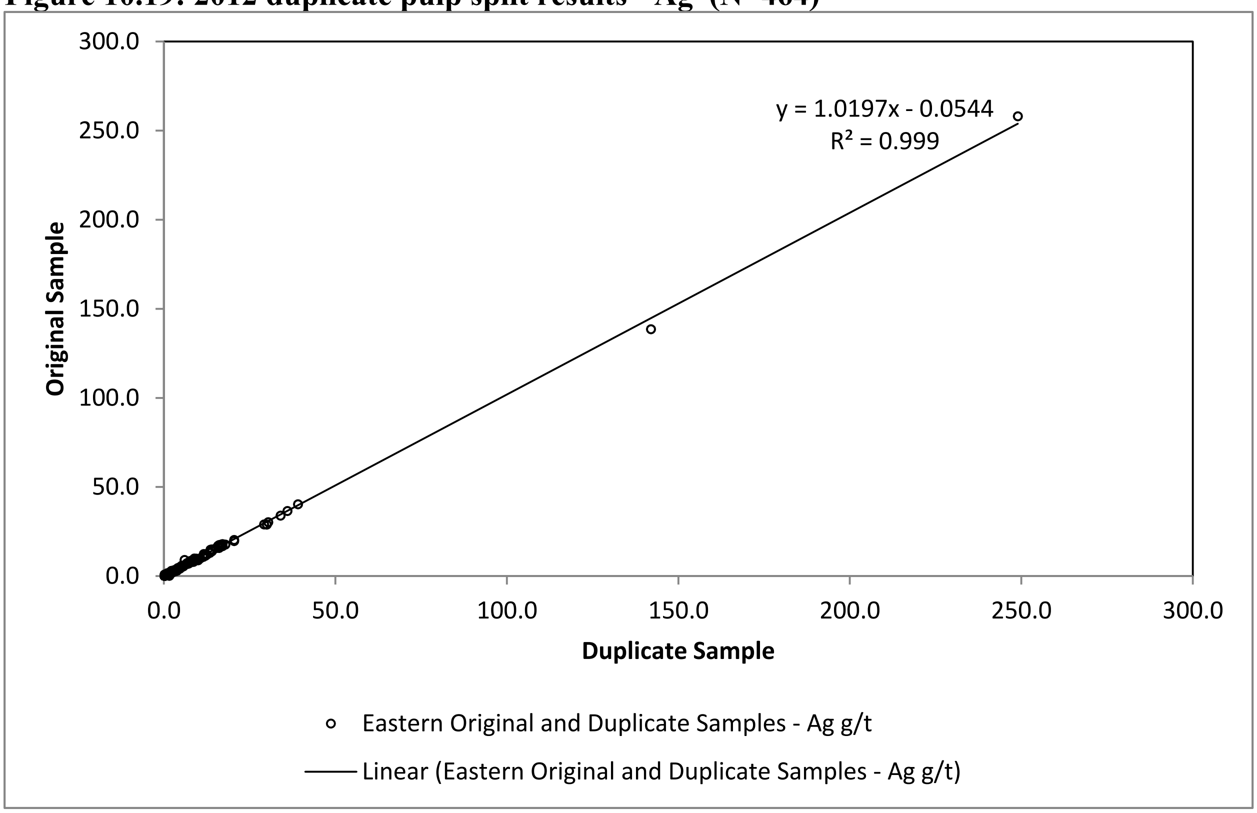
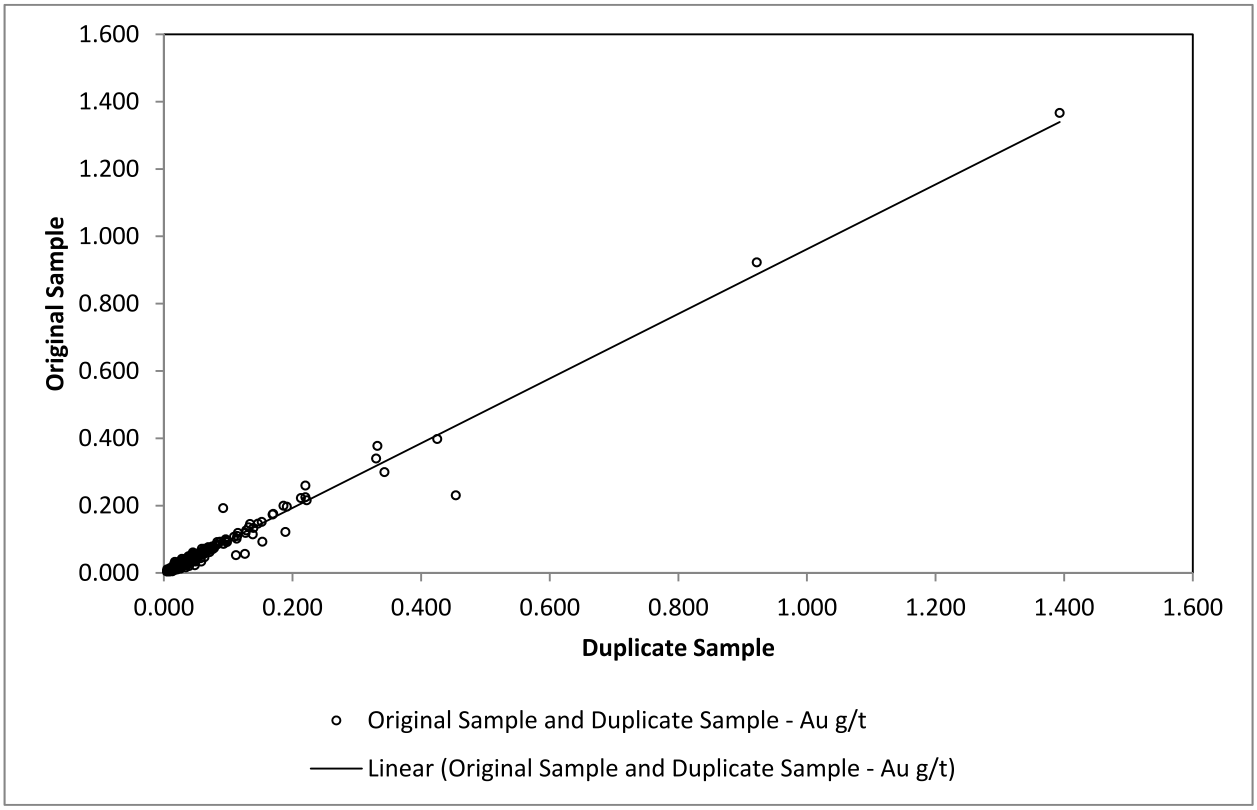


Figure 10.20: 2012 duplicate pulp split results - Au (N=464)



10.5.4 2012 Blank Sample Program

Blank samples were blindly inserted in chronological succession, at an interval of every odd 20th sample, for the 2012 program. Blank sample status was noted in the project sample record books and the material consisted of non-mineralized, siliceous sandstone collected from a roadside outcrop on the southern side of Red Indian Lake. This material was used previously by BMC and Mercator for analytical blank purposes in 2007 and 2008. Blank samples for the 2012 program were analyzed by Eastern along with the associated core sample stream.

Results for the 2012 program samples appear in Figures 10.21 and 10.22 and show that Au and Ag values group consistently at method detection limits, with a single 358 ppb exception for Au and three exceptions at levels less than 0.75 ppm for Ag. Results for Cu, Pb and Zn also consistently group near their respective detection limits and show no spiking. Based on the above, no evidence of problematic sample cross-contamination is considered to be present in the 2012 dataset.

Figure 10.21: Blank sample results – 2012 Program Cu, Pb and Zn (N=234)

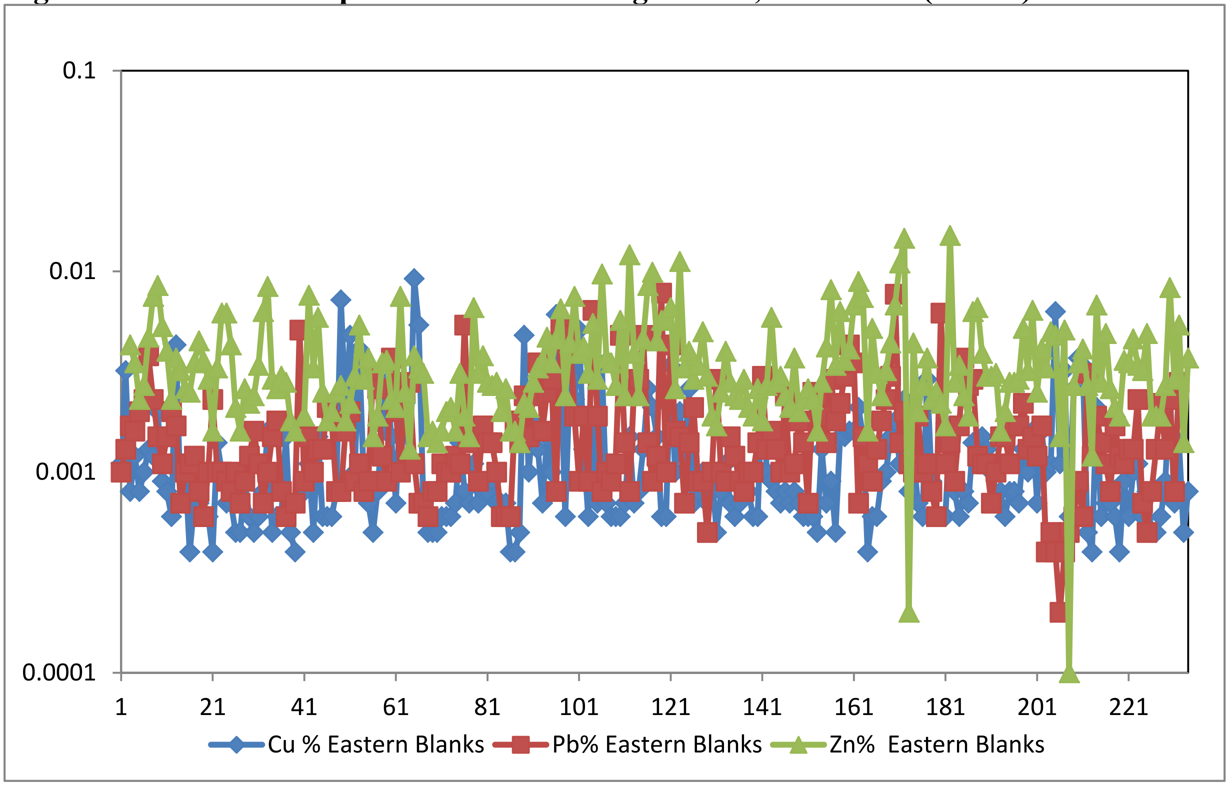
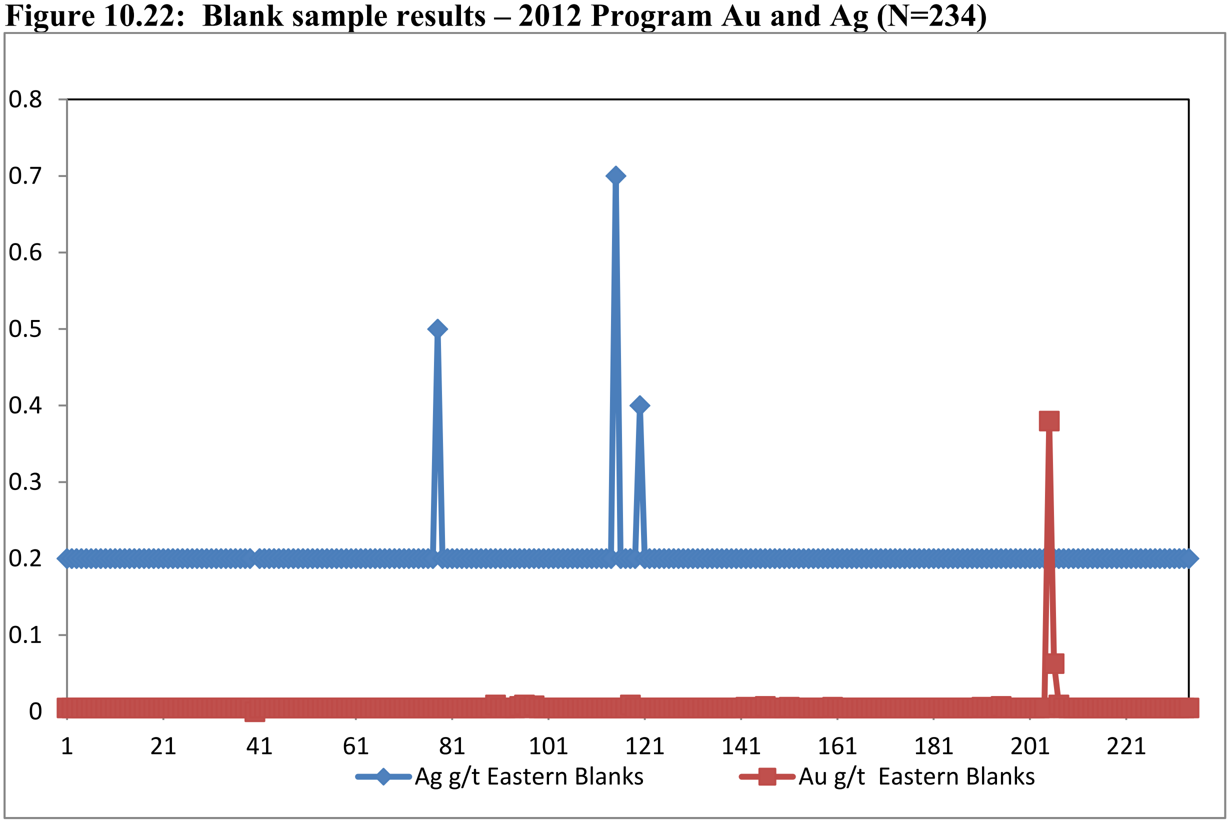


Figure 10.22: Blank sample results – 2012 Program Au and Ag (N=234)



10.5.5 Check sample program results

All samples that returned grades of 0.22% Zn or more at Eastern were submitted for check analysis at ALS. Coarse reject split materials were used in this program and results for Zn. Pb, Cu, Ag and Au are presented in Figures 10.2 through 10.24 below. Good correlation exists between the datasets, with this being defined by R2 values of 0.985, 0.918, 0.995, 0.989 and 0.875 for Zn, Pb, Cu, Ag and Au respectively. No substantive discrepancies are present between results from the two laboratories.

Figure 10.23: Check sample results – 2012 Program Zn (N=2263)

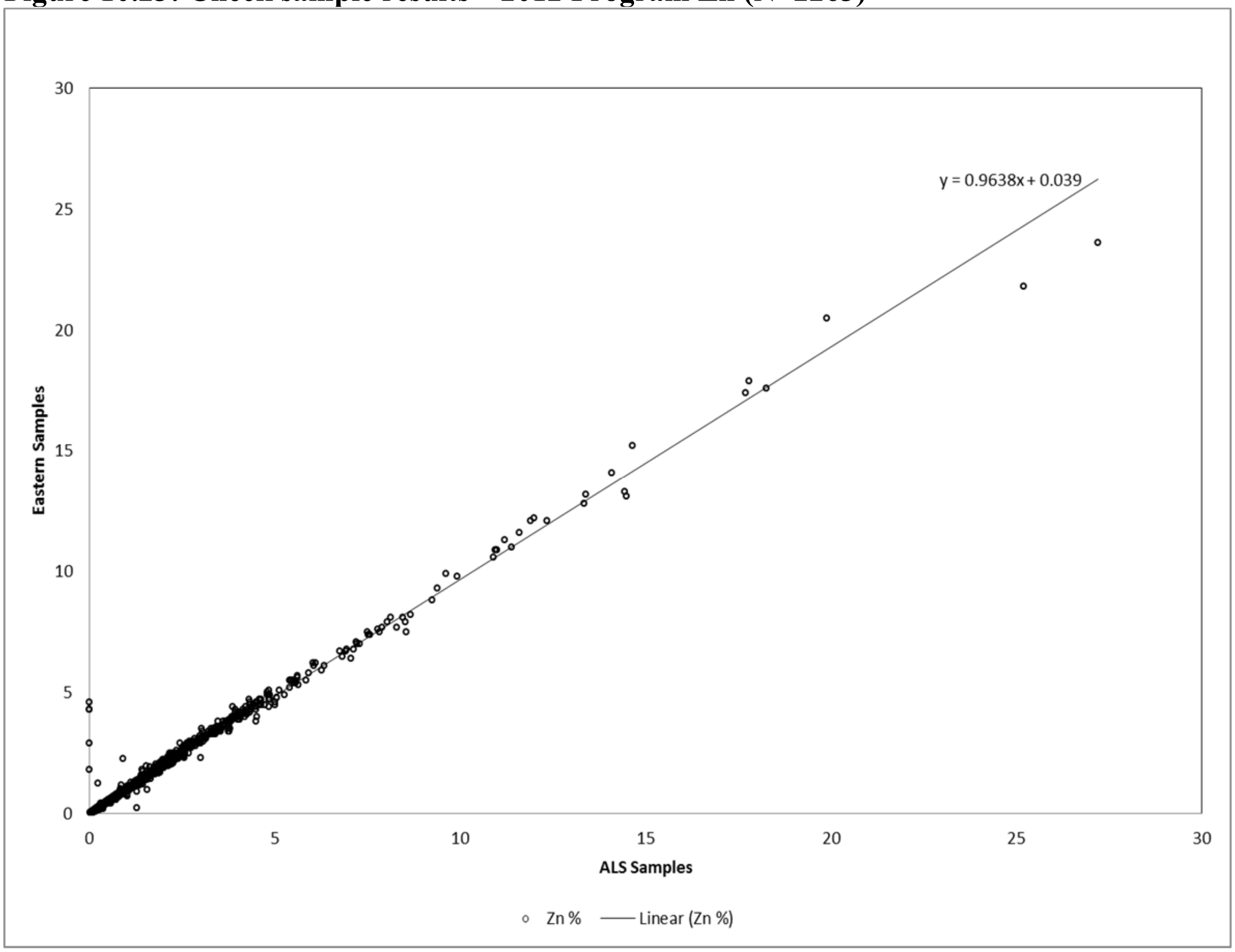


Figure 10.24: Check sample results – 2012 Program Pb (N=2263)

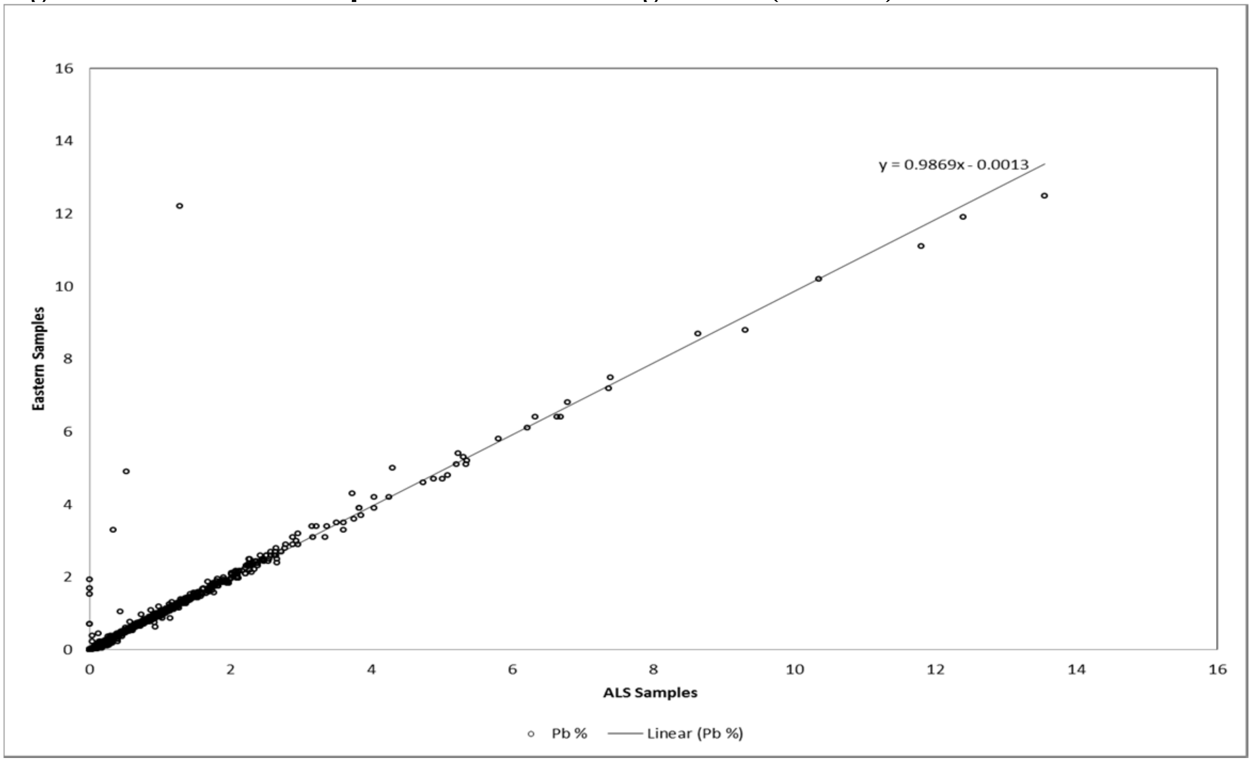


Figure 10.25: Check sample results – 2012 Program Cu

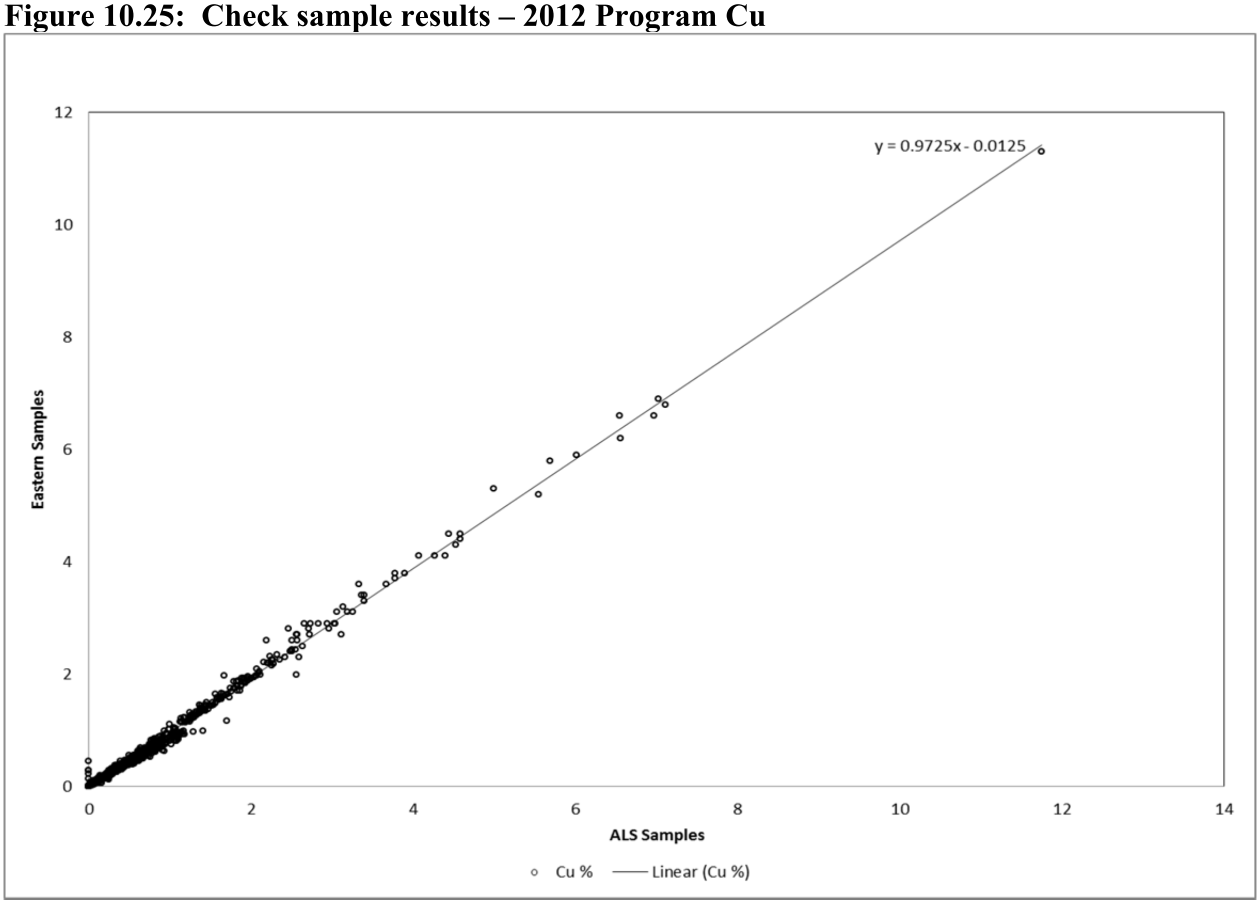


Figure 10.26: Check sample results – 2012 Program Ag (N=2263)

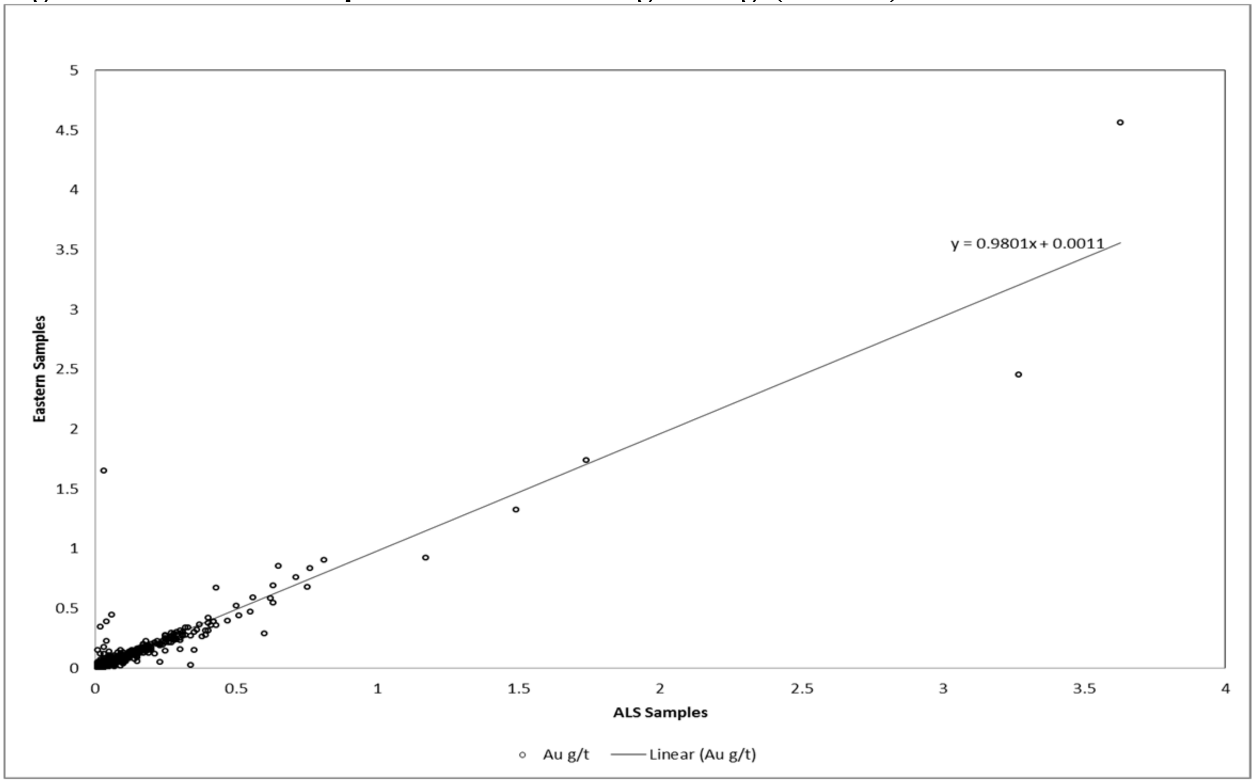
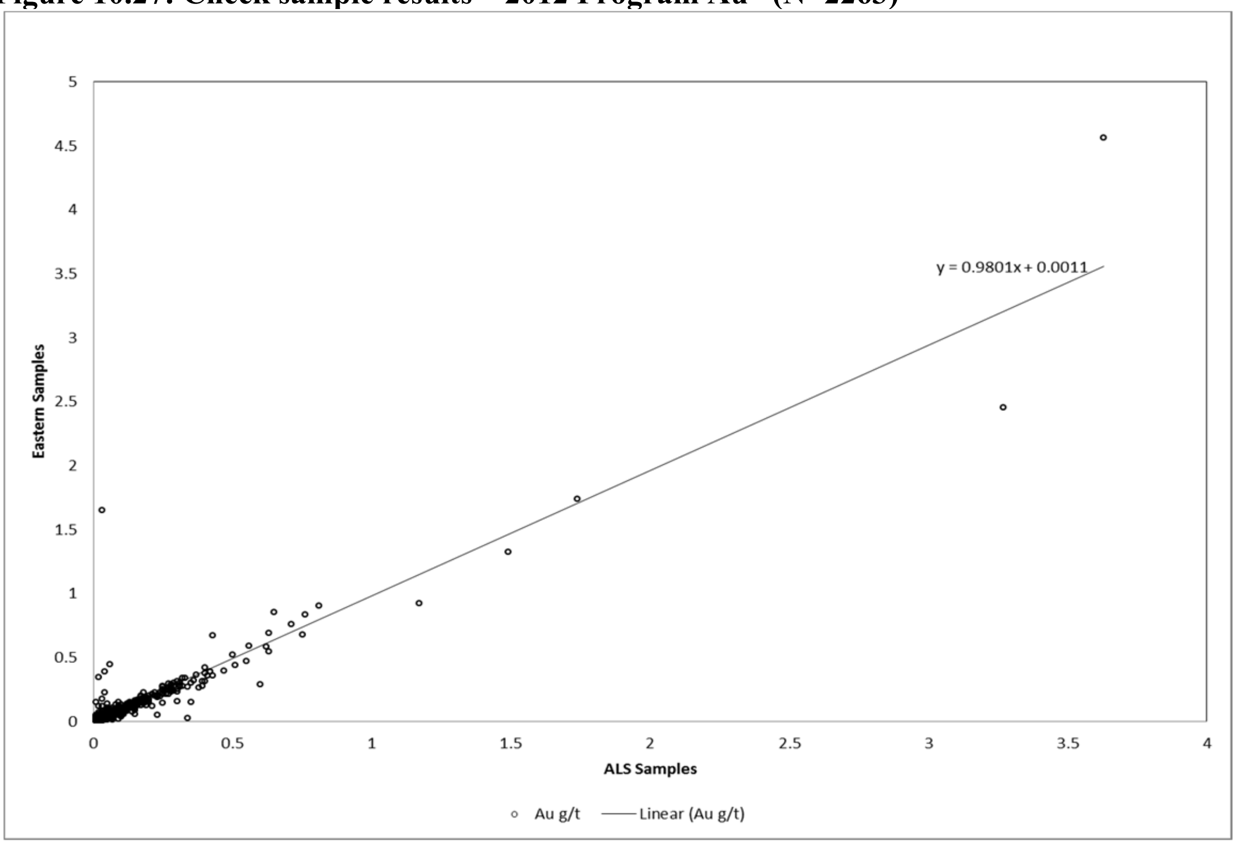


Figure 10.27: Check sample results – 2012 Program Au (N=2263)



10.5.6 Comment on 2012 QA/QC Program Results

Mercator is of the opinion that sample preparation, analysis and security methodologies employed during the 2012 drilling program by BMC, as operator of the Lundberg Joint Venture, are consistent with current industry standards and sufficient for this project. Review of QA/QC program results for the drilling program showed that a generally systematic low bias exists in analytical results reported by Eastern for the majority of certified reference materials and that a comparable trend is not apparent for results for the same materials that were returned from ALS. This appears to be attributable in part to differences in digestion procedures between ALS and Eastern and, those used for the reference material dataset. Notwithstanding this point, Mercator considers the 2012 drilling dataset to be of acceptable quality for use in resource estimation programs and recommends that the low bias trend be followed up. It is also recommended that in future, duplication of assay quality analyses at Eastern and ALS be discontinued in favour of a single assay quality analysis undertaken by ALS after initial ICP determination at Eastern. This will provide a significant cost reduction relative to the 2012 protocol.

11 Data Verification

11.1 Database Checking

Mercator had previously validated project drilling database entries for 2008 drilling and also for the extensive historic drilling component to support the previous NI 43-101 compliant resource estimate reported by Webster and Barr (2008). Based on systematic checking of database entries against source documents at that time, with correction of deficiencies where necessary, those authors concluded that the database version accepted for use in the previous resource estimate was of appropriate quality for resource estimation use. The current authors accept this assertion and recognize that addition of 2012 drilling program data represents the only significant change in database content, since the previous estimate. As a result, only database entries associated with 2012 drilling were checked and reviewed in detail by Mercator for present purposes. No issues were encountered during the current resource estimation program, with the previously validated database content.

Checking of 2012 drilling program database content, by Mercator staff, consisted of collar coordination checks for all drill holes against source records, spot checks of core sample record entries and checking of assay results entries against source laboratory reports or certificates. In addition to these manually coordinated checks, routine digital assessment of drill hole datasets for issues such as end of hole errors, conflicting sample records, survey record errors, etc., were carried out, using scripts run within the Gemcom-Surpac modeling software. No substantive issues were identified from checking activities and the database version generated after their completion was designated as acceptable for use in the current resource estimate.

11.2 2013 Mercator Site Visit

11.2.1 Scope of visit and site investigations

Author Hilchey carried out a site visit to Buchans on January 9th, 2013. At that time he visited the BMC core logging and storage facilities and carried out a review of Buchans drill program components, including discussion of protocols for sampling of drill core. Mr. Hilchey was extensively involved in the 2007-2008 drilling on the Lundberg and Engine House zones and was familiar with the site, core handling, logging and sampling procedures, which were largely unchanged at the time of his visit. A core check sampling program consisting of 14 quarter core samples was also carried out. One of the samples collected was from hole H-09-3416, which lies outside of the current resource area. BMC's Senior Geological Technician, Derrick Keats, represented BMC and provided assistance during the visit.

During the core inspection and review process, several previously sampled core intervals representative of the Cu, Pb, and Zn grade ranges of the Lundberg and Engine House zones were selected from drill holes: H-12-3433, H-12-3430, H-12-3466, H-12-3460, H-12-3465, H-12-3468, H-12-3475, H-12-3477, H-12-3479, H-12-3441, H-12-3445, and H-12-3454, for use in the Mercator check sampling program.

All Mercator check samples from the 2012 Buchans drilling program had been previously quartered as part of the 2012 sampling program, with one quarter core sample being subsequently retained by Mercator for check sample analysis purposes. All sampled intervals were carefully photographed, inspected and measured to ensure that representative samples were obtained. The quarter core sample was removed from the box by Mercator, bagged, labelled and sealed. The core samples were securely transported by Mercator to Halifax and then shipped via commercial courier to SGS Lakefield Research Limited (SGS) in Lakefield, ON for analysis. QA/QC samples were inserted prior to shipment. SGS is an independent commercial analytical firm accredited to ISO Guide 25, supplemented by CAN-P-1579 for mineral analysis.

Observations regarding core logging, sampling and handling facilities were noted during the site visit. Based on observations made during the site visit and further discussions with BMC staff, Mercator determined that, to the extent reviewed during the visit, evidence of work programs carried out to date on the property is consistent with descriptions reported by the company and that procedures employed by BMC staff are consistent with current industry standards and of good quality.

11.2.2 Results of Mercator Drill Core Check Sampling Program

As noted above, 14 quarter core samples were sent to SGS for check sample analysis purposes. One certified reference material sample and one blank sample were also included in this sample shipment. Cu, Pb, Zn, Ag and Au results retuned from SGS show acceptable correlation with original sample values reported in the project database and no issues were identified with respect to the blank sample and certified reference material results returned from SGS. Figures 11.1 through 11.3 present comparisons of the original and check sample results for Zn, Cu and Pb, and Figures 11.4 and 11.5 present Ag and Au results. Variability between the two sample sets is considered to be primarily influenced by core-scale heterogeneity of metal distribution between the quarter core check samples.

Figure 11.1: Mercator check sample results Zn

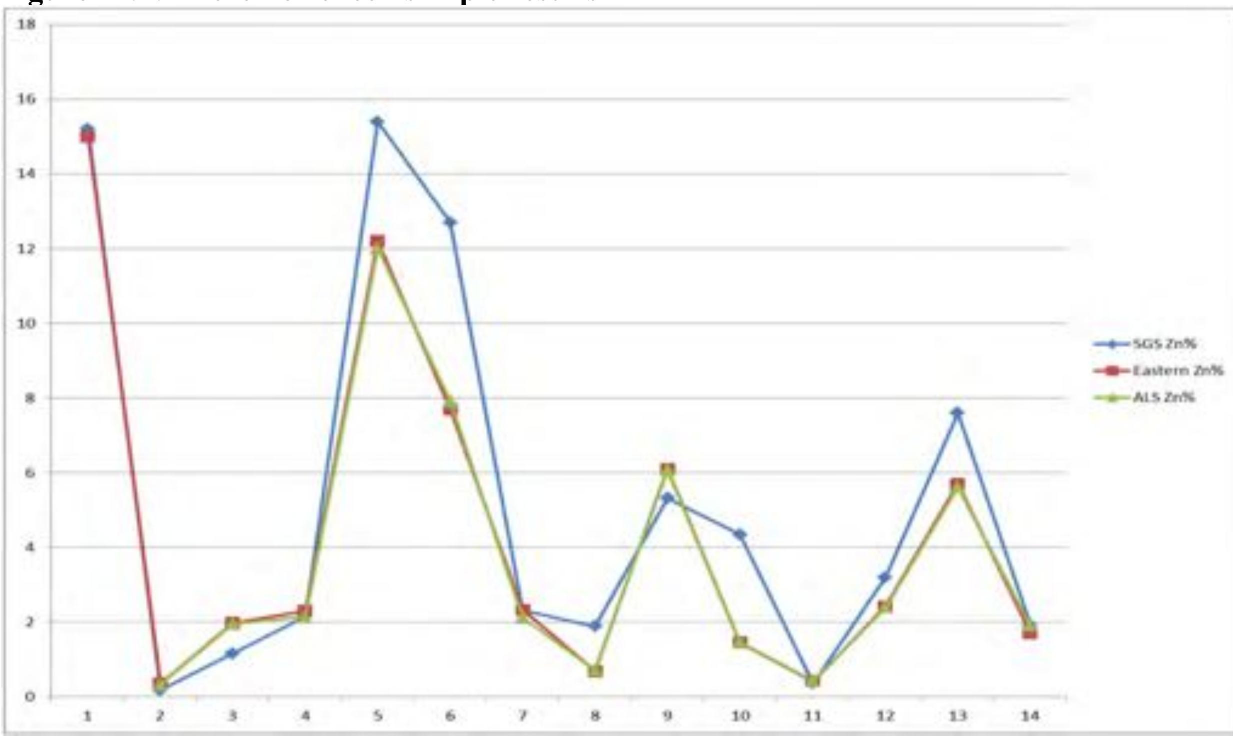


Figure 11.2: Mercator check sample results Pb

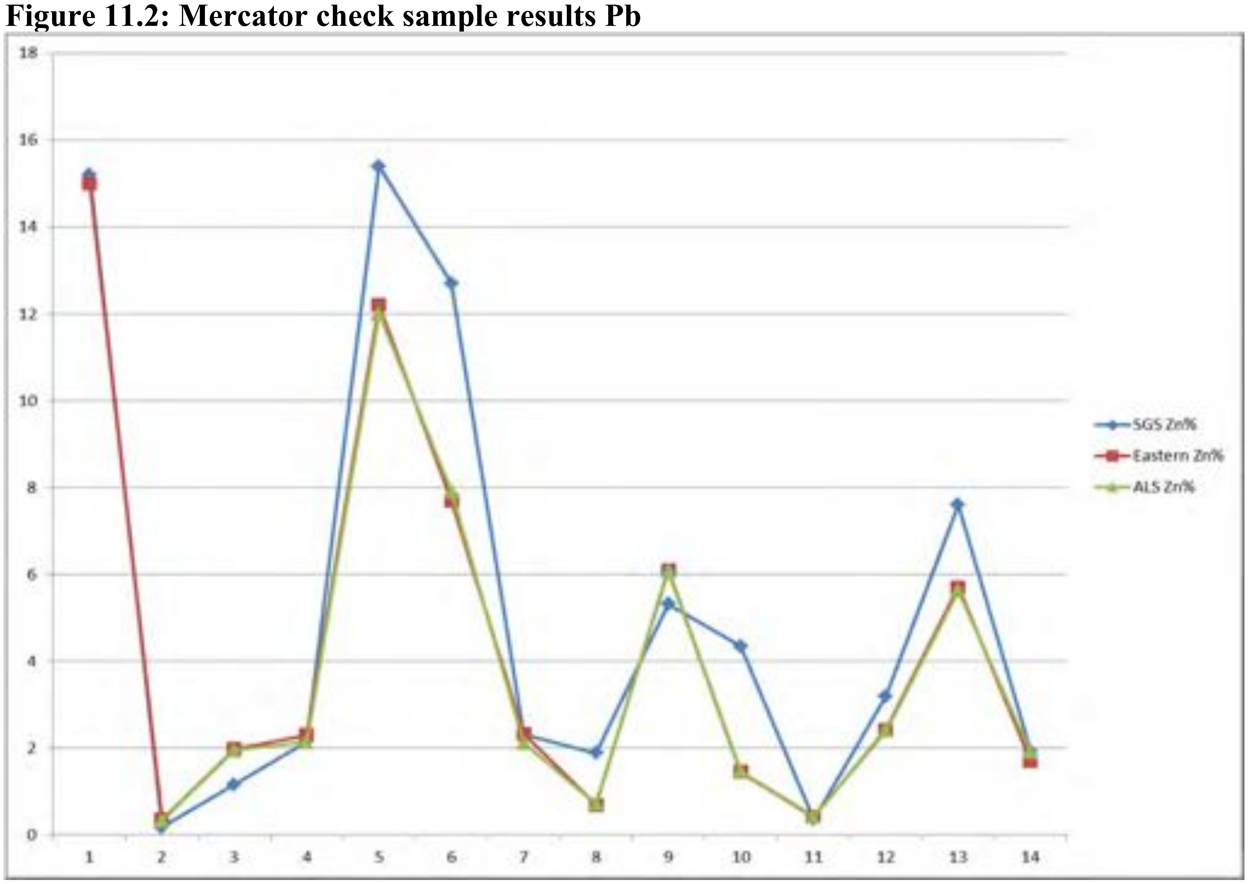


Figure 11.3: Mercator check sample results Cu

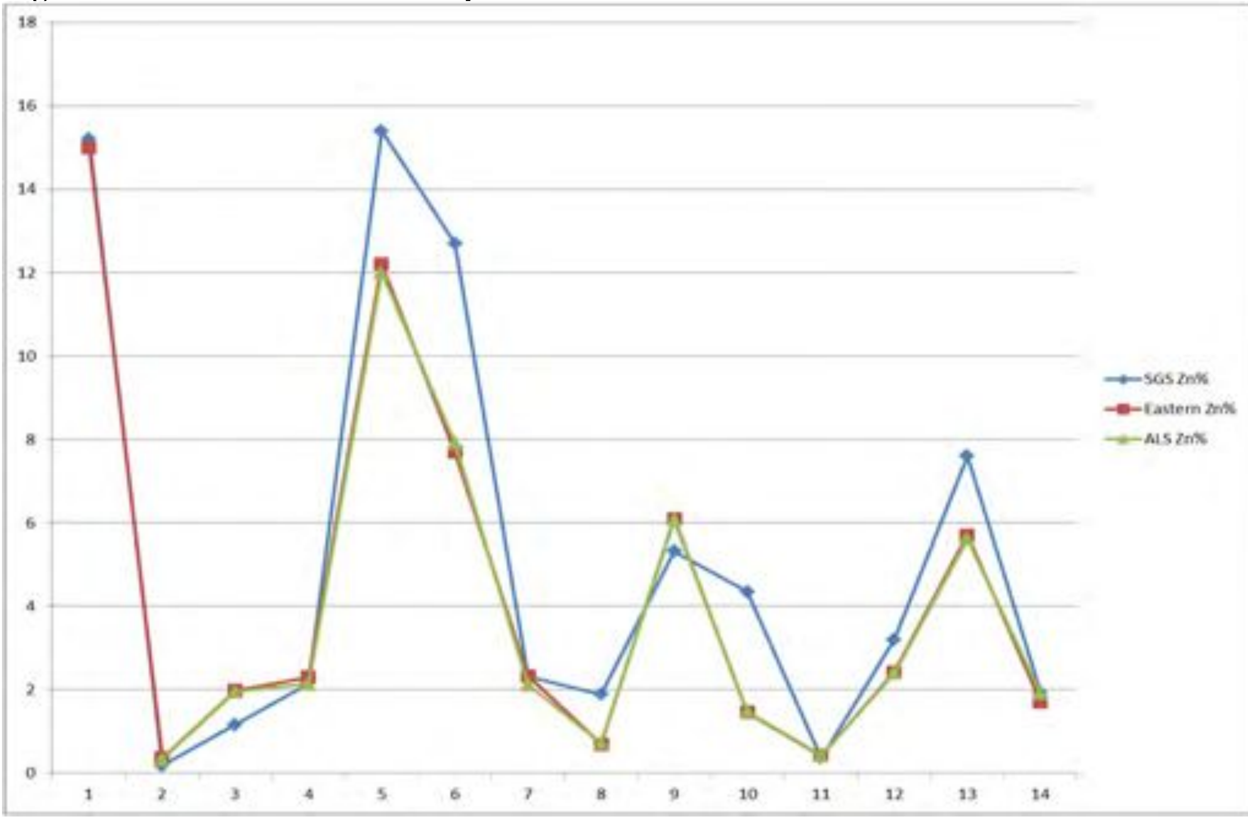


Figure 11.4: Mercator check sample results Ag

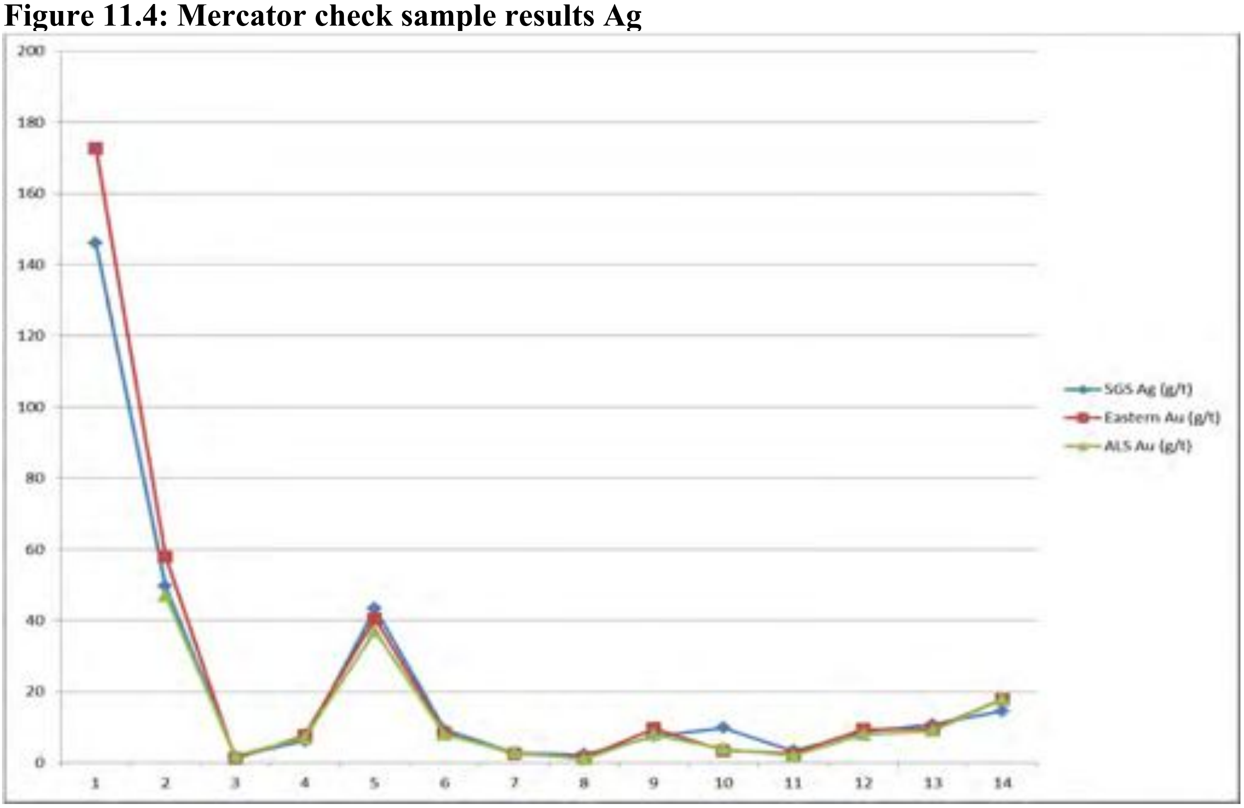
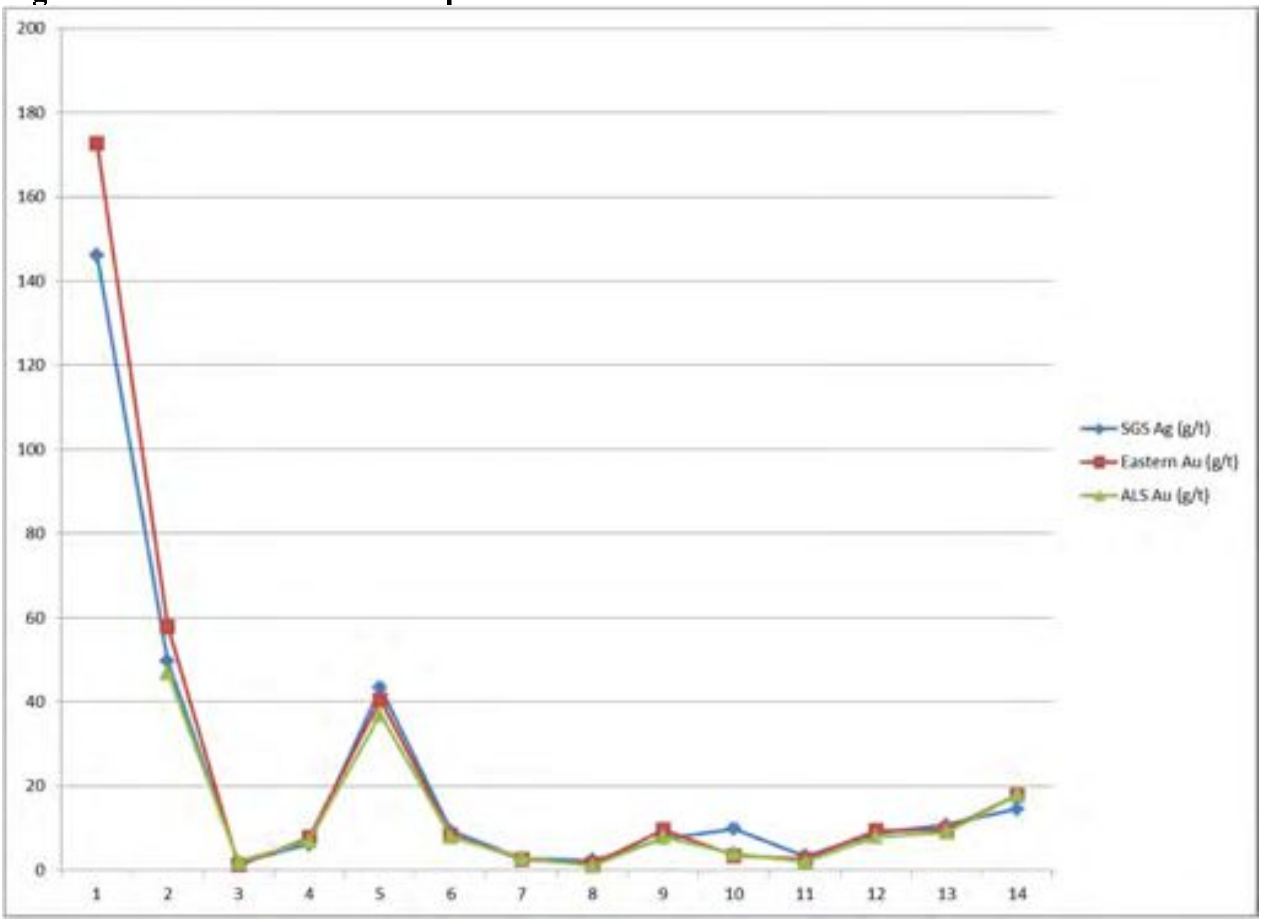


Figure 11.5 Mercator check sample results Au



11.3 Comment on 2012 Program Data Verification

Mercator is of the opinion that results of the data verification procedures carried out with respect to the 2012 drilling program by BMC and Minco, plus results of verification work reported previously by Webster and Barr (2008) with regard to the previous Mercator resource estimate, are acceptable, and that the associated drill hole database is acceptable for use in resource estimation programs.

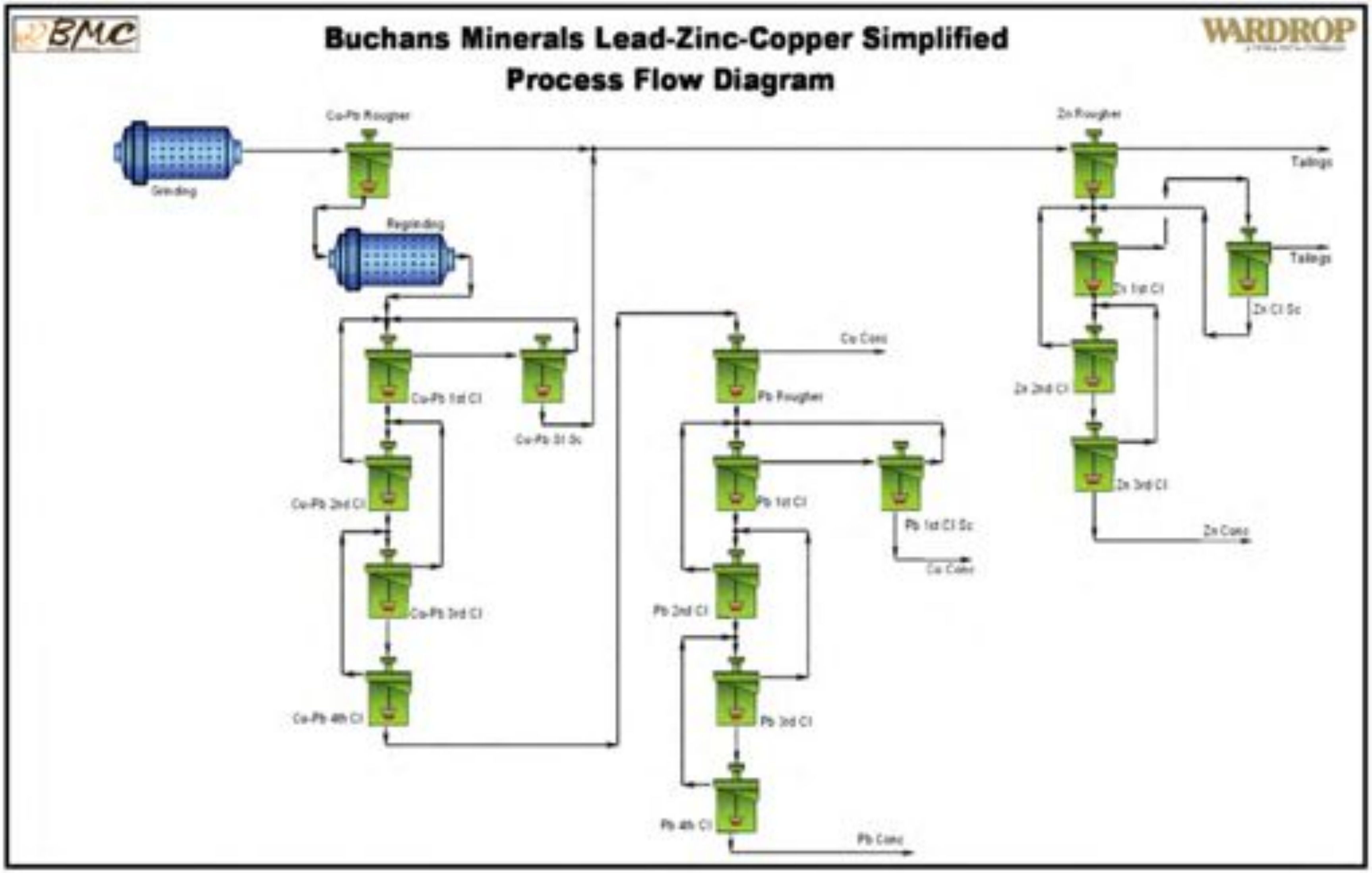
12 Mineral Processing and Metallurgical Testing

In 2010, BMC retained SGS Lakefield Research Limited (SGS) of Lakefield, ON BMC to carry out mineral processing and metallurgical testing on three representative samples of mineralized material from the Lundberg and Engine House zones. Results of this work were used by Coley et al. (2011) in the PEA prepared by Wardrop.

As described in Coley et al. (2011), the mineralization tested by SGS consisted of stockwork style Cu, Pb and Zn sulphides in association with non-sulphide phases such as quartz, chlorite and lesser amounts of barite. The only copper bearing sulphide mineral identified was chalcopyrite, the only lead mineral present was galena, and the zinc mineralization occurred exclusively as sphalerite. Iron was distributed in primary sulphides including chalcopyrite, sphalerite, galena and pyrite. There was no arsenopyrite present as quantified by the associated study of mineralogy.

Metallurgical process development studies focused on flotation recovery of copper and lead followed by zinc. After completion of testing, the most appropriate flow sheet for processing of future mineralization, typified by the sample material, was assembled. Initial grinding of mill feed to 80% passing 52 µm was established for flotation circuit feed materials and the reader is directed to the PEA report for step by step discussion of the processing flowsheet developed by SGS. A schematic of the SGS flowsheet is presented in Figure 12.1

Figure 12.1: Proposed Buchans Minerals Lead-Zinc-Copper Simplified Process Flow Diagram



13 Mineral Resource Estimate

13.1 General

The definition of mineral resource and associated mineral resource categories used in this report are those recognized under National Instrument 43-101 and set out in the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves Definitions and Guidelines (the CIM Standards). Assumptions, metal threshold parameters and deposit modeling methodologies associated with the current Lundberg deposit resource estimate are discussed below in report sections 13.2 through 13.4.

13.2 Geological Interpretation Used In Resource Estimation

The majority of mineralization within the resource model area was geologically interpreted to be of the stockwork style, with only minor amounts of massive sulphide material being otherwise present in the model.

13.3 Methodology of Resource Estimation

13.3.1 Overview of Estimation Procedure

The mineral resource estimate completed by Mercator is based on validated results of 231 diamond drill holes, including 51 of the 58 surface diamond drill holes totaling 7,235 m completed in 2012 by Minco and BMC, for a total of 24,519 m of diamond drilling. Modelling was performed using Gemcom Surpac® 6.3.1 modeling software with zinc, lead, copper, silver, gold and barite grades estimated using inverse distance squared (ID) interpolation methodology and 1 m down hole assay composites. The resource block model was set up as a partial percentage model with a block size of 5m (x) by 5m (y) by 5m (z).

A Net Smelter Return (NSR) calculator was used to generate NSR values for each block based on interpolated block metal grades and using three-year, 2010-2012, trailing average metal prices, of \$0.95/lb Zn, \$1.00/lb Pb, \$3.68/lb Cu, \$29.00/oz Ag, and \$1,493.65/oz Au, plus metallurgical recoveries as projected in the 2011 PEA by Wardrop and current (2012) smelter and shipping terms for similar concentrates. All pricing reflected US currency. As such, the NSR values, as calculated, represent the cash value of each resource block, assuming they were mined, milled and the concentrate produced was sold on standard smelter terms typical for this type of ore. The NSR calculator was also used to calculate NSR values for individual assay results, to define peripheral limits for solid modelling.

Metal grade assignment was peripherally constrained by two separate wire-framed solid models, based on sectional geological interpretations for the Lundberg Zone and Engine House Zone, and a minimum included combined grade, that reflects a $10 NSR value. The Lundberg Zone resource solid is the larger of the two, measures approximately 700 m east-west and 400 m north-south, and plunges from the bedrock-overburden interface in the southeast, to a maximum depth of 350 m below surface to the northwest. The Engine House Zone resource solid measures approximately 250 m east-west and 175 m north-south and plunges from the bedrock overburden interface in the east, to a maximum depth of 125 m below surface in the west. Null values were assigned to all historic underground workings consisting of previous development and stoping areas, using solid models created by Mercator for the previous (2008) NI 43-101 compliant resource estimate. All resource blocks intersecting the workings solids were thus removed from the estimate.

Interpolation ellipsoid ranges and orientations were developed through assessment of variography combined with geological interpretations and mining history information. Major axis orientations conform to the down plunge directions for both the Lundberg and Engine House solids, these being 320° and 270° respectively, with plunges varying between 10° and 40° locally. The semi-major axes occur within stratigraphy and perpendicular to the major axes, while minor axes are oriented at a high angle to stratigraphy in the down-hole direction. Major, semi-major, and minor axis ranges of 75 m, 50 m, and 25 m, respectively, were used for initial interpolation passes for all metals. A second interpolation pass at double these ranges was used to interpolate grades in all blocks not evaluated in the first pass. At least 3 and a total of 12 contributing assay composites, with no more than 4 composites allowed from a single drill hole, were required to interpolate a valid block grade. Results from 4,458 separate laboratory determinations of specific gravity were composited at a 1 m down hole support length and used to develop an interpolated specific gravity model using ID methodology specified above.

The resource statement cut-off grade of $15 NSR represents an estimated break-even cut off, as it approximates the $14.80/t operating cost defined in the 2011 PEA by Wardrop that is comprised of a $2.27/t mining cost and $12.53/t processing cost.

Indicated resources are defined as all interpolated blocks with 9 or more contributing composites, with a maximum average distance of 55 m from the block centroid, that are within a 50 m range of a drill hole from 2008 (BMC) or 2012 (Minco and BMC) programs. Inferred resources are defined as all other interpolated blocks above the $15/t NSR cut off and present within the peripheral $10/t NSR grade constraints. No Measured resources were defined.

13.3.2 Data Validation

The estimate is based on validated results of 231 diamond drill holes totaling 24,519 m of drilling. This includes 10,190 m from 135 historic surface and underground diamond drill holes completed prior to 1975 by former mine operators American Smelting and Refining Company (ASARCO), 7,094 m from 45 surface diamond drill holes completed in 2008 by RRO, and 7,235 m from 51 of the 58 surface diamond drill holes completed in 2012 by Minco and BMC.

These results are a subset of data taken from a master drill hole database compiled by BMC in Gemcom Logger software that includes 3,540 historic drill holes, 71 RRO drill holes completed by RRO in 2007 and 2008 and 58 Minco and BMC drill holes completed in 2012. These account for a total of 435,179 m of diamond drilling and 21,601 core samples. Results were received by Mercator in Gemcom Logger format from BMC and were subsequently complied and imported into Gemcom Surpac ® Version 6.3.1. A total of 7,694 core samples occur within the peripheral limits of the resource estimate model.

Validation checks on overlapping intervals, inconsistent drill hole identifiers, improper lithological assignment, unreasonable assay value assignment, and missing interval data were performed. Checking of database analytical entries was also carried out against laboratory records supplied by BMC. Historic drill holes that occur within Lundberg deposit limits that were either re-drilled during 2008 or 2012 drill programs or drill holes with records that were not available have been excluded. This includes historic drill holes 48, 49, 220, 289, 1908, 2874, 2887, 2888, 2889, 2890, 2892, and 2893.

13.3.3 Metal Pricing and Net Smelter Return (NSR) Calculation

The NSR value used in this resource evaluation incorporates consideration of metallurgical, milling, and mining inputs. More specifically, it is the calculated potential revenue which is returned to the mine, from the smelter, for the sale of concentrate products. The NSR method recognizes that more than one metal, in this circumstance, five metals, zinc, lead, copper, silver, and gold, can contribute to a potential revenue stream. The NSR calculation derives a potential revenue value that accounts for such items as recovery of each metal to individual concentrates, sales value of each the contained metals, in each concentrate, at specific metal prices, all less the cost of smelter treatment and refining charges, smelter penalties and the costs of freight and handling of the separate concentrates to the smelters. By this means, in situ metal grades can be converted to potential revenues and a cut-off grade can be identified, based on the estimated cost of all activities related to mining and mineral processing.

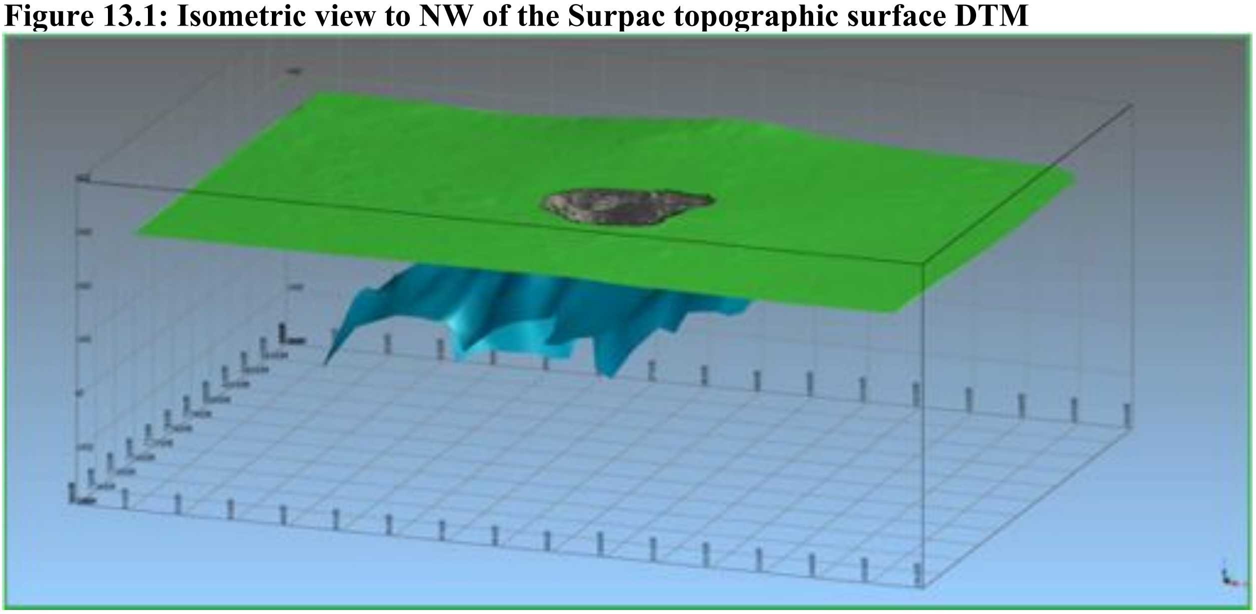
Mining consultant Malcolm Swallow, P. Eng., developed a digital spreadsheet-based NSR calculator for Minco and BMC use. This calculator used three-year (2010-2012) trailing average metal prices of $0.95/lb Zn, $1.00/lb Pb, $3.68/lb Cu, $29.00/oz Ag, and $1,493.65/oz Au, metallurgical recoveries as demonstrated by the metallurgical test work by SGS in 2010 and subsequently projected in the 2011 PEA by Wardrop, and 2012 smelter and shipping terms for similar concentrates. All pricing reflects US currency. The calculator was reviewed by Mercator and subsequently accepted for use in the resource estimation program to define limits of the current Lundberg Deposit resource estimate and to generate NSR values for each block based on interpolated block metal grades. As such, the NSR values, as calculated, represent the cash value of each resource block, assuming they were mined, milled and the concentrate produced was sold on standard smelter terms typical for this type of ore. Any block with missing or null analytical values prevented calculation of a NSR block value and in such circumstances the missing values were replaced with one half of the respective analytical detection limits.

13.3.4 Data Domains and Solid Modelling

13.3.4.1 Topographic Surface

The digital terrain model (DTM) of contoured topography developed by Mercator for the November 3rd 2008 resource estimate was retained for the current estimate after validating the surface against new 2012 collar elevations. The majority of the resource solid modeling is constrained along the upper boundary of the Ski Hill Formation or the bedrock-overburden interface, but where applicable the topographic surface DTM functions as the top surface constraint for resource modelling (Figure 13.1).

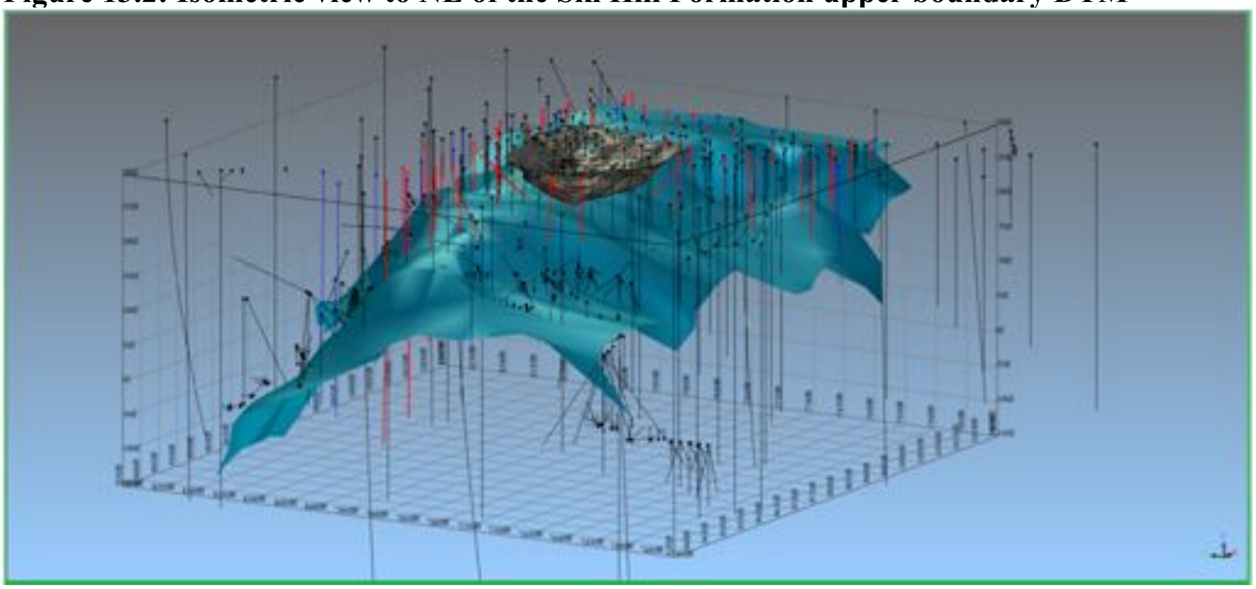
Figure 13.1: Isometric view to NW of the Surpac topographic surface DTM



13.3.4.2 Ski Hill Formation Upper Boundary

A DTM surface of the upper boundary of the Ski Hill Formation was developed from sectional geological interpretations (Figure 13.2). This surface was used to guide grade interpretations of stockwork mineralization typical of the Lundberg deposit. The Ski Hill Formation DTM surface was not used as a constraining boundary in resource estimation due to mineralization hosted by Buchans River Formation lithologies being present in several holes of the 2008 and 2012 drilling programs. Mineralization in these instances was interpreted through wireframing as being continuous across the formational boundary.

Figure 13.2: Isometric view to NE of the Ski Hill Formation upper boundary DTM



13.3.4.3 Domain Modeling

Lundberg and Engine House in situ mineralization typically consists of stockwork mineralization predominantly located within the Ski Hill Formation that is characterized as a network of sulphide veins and veinlets within strongly altered sulphide impregnated host rocks. The Lundberg deposit is stratigraphically below the historically mined Lucky Strike deposit and consists of quartz-barite-carbonate-sulphide veins and veinlets cutting strongly altered mafic to intermediate volcanics that also carry disseminated sulphide mineralization. The stockwork mineralization also extends into the lower portions of the Buchans River Formation. The stockwork mineralization comes to surface on the eastern edge of the zone and forms an elongate, wedge shaped body that is 350 m deep on the western end. The highest concentration of sulphide mineralization appears to occur in close proximity to the historically mined Lucky Strike deposit and is more diffuse as distance increases from historic workings. The Engine House Zone lies almost immediately south of Lucky Strike workings and typically contains higher copper concentrations. The stockwork system of the Engine House does not appear to connect directly with that of the Lundberg Zone as defined by historic and recent drilling.

Base-metal sulphides and precious metals for the Lundberg and Engine House stockwork zones that are of economic interest include: zinc, lead, copper, silver and gold. Barite commonly occurs in association with the metallic mineralization and is also of potential economic interest. To best assess the poly-metallic nature of the deposit, peripheral constraint solid models were first developed using a minimum threshold of $10 NSR. NSR values were calculated from down hole assay results using the NSR calculator discussed above and were displayed on vertical east-west and north-south geological sections. These were used to develop three dimensional solid model wireframes for resource estimation purposes. The limits of the resource solids extend 50 m horizontally from the last drill hole except where the last drill hole lies outside the wireframe. In those instances the midpoint between holes was used to define the limit of mineralization. Any historic holes, or portion of holes, drilled from the surface or underground that lay within the resulting solids were included in the resource.

The Lundberg Zone resource $10 NSR solid measures approximately 700 m in east-west dimension and 400 m north-south dimension and plunges from the bedrock-overburden interface in the southeast to a maximum depth of 350 m below surface in the northwest. In most cases, the Lundberg solid model was constrained along the upper boundary of the Ski Hill Formation, under which the stockwork system was developed. However, in instances where mineralization was intersected by recent drilling in the Buchans River Formation, often consisting of semi-massive to massive sulphides, the grade constraint was locally adjusted to include such material in the Lundberg resource estimate.

The Engine House Zone resource is constrained, in the main, by a $10 NSR solid that measures approximately 250 m in east-west dimension, 175 m in north-south dimension and plunges from the bedrock-overburden interface in the east to a maximum depth of 125 m below surface in the west. Two very small satellite $10 NSR solids are also present. Stockwork sulphides hosted by Ski Hill Formation lithologies predominate in this deposit area, but a narrow band of massive, presumably exhalative, sulphide mineralization contained in the lower Buchans River Formation is also included.

The percentage of each block inside of the $10 NSR peripheral constraint was estimated using the Surpac's block model estimation partial percentage function and the resulting percentage value was used as a volume adjustment factor in resource reporting, after grade interpolation was completed.

Figure 13.3: Isometric view to NE of the resource solid models

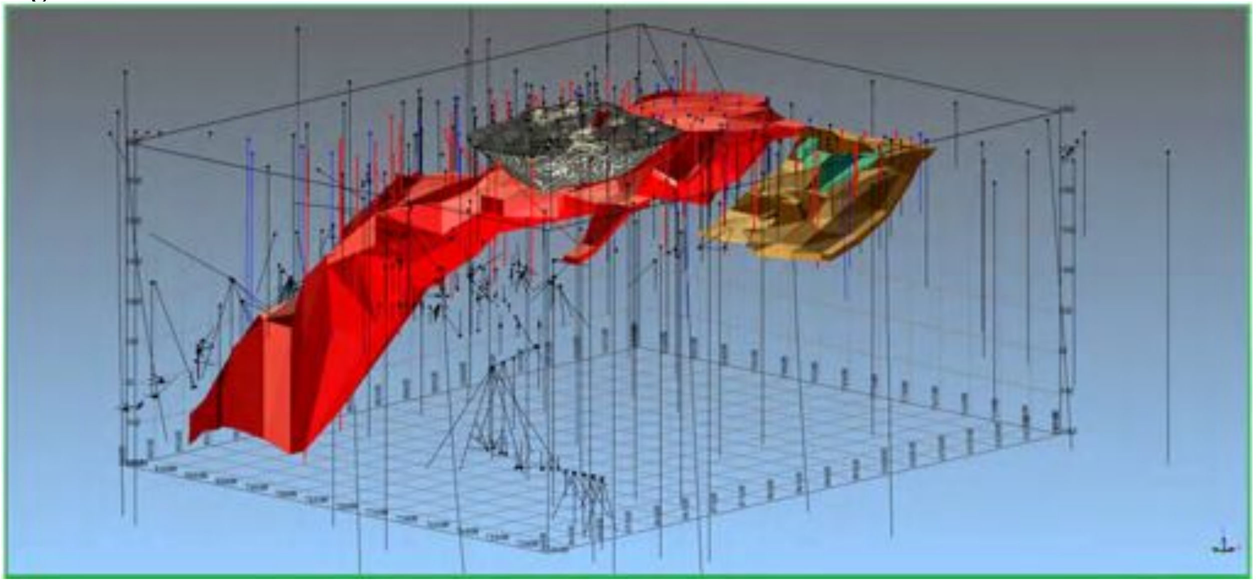


Figure 13.4: Isometric view to SE of the resource solid models

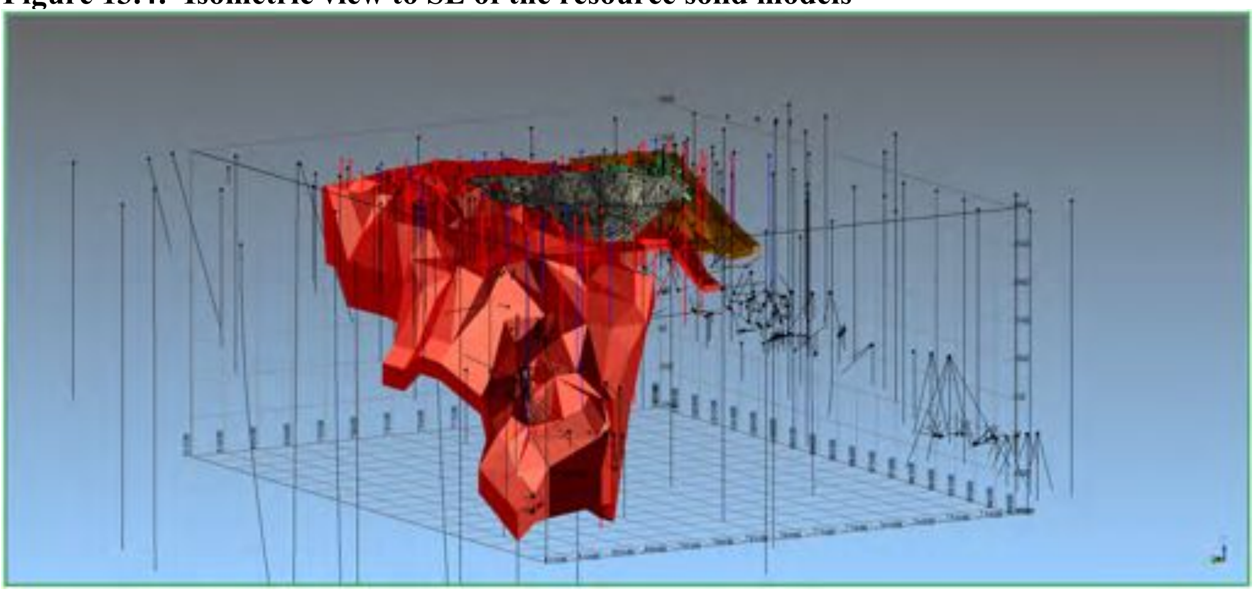


Figure 13.5: Isometric view to SW of the resource solid models

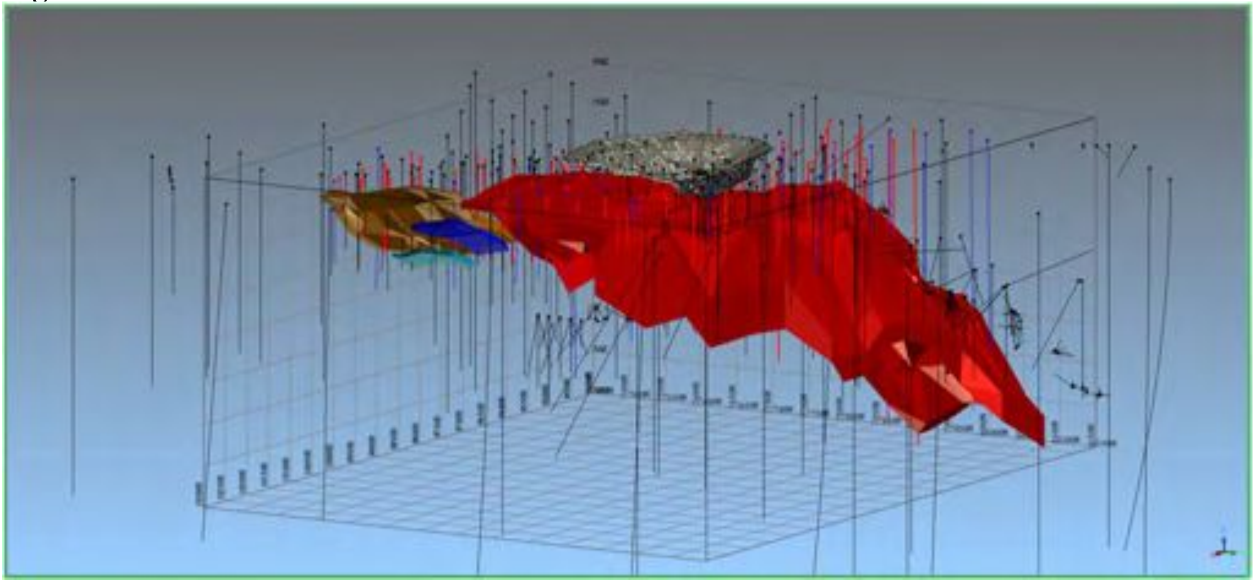
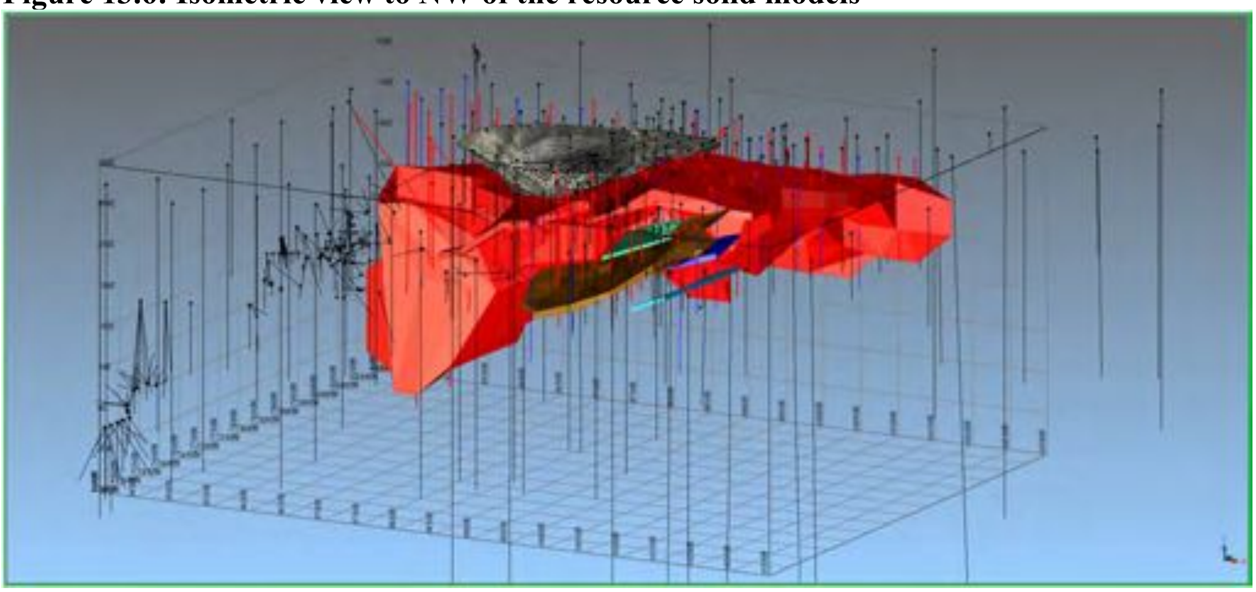


Figure 13.6: Isometric view to NW of the resource solid models



13.3.4.4 Historic Mine Workings Model

The historic underground workings and historic open pit digital model developed by Mercator for the November 3rd 2008 resource estimate was retained for use in the current resource estimate (Figures 13.5 through 13.7). This three-dimensional solid model was based on digitized workings outlines, developed from archived hard copy maps and sections. Historic drill hole data, occurring within the historic workings model, was used in grade interpolation, provided that the data also occurred within the modelled $10 NSR domain representative of the Ski Hill Formation stockwork mineralization. The 2012 drill hole program did not intersect any unexpected underground workings. The percentage of volume of resource blocks intersecting the workings model was then calculated using Surpac's block model estimation partial percentage function and intersecting volumes were removed after grade interpolation was completed.

Figure 13.7: Plan view of the digital workings model

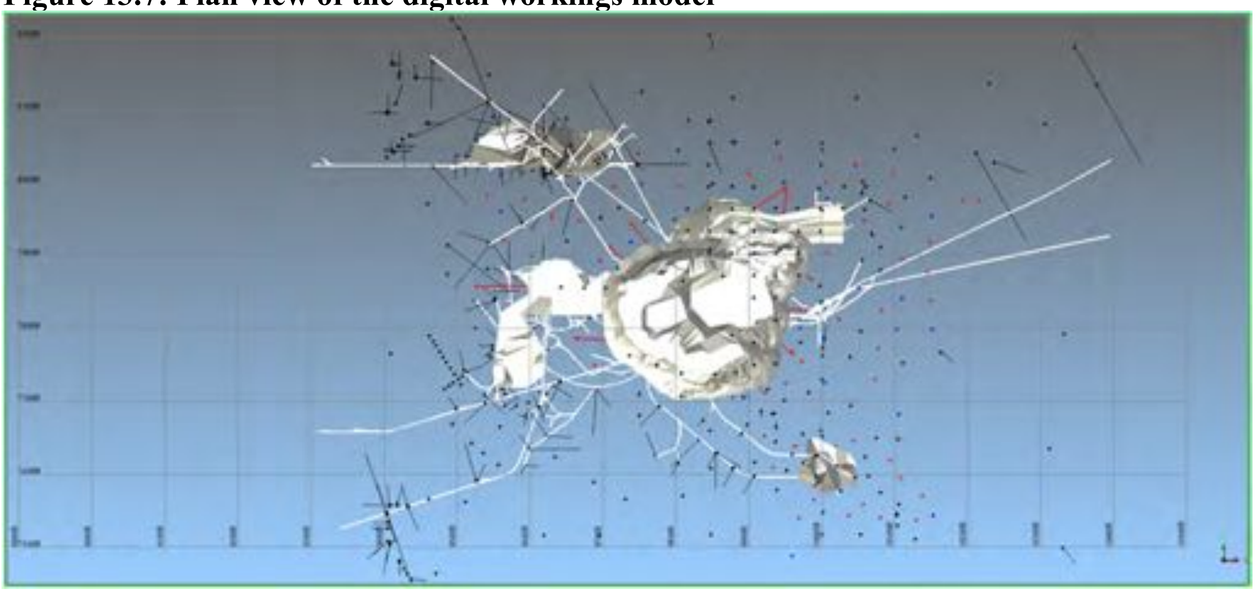


Figure 13.8: Isometric view to NE of the digital workings model

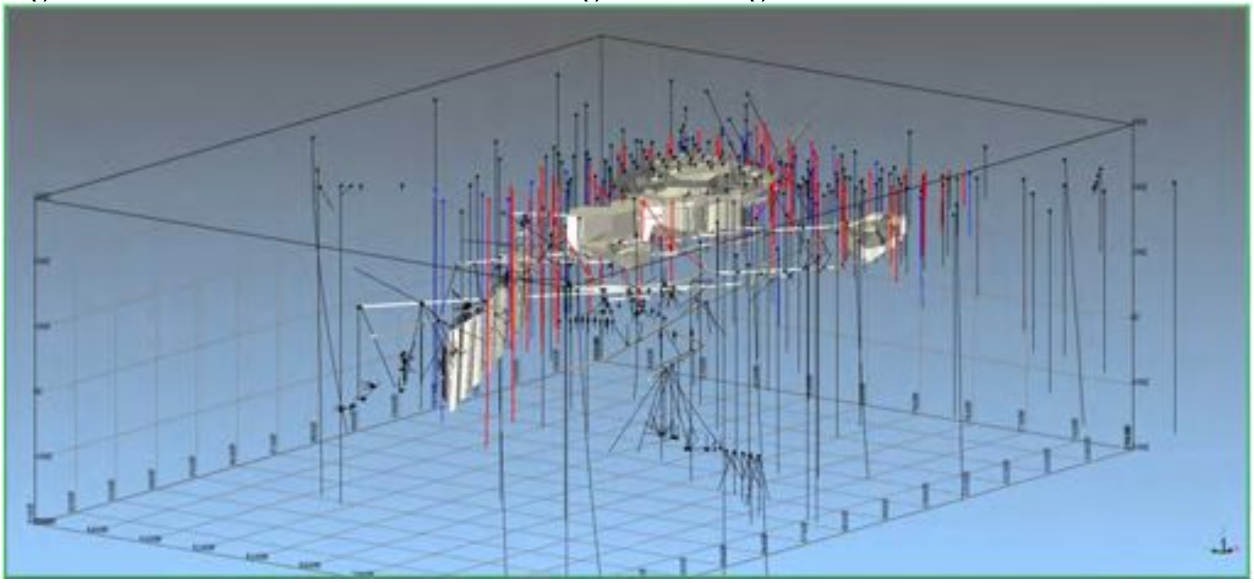
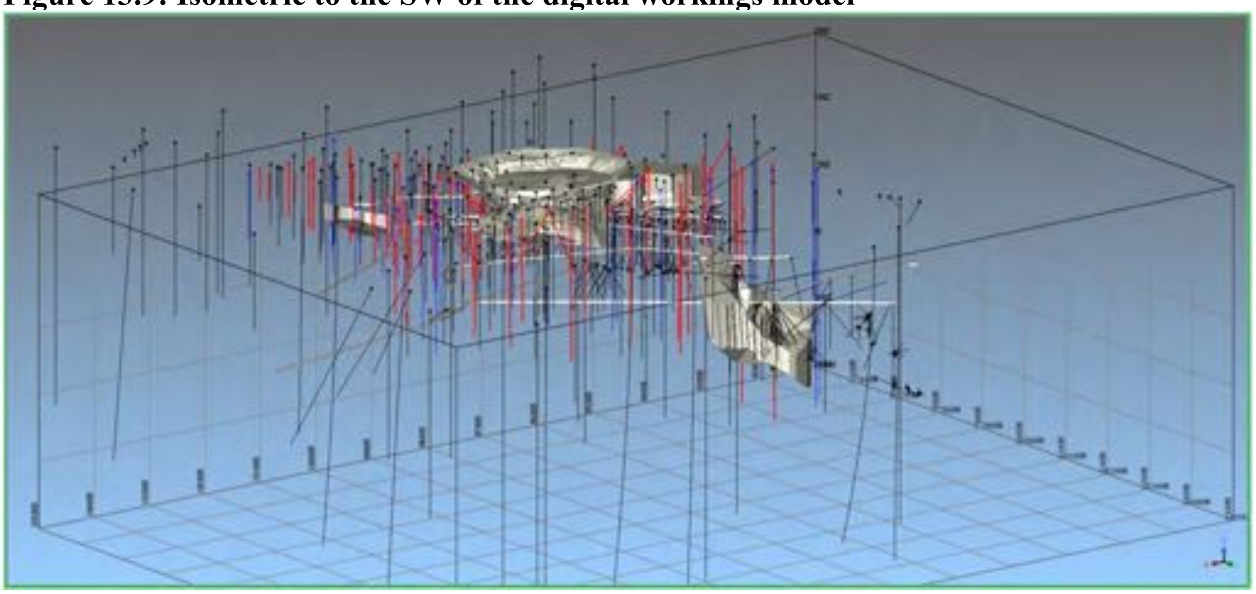


Figure 13.9: Isometric to the SW of the digital workings model



13.3.5 Drill Core Assay Composites and Statistics

The drill core assay data set used in the resource estimate contains 7,694 core sample records occurring within the $10 NSR domain model. Sample lengths range between 0.12 m and 7.6 m and have an average length of 1.11 m. Over 70% of samples measure 1.0 m in length. Based on these results, down hole assay composites at 1.0 m support were developed for all metals. No lithological constraints were imposed on down hole assay compositing. Descriptive statistics were calculated for each metal from 1.0 m assay composite datasets constrained within the $10

NSR domains for both the Lundberg and Engine House deposits and are presented in Table 13.1 and 13.2 respectively. Distribution histograms, cumulative frequency plots and probability plots for the 1.0 m composites are included in Appendix 3.

Table 13.1: Lundberg: Zn, Pb, Cu, Ag, Au, and Barite Statistics for 1.0 Meter Composites

Parameter	Zinc	Lead	Copper	Gold	Silver	*Barium	Barite
Mean Grade	1.29%	0.54%	0.33%	0.06 g/t	4.84 g/t	0.52%	0.90%
Maximum Grade	24.09%	13.75%	11.17%	6.86 g/t	433 g/t	49.47%	85.29%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	0.00%
Variance	3.50	0.76	0.36	0.03	200.11	6.79	
Standard Deviation	1.87	0.87	0.60	0.18	14.15	2.61	
Coefficient of Variation	1.45	1.62	1.85	3.20	2.92	4.99	
Number of Composites	7794	7794	7794	7794	7794	7794	

** Barium is converted to Barite ($BaSO_4$) for resource use by Barite% =Barium%/0.58*

Table 13.2: Engine House: Zn, Pb, Cu, Ag, Au, and Barite Statistics for 1.0 Meter Composites

Parameter	Zinc	Lead	Copper	Gold	Silver	Barium	Barite
Mean Grade	2.56%	1.00%	0.82%	0.15 g/t	8.69 g/t	0.92%	1.59%
Maximum Grade	23.34%	10.23%	10.10%	8.11 g/t	170.02 g/t	45%	77.59%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	0.00%
Variance	9.50	1.65	1.00	0.12	214.67	16.52	
Standard Deviation	3.08	1.29	1.00	0.35	14.65	4.06	
Coefficient of Variation	1.21	1.28	1.22	2.35	1.69	4.44	
Number of Composites	948	948	948	948	948	948	

** Barium is converted to Barite ($BaSO_4$) for resource use by Barite% =Barium%/0.58*

13.3.6 High Grade Capping Of Assay Composite Values

No high-grade capping factors were applied to drill core sample analytical results. Through analysis of metal grade distribution, it was concluded that high values that occur in the dataset lay within zones where drill log descriptions of lithology and mineralogy support presence of spatially correlative higher grade material. Maximum metal levels present are also considered to be consistent with the mineralization styles present.

13.3.7 Variography and Interpolation Ellipsoids

To assess spatial aspects of grade distribution within the Lundberg stockwork system experimental down hole and directional variograms were developed for zinc, lead, copper, silver, gold, and barite based on the 1.0 m down hole composite dataset defined by the $10 NSR value. Good spherical model results were obtained for experimental down hole variograms, thereby providing assessment of global nugget values and minor axis ranges.

Best experimental directional variogram results were developed for the Lundberg zone within a plane dipping 10° towards an azimuth of 0° using a spread of 20° and increments of 11.25°. Major axis continuity orientations predominantly conform to the Lundberg down plunge direction at 320° azimuth. Semi-major axes occur perpendicular to the major axis trend and show southwest plunges of approximately 10°. Representative results from the variogram assessment are presented in Figures 13.8, 13.9, and 13.10.

Interpolation ellipsoid ranges and orientations were developed through consideration of the variogram assessment along with geological interpretations and mining history information. Three interpolation domains were created within the Lundberg solid model to best accommodate the geometry of the deposit, these being: (1) South of grid Northing 7910, (2) North of grid Northing 7910 and West of grid Easting 9950, and (3) North of grid Northing 7910 and East of grid Easting 9950. The Engine House solid model was assessed as a single interpolation domain. Ellipsoid orientations for each interpolation domain are presented in Table 13.3 according to Surpac rotation type ZXY LRL.

Figure 13.10: Experimental down hole and directional variograms for Zinc

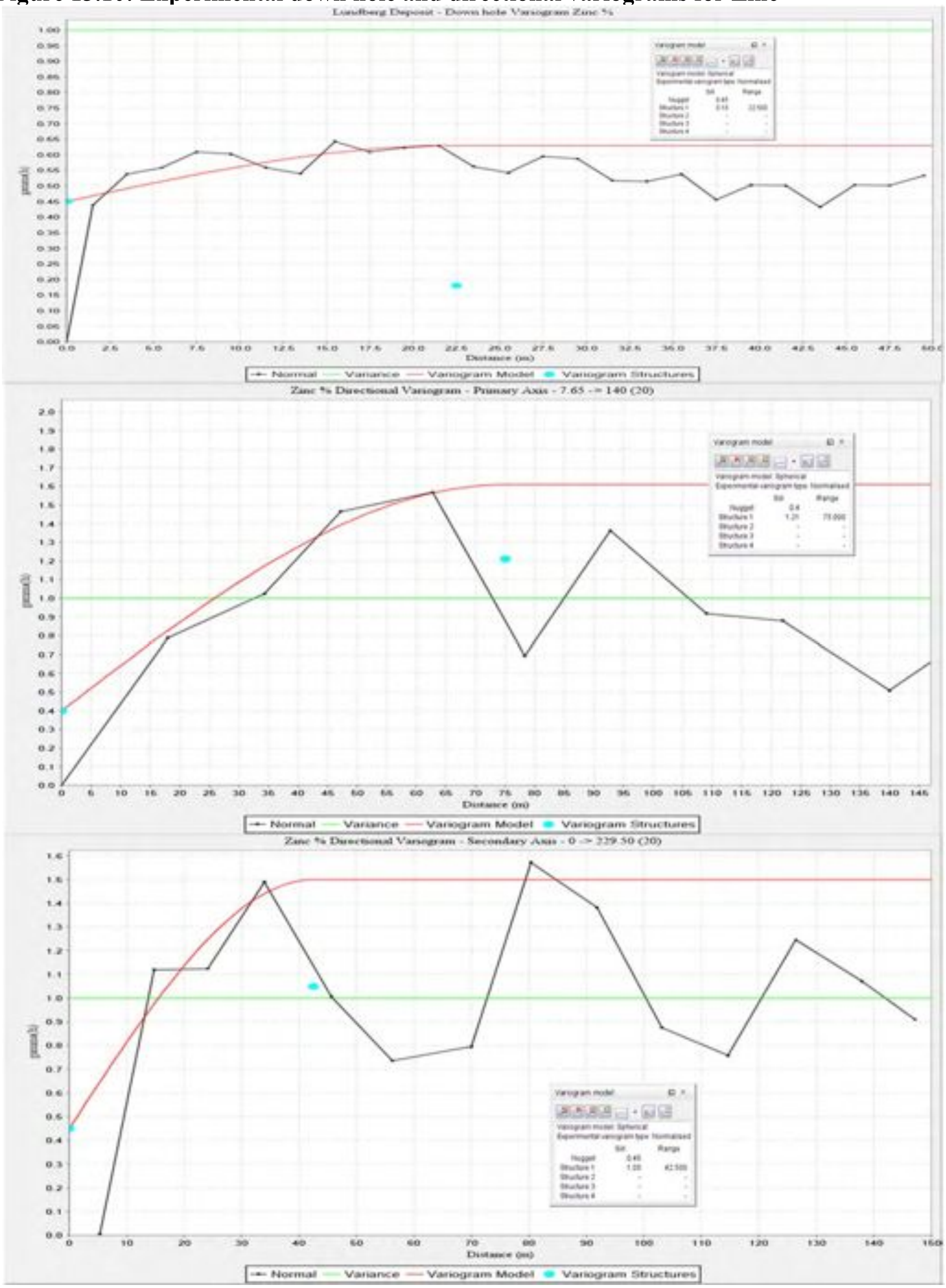


Figure 13.11: Experimental down hole and directional variograms for Copper

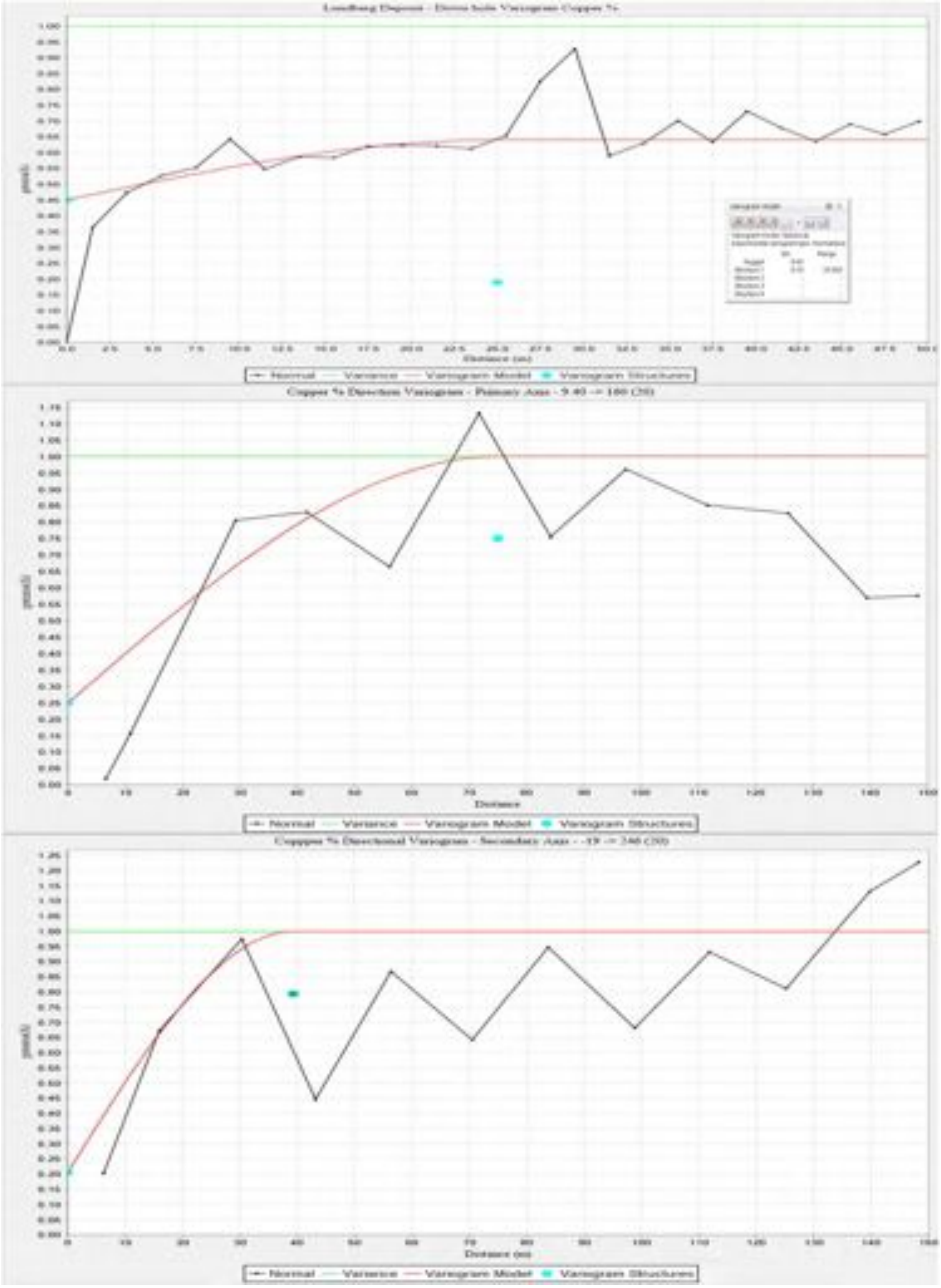
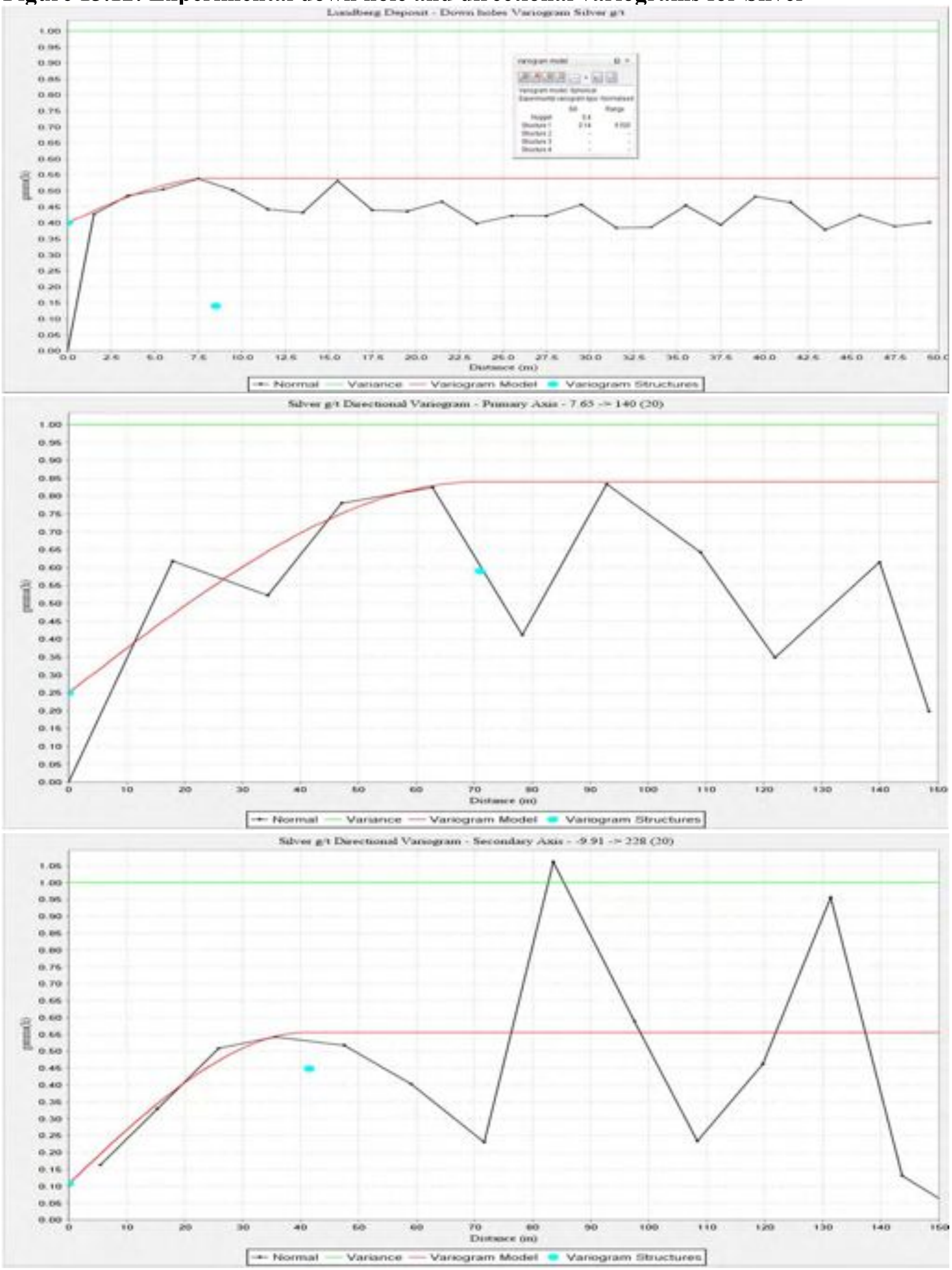


Figure 13.12: Experimental down hole and directional variograms for Silver



Major axis orientations conform to the down plunge directions for both the Lundberg and Engine House solids, these being 320° and 270° respectively, with plunges varying between 10° and 40° locally. The semi-major axes occur within stratigraphy and perpendicular to the major axes, while minor axes are oriented at a high angle to stratigraphy in the down-hole direction. Major, semi-major, and minor axis ranges of 75 m, 50 m, and 25 m, respectively, were used for initial interpolation passes for all metals

Table 13.3: Ellipsoid Orientations for each Interpolation Domain - Surpac Format

Interpolation Domain	Orientation	Plunge	Dip
Lundberg - South of 7910Y	140	7.5	-10
Lundberg - North of 7910Y/West of 9950X	140	40	10
Lundberg - North of 7910Y/East of 9950X	140	40	30
Engine House	270	-23	0

13.3.8 Setup of Three Dimensional Block Model

The block model extents were defined in local grid coordinates (metric) and are defined below in Table 13.4. The local grid is oriented parallel to the UTM NAD83 (Zone 21) grid, with coordinates obtained by subtracting 500,000 from the UTM Easting and 5,400,000 from the UTM Northing. No rotation was applied to the block model. Standard block size for the model is 5 m x 5 m x 5 m (X, Y, Z) with no units of sub-blocking allowed.

Table 13.4: Summary of Deposit Block Model Parameters

Type	Y (Northing m)	X (Easting m)	Z (Elevation m)
Minimum Coordinates	7370	9075	-150
Maximum Coordinates	8360	10530	350
User Block Size	5	5	5
Min. Block Size	5	5	5
Rotation	0	0	0

13.3.9 Resource Estimation

Inverse distance squared (ID^2) grade interpolation was used to assign block grades within the Lundberg block model. As reviewed earlier, interpolation ellipsoid orientation and range values used in the estimation reflect trends determined from variography plus sectional interpretations of geology and grade distributions for the deposit. The trends and ranges of the major, semi-major, and minor axes of grade interpolation ellipsoids used to estimate zinc, lead, copper, silver, gold and barite grades were described previously in report section 13.3.7.

An initial interpolation for all metals was performed using major, semi-major, and minor axis ranges of 75 m, 50 m and 25 m, respectively, within each interpolation domain using the 1.0 m down hole composite dataset. A second interpolation pass at double these ranges was used to interpolate grades in all blocks not evaluated in the first pass. All blocks within or partially included by the $10 NSR domain were considered during grade interpolation, with partial percentage values calculated for the $10 NSR domain and void space. A minimum of 3 and a maximum of 12 contributing assay composites, with no more than 4 composites allowed from a single drill hole, were required to interpolate a valid block grade. Block discretization was set a 2Y x 2X x 2Z. After interpolation of block values for each metal was completed, NSR block values were determined by means of the calculator discussed previously in section 13.3.3.

13.3.10 Density

Density information used in the resource estimate is based only on drill core data collected in the 2008 and 2012 drill programs. Results from 4,458 separate density determinations by ALS (pycnometer method - ALS OA-GRA08b code) were used to create the density model. These results were composited at 1.0 m down hole support length and a total of 4,121 composites within the limits of the $10 NSR domain were used to develop an interpolated specific gravity model using the ID methodology described for block grade interpolation. Descriptive statistics for the 4,121 specific gravity composites are presented in Table 13.5.

Higher values of interpolated block density often coincide with zones with notable amounts of barite and/or zones with higher grade sulphide mineralization. Lower values of interpolated block specific gravity often coincide with zones with lower grade sulphide mineralization or are in proximity to underground workings and stopes. The latter case suggests that oxidation of sulphide minerals may have an effect on the calculated density value. Descriptive statistics for block interpolated values of specific gravity are presented in Table 13.5b. Blocks completely occurring inside the underground workings model or above the topographic surface were assigned a 0 g/cm specific gravity.

Table 13.5: Density Statistics for 1 m Composites

Parameter	**Density**
Mean	2.92 g/cm^3
Maximum	4.84 g/cm^3
Minimum	2.25 g/cm^3
Variance	0.04
Standard Deviation	0.20
Coefficient of Variation	0.07
Number of Composites	4,121

Table 13.6: Density Statistics for Interpolated Block Values

Parameter	Density
Mean	2.92 g/cm^3
Maximum	4.32 g/cm^3
Minimum	2.53 g/cm^3
Variance	0.02
Standard Deviation	0.15
Coefficient of Variation	0.05
Number of blocks	121,193

13.3.11 Resource Category Definitions

Definitions of mineral resources and associated mineral resource categories used in this report are those recognized under National Instrument 43-101 (NI 43-101) and set out in the Canadian Institute of Mining, Metallurgy and Petroleum Standards On Mineral Resources and Mineral Reserves, Definitions and Guidelines (the CIM Standards).

13.3.12 Resource Category Parameters Used in Current Estimate

Mineral resources presented in the current estimate have been assigned to Inferred and Indicated resource categories that reflect increasing levels of confidence with respect to spatial configuration of resources and corresponding grade assignment within the deposit. Several factors were considered in defining resource category assignments, including drill hole spacing, geological interpretations, number and range of informing composites. Specific definition parameters for each resource category applied in the current estimate are set out below and Figures 13.13a through 13.13c illustrate spatial distribution of these categories within the block model.

Measured Resources: There are no interpolated resource blocks with the certainty of definition suitable for classification in this category present in the current estimate.

Indicated Resources: Indicated resources are defined as all interpolated blocks meeting or exceeding a $15/tonne NSR cut off having 9 or more contributing assay composites with a maximum average distance of 55 m from the block centroid that are within a 50 meter range of a 2008 or 2012 Buchans drill hole.

Inferred Resources: Inferred resources are defined as all other interpolated blocks above the $15/tonne NSR cut off that occur within the peripheral constraint solids.

Figure 13.13: Plan view of the mineral resource categories

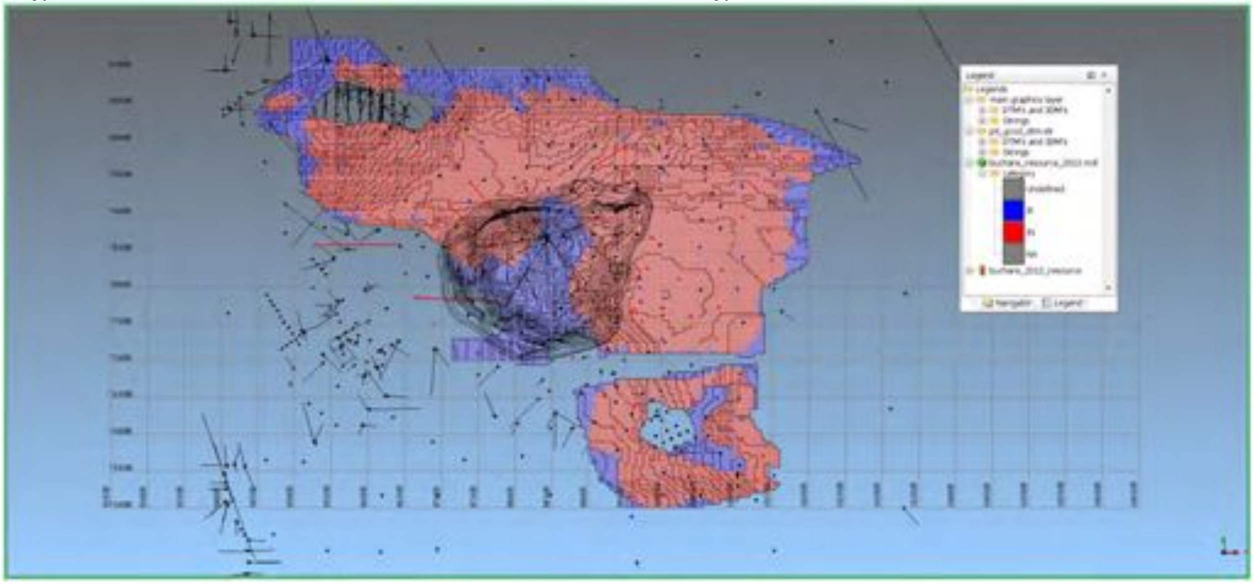
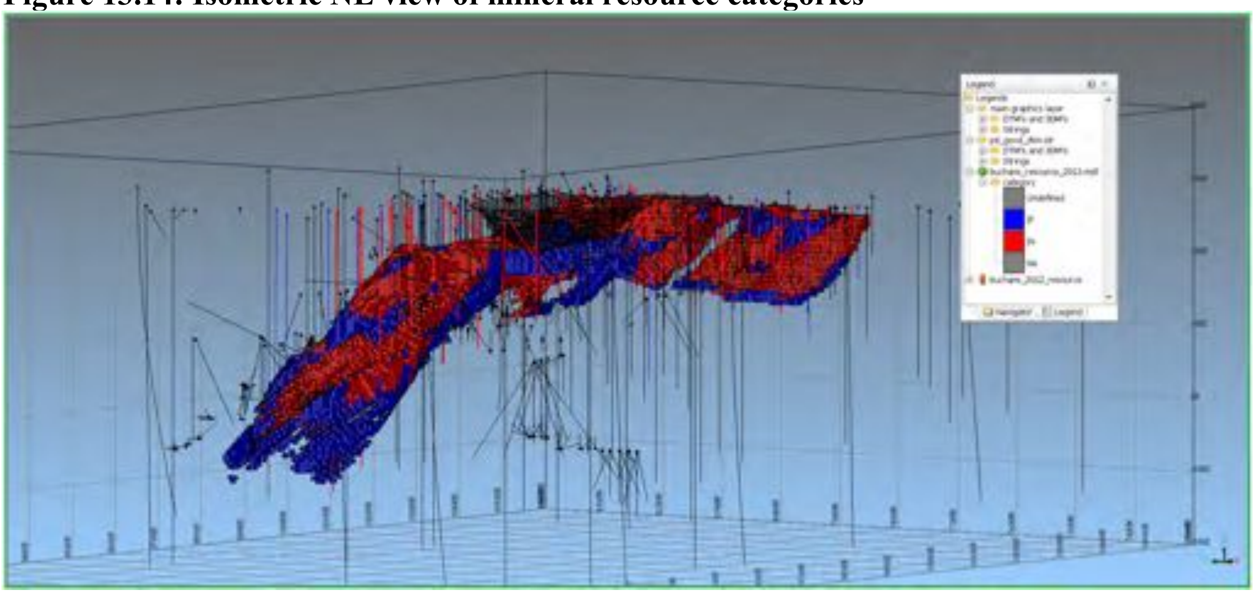


Figure 13.14: Isometric NE view of mineral resource categories



13.3.13 Statement of Mineral Resource Estimate

Block grade, block density and block volume parameters for the Lundberg Deposit, inclusive of both the Lundberg Zone and Engine House Zone, were estimated using methods described in preceding sections of this report. Subsequent application of resource category parameters set out above resulted in the mineral resource estimate statement presented in Table 13.6. Results are in accordance with Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines (the CIM Standards) as well as disclosure requirements of National Instrument 43-101.

The resource statement cut-off grade of $15 NSR represents an estimated break-even cut off, as it approximates the $14.80/t operating cost defined in the 2011 PEA by Wardrop, comprising $2.27/t mining and $12.53/t processing costs.

Table 13.7: Lundberg Deposit Resource Estimate – February 22nd, 2013*

NSR Cut-off ($US)	Category	Rounded Tonnes	Zn %	Pb %	Cu %	Ag g/t	Au g/t	$BaSO_4$ %
15	Indicated	23,440,000	1.41	0.60	0.35	5.31	0.07	1.26
	Inferred	4,310,000	1.29	0.54	0.27	4.47	0.08	0.89

**Notes:*

1. *The Lundberg Deposit includes both the Lundberg Zone and the Engine House Zone*
2. *Tonnages have been rounded to the nearest 10,000 tonnes.*
3. *Net Smelter Return (NSR) values were determined by calculating the value of each resource model block using 3 year trailing average metals prices of $0.95/lb Zn, $1.00/lb Pb, $3.68/lb Cu, $29.00/oz Ag, and $1,493.65/oz Au, metallurgical recoveries to concentrate are as projected in the 2011 Preliminary Economic Assessment Of the Lundberg Deposit carried out by Wardrop Engineering Inc. (a Tetra Tech company), plus current concentrate shipping and smelting terms for similar concentrates.*
4. *All pricing reflects US currency.*
5. *The resource statement cut-off grade of $15 NSR approximates a breakeven cost for an open pit mining and milling operation at Lundberg, and is comparable to the $14.80 operating cost for open pit mining and milling defined in the 2011 Preliminary Economic Assessment by Tetra Tech Wardrop.*
6. *Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.*

13.3.14 Model Validation

Results of block modeling were reviewed in three dimensions and compared on a section by section basis with corresponding manually interpreted sections prepared prior to model development. Block grade distribution was shown to have acceptable correlation with the grade distribution of the underlying drill hole data.

Descriptive statistics were also calculated for the drill hole composite values used in block model grade interpolations and these were compared to values calculated for the individual blocks in the Lundberg and Engine House zones and results are presented in Table 13.8 through 13.11. The mean weighted average drill hole composite grades for the Lundberg Zone (Figures 13.10c) compare well with tabulated block grade mean values. Values for the Engine House Zone composites (Figure 13.9) show greater discrepancy that reflects influence on drilling statistics of compiled historic stope definition drilling that is largely concentrated in the area covered by the historic workings solid. That historic drilling is closely spaced and was focused on relatively high grade mineralization that was subsequently mined from underground. Volume associated with this material was not included in the block model volume included in the resource statement. In contrast, The Lundberg Zone is not strongly affected by the historic workings solid.

Table 13.8: Lundberg Zone: Statistics for Block Mode1

Parameter	Zinc	Lead	Copper	Gold	Silver	Barium	*Barite
Mean Grade	1.21%	0.52%	0.27%	0.07 g/t	4.48 g/t	0.51%	0.88%
Maximum Grade	12.58%	6.55%	4.93%	2.38 g/t	239.62 g/t	45.26%	78.03%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	
Variance	1.06	0.24	0.08	0.04	75.99	3.21	
Standard Deviation	1.03	0.49	0.29	0.19	8.72	1.79	
Coefficient of Variation	0.85	0.94	1.07	2.87	1.95	3.52	
Number of Blocks	120223	120223	120223	120223	120223	120223	

**Barium is converted to Barite ($BaSO_4$) for resource use by Barite% =Barium%/0.58*

Table 13.9: Engine House Zone: Statistics for Block Model

Parameter	Zinc	Lead	Copper	Gold	Silver	Barium	*Barite
Mean Grade	1.67%	0.70%	0.63%	0.14 g/t	8.56 g/t	0.98%	1.69%
Maximum Grade	13.19%	5.86%	5.53%	2.42 g/t	128.45 g/t	32.41%	55.88%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	
Variance	2.85	0.40	0.46	0.06	92.08	5.69	
Standard Deviation	1.69	0.63	0.68	0.24	9.60	2.39	
Coefficient of Variation	1.01	0.90	1.08	1.78	1.12	2.43	
Number of Blocks	9303	9303	9303	9303	9303	9303	

** Barium is converted to Barite for resource use by Barite% =Barium%/0.*

Table 13.10: Lundberg Zone: Statistics for 1.0 Meter Composites

Parameter	Zinc	Lead	Copper	Gold	Silver	Barium	*Barite
Mean Grade	1.29%	0.54%	0.33%	0.06 g/t	4.84 g/t	0.52%	0.90%
Maximum Grade	24.09%	13.75%	11.17%	6.86 g/t	433 g/t	49.47%	85.29%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	
Variance	3.50	0.76	0.36	0.03	200.11	6.79	
Standard Deviation	1.87	0.87	0.60	0.18	14.15	2.61	
Coefficient of Variation	1.45	1.62	1.85	3.20	2.92	4.99	
Number of Composites	7794	7794	7794	7794	7794	7794	

** Barium is converted to Barite for resource use by Barite% =Barium%/0.*

Table 13.11: Engine House Zone: Statistics for 1.0 Meter Composites

Parameter	Zinc	Lead	Copper	Gold	Silver	Barium	*Barite
Mean Grade	2.56%	1.00%	0.82%	0.15 g/t	8.69 g/t	0.92%	1.59%
Maximum Grade	23.34%	10.23%	10.10%	8.11 g/t	170.02 g/t	45%	77.59%
Minimum Grade	0.00%	0.00%	0.00%	0.00 g/t	0.00 g/t	0.00%	
Variance	9.50	1.65	1.00	0.12	214.67	16.52	
Standard Deviation	3.08	1.29	1.00	0.35	14.65	4.06	
Coefficient of Variation	1.21	1.28	1.22	2.35	1.69	4.44	
Number of Composites	948	948	948	948	948	948	

** Barium is converted to Barite for resource use by Barite% =Barium%/0.*

The ID^2 resource model for the Lundberg Deposit was checked using Nearest Neighbour (NN) interpolation methodology. Intersections of the $10NSR domain were composited over the length of the interval for each metal and a 75 meter isotropic search ellipsoid was used to interpolate blocks grades. A comparison of the nearest neighbour check model results with those of the ID^2 model at the $10 NSR cut-off are presented in Table 13.12. The $10 NSR cutoff was chosen for this comparison so that all volume within the deposit peripheral constraint solids was addressed in both cases. Since the resource statement cutoff NSR value is $15, tonnages and grades in the global model check at the $10NSR cutoff are higher and slightly lower, respectively from the actual resource statement tonnages and grades.

Table 13.12: Total Lundberg Deposit Nearest Neighbour Check Model

Interpolation Method	*Global Tonnes at $10 NSR Cutoff	Zn %	Pb %	Cu %	Ag g/t	Au g/t	Barite %
ID2	35,533,275	1.18	0.50	0.28	4.36	0.06	1.03
Nearest Neighbour	35,533,275	1.22	0.51	0.28	5.79	0.00	0.98

**These figures differ from those of the actual resource statement which reflect a $15 NSR cutoff value*

Global tonnage and metal grades compare acceptably between the two models for Zn, Pb Cu and Ag but Au occurs at a slightly lower level in the nearest neighbour model. This reflects rounding after weight averaging against the full width of the $10 NSR domain peripheral constraint. Notwithstanding this point, results of the two methods are considered sufficiently consistent to provide an acceptable check on the preferred ID^2 methodology.

Figure 13.15: 9975 East-West Sectional View of NSR Block Values

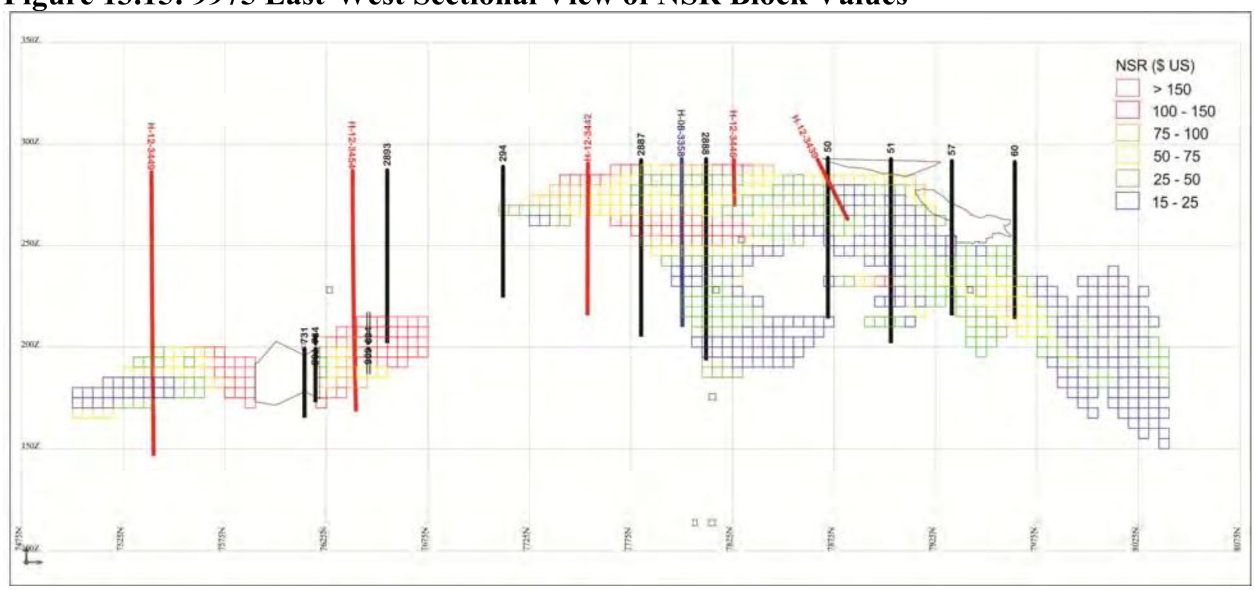


Figure 13.16: 7825 North-South Sectional View of NSR Block Values

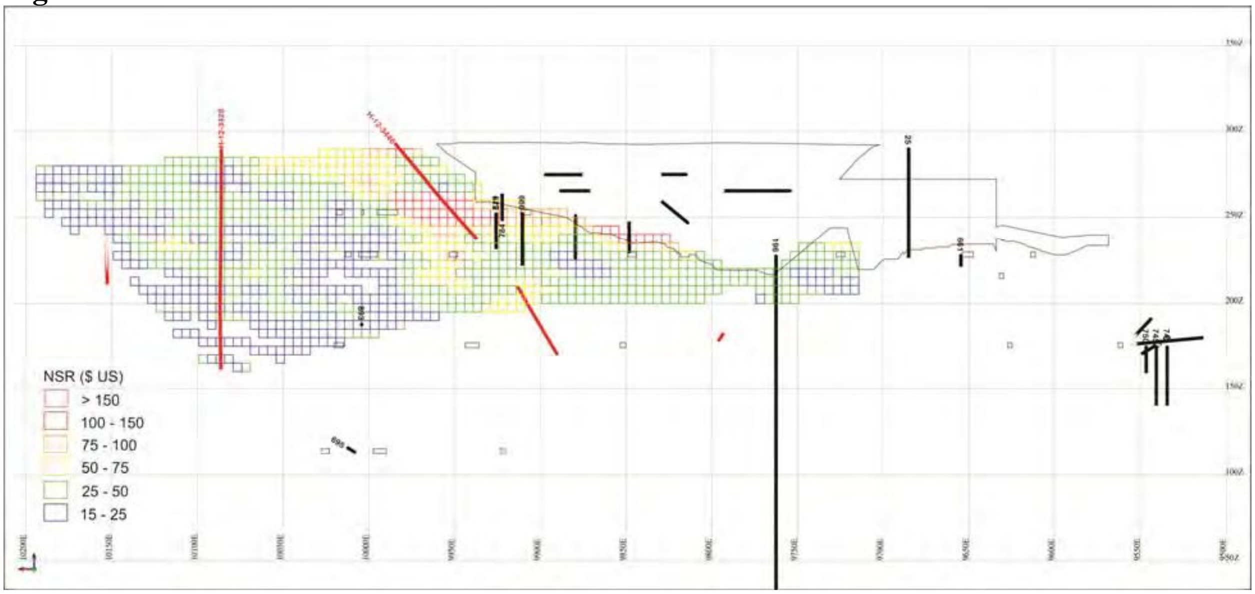


Figure 13.17: 8000N North-South Sectional View of NSR Block Values

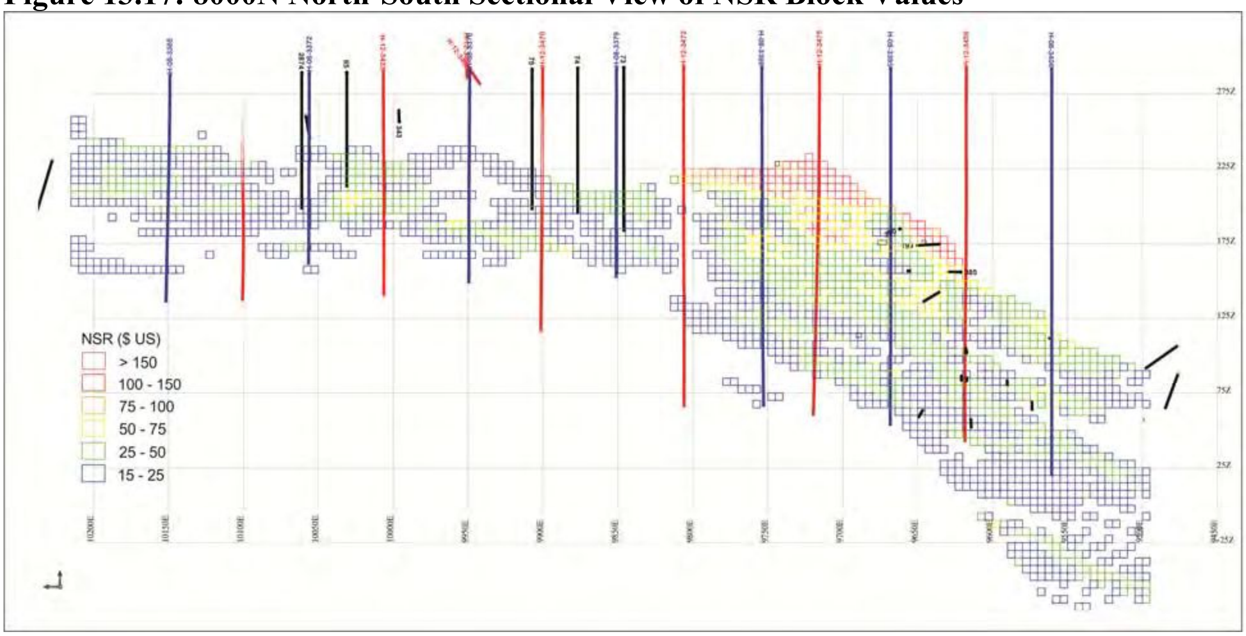


Figure 13.18: Isometric view to SE of NSR block values of $15NSR or more

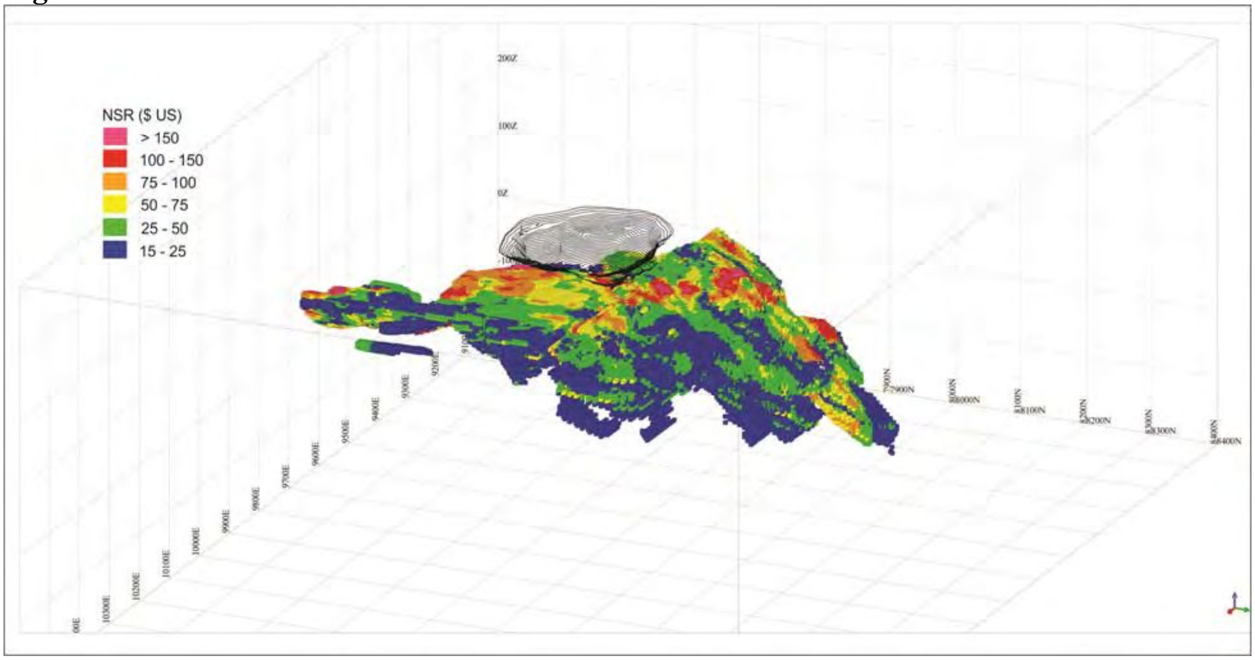


Figure 13.19: Isometric view to SW of NSR Block Values of $15NSR or more

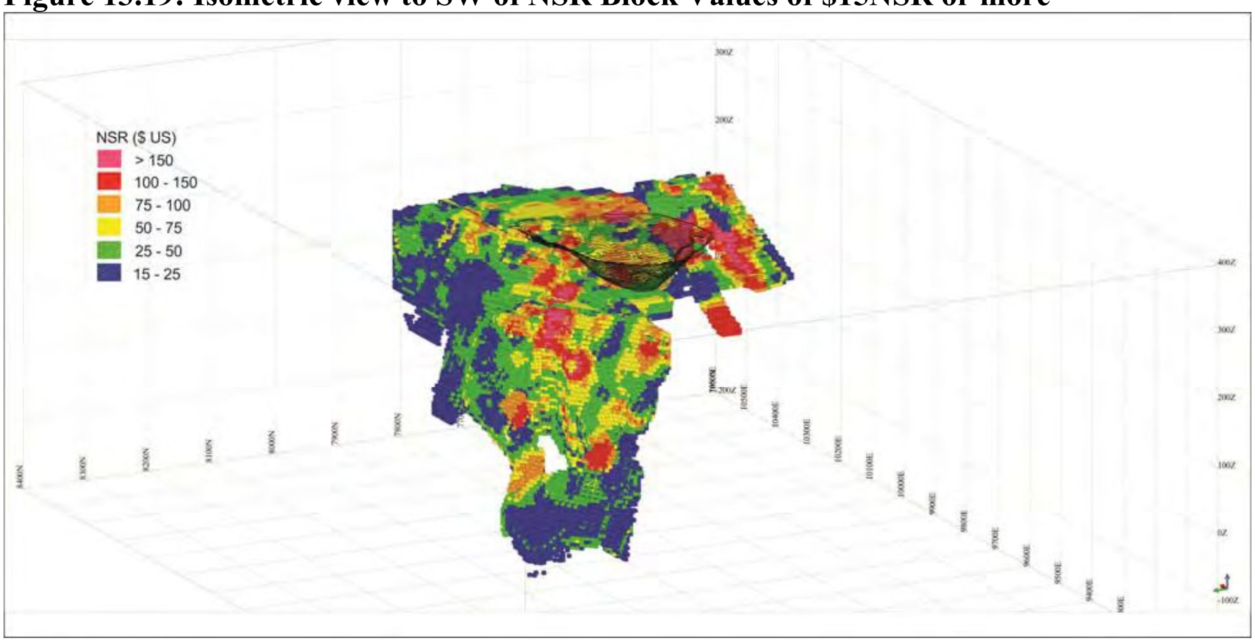


Figure 13.20: Isometric view to SE of NSR block values of $50NSR or more

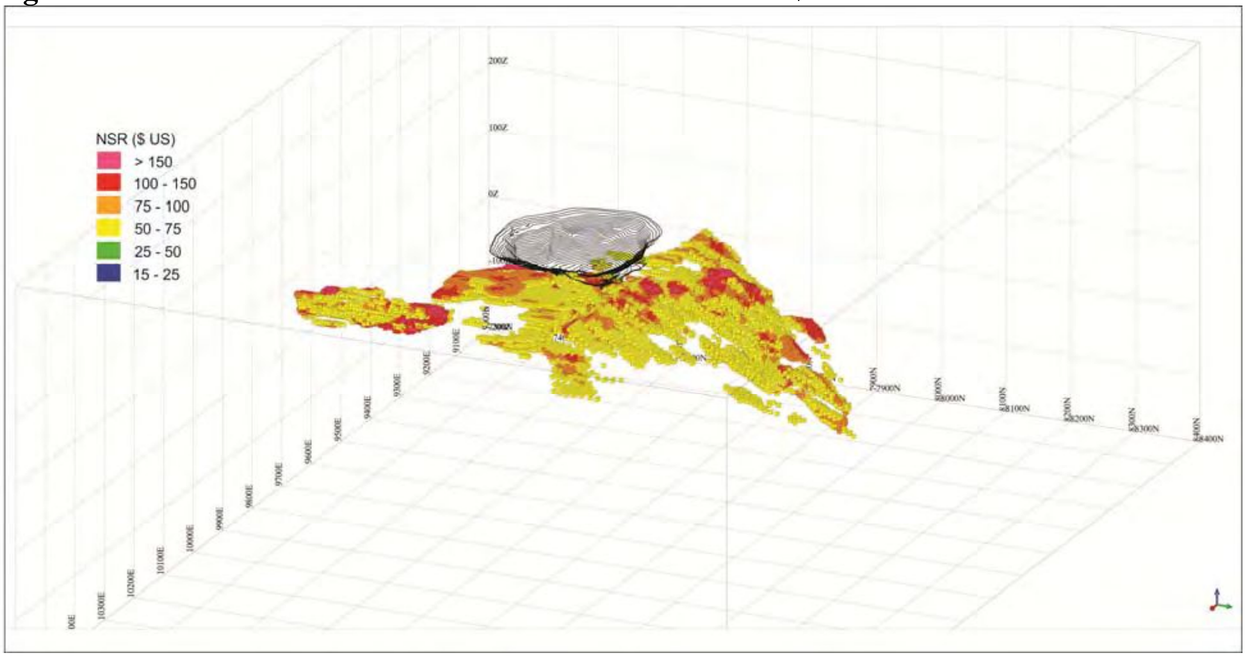
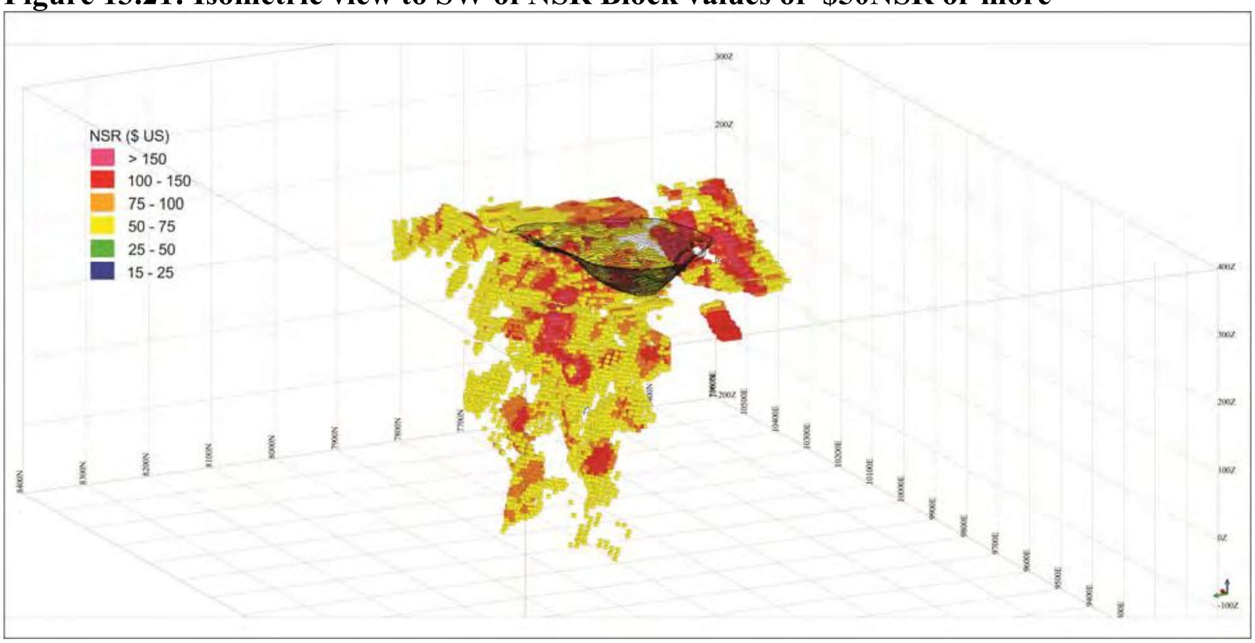


Figure 13.21: Isometric view to SW of NSR Block values of $50NSR or more



13.3.15 Comment on Previous Resource Estimates

Buchans located archived documents in late 2007 that contained an uncategorized historic resource estimate for a zone of stockwork mineralization peripheral to the former Lucky Strike mine, which is now referred to as the Lundberg deposit. The document was dated December of 1974 and prepared by the former operators of the historic Buchans mine, American Smelting and Refining Company ("Asarco"). This resource estimate defined a total of 13,100,000 short tons (11.8 million tonnes) at an average grade of 1.83% Zn, 0.67% Pb, 0.38% Cu, 0.16 oz/t Ag (5.5 g/t) and trace Au. A specific gravity value of 10 ft3 per ton (3.2 g/cm3) was used in the determination of the historic resource estimate.

The estimate was prepared using a polygonal method based on the interpretation of low grade mineralization from 16 vertical cross-sections at 100 foot spacing oriented normal to the strike of geology. Each section consisted of one polygon that was defined by approximately a 1 % combined base metal cut-off and was delineated using the multiple drill holes on the section and adjacent sections. The exact method of how grade was obtained for the polygon is not known to the authors. The calculation was performed prior to current NI 43-101 regulations. The Asarco resource is historic in nature, is not compliant with National Instrument 43-101 and should not be relied upon.

In 2007, Mercator was retained by RRO and its predecessor, BRL to help plan, manage, and carry out a diamond drilling program to support a mineral resource estimate on the Lundberg Zone and Engine House Zone stockwork style deposits. Results of that resource estimate, dated November 3rd, 2008 were reported by Webster and Barr (2008) and appear in Table 13.13 This estimate formed the basis of the 2012 drill program which had the objective of providing sufficient drilling data to allow upgrading of the existing Inferred resources to Indicated status in a future resource estimate. The Mercator 2008 resource estimate has been superseded by the current estimate and is now historic in nature and should not be relied upon.

Table 13.13: November 3rd 2008 Resource Estimate by Mercator

Lundberg Zone Inferred Resource Estimate - 1 % Zinc Threshold						
Rounded Tonnes	**Zn %**	**Pb %**	**Cu %**	**Ag g/t**	**Au g/t**	**$BaSO_4$ %**
15,690,000	1.96	0.83	0.38	6.57	0.08	2.36
Engine House Zone Inferred Resource Estimate - 1 % Zinc Threshold						
Rounded Tonnes	**Zn %**	**Pb %**	**Cu %**	**Ag g/t**	**Au g/t**	**$BaSO_4$ %**
890,000	2.37	0.95	0.96	11.29	0.15	4.40

Grade and tonnage levels of the historic estimates noted above define a deposit style and metal tenors that are comparable to those of the current estimate. As such, they provide additional order of magnitude checks on the current estimate.

14 Adjacent Properties

There are no adjacent properties, as defined under NI 43-101, that are pertinent to this report.

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15 Other Relevant Data and Information

The following section is taken from Webster and Barr (2008).

A large amount of historical data relevant to the Buchans area properties exists but is not included in this report. This information is available in government files or in various other publications prepared by previous and present owners, external consultants, contractors and both government and academic researchers.

Due to the historical nature and multiple sources of much of the data used in this resource, a number of corrections, assumptions, and adjustments have been made in order to merge the data into a useable database. The following is a list of such manipulations:

- Historical drill hole collar elevations have been converted to metric elevations relative to sea level, and have had 8 m added to the values used historically in order to match them with the modern survey datum surveyed by Red Indian Surveys of Grand Falls, NL.

- The Lucky Strike Glory hole was modelled by Eagle mapping from stereographic triangulation of historic aerial photography. The elevation of the Glory hole and surrounding surface DEM elevation has been supplied in UTM (NAD83) co-ordinates. The elevation datum for these data has been increased by 3 m to match them with the modern survey datum surveyed by Red Indian Surveys of Grand Falls, NL.

- Where historical drill logs listed “Tr” as an assay value, it was assumed that this was a trace amount above detection, and was given a numerical value of 0.001 in the database in their respective unit of measure.

- Where historical drill logs listed “NIL” as an assay value, it was assumed that this was an amount below detection, and was given a numerical value of 0.0001 or 0 (zero) in the database in their respective unit of measure.

- In some cases, drill hole locations in association with lithological descriptions did not correspond with the reported assay records. These holes include 48, 49, 50 and 384 and were removed from the database.

- In some cases, no assay information could be located for drill holes and these holes were left in the database as they would have no impact on the grade interpolation methods used in the mineral resource calculation. In cases where lithological descriptions were found for these holes, this information was used in correlating geological boundaries.

- Underground workings have been reproduced to be as representative as the source information would allow. Assimilation of historic 2D plan view sections, 2D cross-sections, and known drill hole elevations has provided the basis for the model generation.

In most cases, 2D plan view maps were the only source for the lateral extent of the development, with stoping information being extrapolated from rare cross-sectional views. It is acknowledged that the depiction of the underground workings is not precise, but where uncertainties exist, a liberal approach was taken to ensure that the removed volumes were not underestimated.

16 Interpretation and Conclusions

16.1 Introduction

This mineral resource estimate technical report conforms to NI 43-101 and the CIM Standards and was prepared by Mercator on behalf of Minco and BMC. The report provides a mineral resource estimate update for the Lundberg Deposit, comprised of the Lundberg Zone and Engine House Zone that includes results of 58 new drill holes completed during 2012 by Minco and BMC. Terms of reference were established through discussions between staff of BMC, Minco and Mercator. The deposit is located in the community of Buchans, in central Newfoundland, Canada.

The Lundberg Deposit described in this report is of volcanogenic massive sulphide association and occurs within the NE-SW trending Central Mobile Belt (CMB) in central Newfoundland. It is hosted by Lower Ordovician volcanic rocks of the Buchans Group that range in composition from basalt to rhyolite. Five main Zn-Pb-Cu-Ag-Au deposits were historically mined at Buchans and all occur in association with the same felsic stratigraphic horizon within the Buchans Group.

Mineralization in the Buchans area occurs in three main, genetically related styles, these being as in situ massive sulphides, as transported clasts of sulphide in debris flow deposits, and as in situ feeder zone stockwork sulphides. The historic Lucky Strike and Oriental #1 deposits are the best known examples of in situ type mineralization and represent the highest grade ore mined to date in the Buchans area. Transported mineralization is characterized by occurrence of sulphide and sulphide-bearing fragments that define density flow deposits that occur in elongate paleo-topographic lows that extended down-depositional slope from in situ sulphide zones. The historic MacLean, Rothermere, Clementine and Oriental #2 deposits are characterised by transported type mineralization. Transported and massive mineralization styles represent 98% of the material historically mined and milled at Buchans. Stockwork mineralization is typically associated with in situ ore and the best examples on the BMC property are the Lundberg and Engine House zones that are the subject of this report.

In 2008, a NI43-101 compliant resource estimate was prepared for the Lundberg and Engine House zones by Mercator, and details of this appear in section 6.0 of this report. The Lundberg Zone was reported to contain Inferred resources totaling 15,690,000 t grading 1.96% Zn, 0.83% Pb, 0.38% Cu, 6.57 g/t Ag, 0.08 g/t Au and 2.36% $BaSO_4$. The Engine House Zone was separately reported to contain Inferred resources totaling 890,000 t grading 2.37% Zn, 0.95% Pb, 0.96% Cu, 11.29 g/t Ag, 0.15 g/t Au and 4.40% $BaSO_4$ (Webster and Barr, 2008).

In August of 2011, a NI 43-101 compliant PEA of the Lundberg and Engine House zones was completed by Wardrop based on the 2008 resource estimate by Mercator. This study determined that the deposits have potential to support an economically viable, stand-alone, 5,000 t per day open pit mining and milling operation having a 10 year mine life under the conditions assumed for PEA.

Subsequent to the Wardrop PEA, Minco and BMC completed 8,184 m of additional diamond drilling in 2012 that targeted the Lundberg and Engine House zones. This served to increase drill hole density within the deposit area, improve resolution of geological and grade models, and increased confidence in mineralized zone continuity. The current mineral resource estimate by Mercator for "Lundberg Deposit", which includes the Lundberg Zone and Engine House Zone, incorporates results from the new Minco and BMC drilling program and is reported in Table 16.1.

Table 16.1:Lundberg Deposit Resource Statement* - February 22nd, 2013

NSR Cut-off ($US)	Category	Rounded Tonnes	Zn %	Pb %	Cu %	Ag g/t	Au g/t	$BaSO_4$ %
15	Indicated	23,440,000	1.41	0.60	0.35	5.31	0.07	1.26
	Inferred	4,310,000	1.29	0.54	0.27	4.47	0.08	0.89

**Notes:*

1. *The "Lundberg Deposit" includes both the "Lundberg Zone" and "Engine House Zone*
2. *Tonnages have been rounded to the nearest 10,000 tonnes.*
3. *Net Smelter Return (NSR) values were determined by calculating the value of each resource model block using 3 year trailing average metals prices of $0.95/lb Zn, $1.00/lb Pb, $3.68/lb Cu, $29.00/oz Ag, and $1,493.65/oz Au, metallurgical recoveries to concentrate are as projected in the 2011 Preliminary Economic Assessment Of the Lundberg Deposit carried out by Wardrop Engineering Inc. (a Tetra Tech company), plus current concentrate shipping and smelting terms for similar concentrates.*
4. *All pricing reflects US currency.*
5. *The resource statement cut-off grade of $15 NSR approximates a breakeven cost for an open pit mining and milling operation at Lundberg, and is comparable to the $14.80 operating cost for open pit mining and milling defined in the 2011 Preliminary Economic Assessment by Tetra Tech Wardrop.*
6. *Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.*

Based on work carried out for the current resource estimation project, Mercator has concluded that the Lundberg Deposit has been sufficiently delineated by drilling to date to support pre-feasibility and feasibility level studies, and that additional infill resource delineation drilling is not required for this purpose.

It is also recognized that improved deposit definition would be helpful beneath the Luck Strike Glory Hole, where potential exists to upgrade Inferred resources to Indicated status. Opportunities are believed to exist in that area for re-logging and re-sampling of historic drill core stored at Buchans, and successful completion of such a program could support upgrading of much of the Inferred resource in this area to Indicated status in a future resource estimate update. Additionally, it is possible that new drilling to assess this area could be carried out from surface sites if specialized directional drilling equipment is used. The necessity to carry out either or both of these activities can be evaluated during the pre-feasibility study that is recommended below for the deposit. If core sampling is carried out in future, it will be important to closely monitor certified reference material results and to remove redundancy of assay quality analyses that is present in the sampling and analysis protocol used most recently by Minco and BMC.

Mercator has also concluded that although resource extension opportunities exist in some restricted areas of the deposit, these are not of sufficient magnitude to be critical in further economic evaluation of the deposit. On this basis, no further resource extension drilling is considered necessary at this time.

17 Recommendations and Proposed Budget

17.1 Recommendations

Mercator considers the updated Lundberg Deposit mineral resource estimate presented in this report to provide definition of sufficient Indicated category mineral resources to support pre-feasibility and feasibility level future investigations, and recommends that these be sequentially undertaken. It has also been determined that additional drilling and /or re-logging and sampling of archival drill core to upgrade an area of Inferred resources beneath the Lucky Strike Glory Hole to Indicated status could be undertaken during the course of a pre-feasibility study, if this was shown to be necessary. Further deposit extension drilling is not recommended at present due to the limited scope of such opportunities relative to the current deposit size.

Mercator is of the opinion that the project should be advanced to the pre-feasibility level of assessment and, if results are favorable, move on to feasibility level assessment. Completion of pre-feasibility and feasibility studies with respect to bringing the Lundberg Deposit into profitable future production will require substantial expenditure, and a recommended two phase estimated budget for such work is presented below in Tables 17.1 and 17.2. Pre-feasibility level studies are covered in Phase I, and Phase II constitutes a subsequent feasibility level assessment. Commitment to Phase II program components is strongly dependent on substantively positive results being obtained from Phase I programs.

17.2 Proposed Budget

Table 17.1: Estimated Budget for Recommended Phase I Program

Program Phase	**Program Component**	**Estimated Cost ($ Cdn)**
Phase I	Metallurgical, geological and geotechnical studies to support subsequent pre-feasibility level assessment - including a small drilling contingency	$300,000
Phase I	Initial environmental review, baseline monitoring programs, community consultation and claims management	$250,000
Phase I	Completion of a pre-feasibility level study with appropriately detailed inputs for: engineering, environmental assessment with monitoring and design components, community relations, land access and procurement, regulatory, geotechnical, metallurgical, transportation, smelting contract and financial analysis inputs	$750,000
Phase I Subtotal		1,300,000
	Contingency	130,000
Phase I Total		**1,430,000**

Table 17.2: Estimated Budget for Recommended Phase II Program

Program Phase	**Program Component**	**Estimated Cost ($ Cdn)**
Phase II	Completion of Feasibility Study	
Phase II	Further geological, geotechnical and metallurgical studies to support feasibility level assessment - includes drilling contingency	1,500,000
Phase II	Detailed site environmental assessments plus associated design requirements, continued baseline monitoring and community consultation programs, and claims management	250,000
Phase II	Completion of a feasibility level study with detailed design inputs for engineering, environmental assessment, site management and remediation, community relations, land access and procurement, regulatory compliance, geotechnical, metallurgical, transportation, smelting contract and financial analysis components	2,000,000
Phase II Subtotal		3,750,000
	Contingency	375,000
Phase II Total		**4,525,000**

18 Certificates of Qualification

CERTIFICATE OF AUTHOR

I, Michael P. Cullen, P.Geo., do hereby certify that:

1. I reside at 2071 Poplar St. in Halifax, Nova Scotia, Canada
2. I am currently employed as Chief Geologist with:

   Mercator Geological Services Limited
   65 Queen St Dartmouth,
   Nova Scotia, Canada B2Y 1G4
3. I received a Masters Degree in Science (Geology) from Dalhousie University in 1984 and a Bachelor of Science Degree (Honours, Geology) in 1980 from Mount Allison University.
4. I am a registered member in good standing of the Association of Professional Geoscientists of Nova Scotia (Registration Number 064), Newfoundland and Labrador Professional Engineers and Geoscientists (Member Number 05058) and Association of Professional Engineers and Geoscientists of New Brunswick, (Registration Number L4333).
5. I have worked as a geologist in Canada and internationally since graduation and have been employed by Mercator Geological Services Limited since 2001.
6. I do not have prior involvement with the Buchans property that is the subject of this report.
7. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
8. I am one of the qualified persons responsible for preparation of the Technical Report titled:

   MINERAL RESOURCE ESTIMATE
   TECHNICAL REPORT
   FOR THE LUNDBERG DEPOSIT
   BUCHANS AREA
   NEWFOUNDLAND AND LABRADOR
   CANADA
   Effective Date: February 22nd, 2013

   I supervised work on, and am responsible for, all sections of this Technical Report with the exception of section 11.2.

9. I have visited the property that is the subject of this report on several occasions in the past but did not do so for current reporting purposes.
10. I am independent of BMC, applying all of the tests in section 1.5 of National Instrument 43-101 and National Instrument 43-101 Companion Policy Section 3.5
11. I have read National Instrument 43-101, Form 43-101F1 and Companion Policy Section 3.5 and believe that this Technical Report has been prepared in compliance with that instrument and form.
12. As of the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this 26th day of April, 2013

(Original signed and sealed by)

____

Michael P. Cullen, M. Sc., P. Geo.
Chief Geologist
Mercator Geological Services Limited

CERTIFICATE OF AUTHOR

I, Andrew C. Hilchey, P.Geo., do hereby certify that:

1. I reside in Halifax, Nova Scotia, Canada

2. I am currently employed as a Resource Geologist with:
   Mercator Geological Services Limited
   65 Queen St
   Dartmouth, Nova Scotia, Canada
   B2Y 1GA

3. I received a Bachelor of Science (Hons. Geol.) degree from Dalhousie University in Halifax, Nova Scotia, Canada in 2004.

4. I am a registered member in good standing of the Association of Professional Geoscientists of Nova Scotia, registration number 153.

5. I have worked as a geologist in Canada for over 7 years since graduation from university and have been employed by Mercator Geological Services Limited (Mercator) since 2007.

6. I have prior involvement with the Buchans property that is the subject of this report and worked on Lundberg Deposit resource delineation drilling programs managed by Mercator during 2007 and 2008. I have additional relevant work experience with respect to the nearby Daniels Pond volcanogenic massive sulphide deposit and have participated in other mineral resource estimate programs for various commodities.

7. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

8. I am one of the qualified persons responsible for preparation of the Technical Report titled:

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TECHNICAL REPORT
FOR THE LUNDBERG DEPOSIT
BUCHANS AREA
NEWFOUNDLAND AND LABRADOR
CANADA
Effective Date: February 22nd, 2013

I am responsible for section 11.2 of this Technical Report and have contributed to other sections.

9. I visited the property that is the subject of this report most recently on January 13th, 2013 at which time I viewed mineralized 2012 program drill core at the BMC core logging facility and carried out a quarter core check sampling program.
10. I am independent of BMC, applying all of the tests in section 1.5 of National Instrument 43-101 and National Instrument 43-101 Companion Policy Section 3.5
11. I have read National Instrument 43-101, Form 43-101F1 and Companion Policy Section 3.5 and believe that this Technical Report has been prepared in compliance with that instrument and form.
12. As of the date of this certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this 26th Day of April, 2011

[Original signed by]

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Andrew Hilchey, P.Geo
Resource Geologist
Mercator Geological Services Limited

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Buchans Minerals Corp. PR #16-10 Jul 2, 2010
Royal Roads Corp. PR #08-10 May 3, 2010
Royal Roads Corp PR #09-08 May 30, 2008
Buchans River Ltd. PR #12-08 May 30, 2008
Buchans River Ltd. PR #14-07 Sept 10, 2007

Appendix 1

Lundberg Deposit Drilling Data

Drill Collar Coordinates, Hole Orientation and Depth Tabulation

Notes: Local grid coordinates are based on UTN Zone 21 NAD 83 coordinates as follows:
Easting coordinate in local grid is derived by subtracting 500,000 from UTM coordinate
Northing coordinate of local grid is derived by subtracting 5,400,000 from UTM coordinate
Elevation in local grid reflects asl detremination

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
8	7911.00	10080.00	289.85	57.62	0.00	-90
10	7871.00	9865.00	294.18	83.54	0.00	-90
12	7865.00	9810.00	293.90	106.71	0.00	-90
22	7947.00	9758.00	292.38	113.39	0.00	-90
23	7790.00	9876.00	293.87	106.68	0.00	-90
28	7869.62	9842.29	264.82	57.30	0.00	-90
30	7866.41	9835.56	274.00	117.35	263.13	-24
32	7863.47	9843.97	273.82	63.70	180.00	-44
35	7864.29	9842.87	274.37	117.35	212.31	-24
37	7882.00	9720.00	292.32	105.46	0.00	-90
39	7738.00	9808.00	290.78	107.01	0.00	-90
40	7737.00	9854.00	291.18	94.21	0.00	-90
41	7710.00	9750.00	289.39	117.68	0.00	-90
43	7872.00	9937.00	293.00	95.73	0.00	-90
44	7872.00	9907.00	293.30	76.83	0.00	-90
45	7842.00	9937.00	293.28	98.78	0.00	-90
46	7842.00	9907.00	293.39	87.80	0.00	-90
47	7811.00	9937.00	292.81	77.44	0.00	-90
50	7872.00	9968.00	293.38	79.27	0.00	-90
51	7903.00	9968.00	292.84	90.85	0.00	-90
53	7933.00	9907.00	292.10	95.73	0.00	-90
54	7903.00	9876.00	293.02	84.76	0.00	-90
55	7933.00	9936.00	292.39	77.74	0.00	-90
56	7903.00	9846.00	293.39	53.66	0.00	-90
57	7933.00	9968.00	291.87	76.22	0.00	-90
58	7964.00	9937.00	291.71	78.35	0.00	-90
59	7933.00	9998.00	291.43	76.22	0.00	-90
60	7964.00	9967.00	291.40	77.44	0.00	-90
61	7964.00	9998.00	290.70	90.24	0.00	-90
62	7933.00	9876.00	292.39	94.82	0.00	-90
63	7964.00	10029.00	289.94	77.44	0.00	-90
64	7934.00	9846.00	292.44	82.32	0.00	-90

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
65	7994.00	10031.00	289.24	76.83	0.00	-90
66	7934.05	9815.50	292.72	82.01	0.00	-90
67	7963.91	9876.91	291.57	76.22	0.00	-90
69	7963.41	9846.53	292.56	76.83	0.00	-90
71	7963.69	9906.99	292.27	79.88	0.00	-90
72	7963.47	9815.79	292.68	114.63	0.00	-90
73	7994.16	9846.12	292.64	109.76	0.00	-90
74	7993.91	9876.87	292.26	97.56	0.00	-90
75	7993.33	9907.32	291.44	94.21	0.00	-90
76	7780.48	9906.85	293.08	82.32	0.00	-90
77	8024.00	9845.00	292.41	228.66	0.00	-90
78	7751.00	9937.00	292.68	96.34	0.00	-90
84	7963.00	10059.00	289.64	119.21	0.00	-90
86	7980.00	10115.00	289.03	152.44	0.00	-90
139	7707.00	9808.00	290.17	90.55	0.00	-90
150	8025.04	9747.74	174.85	70.10	90.00	2
152	7914.21	9549.10	175.24	61.57	145.00	2
154	7574.00	10080.00	283.69	143.29	0.00	-90
155	7576.00	10026.00	283.48	123.78	0.00	-90
156	7595.00	10046.00	285.37	92.07	0.00	-90
157	7917.78	9543.63	175.18	39.62	290.00	1
175	7965.00	9722.00	292.56	353.87	0.00	-90
196	7822.40	9758.34	227.18	353.57	0.00	-90
199	7995.00	9650.00	173.87	24.99	317.00	2
201	8026.89	9744.31	174.85	128.32	330.00	3
202	8044.88	9651.86	173.26	374.00	0.00	-90
208	7942.93	9589.53	174.82	32.00	327.00	1
223	7963.00	9619.00	173.00	34.44	212.00	0
230	8109.00	9545.00	112.00	134.42	159.00	-41
231	8110.00	9544.00	112.00	123.44	202.00	-40
232	8110.52	9545.17	112.09	136.86	117.00	-40
245	7889.88	9617.80	211.45	28.96	1.00	1
246	7880.00	10080.00	289.83	67.07	0.00	-90
248	7976.29	9657.89	175.95	71.63	195.05	46
251	7944.02	9589.45	177.01	15.55	342.45	41
287	7915.27	9546.53	175.21	81.08	219.83	9
294	7712.00	9982.00	289.06	64.63	0.00	-90
340	7873.60	9571.17	201.87	46.33	0.00	4
344	7984.75	10055.24	242.84	24.69	10.55	46

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
383	8024.10	9641.82	156.60	21.34	135.37	0
384	8050.88	9655.63	156.74	22.25	135.00	0
385	8010.33	9621.24	155.83	26.21	160.00	0
386	8016.42	9630.07	145.77	24.69	135.00	-23
389	8024.24	9746.08	176.07	57.00	128.00	76
390	8011.73	9661.91	184.78	12.19	300.00	20
391	8019.46	9560.37	112.52	23.77	175.85	-2
392	8023.14	9586.88	113.09	15.85	181.47	-1
403	7558.00	10106.00	283.44	73.17	0.00	-90
404	7529.00	10104.00	283.43	93.29	0.00	-90
414	7623.00	10060.00	285.74	85.98	0.00	-90
415	7649.00	10075.00	286.32	73.17	0.00	-90
422	7611.00	10020.00	286.29	100.00	0.00	-90
435	8111.40	9543.46	112.09	162.76	0.00	-90
436	7625.00	9991.00	286.83	110.06	0.00	-90
437	7597.00	9992.00	286.11	121.34	0.00	-90
458	7597.23	9907.46	176.52	40.54	213.23	45
501	8017.09	9734.46	227.24	19.20	0.00	-90
507	7626.39	9959.07	228.40	60.05	0.00	-90
535	7975.46	10065.61	231.37	51.82	117.25	47
542	7811.02	9896.93	227.11	671.78	0.00	-90
591	7810.81	9887.82	226.93	26.82	0.00	-90
592	7810.98	9889.03	226.96	12.19	90.00	-65
647	7859.24	9936.63	251.69	27.43	0.00	-90
660	7897.45	9937.01	252.27	27.43	180.00	-55
662	7859.41	9936.47	254.79	8.53	0.00	90
663	7871.79	9921.91	251.92	30.48	0.00	-90
664	7881.33	9891.64	252.08	32.92	180.00	-60
665	7887.15	9905.53	251.81	35.97	0.00	-90
666	7825.17	9906.32	252.14	30.48	0.00	-90
667	7861.45	9905.81	251.53	32.00	180.00	-65
668	7878.23	9873.29	252.25	33.53	180.00	-70
669	7879.02	9873.29	252.25	30.48	0.00	-70
670	7862.98	9921.73	251.94	30.48	180.00	-70
671	7833.29	9921.50	252.03	26.21	0.00	-60
672	7831.35	9921.63	251.85	23.17	180.00	-60
673	7859.00	9939.00	252.04	25.91	90.00	-45
674	7811.24	9875.34	252.29	30.48	0.00	-60
681	7582.70	10018.08	199.38	15.24	0.00	-90

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
682	7582.70	10018.08	201.46	15.24	0.00	90
683	7593.00	10013.00	199.23	15.24	0.00	-90
685	7593.44	10012.52	201.91	18.29	0.00	90
687	7604.71	10007.03	199.17	18.29	0.00	-90
688	7604.67	10006.94	201.67	15.24	0.00	90
690	7618.27	10000.18	199.11	19.81	0.00	-90
691	7618.33	10000.26	201.77	15.24	0.00	90
692	7631.77	9993.50	199.25	17.07	0.00	-90
693	7631.77	9993.50	201.92	19.51	0.00	90
694	7645.75	9986.62	199.34	12.80	0.00	-90
696	7645.75	9986.62	202.05	15.24	0.00	90
701	8022.69	9466.57	112.48	102.11	0.00	-90
706	8021.56	9467.48	113.07	76.20	138.77	-25
708	7872.00	9922.00	253.97	17.98	0.00	90
712	7877.00	9915.00	254.61	14.63	0.00	90
714	7883.00	9910.00	254.48	10.67	0.00	90
715	7582.64	9990.57	199.45	24.38	0.00	-90
721	7588.24	10001.63	199.39	19.81	0.00	-90
725	7599.26	10023.74	199.36	9.45	0.00	-90
727	7599.21	10023.76	203.67	21.34	0.00	90
728	7604.55	10034.50	203.12	24.38	0.00	90
731	7614.25	9974.93	199.30	34.14	0.00	-90
734	7619.64	9985.60	199.35	26.52	0.00	-90
735	7619.64	9985.60	201.69	4.88	0.00	90
738	7636.44	10018.69	201.63	21.95	0.00	90
740	7630.60	10007.49	199.49	6.10	0.00	-90
741	7630.60	10007.49	201.71	21.34	0.00	90
775	8055.72	9617.57	111.90	110.03	31.68	-73
776	8054.93	9617.09	111.84	87.48	0.00	-90
782	8052.52	9619.00	111.72	76.20	146.32	-44
783	8053.41	9617.19	111.86	76.20	183.58	-52
784	7834.00	9918.00	248.79	15.24	0.00	90
785	7850.00	9918.00	248.94	15.24	0.00	90
809	8102.35	9624.19	112.33	62.18	135.98	-45
1904	7517.00	10000.00	286.28	135.98	0.00	-90
2161	8069.72	9603.51	111.94	88.70	165.00	-81
2167	8069.41	9603.51	111.94	77.72	165.00	-68
2169	8070.02	9603.51	111.94	85.65	345.00	-88
2171	8068.80	9603.51	111.94	77.11	165.00	-53

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
2172	8069.41	9603.51	111.94	74.98	205.00	-82
2174	8069.11	9603.51	111.94	85.04	205.00	-70
2176	8069.41	9603.51	111.94	93.57	245.00	-80
2181	8069.41	9603.51	111.94	90.83	245.00	-65
2182	8069.41	9603.51	111.94	116.13	267.00	-72
2184	8069.41	9603.51	111.94	91.75	282.00	-80
2185	8069.41	9603.51	111.94	93.88	282.00	-70
2186	8048.10	9616.94	111.94	56.08	180.00	-81
2189	8048.10	9616.94	111.94	51.82	130.00	-77
2191	8048.10	9616.94	111.94	56.08	90.00	-70
2197	8048.10	9617.85	111.94	62.48	115.00	-45
2203	8048.10	9617.24	111.94	50.29	180.00	-35
2207	8048.10	9617.24	111.94	48.77	180.00	-12
2232	8069.41	9601.39	111.94	142.65	282.00	-50
2244	8069.41	9601.39	111.94	106.68	273.00	-60
2250	8069.11	9601.39	111.94	104.55	267.00	-60
2263	8069.11	9601.08	111.94	119.79	267.00	-50
2534	8066.42	9603.27	13.17	33.22	0.00	90
2536	8066.12	9603.23	13.03	57.91	184.47	73
2541	8066.33	9603.66	13.21	60.96	114.50	70
2543	8066.63	9588.05	13.00	39.62	0.00	90
2544	8066.18	9588.06	12.96	44.20	181.82	71
2545	8066.03	9588.08	12.90	57.91	178.63	60
2546	8066.82	9572.77	12.63	36.58	2.03	63
2547	8066.36	9572.77	12.90	30.48	0.00	90
2548	8066.07	9573.21	12.78	38.10	175.58	74
2549	8065.73	9588.33	12.71	91.14	178.03	51
2550	8067.44	9587.96	12.64	24.38	5.92	43
2551	8065.89	9572.73	12.67	55.47	182.10	62
2552	8065.49	9572.77	12.54	83.21	179.05	43
2553	8065.75	9572.77	12.63	55.17	178.63	54
2554	8067.33	9572.35	12.43	32.00	0.73	40
2555	8066.49	9557.37	12.68	25.91	0.00	90
2556	8067.09	9557.39	12.68	28.96	0.43	59
2557	8067.64	9557.39	12.32	30.48	1.08	31
2558	8065.82	9557.82	12.65	48.77	179.30	63
2559	8064.85	9542.51	12.89	24.38	0.00	90
2560	8065.39	9542.47	12.47	22.86	354.75	62
2561	8064.41	9542.86	12.38	48.77	185.60	59

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
2562	8064.11	9542.87	12.32	60.96	184.10	45
2563	8065.52	9557.83	12.59	60.96	183.70	45
2565	8057.63	9527.21	12.69	22.86	5.63	63
2566	8056.96	9527.24	13.21	30.48	0.00	90
2567	8056.44	9527.62	12.58	48.77	178.17	66
2568	8056.07	9527.59	12.41	60.96	180.00	47
2573	8060.89	9618.76	56.16	15.24	0.00	-90
2574	8054.68	9619.02	58.20	21.34	179.67	0
2575	8058.39	9619.05	60.17	68.58	181.40	41
2579	8057.25	9619.21	59.90	60.96	178.17	26
2581	8052.37	9603.45	56.34	15.24	191.20	-60
2582	8048.31	9602.40	57.98	27.43	180.82	0
2583	8050.22	9603.42	59.50	35.05	179.05	33
2584	8051.57	9603.40	59.57	54.86	180.00	50
2587	8034.64	9557.85	56.16	12.19	0.00	-70
2588	8028.82	9527.39	55.85	18.29	0.00	-75
2589	8024.83	9512.35	58.33	15.24	0.00	90
2590	8024.84	9512.16	55.55	15.24	0.00	-90
2591	8025.94	9511.88	57.21	15.24	0.37	0
2592	8023.32	9511.92	57.20	15.24	178.68	0
2594	8052.06	9603.30	59.39	47.24	174.84	60
2595	8059.21	9618.77	60.03	53.34	181.66	52
2597	8025.26	9511.81	55.88	38.10	13.75	-67
2598	8021.21	9497.23	58.40	15.24	0.00	90
2599	8022.57	9497.14	57.15	15.24	356.22	0
2600	8020.08	9497.30	57.24	15.24	175.30	0
2601	8021.17	9496.93	55.55	15.24	0.00	-90
2670	8033.70	9653.87	97.73	15.24	234.05	2
2671	8038.68	9650.25	97.78	15.24	236.40	2
2673	8040.48	9649.16	97.86	22.86	180.83	1
2674	8040.49	9649.18	96.66	27.43	182.83	-40
2675	8041.72	9649.22	96.78	22.86	0.00	-90
2677	8034.48	9634.16	97.58	18.29	180.67	1
2679	8035.75	9634.04	96.48	28.04	0.00	-90
2682	8035.05	9634.07	96.52	22.86	182.13	-55
2685	8036.17	9634.06	96.53	47.24	1.03	-65
2687	8036.55	9634.07	96.58	26.21	0.83	-45
2689	8023.54	9618.74	97.90	18.29	180.12	1
2690	8025.13	9618.74	96.61	36.58	0.00	-90

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
2691	8016.55	9604.03	97.87	18.29	359.55	0
2692	8042.99	9649.22	96.77	45.72	345.87	-75
2696	8056.95	9634.16	75.25	22.86	0.00	-90
2697	8049.70	9634.28	75.04	18.29	0.00	-90
2698	8048.90	9634.28	75.13	15.24	179.03	-55
2699	8047.75	9634.28	76.29	12.19	0.00	0
2700	8046.98	9618.59	75.23	15.24	0.00	-90
2701	8045.73	9618.59	76.64	18.29	180.57	0
2702	8035.27	9603.40	77.26	16.76	179.74	31
2703	8036.33	9603.39	77.93	10.67	0.00	90
2714	8057.34	9634.16	75.26	30.48	0.83	-75
2716	8057.85	9634.13	75.27	45.72	357.23	-56
2719	8058.04	9634.15	75.67	38.41	359.13	-40
2724	8061.66	9618.63	56.84	25.91	2.42	-65
2726	8048.75	9603.43	38.56	9.14	180.58	0
2727	8061.74	9603.32	38.57	6.10	2.85	0
2728	8051.86	9588.28	38.59	6.10	180.81	0
2729	8054.95	9588.28	38.56	10.67	359.65	0
2730	8062.35	9618.61	57.12	25.91	359.22	-40
2733	8060.64	9573.25	38.14	21.34	180.58	0
2734	8059.87	9558.02	38.68	15.24	179.89	0
2735	8052.67	9542.57	38.73	15.24	180.47	0
2738	8054.71	9588.19	39.71	15.24	359.82	50
2871	8024.00	9999.00	290.45	200.30	0.00	-90
2877	8056.00	9878.00	291.74	160.37	0.00	-90
2891	7772.00	10001.00	290.55	84.76	9.00	-67
3341	8055.00	9847.00	292.13	683.54	0.00	-90
H-08-3356	7787.00	10003.00	291.60	251.00	0.00	-90
H-08-3357	7725.00	10004.00	289.41	101.00	0.00	-90
H-08-3358	7800.00	9970.00	292.96	83.00	0.00	-90
H-08-3359	7652.00	10001.00	286.73	120.00	0.00	-90
H-08-3361	7858.00	9997.00	292.46	101.00	0.00	-90
H-08-3363	7893.00	10055.00	290.75	110.00	0.00	-90
H-08-3364	7752.00	10111.00	287.18	102.00	0.00	-90
H-08-3365	8006.00	10149.00	287.44	152.00	0.00	-90
H-08-3366	7605.00	9952.00	286.59	138.00	0.00	-90
H-08-3368	7547.00	10002.00	285.42	132.00	0.00	-90
H-08-3369	7962.00	10001.00	290.28	27.30	0.00	-90
H-08-3369A	7978.00	10007.00	290.03	137.72	0.00	-90

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
H-08-3371	7597.00	10064.00	283.91	120.00	0.00	-90
H-08-3372	8001.00	10056.00	288.83	128.00	0.00	-90
H-08-3373	7648.00	10105.00	284.69	120.00	0.00	-90
H-08-3374	7543.00	10103.00	282.62	47.00	0.00	-90
H-08-3374A	7546.00	10103.00	282.62	120.00	0.00	-90
H-08-3375	8024.00	9999.00	289.83	152.00	0.00	-90
H-08-3376	8000.00	9949.00	291.13	143.00	0.00	-90
H-08-3377	7796.00	10053.00	290.83	114.00	0.00	-90
H-08-3378	8037.00	9501.00	287.92	339.00	0.00	-90
H-08-3379	7999.00	9851.00	291.71	140.00	0.00	-90
H-08-3380	7949.00	9799.00	292.50	167.00	0.00	-90
H-08-3381	7918.00	9738.00	292.03	135.00	0.00	-90
H-08-3382	8090.00	9550.00	289.36	336.00	0.00	-90
H-08-3383A	7952.00	9697.00	292.34	201.00	0.00	-90
H-08-3384	7760.00	10039.00	289.92	104.00	0.00	-90
H-08-3385	8062.00	9600.00	291.04	253.14	0.00	-90
H-08-3386	7919.00	9651.00	292.62	152.00	0.00	-90
H-08-3388	8087.00	9650.00	291.73	251.00	0.00	-90
H-08-3389	8044.00	9803.00	292.88	198.50	0.00	-90
H-08-3393	8083.00	9846.00	292.05	255.00	0.00	-90
H-08-3394	8055.00	9881.00	291.72	177.00	0.00	-90
H-08-3395	7999.00	9668.00	292.02	239.00	0.00	-90
H-08-3396	7998.00	9754.00	292.74	227.00	0.00	-90
H-08-3397	7938.00	10109.00	288.27	143.00	0.00	-90
H-08-3398	7855.00	10051.00	290.84	134.00	0.00	-90
H-08-3399	7954.00	10151.00	287.40	161.00	0.00	-90
H-08-3400	7841.00	10110.00	287.87	101.00	0.00	-90
H-08-3401	7798.00	10103.00	287.73	110.00	0.00	-90
H-08-3402	7682.00	10106.00	286.35	131.00	0.00	-90
H-08-3403	7517.00	10000.00	285.03	140.00	0.00	-90
H-08-3406	8010.03	9560.53	291.59	272.00	0.00	-90
H-08-3407	7960.00	9560.00	290.57	230.00	0.00	-90
H-08-3409	7543.00	10153.00	281.42	98.00	0.00	-90
H-12-3426	7729.42	10073.21	288.32	60.00	0.00	-90
H-12-3427	7772.44	10077.44	289.04	95.00	0.00	-90
H-12-3429	7947.24	10058.81	289.85	101.00	0.00	-90
H-12-3430	7970.56	10092.46	289.16	101.00	0.00	-90
H-12-3431	8012.60	10099.88	288.35	151.70	0.00	-90
H-12-3432	8023.53	10046.42	288.88	176.00	0.00	-90

Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
H-12-3433	7999.54	10006.57	289.89	150.00	0.00	-90
H-12-3434	7618.50	10094.01	283.77	35.00	0.00	-90
H-12-3435	7594.06	10108.88	283.13	41.00	0.00	-90
H-12-3436	7570.30	10137.95	282.03	37.90	0.00	-90
H-12-3437	7903.43	10008.02	291.53	111.00	0.00	-90
H-12-3438	7536.75	10129.78	282.46	47.00	0.00	-90
H-12-3439	7866.79	9986.90	292.58	128.00	300.30	-44.8
H-12-3440	7646.13	10042.93	285.88	95.00	0.00	-90
H-12-3441	7558.16	10056.48	283.65	98.00	0.00	-90
H-12-3442	7753.83	9972.86	290.75	75.00	0.00	-90
H-12-3443	7539.95	10080.08	283.20	80.00	0.00	-90
H-12-3444	7724.26	9950.17	289.73	90.00	0.00	-90
H-12-3445	7542.60	10036.79	284.35	110.00	0.00	-90
H-12-3446	7825.64	9980.19	292.62	73.00	270.00	-50
H-12-3447	7564.84	9988.92	286.06	120.00	0.00	-90
H-12-3448	7651.91	9921.62	288.03	135.00	0.00	-90
H-12-3449	7538.97	9968.80	286.44	140.00	0.00	-90
H-12-3451	7609.14	9933.38	287.36	125.00	0.00	-90
H-12-3454	7637.97	9962.42	287.14	119.00	0.00	-90
H-12-3456	7999.42	9617.54	292.14	250.00	0.00	-90
H-12-3458	7975.51	10193.11	286.42	125.60	0.00	-90
H-12-3459	7811.65	10023.50	292.16	133.60	0.00	-90
H-12-3460	7764.62	9959.16	292.13	159.00	312.60	-50.2
H-12-3461	7975.78	10214.75	285.62	106.00	0.00	-90
H-12-3462	7768.90	9959.23	292.30	32.00	0.00	-90
H-12-3463	7917.86	10148.76	287.44	75.00	0.00	-90
H-12-3464	7991.61	9950.78	291.33	154.00	180.00	-50
H-12-3465	7895.23	10110.16	288.76	76.00	0.00	-90
H-12-3466	7991.20	9948.79	291.29	175.70	237.00	-50.7
H-12-3467	8032.47	9943.81	291.98	215.00	0.00	-90
H-12-3468	7943.01	9739.34	292.27	161.00	140.00	-45
H-12-3469	7892.73	9696.10	291.88	154.65	0.00	-90
H-12-3470	8011.43	9900.25	291.87	176.00	0.00	-90
H-12-3471	7910.88	9710.47	292.14	160.00	132.00	-46.5
H-12-3472	7994.38	9806.18	292.47	227.00	0.00	-90
H-12-3473	7948.19	9668.86	292.25	242.75	0.00	-90
H-12-3474	8040.09	9748.93	293.09	239.00	0.00	-90
H-12-3475	7994.00	9715.51	292.74	233.00	0.00	-90
H-12-3477	7977.15	9591.56	292.19	352.80	0.00	-90

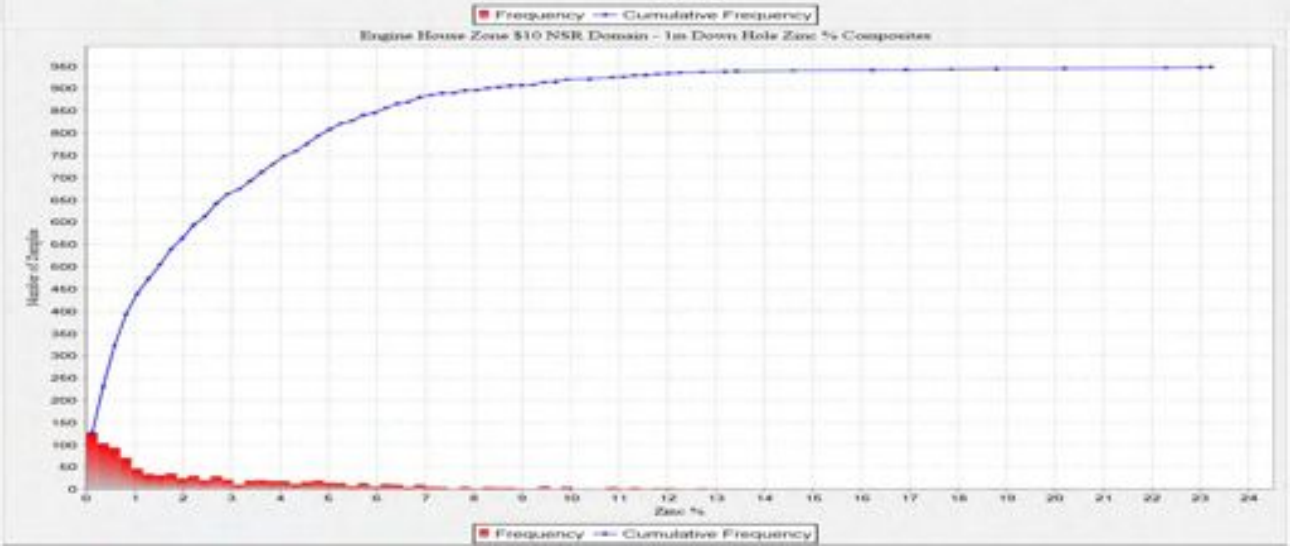
Hole Number	Local Grid Northing (m)	Local Grid Easting (m)	Local Grid Elevation (m)	Depth (m)	Azimuth (Deg.)	Dip (Deg.)
H-12-3478	7981.90	9540.90	290.24	383.00	0.00	-90
H-12-3479	7954.78	9630.16	292.68	251.10	0.00	-90
H-12-3480	7898.59	9602.70	291.40	151.00	0.00	-90
H-12-3481	7922.06	9564.48	290.76	230.00	0.00	-90
H-12-3482	7837.94	10149.54	286.73	76.00	0.00	-90
H-12-3483	7876.76	10144.91	286.99	68.00	0.00	-90

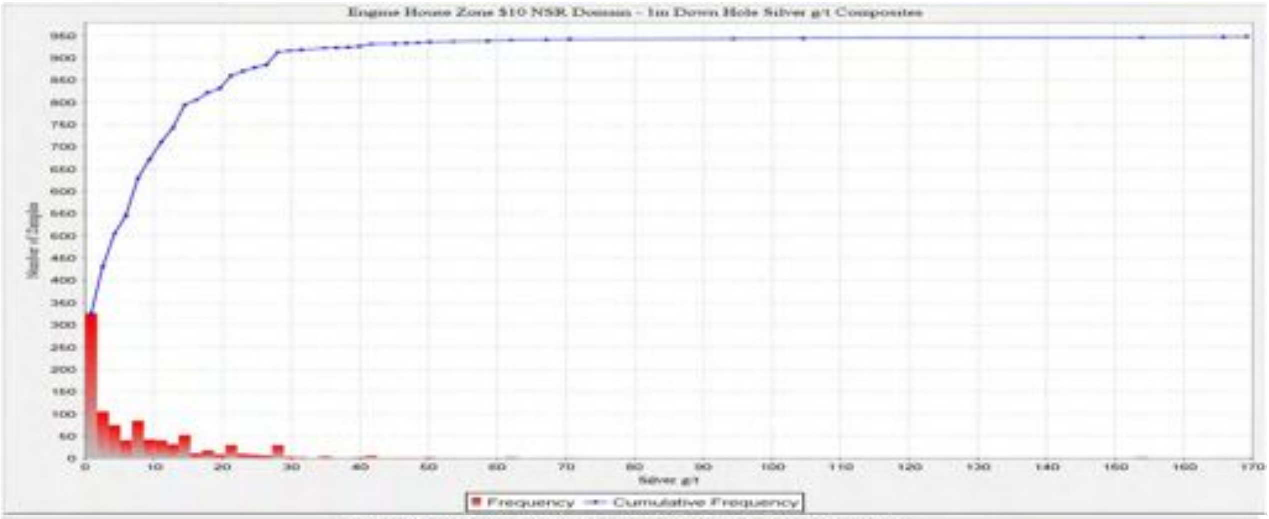
Appendix 2

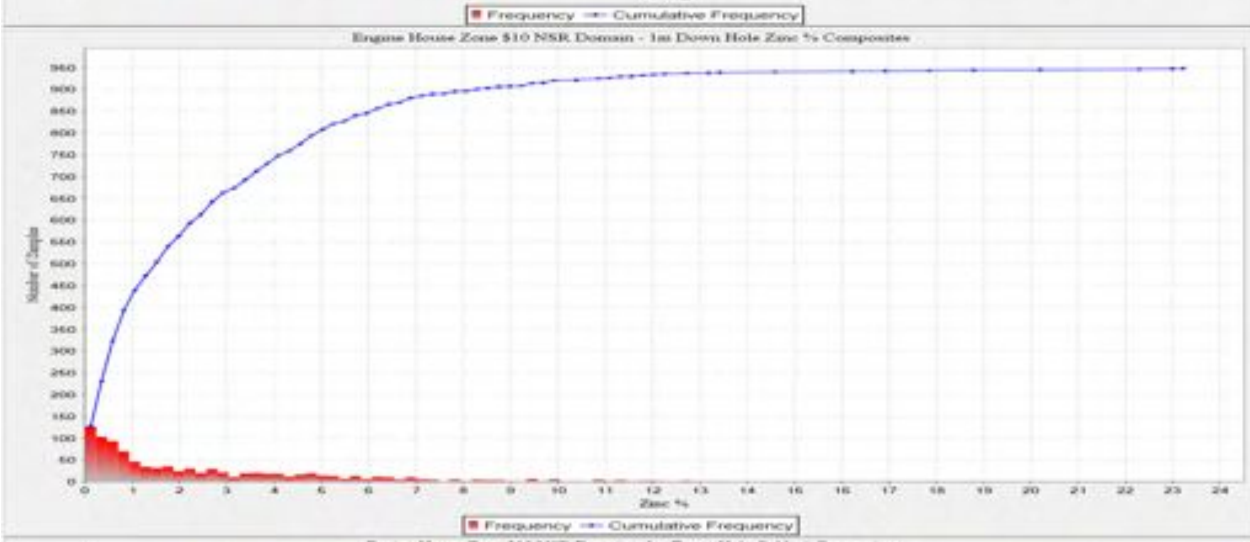
Resource Estimate Support Documents

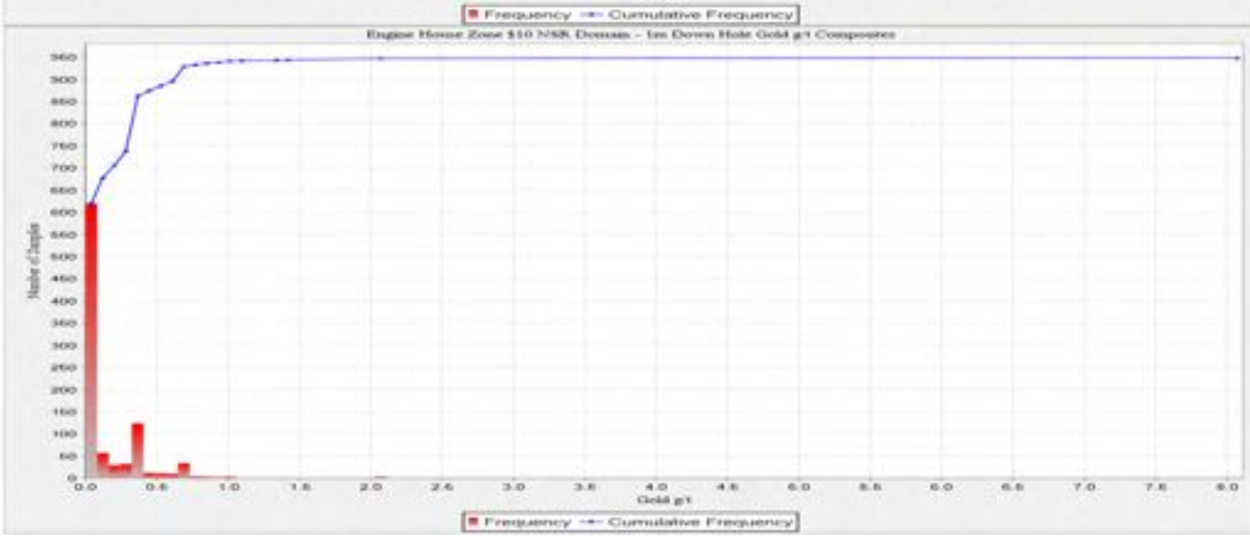

Lundberg Zone $10 NSR Domain - 1m Down Hole Copper % Composites
Number of Samples
Copper %
Frequency
Cumulative Frequency


Lundberg Zone $10 NSR Domain - 1m Down Hole Barite % Composites
Number of Samples
Barite %
Frequency
Cumulative Frequency


Engine House Zone $10 NSR Domain - 1m Down Hole Zinc % Composites
Number of Samples
Zinc %
Frequency
Cumulative Frequency

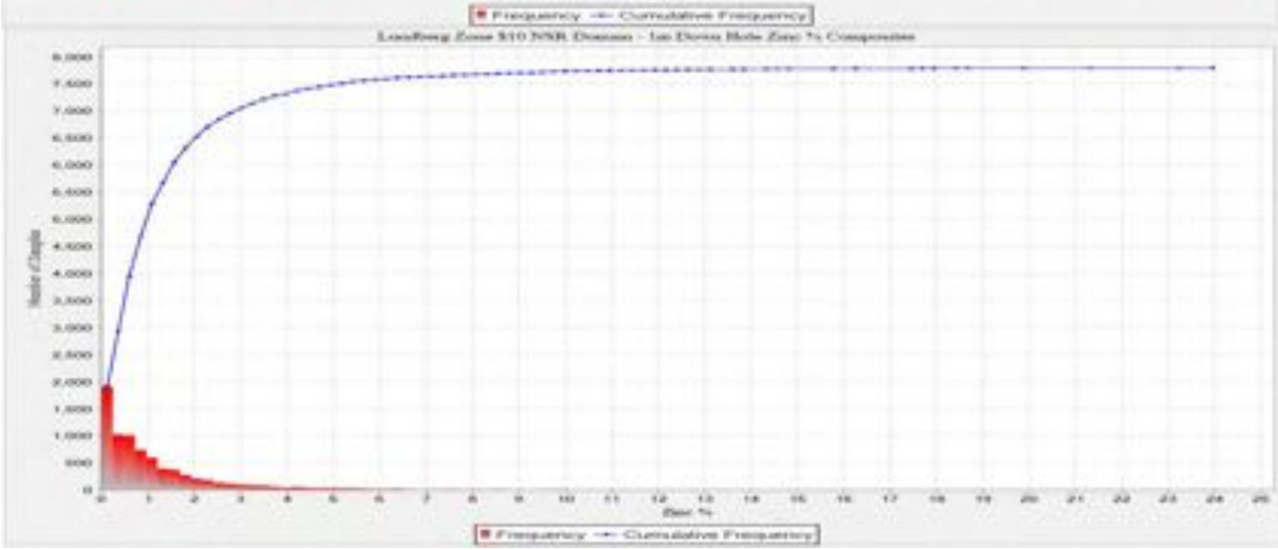

Engine House Zone $10 NSR Domain - 1m Down Hole Silver g/t Composites
Number of Samples
Silver g/t
Frequency
Cumulative Frequency


Engine House Zone $10 NSR Domain - 1m Down Hole Zinc % Composites
Number of Samples
Zinc %
Frequency
Cumulative Frequency


Engine House Zone $10 NSR Domain - 1m Down Hole Gold g/t Composites
Number of Samples
Gold g/t
Frequency
Cumulative Frequency


Engine House Zone $10 NSR Domain - 1m Down Hole Copper % Composites
Number of Samples
Copper %
Frequency
Cumulative Frequency


Engine House Zone $10 NSR Domain - 1m Down Hole Barite % Composites
Number of Samples
Barite %
Frequency
Cumulative Frequency


Lundberg Zone $10 NSR Domain - 1m Down Hole Zinc % Composites
Number of Samples
Zinc %
Frequency
Cumulative Frequency