Canada Zinc Metals Corp.

NI 43-101 Technical Report

Mineral Resource Estimate for the Akie Zinc-Lead-Silver Project, British Columbia, Canada

Effective Date: May 16, 2016

Release Date: June 28, 2016

Prepared for:

Canada Zinc Metals Corp.
Suite 2050, 1055 West Georgia Street
PO Box 11121, Royal Centre
Vancouver, BC, V6E 3P3

Qualified Persons:
Robert C. Sim,
SIM Geological Inc.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

LIST OF APPENDICES

1 EXECUTIVE SUMMARY

Akie is a zinc-lead-silver property located in north-central British Columbia, Canada. It is 100% owned by Canada Zinc Metals Corp., (Canada Zinc Metals) a junior exploration company headquartered in Vancouver, BC.

The Akie property is situated within the southernmost area (Kechika Trough) of the regionally extensive Paleozoic Selwyn Basin. This sedimentary basin is known for its proliferation of sedimentary exhalative (SEDEX) zinc-lead-silver and stratiform barite deposits.

Drilling on the Akie property by Inmet Mining Corporation (from 1994 to 1996) and Canada Zinc Metals (since 2005) has identified a significant body of baritic zinc-lead-silver SEDEX mineralization known as the Cardiac Creek deposit. This drilling has defined a large tabular body of mineralization that has approximate dimensions of 1,950 m in strike length, a dip extent of 875 m and true thicknesses of up to almost 40 m. The deposit is hosted by siliceous, carbonaceous, fine-grained clastic rocks of the middle to late Devonian Gunsteel Formation.

The previous resource estimate was described in a Technical Report dated April 27, 2012 (available on www.sedar.com). It outlined an Indicated resource of 12.7 million tonnes, averaging 8.38% Zn, 1.68% Pb, and 13.7 g/t Ag (at a 5% Zn cut-off grade), and an Inferred resource of 16.3 million tonnes, averaging 7.38% Zn, 1.34% Pb, and 11.6 g/t Ag (at a 5% Zn cut-off grade). Since the April 2012 resource, three drilling programs have been completed on the property and these have contributed to the improved understanding of the deposit.

Highlights of the updated mineral resource estimate on the Cardiac Creek deposit include the following:

- An Indicated resource of 19.6 million tonnes at an average grade of 8.17% Zn, 1.58% Pb and 13.6 g/t Ag (at 5% Zn cut-off grade). Contained metal of 3.5 billion pounds of zinc, 685 million pounds of lead and 8.6 million ounces of silver.
- An Inferred resource of 8.1 million tonnes at average grade of 6.81% Zn, 1.16% Pb and 11.2 g/t Ag (at 5% Zn cut-off grade). Contained metal of 1.2 billion pounds of zinc, 207 million pounds of lead, and 2.9 million ounces of silver.
- A 55% increase in the Indicated resource tonnage compared to the April 2012 estimate.
- The current distribution of resources has 70% in the Indicated category and 30% in the Inferred category.

The estimate of mineral resources incorporates all drilling conducted by Canada Zinc Metals on the Cardiac Creek deposit since 2005 plus 29 holes drilled by Inmet Mining Corporation between 1994 and 1996. Currently, there are 139 drill holes on the Akie property with a total core length of 59,260 m. Of these 139 drill holes, 104 of them, totaling 46,886 m, are within close enough proximity of the block model to contribute to the estimation of the mineral resource. The remaining 35 drill holes test the zone over a total strike length of almost 7 km, or they test other exploration targets on the property.

The mineral resource estimate presented in this report has been generated from drill hole sample assay results and the interpretation of a geological model which relates to the spatial distribution of zinc, lead and silver. Interpolation characteristics have been defined based on the geology, drill hole spacing and geostatistical analysis of the data. The resources have been classified by their proximity to the sample locations and are reported, as required by NI 43-101, according to the *CIM Definition Standards for Mineral Resources and Mineral Reserves* (2014). Extensive analysis of the drill sample database shows that it is sound and reliable for the purposes of resource estimation. The resource model has been developed in accordance with accepted industry standards resulting in a mineral resource defined within the Indicated and Inferred categories.

The resources, shown in Table 1.1, are summarized based on a 5% zinc cut-off grade which is based on assumptions derived from operations with similar characteristics, scale and location. The distribution of Indicated and Inferred mineral resources, above a cut-off grade of 5% Zn, occurs as a continuous zone which is favourable with respect to selectivity and other factors when considering possible mining options. The current resource extends to a maximum depth of 800 m below surface. The true thickness of the base case resource typically ranges between 8 m and 30 m, with an average of about 15 m. The shape and location of the deposit indicates that it is potentially amenable to underground mining methods, or a combination of surface and underground methods, and, as a result, the stated resource is considered to exhibit reasonable prospects for eventual economic extraction. This report includes estimates for mineral resources. Note: There are no mineral reserves prepared or reported in this report.

TABLE 1.1: ESTIMATE OF MINERAL RESOURCES (5% ZINC CUT-OFF)

					Contained metal		
Category	**Tonnes (million)**	**Zn (%)**	**Pb (%)**	**Ag (g/t)**	**Zn (Mlbs)**	**Pb (Mlbs)**	**Ag (Moz)**
Indicated	19.6	8.17	1.58	13.6	3,540	685	8.6
Inferred	8.1	6.81	1.16	11.2	1,211	207	2.9

Note: Mineral resources are not mineral reserves because the economic viability has not been demonstrated.

The Cardiac Creek deposit remains open both along strike and at depth. In the opinion of the author, Robert Sim, P.Geo, the Akie property and, specifically, the Cardiac Creek deposit exhibit sufficient merit to justify continued exploration and development expenditures. Continued surface exploration and delineation drilling is planned for the upcoming field season.

Engineering studies have been completed to establish underground access to the deposit via a ramp decline developed in the footwall of the deposit. An updated permit, valid for an additional three-year period (until December 31, 2017) was issued by the BC Government; it allows for the construction and development of an underground decline that will provide access to the deposit at a depth of approximately 500 m below surface. This allows for detailed delineation drilling of the mineral resource (in the Measured category) and will provide a platform for deeper exploration drilling below the current resource. Direct underground access will facilitate test mining to evaluate the continuity of the mineralized zone, bulk sample collection for metallurgical purposes, and assessment of ground conditions for mine design purposes.

It is recommended that Canada Zinc Metals review and update the previously reported cost estimates received from qualified underground contractors. It is also recommended that Canada Zinc Metals evaluate the economic viability of the project, including continued metallurgical test work, and conduct environmental and social impact studies.

2 INTRODUCTION

This Technical Report was prepared at the request of Canada Zinc Metals Corp. (Canada Zinc Metals), a publicly traded company listed on the TSX Venture Exchange. This report updates the three previous National Instrument (NI) 43-101 compliant reports prepared by MacIntyre (2005), MacIntyre and Sim (2008), and Sim (2012).

Canada Zinc Metals commissioned Robert Sim, SIM Geological Inc. to provide an independent Qualified Person (QP) review of all data pertaining to the property, and to prepare a Technical Report that summarizes the drilling results up to the end of 2015 and supports a revised resource estimate for the Cardiac Creek deposit located in north-central British Columbia, Canada.

Mr. Sim, P.Geo is an independent consultant and serves as the Qualified Person responsible for the preparation of this Technical Report as defined in *National Instrument 43-101, Standards of Disclosure for Mineral Projects* (May, 2016), and in compliance with *Form 43-101F1* (the Technical Report). Mr. Sim is a geologist with more than 32 years of experience primarily in base and precious metals exploration, operations, resource modeling and feasibility-level evaluations. Mr. Sim has direct experience working on the Pend Oreille lead-zinc deposit in northeast Washington, USA. Mr. Sim received assistance in the generation of the resource model and data validation from geostatistician, Bruce Davis, Ph.D., FAusIMM, BD Resource Consulting, Inc. Mr. Sim is not associated or affiliated with Canada Zinc Metals or any associated company. Compensation for this Technical Report is not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report.

The primary purpose of this report is to update the resource estimate for the Cardiac Creek deposit located on the Akie property, and meet the filing requirements of the BC Securities Commission and the TSX Venture Exchange.

Information and data used in this independent review were provided by Nicholas Johnson, Project Geologist for Canada Zinc Metals. Mr. Johnson has managed the site operations at the Akie property since 2006. Mr. Sim visited the site on two occasions: October 16–17, 2007 and September 18–20, 2013 where he reviewed drilling activities and related geological issues with on-site Canada Zinc Metals personnel. In preparing this report, Mr. Sim reviewed the geological reports and maps and miscellaneous technical papers listed in the Reference Section of this report, and consulted with experienced Canada Zinc Metals personnel. Information used in the preparation of this report includes a number of internal company reports not available to the public. These reports contain detailed information about the results of diamond drilling completed on the property. Citations for these reports are contained in the Reference Section of this report. The mineral resource estimation presented in this report is based on information known to Mr. Sim as of May 16, 2016. This report includes estimates for mineral resources. There are no estimates of mineral reserves presented in this report.

Unless otherwise stated, all units used in this report are metric, and currency is expressed in Canadian dollars. UTM coordinates are reported using the datum NAD83 Zone 10.

The effective date of this Technical Report is May 16, 2016.

TABLE 2.1: ABBREVIATIONS

Ag	Silver	Mn	Manganese
As	Arsenic	Na	Sodium
Au	Gold	Ni	Nickel
Ba	Barium	P	Phosphorus
Bi	Bismuth	Pb	Lead
C	Carbon	Pd	Palladium
Ca	Calcium	Rb	Rubidium
Cd	Cadmium	S	Sulphur
Ce	Cerium	Sb	Antimony
Co	Cobalt	Se	Selenium
Cr	Chromium	Si	Silicon
Cu	Copper	Sn	Tin
Fe	Iron	SO_4	Sulphate
Ga	Gallium	Sr	Strontium
Ge	Germanium	Tl	Thallium
Hg	Mercury	U	Uranium
In	Indium	V	Vanadium
K	Potassium	Zn	Zinc
La	Lanthanum		
Mg	Magnesium		

3 RELIANCE ON OTHER EXPERTS

This report was prepared by Robert Sim, P.Geo, SIM Geological Inc, an independent qualified person (QP) for the purposes of NI 43-101. The information, conclusions, opinions and estimates contained herein are based on the QP's field observations, direct conversations with Canada Zinc Metals personnel, and from data, reports and other information supplied by Canada Zinc Metals.

Robert Sim, the author, has not independently conducted any search related to the licenses, property title, agreements, permit status or other pertinent conditions. The author has not conducted a legal review of the land ownership or property boundaries. This information has been provided by Canada Zinc Metals and it is believed that this information is essentially complete and correct and that no information has been intentionally withheld that would affect the conclusions made herein.

4 PROPERTY DESCRIPTION AND LOCATION

The Akie property is located in north-central British Columbia situated within the western ranges of the northern Rocky Mountains (Figure 4-1). The property is divided by Silver Creek which drains into the prominent Akie River that runs along the southeastern boundary of the property. The Akie River feeds into the Finlay River which in turn drains into the Williston Lake reservoir. The property is located approximately 65 km from the local First Nation communities of Tsay Keh Dene, 100 km from Kwadacha (Fort Ware), and approximately 250 km north-northeast from the town of Mackenzie. The urban centre of Prince George is located 450 km south of the Akie property.

The property is centred on UTM coordinate 388550E and 6360660N, and is located within NTS map sheet 94F/7 and TRIM map sheets 094F036, 094F037 and 094F046. The discovery outcrop of the Cardiac Creek deposit is situated within Cardiac Creek, located at UTM coordinates 389074E and 63600045N. The Cardiac Creek deposit is assigned as Minfile #094F 031 in the provincial BC Mineral Database System.

The Akie property consists of 46 claims totaling approximately 11,583.4 ha (Figure 4-2). The Cardiac Creek deposit is situated on claims 324823 and 324825. All of the claims are in good standing until December 8, 2025. The claims comprising the Akie property are shown in Table 4.1. Currently, the Akie property is controlled by Canada Zinc Metals who maintains 100% ownership.

An aerial view of the Akie camp is shown in Plate 1.

As far as the author is aware, the property is not subject to any royalties, back-in-rights, or other payments and encumbrances and the property is not subject to any known environmental liabilities. Some of the claims in Table 4.1 are listed under Ecstall Mining Corp (Ecstall Mining) which is a wholly owned subsidiary of Canada Zinc Metals.

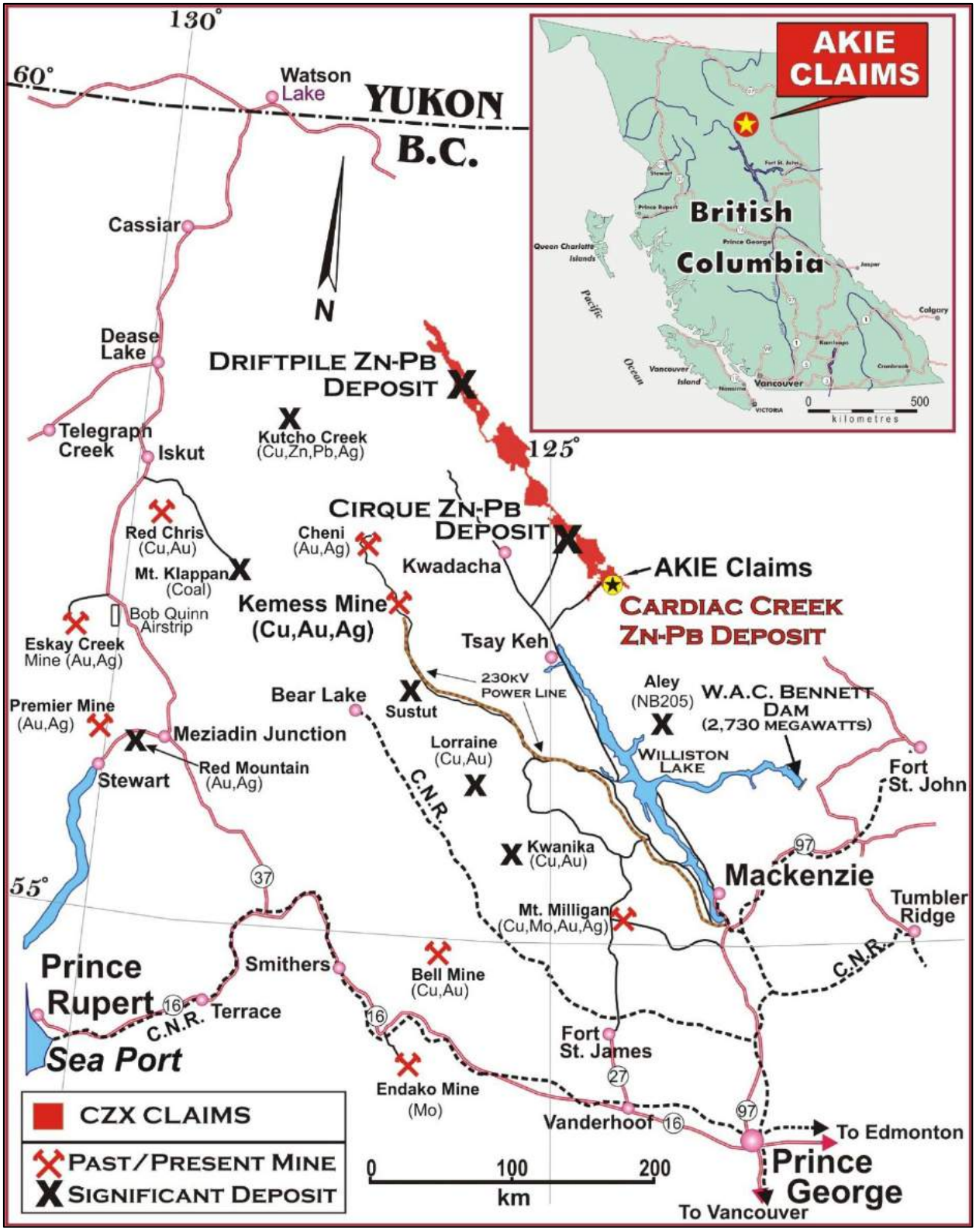


FIGURE 4-1: AKIE PROPERTY LOCATION MAP
(CANADA ZINC METALS)

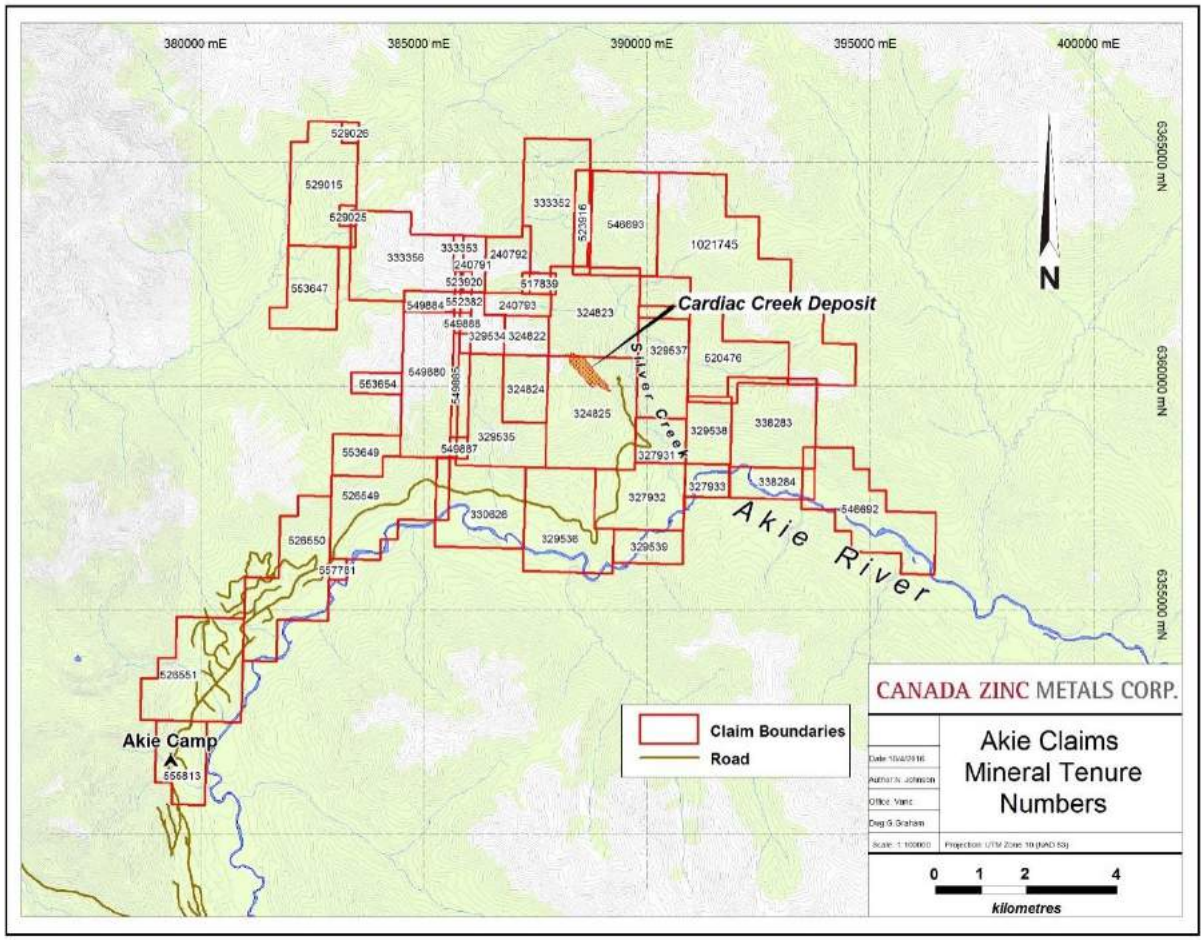


FIGURE 4-2: AKIE PROPERTY CLAIM MAP
(CANADA ZINC METALS)

PLATE 1: AERIAL VIEW OF THE AKIE CAMP
(PHOTO BY GRAHAM, 2015)

TABLE 4.1: AKIE PROPERTY TENURE LISTING

Tenure Number	Claim Name	Owner (%)	Expiry Date	Area (ha)
240791	AKIE 1	Ecstall Mining Corp.	8 Dec 2025	75.00
240792	AKIE 2	Ecstall Mining Corp.	8 Dec 2025	150.00
240793	AKIE 3	Ecstall Mining Corp.	8 Dec 2025	75.00
324822	AKIE 4	Ecstall Mining Corp.	8 Dec 2025	100.00
324823	AKIE 5	Ecstall Mining Corp.	8 Dec 2025	400.00
324824	AKIE 6	Ecstall Mining Corp.	8 Dec 2025	150.00
324825	AKIE 7	Ecstall Mining Corp.	8 Dec 2025	500.00
327931	AKIE 8	Ecstall Mining Corp.	8 Dec 2025	150.00
327932	AKIE 9	Ecstall Mining Corp.	8 Dec 2025	300.00
327933	AKIE 10	Ecstall Mining Corp.	8 Dec 2025	100.00
329534	AKIE 11	Ecstall Mining Corp.	8 Dec 2025	400.00
329535	AKIE 12	Ecstall Mining Corp.	8 Dec 2025	500.00
329536	AKIE 13	Ecstall Mining Corp.	8 Dec 2025	500.00
329537	AKIE 14	Ecstall Mining Corp.	8 Dec 2025	375.00
329538	AKIE 15	Ecstall Mining Corp.	8 Dec 2025	150.00
329539	AKIE 16	Ecstall Mining Corp.	8 Dec 2025	200.00
330626	AKIE 17	Ecstall Mining Corp.	8 Dec 2025	400.00
549885	AKIE 20	Ecstall Mining Corp.	8 Dec 2025	87.25
333352	AKIE 21	Ecstall Mining Corp.	8 Dec 2025	450.00
333353	AKIE 22	Ecstall Mining Corp.	8 Dec 2025	225.00
552382	AKIE 23	Ecstall Mining Corp.	8 Dec 2025	17.44
333356	AKIE 25	Ecstall Mining Corp.	8 Dec 2025	500.00
338283	AKIE 18	Ecstall Mining Corp.	8 Dec 2025	400.00
338284	AKIE 19	Ecstall Mining Corp.	8 Dec 2025	300.00
517839	CURE	Ecstall Mining Corp.	8 Dec 2025	34.88
520476	AKIE 30	Ecstall Mining Corp.	8 Dec 2025	436.14
523916	AKIE FR.	Ecstall Mining Corp.	8 Dec 2025	87.18
523920	AKIE FR 2	Ecstall Mining Corp.	8 Dec 2025	17.44
526549	AKIE AX 1	Ecstall Mining Corp.	8 Dec 2025	436.57
526550	AKIE AX 2	Ecstall Mining Corp.	8 Dec 2025	436.75
526551	AKIE AX 3	Ecstall Mining Corp.	8 Dec 2025	436.98
529015	AKIE 31	Ecstall Mining Corp.	8 Dec 2025	366.10
529025	AKIE 31A	Ecstall Mining Corp.	8 Dec 2025	17.44
529026	AKIE 31B	Ecstall Mining Corp.	8 Dec 2025	17.43

Tenure Number	Claim Name	Owner (%)	Expiry Date	Area (ha)
546692	AKIE 41	Ecstall Mining Corp.	8 Dec 2025	436.54
546693	AKIE 40	Ecstall Mining Corp.	8 Dec 2025	348.69
549880		Ecstall Mining Corp.	8 Dec 2025	366.47
549884		Ecstall Mining Corp.	8 Dec 2025	52.33
549887	IN	Canada Zinc Metals Corp.	8 Dec 2025	17.46
549888	AK	Canada Zinc Metals Corp.	8 Dec 2025	17.45
553647		Canada Zinc Metals Corp.	8 Dec 2025	226.76
553649		Canada Zinc Metals Corp.	8 Dec 2025	122.21
553654	1.1	Canada Zinc Metals Corp.	8 Dec 2025	52.35
555813	HSH	Ecstall Mining Corp.	8 Dec 2025	192.36
557781	ROME	Ecstall Mining Corp.	8 Dec 2025	17.47
1021745	SITKA	Canada Zinc Metals Corp.	8 Dec 2025	942.00

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUTURE AND PHYSIOGRAPHY

5.1 ACCESSIBILITY

The Akie property and exploration camp (Plate 1) are directly accessible via an extensive network of forestry service roads originating near Mackenzie. The camp, at the southwestern edge of the property, is situated at the 24.5 km mark on the Akie Mainline Forestry Service Road (FSR). In 2008, Canada Zinc Metals extended the Akie Mainline FSR to the 41.5 km mark into the south-central area of the property. Partially developed seasonal trails extend out from the 41.5 km mark and provide direct access to Cardiac Creek with the trail-end located just below the Cardiac Creek showing. The gravel airstrip at Tsay Keh Dene and Kwadacha provide access by fixed-wing aircraft, and the camp and property can be accessed using chartered helicopter services based in either Mackenzie or Prince George.

5.2 INFRASTRUCTURE

5.2.1 Roads

The region is well-connected by an extensive network of all-weather forestry service roads originating near Mackenzie. The Akie Mainline FSR provides direct access into the central area of the property. It has recently been extended to the Cardiac Creek deposit and provides access to the planned point of entry for underground access. The paved, provincial highway system can be accessed in Mackenzie.

5.2.2 Air

Several gravel airstrips are located along the shores of the Williston Lake reservoir and Finley River basin; the closest is located at the village of Tsay Keh Dene, approximately 65 km southwest of the property. Regularly scheduled charter flights provide service to the communities of Tsay Keh Dene and Kwadacha during the work week.

5.2.3 Electricity

The hydroelectric W.A.C. Bennett Dam located on the Peace Reach of the Williston Lake reservoir supplies power to the nearby Kemess copper-gold mine via the Kennedy substation located near Mackenzie, BC. On-site, diesel-fueled generators provide electricity to local communities and the Akie camp.

5.2.4 Water

Barge services operating out of Mackenzie on the Williston Lake reservoir provide intermittent water services to the local communities and the forestry industry.

5.2.5 Rail

Mackenzie provides the closest access to rail service.

5.3 CLIMATE

The region has a variable climate with temperatures ranging from 15°C to 30°C in the summer and -10° to -30°C in the winter. Precipitation can be variable from year to year with moderate rainfall in summer, with temporary snow accumulations at higher elevations and moderate snow accumulations in the winter months.

5.4 PHYSIOGRAPHY

The Akie property is characterized by northwest-southeast-oriented ridgelines bounded by the east-west running Akie River valley to the southeast. Elevation ranges from 850 m within the valley to 2,200 m at the peaks. Ridges and mountain tops above the tree line have either no vegetation or are covered by alpine meadows. The remainder of the property is thickly forested, characterized by lodgepole pine and black spruce covering the mountain slopes, and alder, willows and birch bordering creeks and rivers.

Abundant unnamed mountain streams and creeks feed into the larger Silver Creek which runs parallel to the ridgelines, divides the property, and ultimately drains into the Akie River.

6 HISTORY

Since the late 1970s, exploration on the Akie property has been intermittent, marked by short periods of intense activity. Exploration activities have included prospecting, mapping, large-scale soil sampling programs, litho-geochemical sampling, limited geophysical surveys and diamond drilling.

As of December 2015, a total of 139 drill holes have been drilled totaling 59,260 m. The following subsections chronicle the key historical exploration activities conducted on the Akie property and the results. This information is based primarily on publicly filed assessment reports with the BC Ministry of Energy and Mines and internal company reports. Sections 6.1 through to 6.3 summarising the early exploration history of the Akie property has been taken unabridged from the 2012 NI 43-101 report by Sim. The information remains current.

6.1 RIOCANEX INC. (1978–1981)

In 1978, on the basis of elevated lead values in regional stream sediment sampling, RioCanex Inc. (RioCanex) staked the Dog claims 1-8 (Hodgson, 1979) in the central area of what now comprises the present-day Akie property. Initial reconnaissance work involved the collection of 167 stream sediment samples that returned consistently elevated zinc values (ranging from > 1,000 ppm to 19,000 ppm) and nominal lead values (Hodgson, 1979). Follow-up work on the property consisted of preliminary mapping and a single line of soil sampling conducted to the northwest of the Cardiac Creek deposit. A total of 51 soil samples were collected which indicated the presence of anomalous zinc and lead soils overlying prospective shale of the Gunsteel Formation (Hodgson and Faulkner, 1979).

In 1980, additional mapping was completed on the Dog claims (Hodgson, 1980). In 1981, a large-scale soil sampling program was undertaken by RioCanex, apparently based on the single line of soil sampling conducted in 1979. A cut grid covering the property was established and a total of 1,490 soil samples were collected. In conjunction with the soil program, a 34.1 line km ground-based very-low frequency electromagnetic (VLF-EM) survey was completed (Hodgson, 1981). The results identified a broad area of zinc and silver values across the property within a 100 m to 500 m wide zone of elevated lead values trending northwest-southeast across the property (Hodgson, 1981). The VLF-EM survey confirmed the northwest-southeast-trending orientation of the underlying strata (Hodgson, 1981). Exploration efforts were unable to identify any occurrences of mineralization on the property, despite the mention of a barite-pyrite showing in an internal company report (Hodgson, 1980). Based on the exploration results, RioCanex subsequently let the Dog claims lapse (Wells, 1992).

6.2 ECSTALL MINING CORP. (1989–1992)

In 1989, Ecstall Mining Corp. (Ecstall Mining) re-staked Dog claims 1-3 which were renamed the Akie claims 1-3. No exploration work was completed during this time period (Wells, 1992).

6.3 INMET MINING CORPORATION (1992–1996)

In early 1992, Inmet Mining Corporation (Inmet Mining), previously known as Minnova Inc. and Metall Mining Corporation, optioned the Akie claims from Ecstall Mining and proceeded to explore for SEDEX-style mineralization from 1992 to 1996. Based on the early exploration results, the Akie claims were subsequently expanded to Akie claims 1-17. During this time, Inmet Mining executed a number of exploration programs that included prospecting and mapping, soil sampling, litho-geochemical sampling, geophysical surveys and diamond drilling.

6.3.1 Prospecting and Mapping

During the 1994 exploration season, prospecting activities discovered a gossaneous outcrop of laminated sulphides. Chip sampling across the widest observed sulphide bed returned values of 16.0% Zn and 2.80% Pb over 40 cm. This outcrop is now known as the Cardiac Creek discovery showing (Baxter, 1995). In addition to the Cardiac Creek showing, prospecting also identified two nodular barite showings: the Waterfall Barite showing on the southeastern edge of the Akie property and the Fluke Ridge showing on the northwestern edge of the property. Mapping was also completed across the property at 1:10,000 scale. The mapping was concentrated along the Akie Main Grid with limited mapping conducted on the Akie Reconnaissance Grid (Figure 6-1).

6.3.2 Soil Sampling

Between 1992 and 1996, a series of soil sampling programs were executed across the Akie property (Wells, 1992; Baxter, 1995, 1996a, 1996b and 1996c). An extensive cut grid was established across the property with two primary areas of the interest: the Akie Main Grid and the Akie Reconnaissance Grid. The Akie Main Grid consisted of 200 m spaced lines from line 600N to line 7600S (Baxter, 1995, 1996a and 1996b). The grid extended from the northwest to the southeast edge of the property and covered the main panel of Gunsteel Formation shale that is host to the Cardiac Creek deposit and the stratigraphically important Gunsteel Formation shale/Road River Group contact. The Akie Reconnaissance Grid consisted of broad 400 m to 600 m spaced lines and represented extensions of the Akie Main Grid lines onto the eastern side of the Akie property (Baxter, 1996c). Follow-up work on the Akie Reconnaissance Grid consisted of 200 m spaced infill lines. In total, 3,071 samples were taken during these programs (Baxter, 1995, 1996a, 1996b and 1996c). The results of this work outlined a number of distinct soil anomalies on the Akie Main Grid while several small anomalies were defined on the Akie Reconnaissance Grid. Some of the anomalies on the Akie Main Grid were subsequently drill tested while others remained open for further exploration. Baxter (1996c) described the western panel of Gunsteel Formation covered by the Akie Main Grid to be highly anomalous, hosting a number of multi-element soil anomalies.

The Akie Main Grid anomalies shown in Figure 6-1 are briefly described here:

- South Zinc Anomaly is represented by a 2,000 m by 500 m area of highly elevated zinc values (up to 1.12% Zn). Internally, there are additional discontinuous barium, lead, cadmium, iron, manganese and arsenic anomalies. The anomaly is situated proximal to the important Gunsteel Formation shale/Road River Group contact (MacIntyre and Sim, 2008). This is the largest soil anomaly present on the Akie property, but it was not drill tested by Inmet Mining.

- Fluke Ridge Anomaly (now generally referred to as the North Lead Anomaly) is defined by a lead anomaly that measures approximately 200 m by 1,000 m long, with minor internal barium, arsenic and iron anomalies. This anomaly is partially attributed to a nodular barite showing along the ridge and a massive sulphide lens enriched in lead that was intersected in drill hole A-96-24. In general, lead enrichment within the hanging wall shale of drill hole A-96-24 was found to be poor (MacIntyre and Sim, 2008).

- The Cardiac Creek deposit is flanked by two anomalies: a 1,800 m long lead and barium anomaly with minor arsenic, silver, cadmium and zinc along the northwestern end of the deposit, and a 1,600 m to 2,200 m long lead and zinc anomaly with minor barium, cadmium, iron, arsenic and silver anomalies along the southeastern end of the deposit. The southern anomaly was drill tested by Inmet Mining with three holes that intersected minor distal or fringe-style mineralization. The northern extent of this anomaly remains open for testing (MacIntyre and Sim, 2008).

- The Waterfall Barite Anomaly is a barium, lead and manganese anomaly with minor zinc, arsenic, manganese and iron extending primarily from lines 7000S to 7600S at the southeastern end of the Akie property. It is associated with a nodular barite occurrence. This has not been drill tested. This anomaly can be extrapolated to the northwest to line 5200S, although with a weaker signature, which was tested by drill holes A-96-20, A-96-23 and A-96-27. No significant mineralization was intersected (MacIntyre and Sim, 2008).

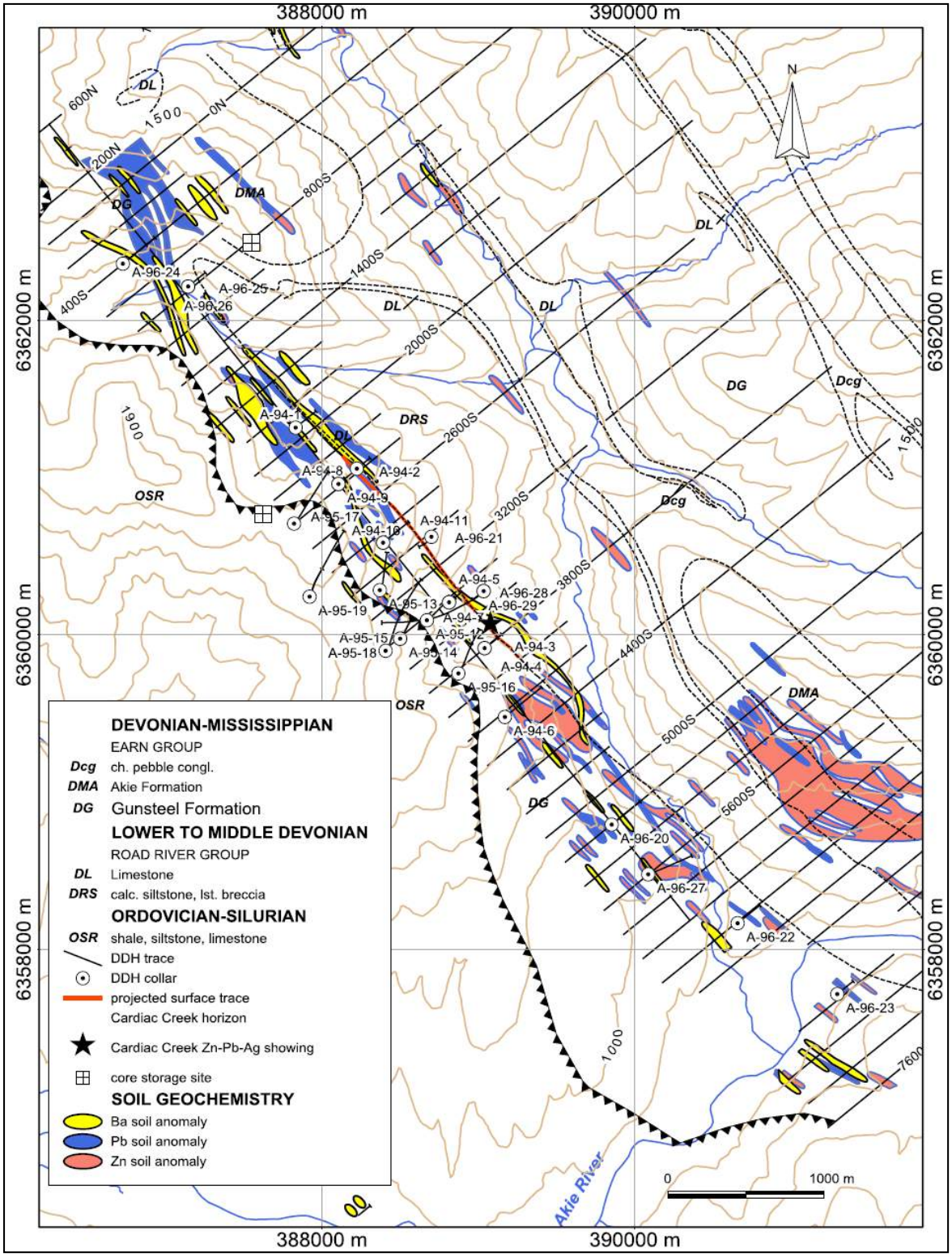


FIGURE 6-1: INMET COMPILATION MAP SHOWING KEY SOIL ANOMALIES, GEOLOGY AND DRILL HOLE LOCATIONS ACROSS THE AKIE PROPERTY (MACINTYRE AND SIM, 2008)

6.3.3 Litho-geochemistry

In association with prospecting, mapping, soil sampling and drilling programs, a total of 284 whole rock litho-geochemical samples were collected from grab rock samples and drill core. Samples were analyzed for major and trace elements using ICP and atomic absorption methods at Min-En Laboratories Limited of Vancouver. This was completed to identify areas of elemental enrichment or depletion due to the interaction of metal-enriched hydrothermal fluids with the host rocks of the Cardiac Creek deposit (MacIntyre and Sim, 2008).

6.3.4 Geophysics

Using the existing cut grid, ground-based geophysical surveys conducted by Pacific Geophysical Ltd. of Vancouver were completed across the mapped panel of Gunsteel Formation shale. This included magnetometer and VLF-resistivity surveys (Baxter, 1995). The magnetic signature was found to be flat across the survey area and no significant anomalies were recognized. The VLF-resistivity survey was able to delineate the approximate lithological contacts between the Gunsteel Formation shale and the Road River Group calcareous siltstone due to the contrast between their individual resistive characteristics (Baxter, 1995).

6.3.5 Drilling

From 1994 to 1996, Inmet Mining completed three separate drilling programs. During this time, 29 holes were drilled totaling 13,551 m; 25 were completed to their intended depths and four were abandoned due to ground conditions or excessive deviation of the drill stem. The details of these drilling programs are summarized in the Drilling Section of this report.

6.4 CANADA ZINC METALS CORP. (2005–2016)

In mid-2005, Canada Zinc Metals Corp. (formerly Mantle Resources Inc.) optioned the Akie property from Ecstall Mining in a bid to acquire 65% ownership. In late 2007, Mantle Resources acquired 100% of the property through acquisition of Ecstall Mining. In early 2008, Mantle Resources was renamed Canada Zinc Metals Corp. (Canada Zinc Metals). Since 2005, the company has been actively defining the Cardiac Creek deposit as well as exploring for additional SEDEX-style mineralization on its extensive land holdings in the Kechika Trough. Exploration programs have consisted primarily of diamond drilling, although geophysics; prospecting and mapping; soil, silt, rock and water sampling have also been conducted across the property. This work will be summarised in Section 9 - Exploration of this report.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 REGIONAL GEOLOGY

The regional geology present in the vicinity of the Akie property has been described in detail by Don MacIntyre in the NI 43-101 report entitled *Geological Report on the Akie Property* prepared for Mantle Resources (now Canada Zinc Metals) in 2005. For a comprehensive review of the geology of the Akie River district, the reader is referred to the 1998 BC Ministry of Energy and Mines Bulletin 103 entitled *Geology, Geochemistry and Mineral Deposits of the Akie River Area, Northeast British Columbia* by Don G. MacIntyre. The following summarizes the information contained within these reports.

The Akie property is situated within the Rocky Mountain fold and thrust belt of northeastern British Columbia and hosted in the central portion of the Kechika Trough. The trough is interpreted to be the southeastern extension of the expansive sedimentary Selwyn Basin bounded by shallow water sedimentary rocks characteristic of the Cassiar (west) and MacDonald platforms (east) (MacIntyre, 1998). The trough is situated along the ancestral continental margin of North America and is host to clastic and carbonate rocks ranging in age from the late Cambrian to late Triassic (MacIntyre, 2005) (Figure 7-1).

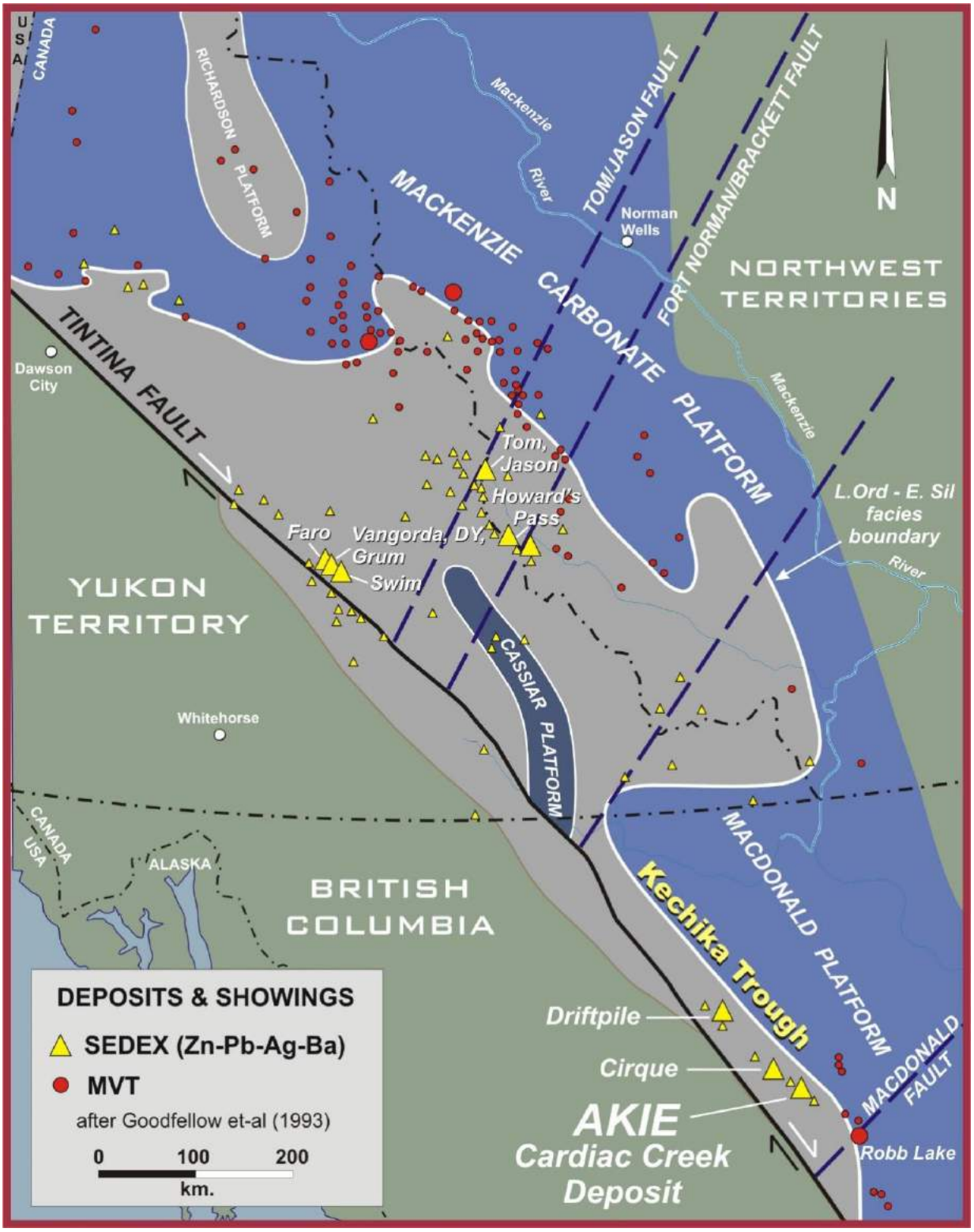


FIGURE 7-1: GEOLOGICAL SETTING OF SELWYN BASIN AND KECHIKA TROUGH (AFTER GOODFELLOW ET AL., 1993)

A generalized stratigraphic column can be seen in Figure 7-2 depicting the key geological units. These units are summarized here. The regional geology and legend can be seen in Appendix 1.

WINDERMERE SUPERGROUP AND GOG GROUP (PROTEROZOIC TO CAMBRIAN)

The oldest rocks exposed in the Kechika Trough are the Proterozoic to early Cambrian coarse-grit units thought to be representative of the Windermere Supergroup and the early to late quartzites and massive limestone correlative to the Gog Group (MacIntyre, 2005). These rocks are not exposed in the vicinity of the Akie property. They are restricted to the northern and northeastern edge of the Kechika Trough and to the immediate west of the property (Gog Group) (MacIntyre, 2005). The grit units of the Windermere Supergroup are thought to act as important aquifers for fluids involved in the formation of sediment and carbonate-hosted lead-zinc-silver deposits of the Selwyn Basin and Kechika Trough (MacIntyre, 2008).

KECHIKA GROUP (CAMBRIAN TO ORDOVICIAN)

A thick, approximately 1,500 m succession of cream-coloured to light-grey weathered, talcy, phyllitic mudstone and wavy-banded nodular (boudinaged) limestone characterize the rocks of the Kechika Group (MacIntyre, 2005; Demerse and Hopkins, 2008). Thin beds of green weathered tuffs (MacIntyre, 2005) and thin felsic dykes have been noted within the Kechika Group rocks which are indicative of volcanic activity during deposition of these rocks. The Kechika Group rocks are prominent in the southern Kechika Trough thinning northwards where they are rare to altogether absent (MacIntyre, 2005). These rocks are common in the western half of the Akie property.

SKOKI LIMESTONE (ORDOVICIAN)

Locally, in the vicinity of Pesika Creek and the Kwadacha River (the southern and eastern sections of the Kechika Trough, respectively), an approximately 500 m thick build up of thinly bedded limestone of Ordovician age overlies the Kechika Group rocks. These rocks are generally absent in the Northern Kechika Trough (MacIntyre, 2005).

ROAD RIVER GROUP (ORDOVICIAN TO EARLY DEVONIAN)

The rocks of the Road River Group unconformably overlie those of the Kechika Group and represent a collection of fine-grained clastics rocks, carbonates and minor volcanics of Ordovician to early Devonian age (MacIntyre, 1998). They are pervasive throughout the Kechika Trough and can be informally broken into three distinct groups: the Lower Road River Group, the Ospika Volcanics and the Silurian Siltstone (MacIntyre, 2008). The Road River Group is thought to represent the transition between platform and basin rocks (MacIntyre, 2008).

The basal unit of the Lower Road River Group comprises a cream, beige to reddish-brown weathered, thin-bedded calcareous siltstone and shale interbedded with minor limestone turbidites and debris flows. This siltstone grades up section into a distinct middle to late Ordovician-aged black graptolitic shale (MacIntyre, 1998). The graptolite fossil assemblage allows for relatively easy differentiation from

the lithologically similar and prospective rocks of the Devonian (MacIntyre, 2008). Locally, the shale is interbedded with black chert horizons in the vicinity of the REB massive pyrite lens in the southern Kechika Trough, and in the east they are locally interbedded with quartz wackes, arenites and pebble conglomerates.

The Ospika Volcanics are present throughout the central Kechika Trough area (Akie River, Paul River and Ospika River) and are represented by a series of discontinuous lenses and beds of green mafic flows, microdioritic sills and orange weathered ankeritic crystal lapilli tuffs that are interbedded with the rocks of the Lower Road River Group. It is suggested that these rocks were emplaced along fault structures bounding the basin due to their orientation of deposition (MacIntyre, 1998). In 2009, a diorite intrusive plug was discovered along the Del Creek which is thought to represent a bounding fault structure and a possible source for the lenses of volcanic rocks found in the area.

The upper Road River Group, represented by an early to middle Silurian Siltstone, unconformably overlies the Ordovician graptolitic black shale (MacIntyre, 2008). At the base, a 0 m to 20 m thick unit consisting of thin-bedded to cross-laminated limestone and dolostone beds is interbedded with laminated grey calcarenite, dark grey dolomitic shale, and minor debris flows. To the east, the limestone/dolostone beds are interbedded with quartz wacke and arenite. This unit is commonly referred to as the Silurian Limestone. The Silurian Limestone is overlain by a 100 m to 500 m thick tan to orange-brown weathered dolomitic thin-bedded to platy siltstone with minor orange weathered limestone and dolostone interbeds. The thicker bedded siltstone is commonly bioturbated, containing worm burrows and feeding trails. Minor graptolites and sponge impressions are present in the thin-bedded to platy sections (MacIntyre, 2008).

The rocks of the Lower Road River Group and the Ospika Volcanics are common in the western half of the Akie property where as the Silurian Siltstone is situated in the central area of the property directly underlying the prospective rocks of the Gunsteel Formation. The youngest unit of the Road River Group is informally recognized as the Paul River Formation (Pigage, 1986) and consists of deep-water marine turbidites comprising black chert, interbedded black shale with limestone debris flows, and rusty weathered, dark grey to brown weathered silty shale and siltstone (MacIntyre, 2008). In the Akie River area, the rusty weathered silty shale partially onlaps the early to middle Devonian Akie and Kwadacha Reefs. These reefs can range up to 200 m thick and are characterized by medium- to thick-bedded micritic to bioclastic limestone interbedded with minor shale beds. Locally, to the east, the reefs are directly overlain by pebble conglomerates (MacIntyre, 2008).

EARN GROUP (MIDDLE DEVONIAN TO MISSISSIPPIAN)

Rocks of the Earn Group conformably overlie those of the carbonate reefs as well as the Silurian Siltstone and are characterized by carbonaceous, siliceous shale, cherty argillite, phyllitic shale and coarse quartzose turbidites of middle Devonian to Mississippian age (MacIntyre, 1998). The Earn Group

has been subdivided into three distinct formations: the Warneford, the Akie and the Gunsteel (Pigage, 1986; MacIntyre, 1998). These rocks are representative of a major marine transgression that halted reef growth, resulting in the onlapping of fine clastic sediments onto the MacDonald platform to the east (MacIntyre, 1998).

The rocks of the Gunsteel Formation are the oldest within the Earn Group of middle to late Devonian age. They weather to a distinctive "gunsteel" blue and are represented by a collection of carbonaceous and siliceous shale, argillite and cherty argillite (MacIntyre, 1998). The Gunsteel Formation is the primary group of prospective rocks within the Kechika Trough hosting the Cirque, Cardiac Creek and Driftpile deposits as well as the Fluke, Elf, Pie and Mount Alcock prospects. Occurrences of laminar pyrite and nodular barite are common and are indicative of the Gunsteel Formation rocks. They are overlain by the Akie Formation characterized by soft, medium to dark grey phyllic shale to silty shale and siltstone which typically weather to a rusty brown, tan or silvery colour (MacIntyre, 1998; Demerse and Hopkins, 2008).

The youngest group of rocks within the Earn Group (the Warneford Formation) are interpreted to be proximal-to-medial turbidites represented by grey weathered chert pebble conglomerates, quartz wacke and siltstone and are intercalated with the soft shale of Akie Formation (MacIntyre, 1998). The rocks of the Earn Group outcrop across the majority of the Akie property.

TRIASSIC SILTSTONE (MISSISSIPPIAN TO TRIASSIC)

The youngest rocks of the Kechika Trough occur in the core of a major northwest-trending synclinorium in the area northwest of the Kwadacha River. They are represented by dolomitic siltstone and limestone similar in character to the Silurian Siltstone but can be differentiated by the presence of Triassic brachiopods (MacIntyre, 1998). This unit is not present on the Akie property.

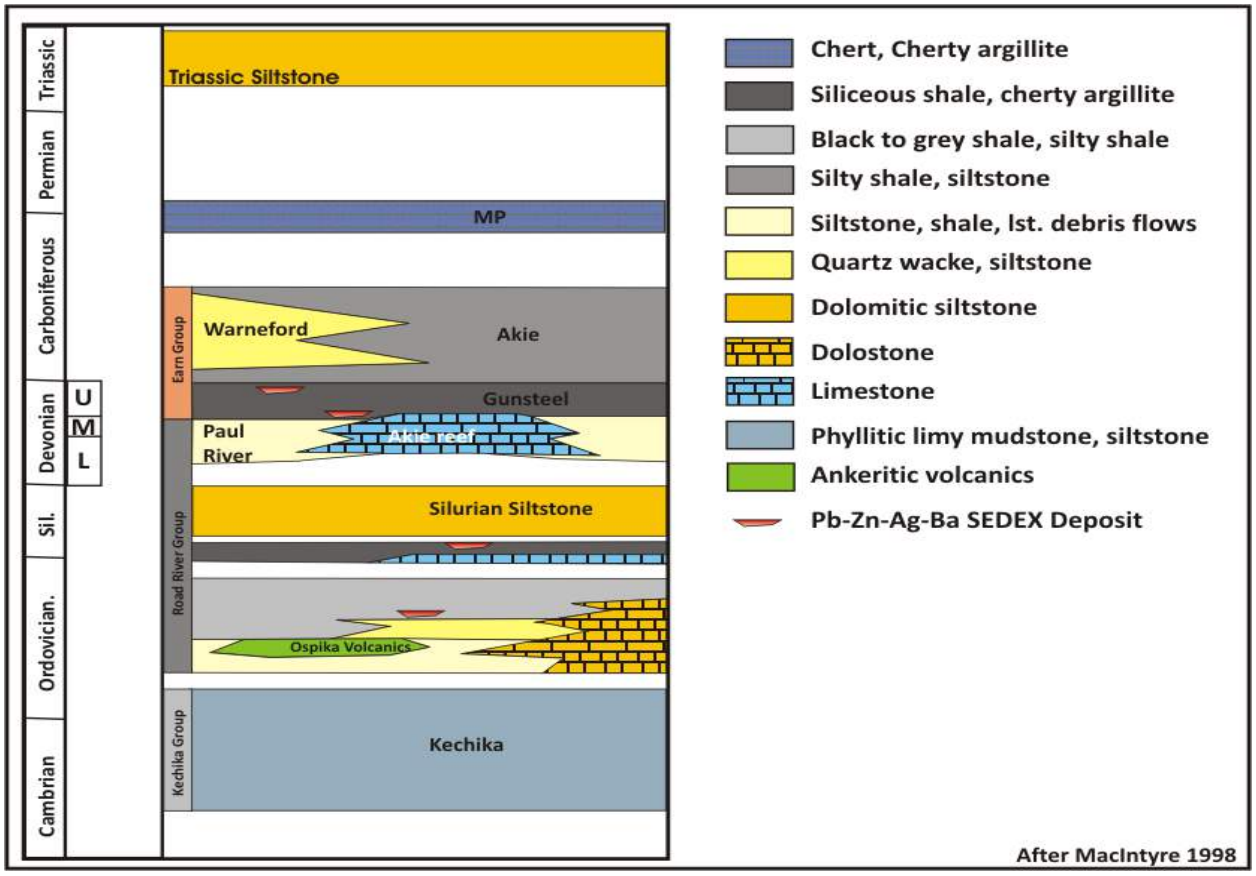


FIGURE 7-2: KECHIKA TROUGH GENERALIZED STRATIGRAPHIC SECTION (AFTER MACINTYRE, 1998)

7.2 REGIONAL STRUCTURE

The following section is an unabridged excerpt from the previous technical report entitled *Geology, Diamond Drilling and Preliminary Resource Estimation, Akie Zinc-Lead-Silver Property, Northeast British Columbia, Canada* by Donald G. MacIntyre and Robert C. Sim (2008). This information remains current and the report can be found at www.sedar.com.

"The linear nature of the geology of the Akie River area reflects the 'thin-skinned' tectonic-style of the Rocky Mountain Fold and Thrust Belt. Northeast-directed compression resulted in detachment of the Paleozoic strata from a rigid crystalline basement and partial stacking of the detached plates along a series of imbricate thrust faults. The thrust plates, which are composed of relatively incompetent basinal facies rocks, have been internally folded during thrusting. In general, incompetent strata below overriding thrust plates have tight isoclinal folds with southwest-dipping axial planes whereas rocks in the overriding plate are asymmetrically folded and often have northeast-dipping axial planes. This style of folding may be related to the development of inversion structures similar to those described by McClay *et al.*, (1989) in the Driftpile Creek area.

The structural-style changes from west to east across the map area. In the west, imbricate, southwest-dipping reverse faults bound asymmetric overturned folds with southwest-dipping to vertical-axial planes. To the east, large-scale upright folds occur within major synclinoriums that are bounded by outward dipping reverse faults that truncate folds within overriding anticlinoriums. Devonian strata are preserved within the synclinoriums. This structural style suggests that high-angle growth faults bounding depositional troughs in Devono-Mississippian time were reactivated during Tertiary compression and became the locus of major thrust faults in the district. That major high-angle thrust faults may be localized along much older crustal breaks is also suggested by close spatial association of Paleozoic mineralization, reef building, coarse clastic fans and volcanism to such faults.

Detailed studies of the structure of the Cirque deposit led to the recognition of two coaxial phases of deformation (Pigage, 1986). The earliest deformation, which is recognizable throughout the study area, includes northwest-trending, tight asymmetric folds that verge northeast and have gently dipping southwest limbs and steep to overturned northeast limbs. The steep limbs are often broken and offset by high-angle reverse faults, resulting in the juxtaposition of Ordovician and Silurian strata against the middle to late Devonian Gunsteel Formation shale. The high-angle reverse faults may coalesce at depth into a major detachment surface possibly rooted in the highly attenuated Kechika Formation. Shale typically has a pervasive slatey cleavage that is axial planar to the macroscopic folds; a closely-spaced fracture cleavage is found in the more competent strata.

The second phase of deformation folds the early slatey cleavage and develops a penetrative crenulation cleavage. This cleavage is axial planar to the late folds, which may have an amplitude of up to 30 m (Pigage, 1986). The folds are open to upright, trend northwest and have northeast convergence.

High-angle listric normal and reverse faults are also common in the Akie River area and generally trend parallel or at slight angles to the major high-angle thrust faults. These faults are probably related to brittle failure of thrust plates during detachment and thrusting. Displacements of up to several hundred metres have been documented at the Cirque deposit (Pigage, 1986).

North to northeast-trending high-angle faults offset earlier thrust and listric normal faults. Some of these faults have a strike-slip movement and may be synthetic shears related to an oblique compressional stress regime. This compressional event is believed to be Tertiary in age."

7.3 PROPERTY GEOLOGY

The geology of the Akie property can be subdivided into east and west segments by Silver Creek. To the west of Silver Creek, the wavy-bedded mudstone with nodular limestone rocks of the Kechika Group, the Ospika volcanics and siltstones, black graptolitic shales, limestones and calcareous siltstones of the Road River Group form a series of southeast-striking, southwest-dipping imbricated thrust panels that are in thrust contact with a thick, approximately 500 m panel of southeast-striking, southwest-dipping

Earn Group rocks comprised primarily of the Gunsteel Formation shales that host the Cardiac Creek deposit. The panel of Gunsteel Formation shales are currently interpreted to represent a limb of a steeply inclined overturned syncline and the steeply dipping western limb of a large anticline that straddles Silver Creek. The Gunsteel Formation shales are underlain by the dolomitic to weakly calcareous siltstones of the Silurian Siltstone of the Road River Group. The siltstone straddles Silver Creek and represents the core of a large anticline central to the property. Along the eastern flanks of the central antiform, the Silurian Siltstone is immediately overlain by medium grey fossiliferous limestone of the Kwadacha Reef containing abundant crinoids, brachiopods, corals and other fossils (MacIntyre, 2008) and outcrops along the eastern banks of Silver Creek.

Erosion of the limestone by the local streams and creeks feeding into Silver Creek from the east has produced steep cliffs and gorges with waterfalls. Locally, immediately overlying the limestone is a thin lens of chert pebble conglomerate containing millimetre- to centimetre-sized grains hosted in a silty shale matrix (Baxter, 1996c). The rocks of the Gunsteel Formation are recognized above this conglomerate unit and are exposed across much of the eastern half of the property, and have been folded into a number of minor synforms and antiforms. Mappable units within the Gunsteel Formation include the “Pinstripe shale” and chert pebble conglomerate. The pinstripe shale is exposed along ridge tops in the central area of the property and is characterized by black silty shale interbedded with thinly bedded, light creamy-grey siltstone (Baxter, 1996c). The eastern edge of the property is bounded by a steep east-dipping thrust fault depositing Road River Group limestone on top of the Earn Group stratigraphy (MacIntyre, 2005).

In general, the geology of the Akie property has been described as a large anticlinorium bounded by outwardly dipping thrust faults (MacIntyre, 1998). Minor thrusting and faulting is observed across the property, each producing an unknown degree of displacement. The geology of the Akie property can be seen in Figure 7-3. Drilling on the Akie property has focused primarily on the rocks of the Gunsteel Formation and, to a lesser degree, those of Akie, Warneford and Paul River Formations, the Silurian Siltstone and other rocks of the Road River Group.

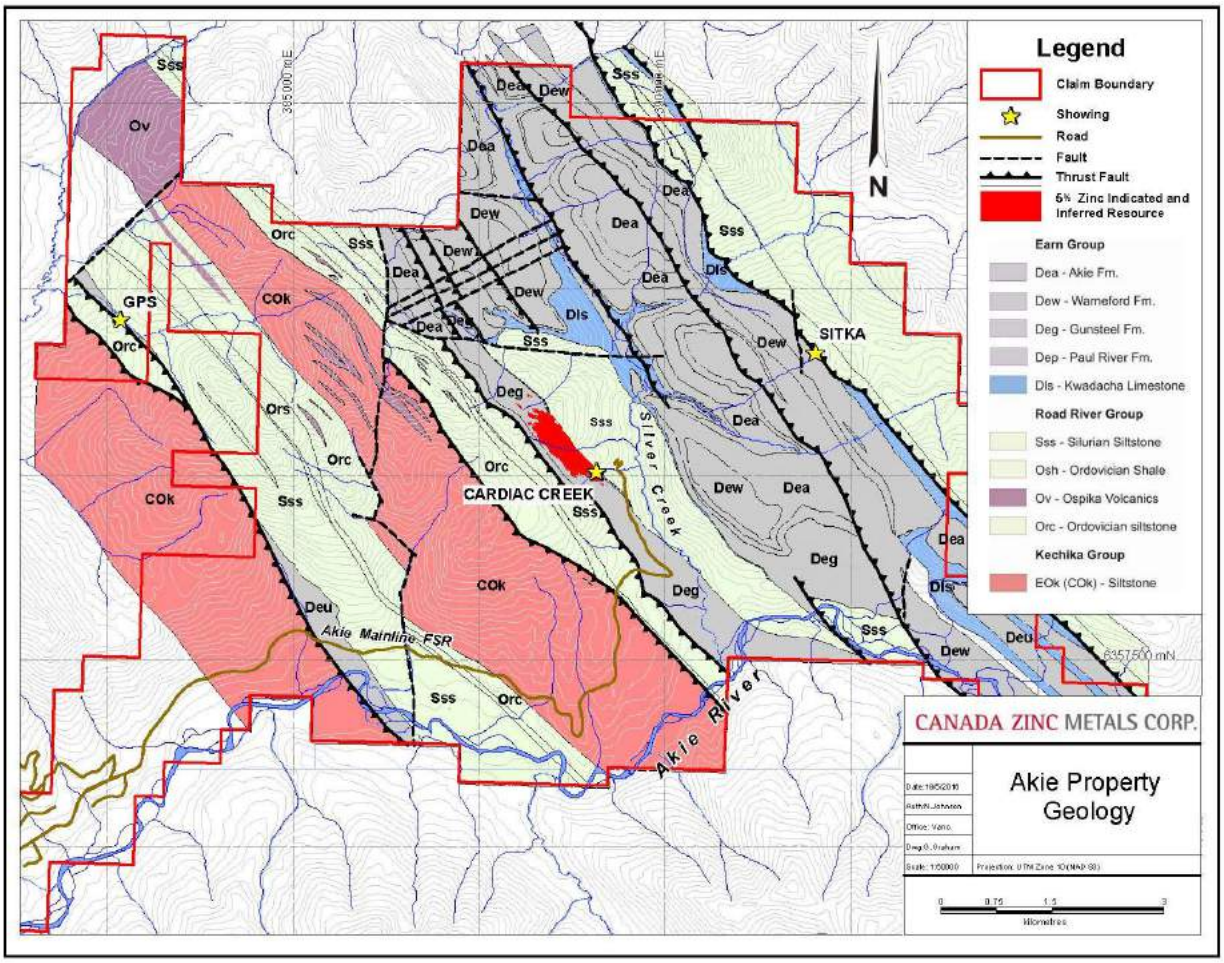


FIGURE 7-3: AKIE GEOLOGY MAP
(CANADA ZINC METALS)

7.4 PROPERTY MINERALIZATION

The following description of the style and character of the Cardiac Creek deposit and the mineralized horizon is an excerpt from the assessment report *Summary Report on the 2015 Diamond Drilling Program, Akie Project, Akie Property* written and compiled by N. Johnson (2016a). It is presented here unabridged with the exception of a few minor edits. The outlined information remains current as of the date this report was issued.

"Discovery of the Cardiac Creek deposit in 1994 (MacIntyre and Sim, 2008; Baxter, pers. comm.) is recent in comparison to other known occurrences of lead, zinc, silver and barium mineralization found within the Kechika Trough. In contrast, the Cirque and Driftpile deposits, as well as the Mt. Alcock, Pie, Fluke and Elf occurrences, were all discovered prior to 1980. The deposit attributes its name to its discovery by Paul Baxter and his exploration team prospecting along Cardiac Creek (Plate 2). Initial drilling programs conducted by Inmet Mining from 1994 to 1996 defined a historical non-NI 43-101 compliant resource of 12 million tonnes @ 8.6% Zn, 1.5% Pb and 17.1 g/t Ag (MacIntyre, 2005). In 2012,

the company updated the maiden 2008 NI 43-101 compliant resource calculation for the Cardiac Creek deposit. The 2012 NI 43-101 compliant resource outlined an Indicated resource of 12.7 million tonnes grading 8.38% Zn, 1.68% Pb, and 13.7 g/t Ag and an Inferred resource of 16.3 million tonnes grading 7.38% Zn, 1.34% Pb, and 11.6 g/t Ag at a cut-off grade of 5% Zn (Sim, 2012). The deposit is centrally located on the Akie property claim block, situated beneath both the Cardiac and Avalanche Creek beds (which drain into the northwest-southeast-oriented Silver Creek) (Figure 4-2).

PLATE 2: CARDIAC CREEK DISCOVERY SHOWING
(MACINTYRE, 2005)

There are two other significant mineral occurrences on the Akie property: the GPS bedded barite showing located on the western edges of the property and the Sitka barite-sphalerite-galena-quartz vein showing located on the eastern edges of the property. The GPS showing consists of a 1 m to 2 m thick bed of massive barite with an approximate strike extent of 50 m to 100 m. It is similar in character to that of the Barite facies observed below the Cardiac Creek deposit (see Section 7.4.6 for a description). The showing is hosted within a thin panel of black shale that is lithologically similar to that of the Gunsteel Formation. The black shale is overlain by calcareous siltstone of the Road River Group. The host black shale is also directly along strike from the Cirque deposit located approximately 10 km to the

northwest. The Sitka showing is a 2 m to 3 m thick barite-quartz vein with variable amounts of disseminated coarse-grained sphalerite and galena (Plate 3). The vein is hosted along the thrust contact between the older Silurian Siltstone of the Road River Group and the prospective black shales of the Earn Group.

PLATE 3: SITKA SHOWING (BARITE-QUARTZ VEIN ±GALENA & SPHALERITE) (JOHNSON, 2014B)

7.4.1 Character

In general, the Cardiac Creek deposit is hosted by the siliceous, carbonaceous black shale of the Gunsteel Formation. The deposit is situated towards the base of the Gunsteel Formation in close proximity to the Gunsteel Formation shale/Road River Group contact and separated by a thin sliver of debris flows and silty shale associated with the Paul River Formation. The deposit is interpreted to be a SEDEX-type lead-zinc-silver body of mineralization. The mineralization is represented by a “sheet-like” tabular body of interbedded sulphides and shale trending northwest-southeast, striking at 130°, dipping at 70° southwest, and ranging in thickness from 5 m to 50 m. The mineralized horizon can be traced over a distance of 7 km from the Bear Valley Creek southeast to the Akie River. The known and potentially economic portion of the deposit has an approximate strike length of 1,950 m with a dip extent of at

least 875 m (Sim, 2012). The sulphide mineralogy of the deposit is relatively simple, dominated by pyrite, sphalerite, and galena with barite (sulphate). Internal company petrological reports have identified a rare occurrence of Stannite (Sn oxide) (Lehne, 1995); however, no systematic petrological study of the mineralogy has taken place. Analytical data collected from drill hole sampling indicate that the Cardiac Creek deposit is enriched in the following suite of elements: Pb, Zn, Ag, Ba, Fe, Cd, Sn, Tl, Hg, S, Pd (?), In, Ga. Mineral Facies

The prospective mineralized horizon associated with the Cardiac Creek deposit can be attributed to several distinct mineral facies present within the Gunsteel Formation stratigraphy: Distal, Proximal, Cardiac Creek Zone (CCZ) and Barite facies (Figure 7-4A). A schematic distribution of mineral facies across the deposit can be seen in Figure 7-4B.

		Facies	General Description
Mineralised Horizon		Distal	10 to 20cm thick bands comprised of thinly laminated pyrite with nodular barite and shale interbedded with generally featureless black massive shale beds. Not always present above proximal facies.
	Cardiac Creek Deposit	Proximal	20 to 60cm thick beds of finely laminated pyrite with lesser nodular barite and minor steel grey sphalerite bands interbedded with pyritic massive black shale beds. Contact with underlying Cardiac Creek Zone very gradational
		Cardiac Creek Zone	20cm to >1m thick beds of steel grey sphalerite, pyrite and galena interbedded with pyritic massive black shale beds. "Mottled" texture indicates high grade Zn, Pb mineralisation. Also host to sub-rounded to angular rip-up clasts.
		Barite	1 to 10m thick beds of offwhite, granular looking, massive barite generally in gradational contact with the Cardiac Creek Zone and host to minor pyrite, sphalerite and galena mineralisation. Character can change from massive to laminar/nodular to nodular bedded barite.

FIGURE 7-4A: MINERAL FACIES ASSOCIATED WITH THE CARDIAC CREEK DEPOSIT (JOHNSON, 2011)

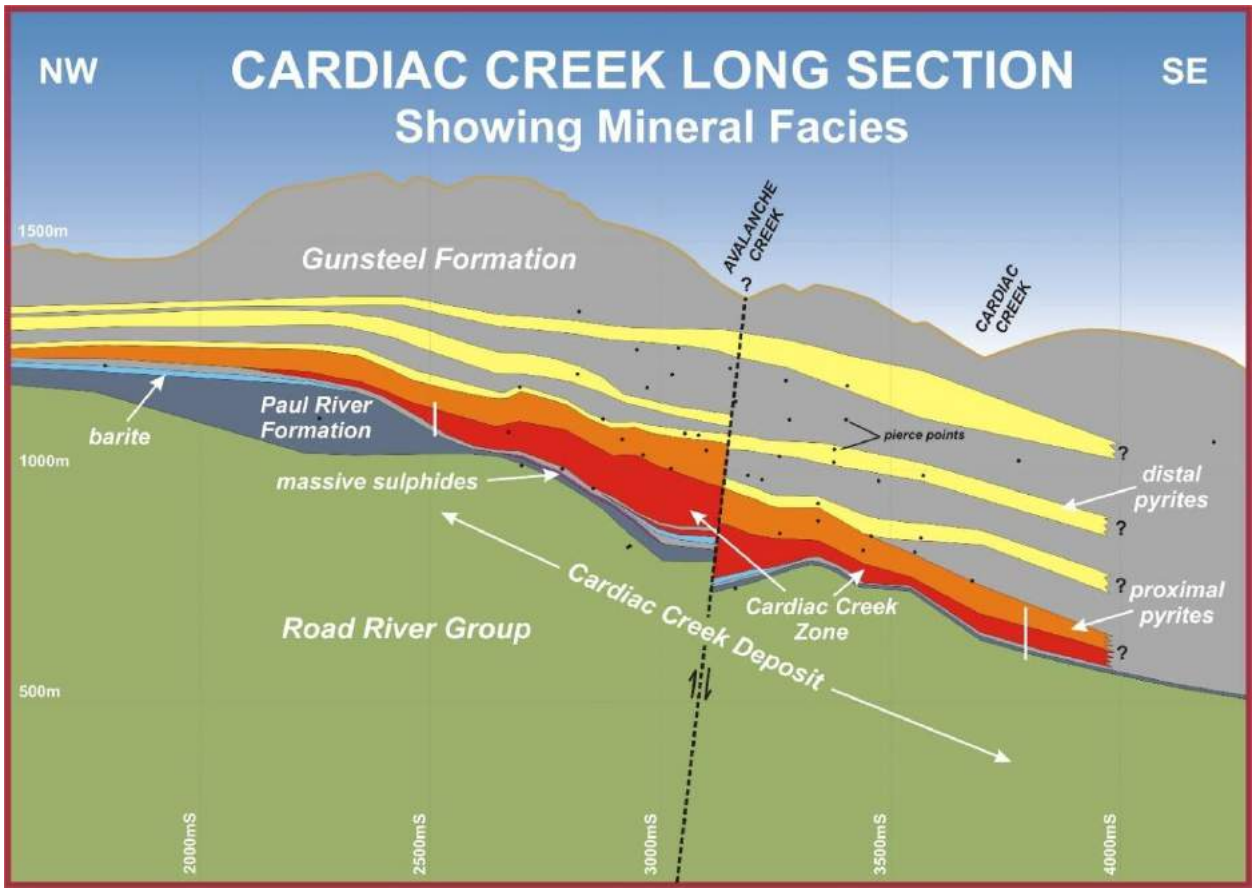


FIGURE 7-4B: SCHEMATIC DISTRIBUTION OF MINERAL FACIES ACROSS THE CARDIAC CREEK DEPOSIT (JOHNSON, 2016A)

7.4.2 Distal Facies

The Distal facies is interpreted to represent the distal expression of the deposit both in the immediate hanging wall and along strike. This facies is represented by 10 cm to 20 cm thick bands individually comprised of interbedded, thinly laminated, fine-grained, dull-brown pyrite, black shale and off-white nodular barite (commonly replaced by carbonate and brassy yellow euhedral pyrite) interbedded with generally featureless black Gunsteel Formation shale (Plate 4). The facies can vary significantly in thickness from less than 5 m to more than 100 m. The overall sulphide content ranges from 5% to 15%, and zinc and lead grades reach < 0.1% to 0.5%, and < 0.1%, respectively and the facies is not always present in the immediate hanging wall or along strike to the deposit. Several additional horizons of identical character have been recognized further into the hanging wall and are interpreted to represent separate mineral horizons possibly post-dating the Cardiac Creek mineral horizon.

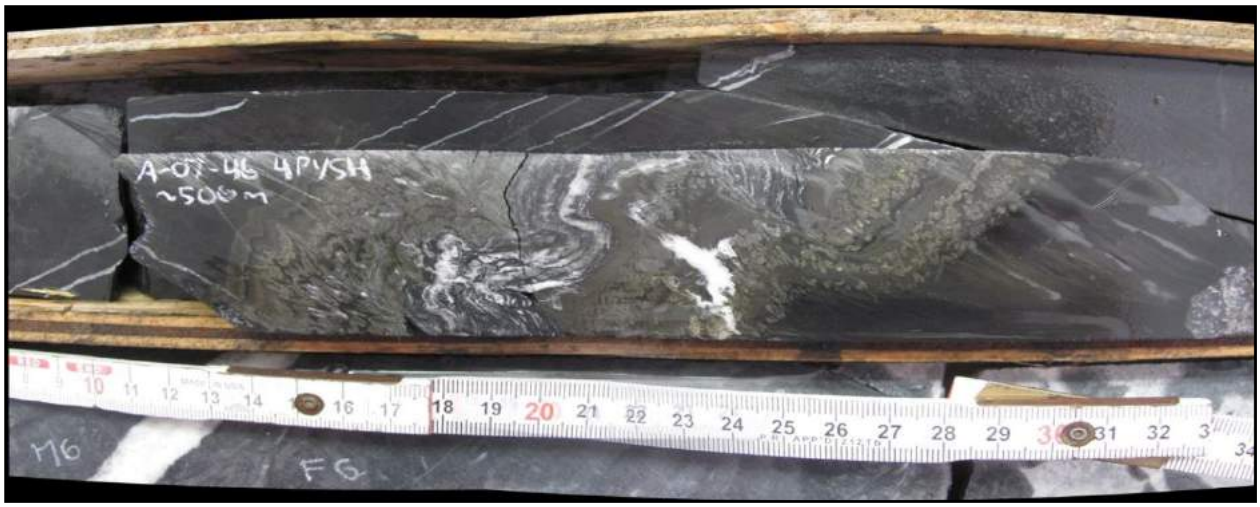


PLATE 4: LAMINATED PY AND NODULAR BA INTERBEDDED WITH SHALE REPRESENTATIVE OF DISTAL FACIES MINERALIZATION IN A-07-46 @ 506.00 M (JOHNSON, 2011)

7.4.3 Proximal Facies

The Proximal facies is interpreted to represent the upper portion of the deposit and consists of 20 cm to 60 cm thick, internally laminated, very fine-grained, dull brown pyrite beds with very minor amounts of nodular barite (generally sub-millimetre and replaced by carbonate and brassy yellow pyrite) interbedded with featureless pyritic massive black shale beds (Plate 5). The appearance and concentration of steel grey sphalerite bands increases towards the base of the Proximal facies with a very gradational boundary between the Proximal and Cardiac Creek Zone facies (Plate 6). The determination of this boundary is subjective, but in general it is marked by the substantial increase in sphalerite banding within the pyrite beds. The facies ranges in thickness from 5 m to 30 m in which the overall sulphide content reaches 30% to 50%. Zinc and lead grades are on the order of 0.5% to 3% and up to 0.5%, respectively.

PLATE 5: INTERBEDDED PY AND SHALE REPRESENTATIVE OF THE PROXIMAL FACIES IN A-07-46 @ 619.40 M (JOHNSON, 2011)

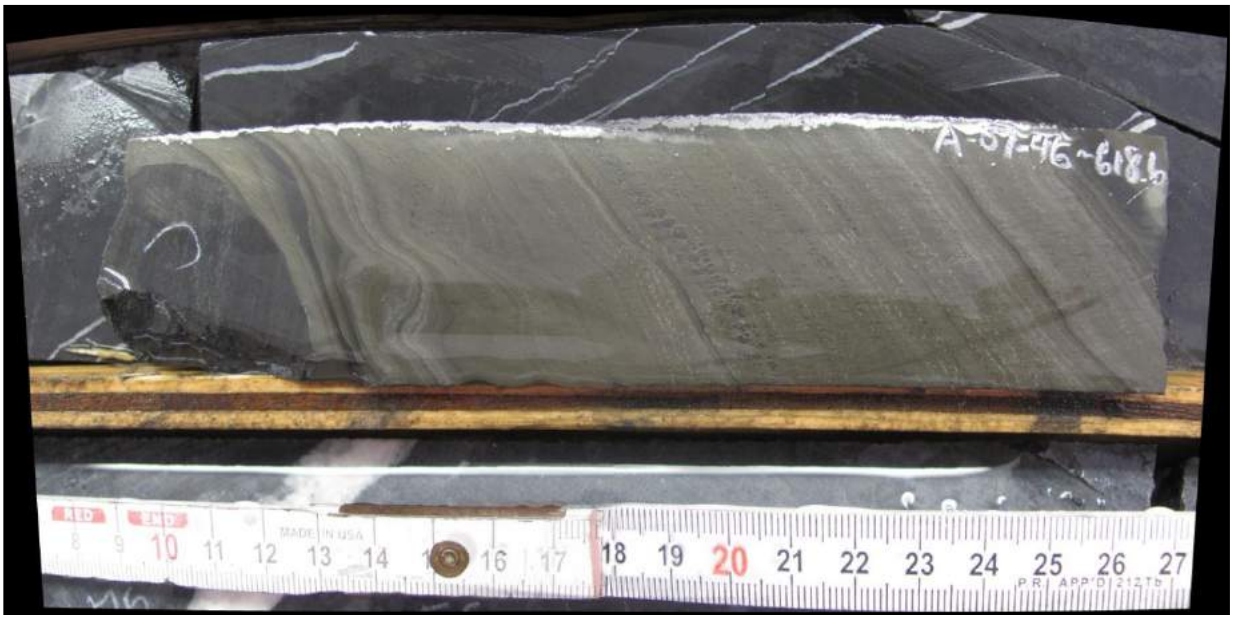


PLATE 6: BEDDED PY WITH MINOR SPHALERITE BANDS WITHIN PROXIMAL FACIES FROM A-07-46 @ 618.60 M (LAMINATED RIP-UP CLAST PRESENT ON THE LEFT SIDE OF THE DRILL CORE) (JOHNSON, 2011)

7.4.4 Cardiac Creek Zone Facies

The Cardiac Creek Zone facies represents the lower segment of the deposit and consists of 0.30 m to 2.0 m thick sulphide beds internally comprised of: laminated very fine-grained, dull-brown pyrite; very fine-grained steel-grey sphalerite bands with minor galena; and barite interbedded with generally featureless, pyritic, black Gunsteel Formation shale beds. The facies range in thickness from 5 m to 40 m, and sulphide content reaches 50% to 70%, with zinc, lead and silver grades of 3% to 30%, 1% to 5%, and 5 g/t to 30 g/t, respectively. Higher grade zinc and lead mineralization is associated with a "mottled" texture hosted within the sphalerite bands (Plate 7). Similar to the upper, the lower contact is gradational with the Barite facies (Plate 8). Also hosted within the facies are numerous angular to sub-rounded, bedded, light grey white to dark grey clasts interpreted to represent rip-up clasts deposited within the sulphide beds (Plate 6).

PLATE 7: HIGH GRADE SPHALERITE MINERALIZATION DISPLAYING "MOTTLED" TEXTURE IN CARDIAC CREEK ZONE FACIES IN A-07-47 @ 375.60 (JOHNSON, 2011)

PLATE 8: HIGH-GRADE SPHALERITE MINERALIZATION DISPLAYING MOTTLED TEXTURE INTERBEDDED WITH GRANULAR BA BEDS IN A-10-73B @ 617.40 M (JOHNSON, 2011)

7.4.5 Barite Facies

The deposit is underlain by the Barite facies (Figure 7-5). This facies changes in character across the deposit from thickly bedded (1 m to 10 m) off-white, granular, massive beds of barite interbedded with minor pyrite, sphalerite and or galena (Plate 9), to thinly-bedded barite with nodular barite, to strictly nodular barite with little to no sulphide mineralization. The zinc, lead and silver grades vary substantially depending on the sphalerite or galena content.

PLATE 9: MASSIVE GRANULAR BARITE BED (WITH MINOR PYRITE BROWN) IN A-07-50 @ 574.30 M (JOHNSON, 2011)

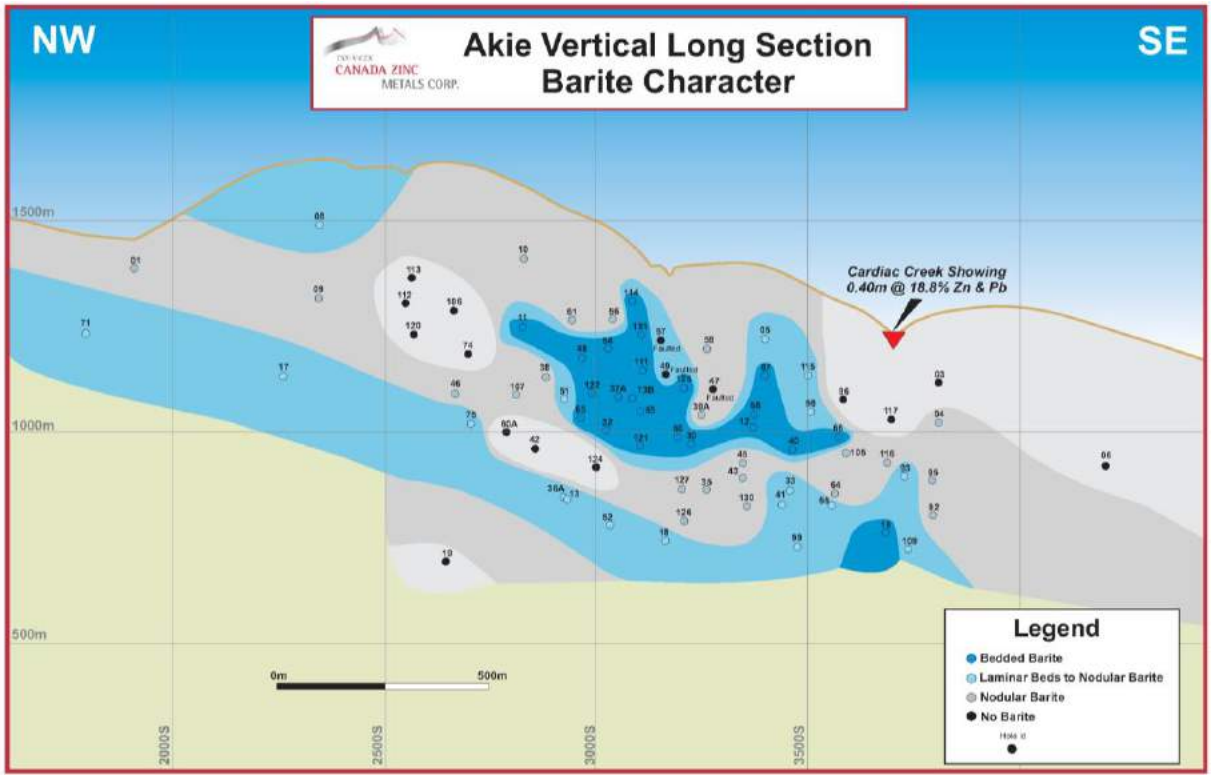


FIGURE 7-5: BARITE FACIES CHARACTER ACROSS THE DEPOSIT (CANADA ZINC METALS)

7.4.6 Vent-Proximal Characteristics

The Cardiac Creek deposit is underlain by features that are suggestive of its proximity to a possible hydrothermal vent, such as thin, crudely layered, semi-massive sulphide lens, sulphide replacement of the Paul River debris flow, and silicification, sulphide stringers and breccias, carbonate veining, barite needles and laths present within the immediate footwall rocks of the Road River Group siltstone (Plates 10 and 11). These features are generally concentrated across the core of the deposit with a rough correlation to the higher grade material (Figure 7-6).

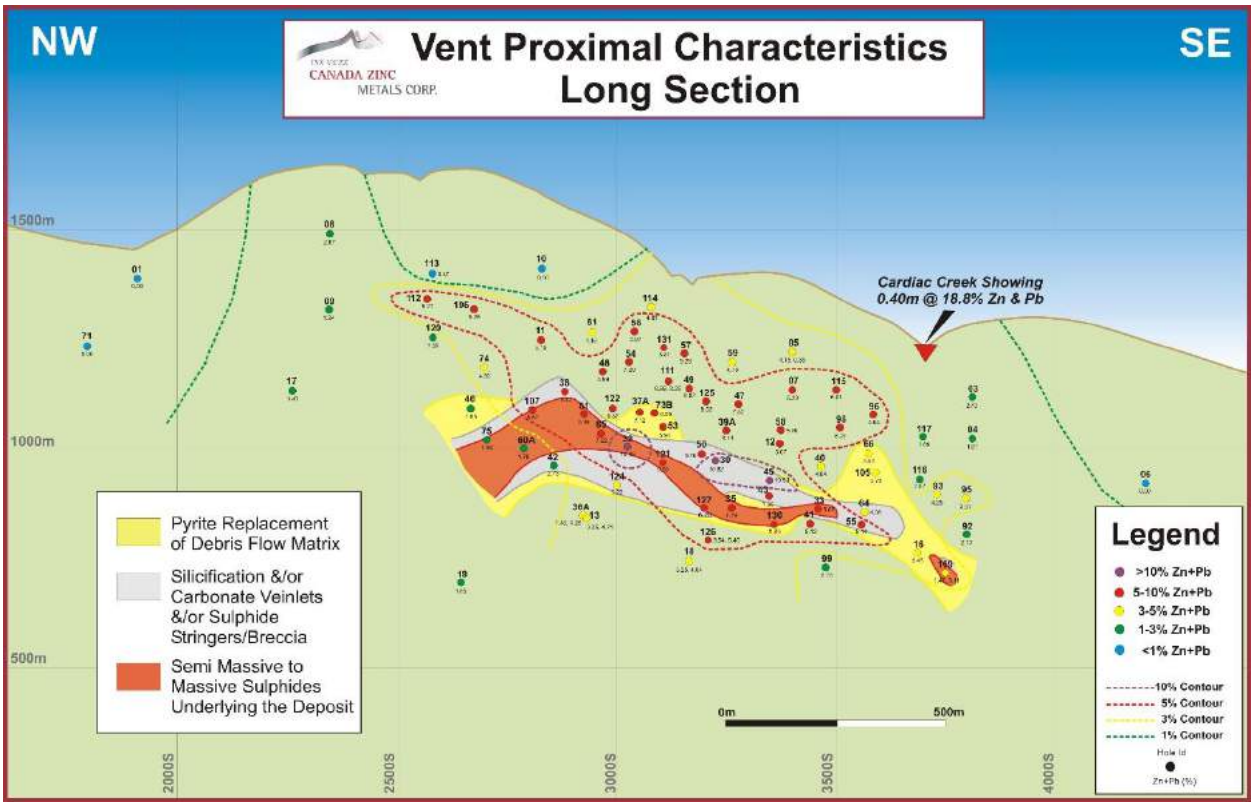


FIGURE 7-6: LONG-SECTION VIEW ACROSS THE CARDIAC CREEK DEPOSIT
(VENT ZONE FEATURES YELLOW: PYRITE REPLACEMENT OF DEBRIS FLOW, GREY: SILICIFICATION, SULPHIDE STRINGERS AND SULPHIDE BRECCIAS IN CALCAREOUS SILTSTONE, ORANGE: MASSIVE SULPHIDE LENS)
(JOHNSON, 2016A)

PLATE 10: SILICIFICATION AND CARBONATE VEINING CONTAINING SPHALERITE IN ROAD RIVER ROCKS IN A-08-63 @ 484 M
(JOHNSON, 2011)

PLATE 11: SPHALERITE-RICH SULPHIDE BRECCIAS IN ROAD RIVER ROCKS IN A-08-63 @ 479 M (JOHNSON, 2011)

8 DEPOSIT TYPES

The Cardiac Creek, Cirque, Driftpile deposits and other lead-zinc-silver occurrences within the Kechika Trough are characterized as sedimentary exhalative (SEDEX) type deposits. The following is a general summary of this deposit type and its characteristics. For a detailed review of SEDEX deposits, the reader is referred to the excellent overview paper of Canadian SEDEX deposits by Wayne D. Goodfellow and John W. Lydon, *Sedimentary Exhalative (SEDEX) Deposits* from the publication *Mineral Deposits of Canada: A Synthesis of Major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods* by the Geological Association of Canada, Mineral Deposits Division, Special Publication No. 5., 2007.

The lead-zinc-silver-barium deposits and occurrences found within the Kechika Trough (Cirque, Driftpile and Cardiac Creek), as well as the deposits and occurrences in the Selwyn Basin (Howards Pass, Tom, Jason, Faro and Grum), the Belt-Purcell District (Sullivan), and in Australia (HY, Century, Mount Isa and Broken Hill) and the Brookes Range in Alaska (Red Dog) all share common characteristics and are typically grouped as SEDEX deposits (Goodfellow and Lydon, 2007). The SEDEX deposit type was first proposed by Carne and Cathro (1982) in their early description of the Selwyn Basin and Kechika Trough deposits. This type of deposit shares many similar characteristics with VMS (volcanogenic massive sulphide) and MVT (Mississippi Valley Type) deposits suggesting a shared genetic link (Goodfellow and Lydon, 2007).

Much research has been completed on this type of deposit examining the geological characteristics, genetic models and the physiochemical controls (MacIntyre, 2008). From this work, a general consensus concerning the formation of SEDEX deposits has been made. It is generally agreed that SEDEX deposits are formed from the precipitation of sulphide and sulphate minerals from metalliferous brines exhaled out onto the seafloor along re-activated rift faults that generate rapidly subsiding graben or half-graben structures (MacIntyre, 2008; Goodfellow and Lydon, 2007). However, recent work by Gadd *et al*. (2015) on the Howards Pass deposit in the Selwyn basin is beginning to test this theory which may not apply to all SEDEX deposits in the Selwyn Basin and or Kechika Trough. The metal-bearing fluids are likely derived from dewatering of fine- to coarse-grained clastic sediments or carbonate hydrothermal reservoirs (Goodfellow and Lydon, 2007) where leaching has scavenged the zinc and lead and other elements (Figure 8-1). In the Selwyn Basin and the Kechika Trough, the coarse clastic grits of the Windermere Super Group are thought to have acted as the hydrothermal reservoir for the mineralizing fluids (MacIntyre, 2008).

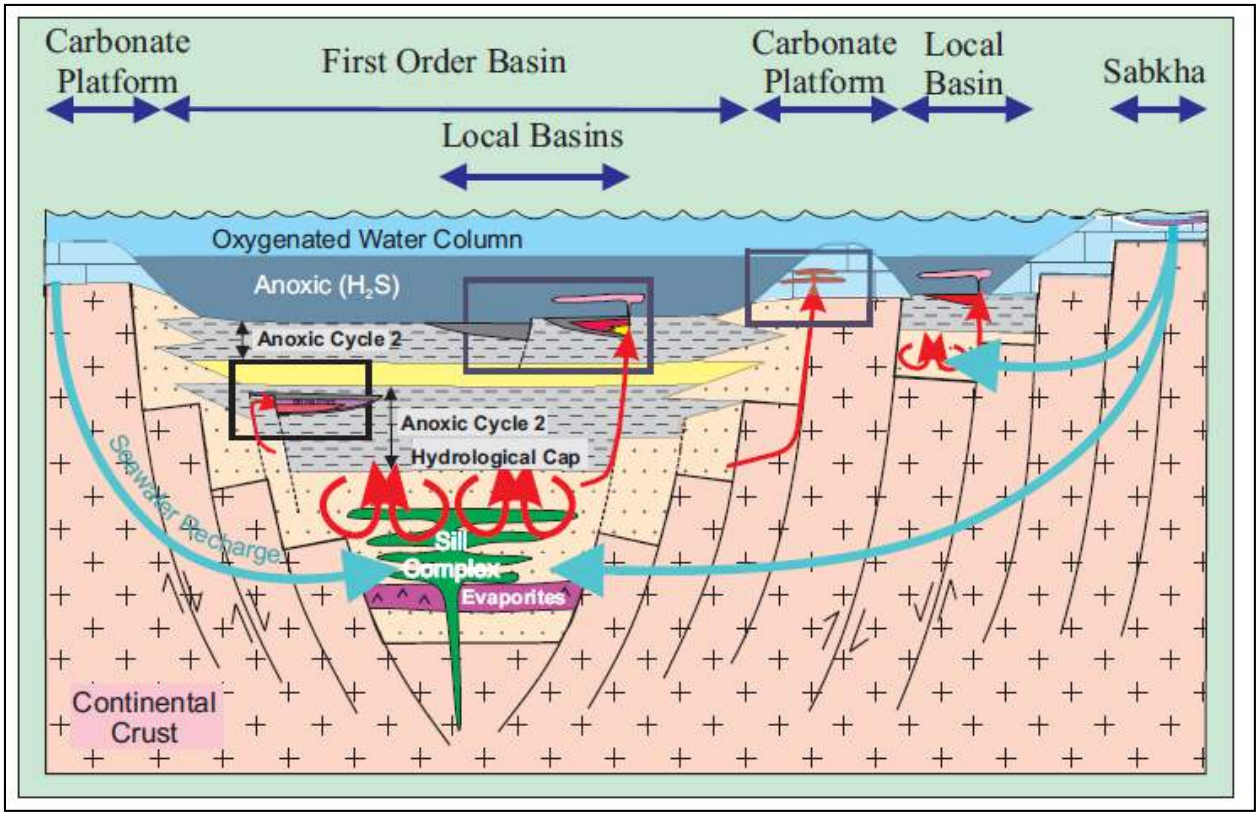


FIGURE 8-1: GENETIC MODEL OF SEDEX DEPOSIT FORMATION (GOODFELLOW AND LYDON, 2007)

Goodfellow and Lydon (2007) recognized two sub-types of SEDEX deposits: vent-proximal and vent-distal. The two types of deposits result from either a buoyant metalliferous brine that precipitates sulphides in close proximity to the source fault structure or a bottom-hugging brine that precipitates sulphide mineralization within localized third order basins at a distance from the source fault structure (Figure 8-2). Examples of the vent-proximal deposits include Sullivan, Tom, Jason and Rammelsberg and are characterized by four distinct features, including bedded sulphides, a recognized vent complex, a stringer zone, and distal hydrothermal sediments (Goodfellow and Lydon, 2007). Vent-proximal deposits are typically wedge-shaped, exhibiting a moderately high aspect ratio of length versus thickness.

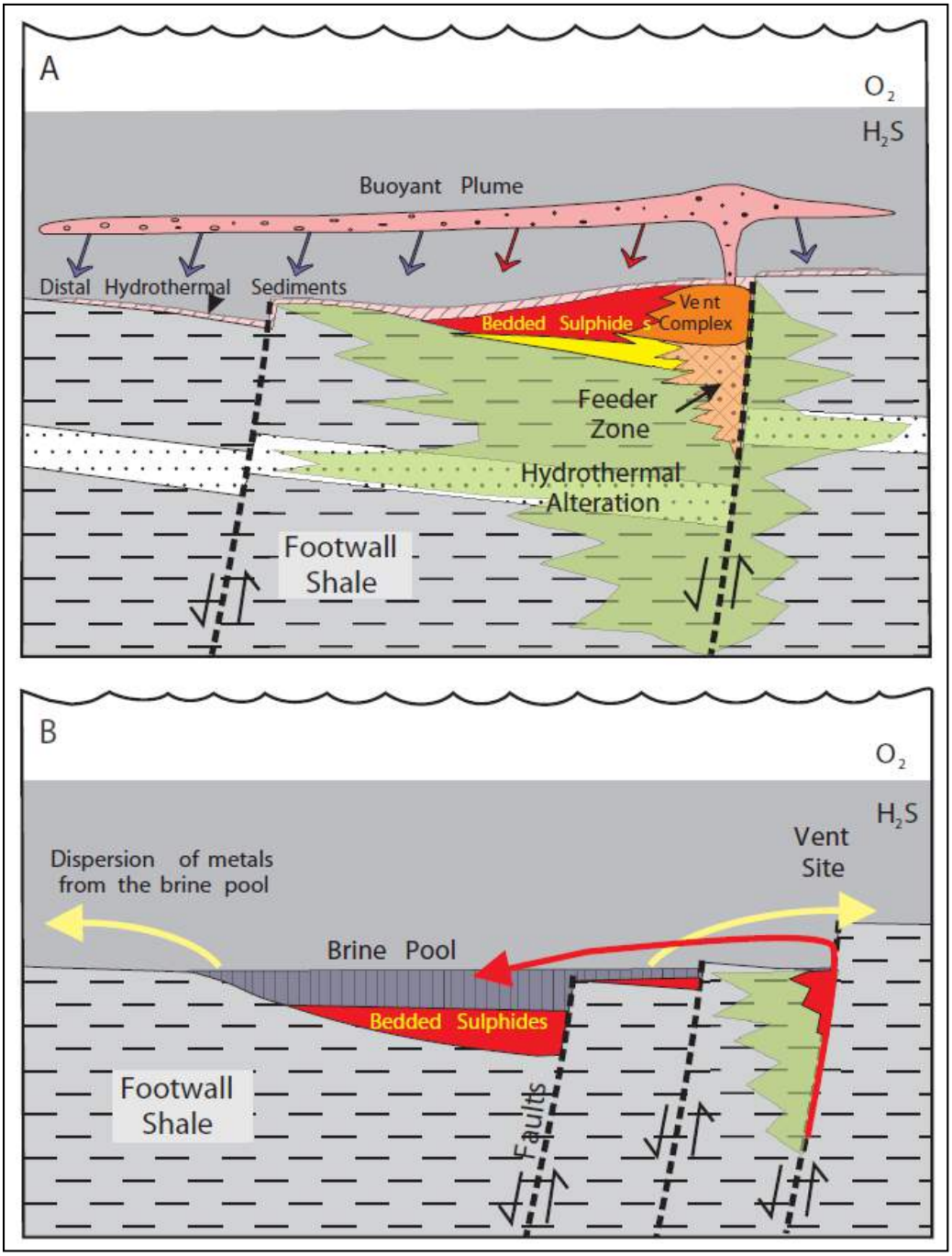


FIGURE 8-2: VENT-PROXIMAL AND VENT-DISTAL SUB-TYPES OF SEDEX DEPOSITS (GOODFELLOW AND LYDON, 2007)

In contrast, vent-distal deposits have well-bedded sulphides, are generally weakly zoned and their morphology conforms to the local basin. This type of deposit is typically tabular to sheet-like in nature with very high aspect ratios (Goodfellow and Lydon, 2007).

SEDEX deposits are commonly hosted in basinal marine sediments such as fine-grained clastics, carbonaceous chert and shale representing pelagic sediments. In some cases, the shale can be interbedded with turbiditic siltstone and sandstone and localized coarse-grained sediments (Goodfellow and Lydon, 2007).

The mineralogy associated with this type of deposit is generally simple with pyrite, sphalerite, galena and barite being most common. Associated with these minerals are a suite of elements that may include: As, Bi, Ca, Cd, Co, Fe, Ga, Hg, In, Mn, Ni, P, Sb, Se, Sn, and Tl (Goodfellow and Lydon, 2007). The gold content of SEDEX deposits is quite low; however, deposits found in Anvil district of the Yukon (Vangorda, Dy) district contained mineable grades of the precious metal (Goodfellow and Lydon, 2007). These elemental enrichments commonly exhibit a refined zonation across many of the deposits allowing specific ratios to be used as exploration tools guiding exploration towards possible source vents and economic deposits (Goodfellow and Lydon, 2007). Common metal ratios include: Zn/Pb, Pb/Ag, Cu/(Pb+Zn), Pb/(Pb+Zn), Fe/Zn, Ba/Zn and SiO2/Zn (Goodfellow and Lydon, 2007).

9 EXPLORATION

Early exploration activities conducted by Inmet Mining from 1994 to 1996 are summarized in Section 6 - History. Exploration activities completed by Canada Zinc Metals , apart from the drilling which is documented in Section 10 - Drilling, included geological mapping, prospecting, soil and rock sampling, geophysics and an orientation hydrogeochemical sampling program. These activities contributed to a more thorough understanding of the regional setting of the Gunsteel Formation on the Akie property and provided some interesting locations for a more detailed follow-up exploration.

9.1 HYDROGEOCHEMICAL SAMPLING

In 2011, a total of 14 water samples were collected on the Akie property as part of an orientation study for major and trace elements in stream waters. Samples were collected from both the Akie and Pie properties. This study was designed to determine the effectiveness and applicability of field-testing for barium sulphate in stream water samples as a possible indicator for nearby SEDEX mineralization (Caron, 2007). The levels of barium sulphate in each sample were measured qualitatively in the field, and quantitatively in the laboratory.

This study returned anomalous values of SO_4 (between 50 mg/L and 100 mg/L) downstream from the GPS bedded barite showing (Sa# 860613) as expected; however, the sample (Sa# 860605) taken downstream from the Cardiac Creek showing, returned a nominal value of SO_4. However, sample # 860605 returned the highest concentrations of zinc at 130.6 ppb and thallium at 0.10 ppb. Key results from the 2011 orientation survey are listed in Table 9.1. Both the qualitative approach and laboratory analysis reconcile sufficiently to suggest accuracy in the analytical results. Further work is required to assess the viability of this technique as a potential exploration method for SEDEX mineralization on the Akie property and in the Kechika Trough.

Based on the results from the 2011 orientation survey the program was expanded in 2012 to include a number of the Kechika Trough properties, including additional sampling on the Akie property. A total of 121 samples were collected as part of the program of which 27 samples were from the Akie property (Figure 9-1). The 2012 program focused on obtaining a potential geochemical signature associated with known deposits and key showings with samples being taken immediately upstream and downstream as well as identifying new areas of interest for future exploration. On the Akie property creeks downstream of the Cardiac Creek showing, the GPS bedded barite showing and the Elf showing were all sampled. The sampling demonstrated that immediately downstream of the Cardiac Creek showing indicated elevated values of Ba, Ca, Cu, K, Na and Tl. Slight increases of Mg, Pb, Sb, Si, Sr and U were also observed. Compiling the results from all the known showings indicated that a possible geochemical signature might involve elevated values of the following elements:

Ba, Pb, Rb, Sb, Sr, U +/- Cu, P, Tl, SO4

The program also produced lower than expected zinc values downstream of the known showings or deposits. It was found that zinc appeared to be an excellent vector to guide exploration to a general area rather than a specific drainage for further exploration (Johnson 2013).

TABLE 9.1: 2011 BASELINE WATER SAMPLING PROGRAM RESULTS

Comparison of Field, Colormeter and Analysis of S0$_4$ Water Samples																
	S04 Concentration															
	Hach Method 8051		Ion Chromatography													
Sample #	Field Ob (mg/L)	Colorimeter (mg/L)	ACME Labs (mg/L)	Certificate #	Ba (ppb)	Zn (ppb)	Cu (ppb)	Mn (ppb)	Ni (ppb)	Co (ppb)	Tl (ppb)	La (ppb)	Pb (ppb)	Ag (ppb)	As (ppb)
860601	20+	22	19	VAN11005190	62.89	<0.5	0.3	<0.05	<0.2	<0.02	<0.01	<0.01	<0.1	<0.05	<0.5
860602	50+	56	44	VAN11005190	66.38	<0.5	0.4	0.18	<0.2	0.03	<0.01	<0.01	<0.1	<0.05	<0.5
860604	50+	54	42	VAN11005190	72.53	1.6	0.4	0.38	0.2	<0.02	<0.01	<0.01	<0.1	<0.05	<0.5
860605	50+	51	45	VAN11005190	90.37	130.6	0.8	1.10	6.7	0.04	0.1	<0.01	<0.1	<0.05	<0.5
860607	20+	44	35	VAN11005190	111.89	12.5	0.6	0.19	3.9	0<0.02	0.01	<0.01	<0.1	<0.05	<0.5
860608	20+	53	53	VAN11005190	106.37	87.1	0.6	1.38	12.2	0.15	0.06	<0.01	<0.1	<0.05	<0.5
860609	20+	43	37	VAN11005190	68.51	4.8	0.4	0.13	<0.2	<0.02	<0.01	<0.01	<0.1	<0.05	<0.5
860613	100+	83	86	VAN11005190	79.90	1.5	0.7	0.14	2.3	0.03	<0.01	<0.01	<0.1	<0.05	<0.5

Note: Samples were prepared in the field by field staff using Hach method 8051. SulfaVer® 4 reagent (BaCl) added to 10 ml WQ sub-sample in a Hach 10 ml sample.

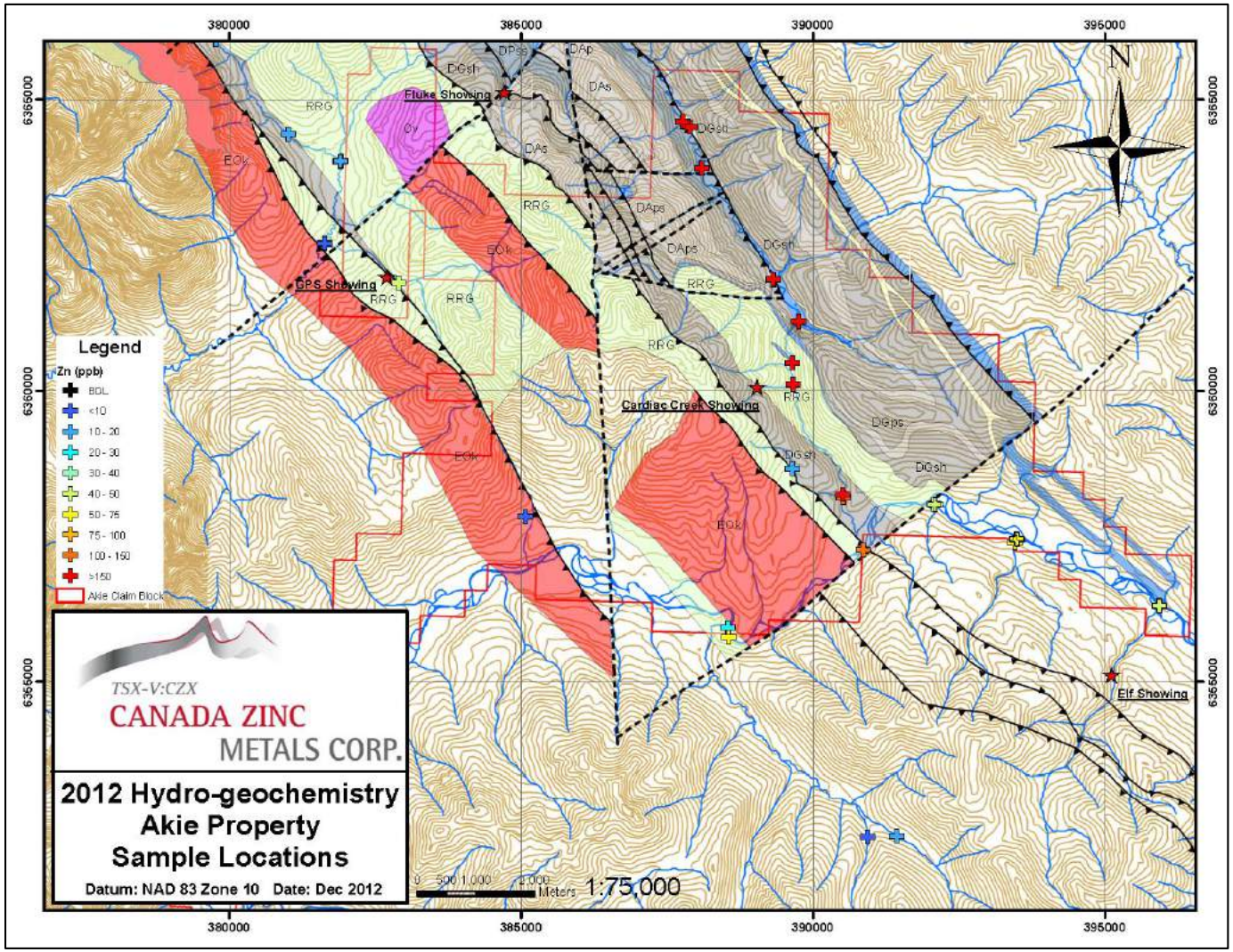


FIGURE 9-1: 2012 WATER SAMPLING PROGRAM, AKIE PROPERTY (JOHNSON, 2013)

9.2 PROSPECTING AND MAPPING

In 2008 and 2009, mapping was completed across the property at a 1:10,000 scale. Traverses were generally restricted to the ridgelines and creeks where outcrops generally occur on the property. This work resulted in incremental gains in the understanding of the geology and built on the work done by Inmet Mining, and the final interpretation was similar. No additional occurrences of Cardiac Creek-style mineralization were discovered during the mapping; however, numerous iron seeps were identified along Silver Creeks. In 2009, prospecting on the northwestern edges of the property discovered a thin panel of black shale hosting a bedded barite occurrence named the GPS showing. This panel of black shale is situated directly along strike from the Cirque deposit (to the northwest) and has been tentatively identified as Gunsteel Formation shale. In 2013, additional mapping focused on the eastern side of the Akie property and the southeast strike extension of the GPS showing to better understand the geology where little to no mapping had been completed. The mapping along strike at the GPS showing tentatively identified a strike extension of the western panel of Earn Group rocks, and mapping on the eastern side of Silver Creek better defined the geology along the eastern edges of the Akie property, specifically the contact between the Earn Group stratigraphy that is in thrust contact with older Road River Group rocks. Additionally, a sphalerite, galena-bearing barite-quartz vein named the Sitka showing was discovered along the thrust contact between Earn Group rocks and the Silurian Siltstone. The geology of the Akie property can be seen in Figure 7-3.

9.3 ROCK AND LITHO-GEOCHEMICAL SAMPLING

As part of the mapping and prospecting programs, a total of 65 rock samples were taken across the property (including channel samples), but the primary focus was the area surrounding the GPS bedded barite showing. The channel samples that transected the barite showing returned expected barium values ranging from 3.75% to 38.29% and highly anomalous lead and zinc values of up to 149.77 ppm and 3,263 ppm, respectively. Rock sampling in close proximity to the barite showing to the northwest returned consistently anomalous zinc values over 1,000 ppm and ranging up to > 1%. This sampling is also associated with elevated lead and thallium values ranging up to 157.55 ppm and 4.41 ppm, respectively. This anomaly remains open to the northwest.

In addition to grab and channel sampling, drill hole A-07-47 was selected for litho-geochemical sampling. A total of 354 samples were taken down the entire length of the hole and analyzed for major and trace elements to identify a possible alteration signature and determine suites of elements that are either enriched or depleted through the stratigraphy. This work indicated that Zn, Pb, Ag, Ba, Cd, Fe, Sn, Tl, Hg, S, Mg, Mn, Ga, Ge and In are enriched elements associated with the deposit, while La, Ce, Bi, Si, and C appeared to be depleted.

In 2011, a total of nine rock samples were collected on the Akie property from select locations. There were no significant results obtained from these samples, and they did not delineate any obvious trends or geochemical patterns.

The discovery of the Sitka showing in 2013 (Plate 3) prompted channel sampling on the showing to be completed. A total of seven channels were cut into the showing and 23 samples were collected (Figure 9-2). The channel samples were highly anomalous in zinc with grades ranging up to 5.12% Zn with values consistently in excess of 2,000 ppm Zn. Both lead and silver grades were elevated with one sample, returning grades of 3.72% Pb and 9,442 ppb Ag (Johnson, 2014b). Prospecting in the vicinity resulted in the discovery of additional narrow barite-quartz veins enriched with both galena and sphalerite hosted within the fossiliferous limestones of the Kwadacha Limestone and in close proximity to the limestone/Earn Group contact. A total of 35 additional grab samples were taken. These grab samples returned some highly anomalous lead and zinc grades, with values reaching 48.95% Pb and 43.55% Zn (Johnson, 2014b).

In 2014, a total of 126 drill core litho-geochemical samples were collected from the main lithological units present in the drilling. The goal was to improve on the geochemical characterization of the key lithological units encountered in drilling and assist in the classification of units identified in the field during mapping.

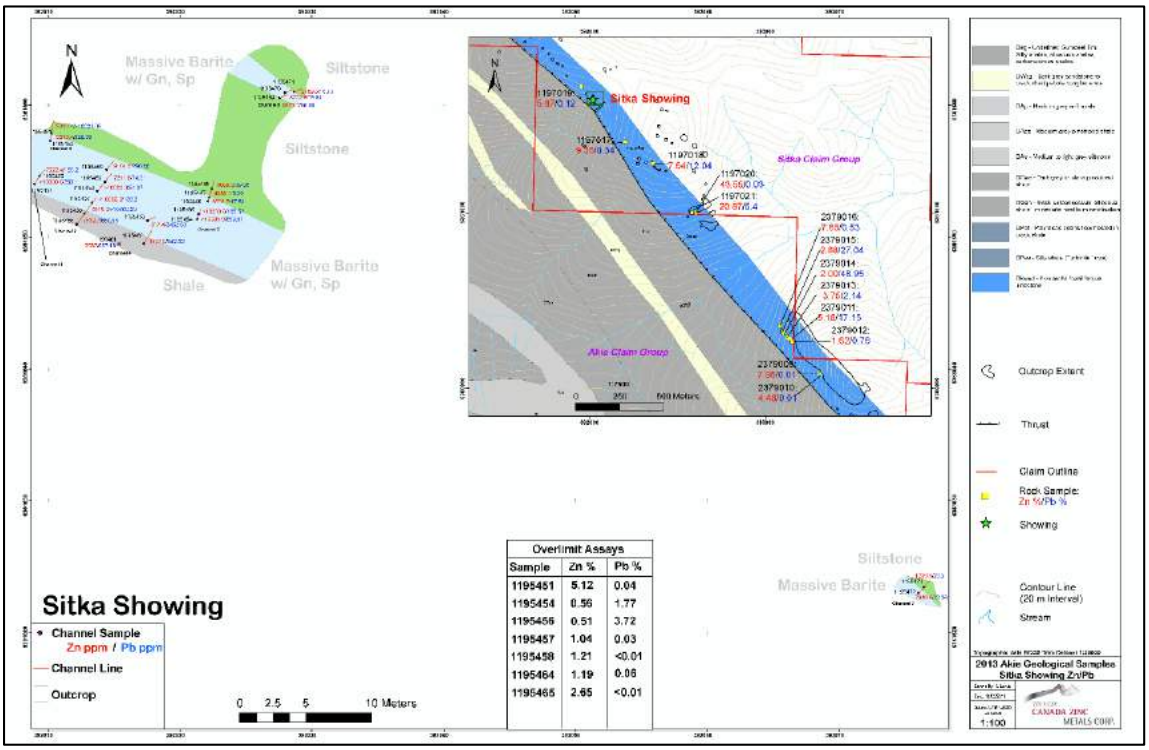


FIGURE 9-2: SITKA SHOWING CHANNEL SAMPLING AND SELECT GRAB SAMPLES, AKIE PROPERTY (JOHNSON, 2014B)

9.4 SOIL AND SILT SAMPLING

In 2008 and 2009, small soil and silt sampling programs were conducted across the Akie property and focused primarily on the GPS bedded barite showing. A total of 398 samples were collected along 100 m spaced lines at 50 m intervals. The sampling over the GPS bedded barite showing failed to define any significant soil anomalies. In 2011, a small 39 sample program expanded upon the grid at the GPS showing to close off weakly anomalous soils with zinc values ranging from 100 to 250 ppm. The steep terrain and poor soil profile inhibited sampling over the prospective black shale that hosted the GPS bedded barite showing.

Associated with the soil sampling program were a total of 70 silt samples that were collected in the general vicinity of the GPS bedded barite showing. No significant anomalies were defined, although one sample immediately downstream of the GPS showing returned > 10,000 ppm Zn, > 2000 ppm Co, > 10,000 ppm Mn, 4,017 ppm Ni and elevated copper at 184.58 ppm.

In 2013, a large soil sampling program occurred focusing on: the eastern side of the property, infilling the widely spaced Inmet Mining soil lines; the southeast strike extent of the GPS showing directly southwest of the deposit; and a select number of soil lines situated directly over the deposit testing different digestion and analytical packages. A total of 1,826 samples were taken. This program resulted in delineation of two distinct anomalies. The sampling shows the highly variable character of silver values on the eastern side of Silver Creek with silver values consistently in excess of 2,500 ppb in the northern portion of the property. Along the eastern edges of the property, there is a prominent large open-ended silver anomaly measuring approximately 1,400 m long by 275 m wide. This silver-rich trend is in close proximity to the Sitka barite-quartz vein showing. Values are consistently in excess of 1,000 ppb Ag and range up to 15,765 ppb Ag (Figure 9-3). The second anomaly is located directly southwest of the deposit and southeast of the GPS showing. The anomaly is roughly circular in shape and quite small, measuring approximately 300 m by 350 m with values ranging up to 1,690.2 ppm Zn and correlating with values ranging up to 291.73 ppm Pb (Figure 9-3). This anomaly is located within the recently mapped and interpreted continuation of the western panel of Earn Group rocks on the property.

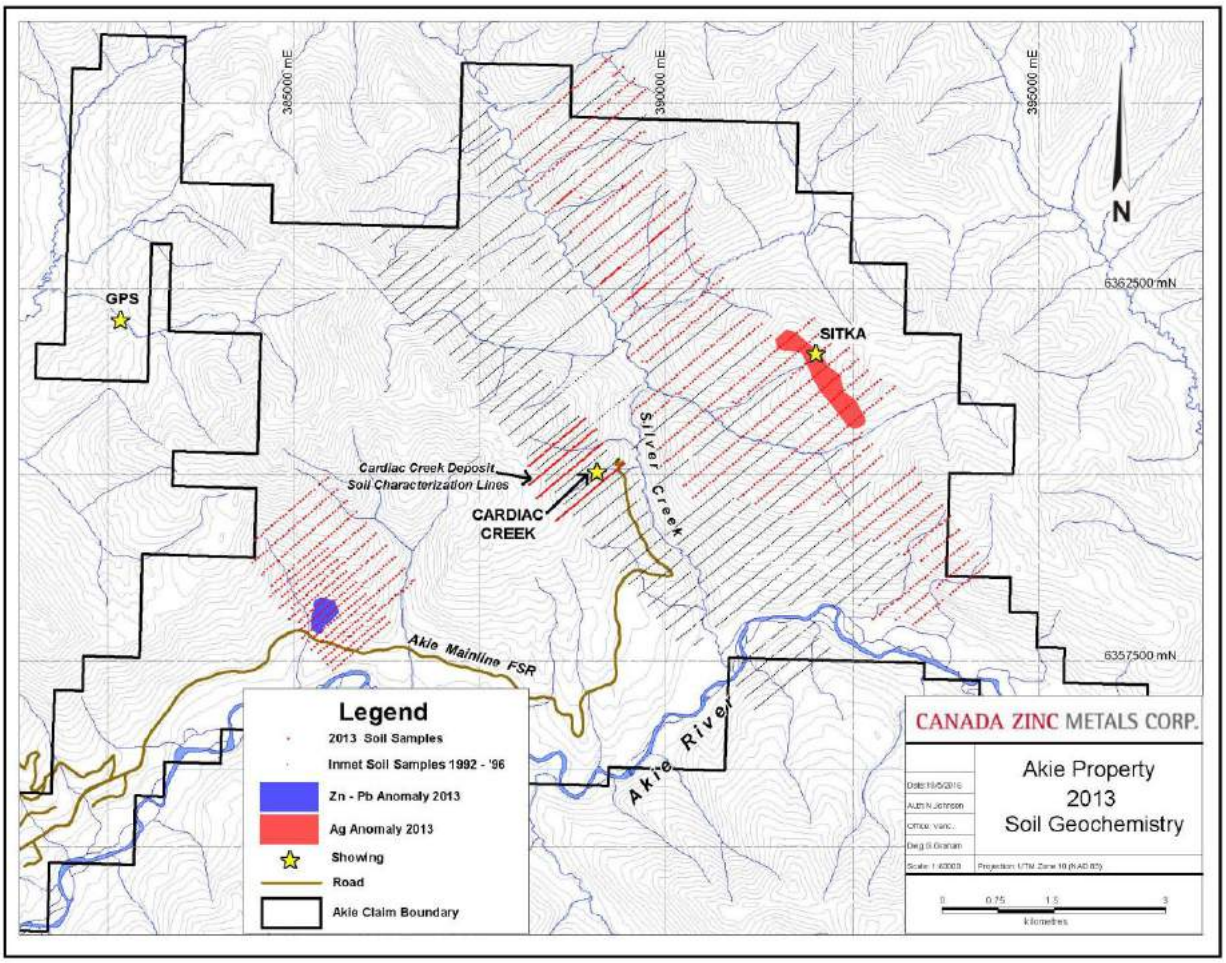


FIGURE 9-3: 2013 SOIL GEOCHEMICAL SAMPLING MAP WITH PROMINENT 2013 SOIL ANOMALIES (CANADA ZINC METALS)

9.5 GEOPHYSICS

In 2012, Canada Zinc Metals contracted Geotech Ltd. to conduct an airborne Versatile Time Domain Electromagnetic (VTEM) system survey over the Akie, Pie and Mt. Alcock properties with a line spacing of 200 m. A tighter line spacing of 100 m was flown directly over the Cardiac Creek deposit to determine whether there was a unique response from the deposit. The results of the survey provided detailed geological and structural data across much of the Akie property. The prospective Gunsteel Formation was found to produce a strong, distinct electromagnetic (EM) response correlating well with the mapped geology. Work by Condor Consulting Ltd. found that the Cardiac Creek deposit appeared to produce a slightly depressed EM response which correlated with a subdued magnetic response (Condor Consulting, 2014). Other geological units also had unique EM responses allowing for a better geological interpretation. The TauSF response over the Akie property can be seen in Figure 9-4. In 2013, the VTEM survey was subsequently expanded to include all of the Canada Zinc Metals tenure holdings.

In late 2014, Canada Zinc Metals contracted CGG to conduct an airborne gravity gradiometry survey over the Akie property with a line spacing of 200 m and flown at a nominal terrain clearance of 35 m. The final results were received in early 2016. Despite a density contrast between the host Gunsteel Formation shales and the Cardiac Creek deposit, there did not appear to be a distinct response from the deposit itself. The equivalent source Vertical Gravity Gradient can be seen in Figure 9-5. Work is ongoing to incorporate the recent gravity results with other datasets for the purposes of target generation.

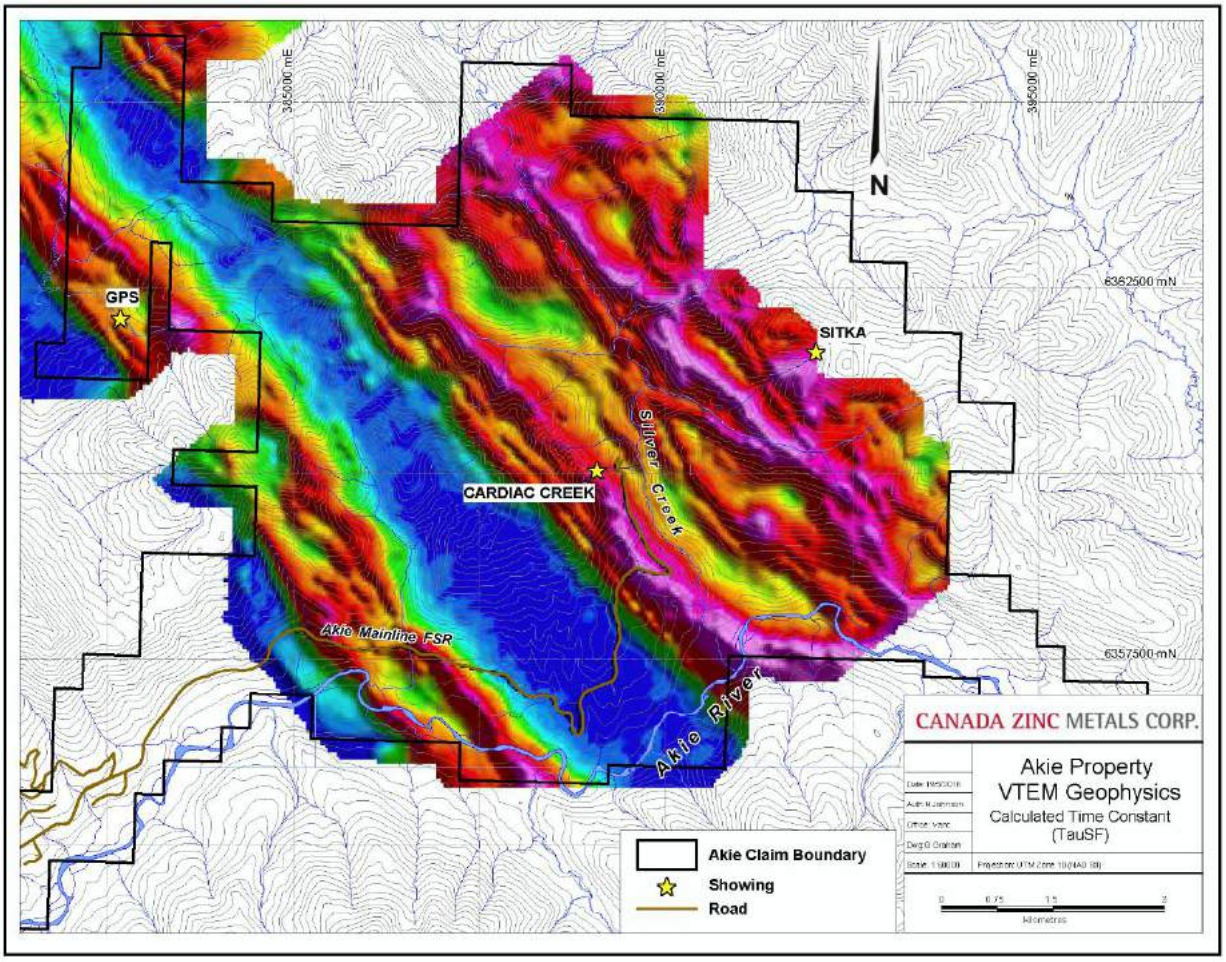


FIGURE 9-4: VTEM AIRBORNE GEOPHYSICS SURVEY ACROSS THE AKIE PROPERTY DISPLAYING TAUSF RESPONSE (CANADA ZINC METALS)

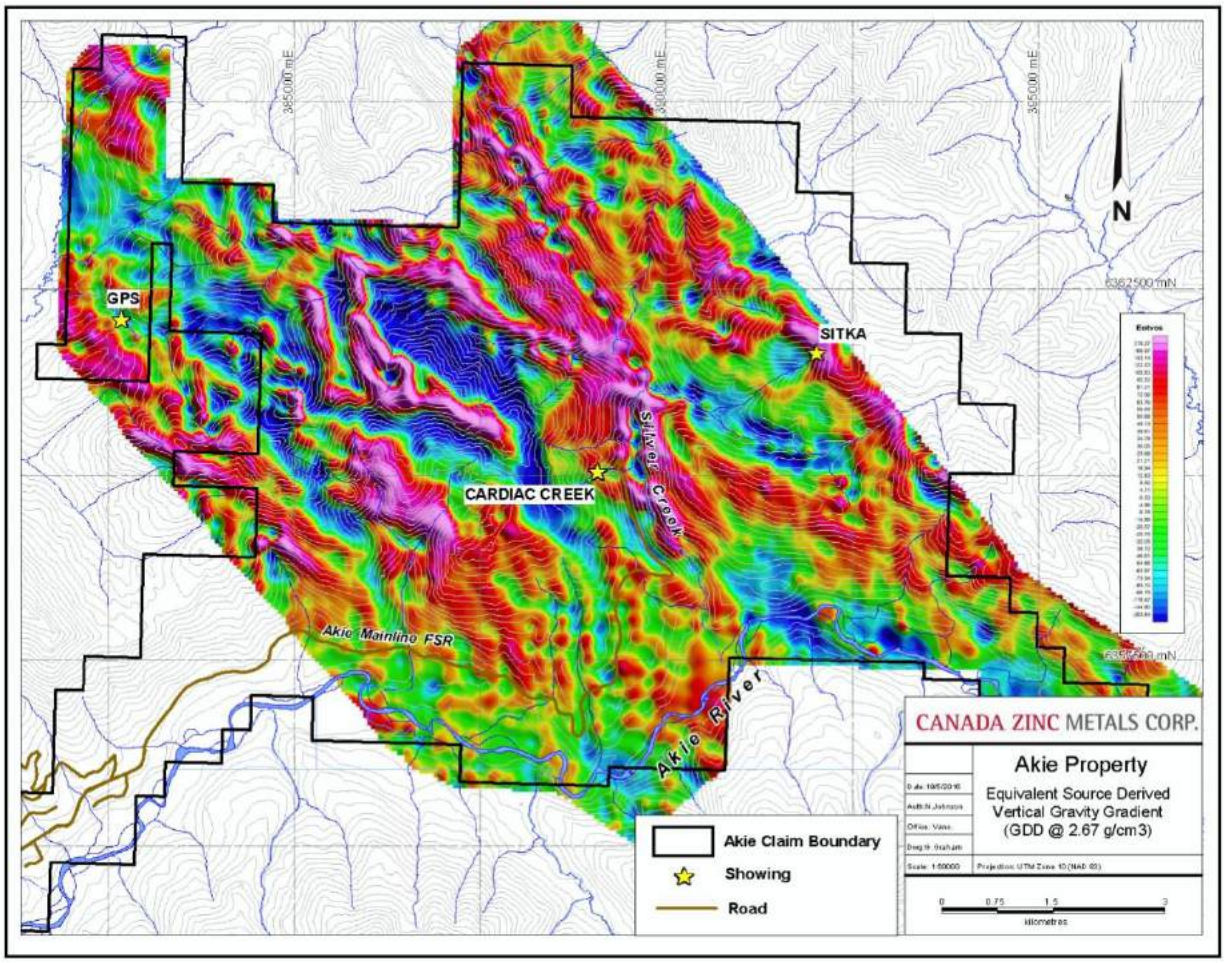


FIGURE 9-5: AIRBORNE GRAVITY GRADIOMETRY SURVEY ACROSS THE AKIE PROPERTY DISPLAYING THE EQUIVALENT SOURCE VERTICAL GRAVITY GRADIENT RESPONSE (CANADA ZINC METALS)

9.5.1 Drilling

From 2005 to 2015, Canada Zinc Metals completed nine separate drilling programs. During this time, 110 holes were drilled totaling 45,709 m; 83 drill holes were completed to their intended depths, 17 were abandoned due to ground conditions or excessive deviation of the drill stem, and 10 were drilled for geotechnical purposes. The details of these drilling programs are summarized in the Drilling Section of this report.

10 DRILLING

The following section summarizes the drilling activities completed on the Akie property by Inmet Mining (1994–1996) and Canada Zinc Metals (2005–2015). The location of all drill holes on the Akie property can be seen in Figure 10-1. There are a total of 139 drill holes on the property with a total core length of 59,260 m. Of these 139 drill holes, 104 of them, totaling 46,886 m, are within close enough proximity to the block model to contribute to the estimation of the mineral resource. The remaining 35 drill holes test the zone over a total strike length of almost 7 km, or test other exploration targets on the property.

10.1 INMET MINING DRILL PROGRAMS (1994–1996)

The following is a summary of the drilling activities carried out by Inmet Mining from 1994 to 1996. Assessment reports 23870, 24323, 24439 and 24703 (Baxter, 1995, 1996a, 1996b and 1996c) provide a detailed review of drilling and include drill logs, analytical results, interpretation and conclusions. These reports can be obtained in PDF format from BC's Ministry of Energy and Mines Assessment Report Indexing System (ARIS) website at:
http://www.empr.gov.bc.ca/mining/geoscience/aris/pages/default.aspx.

From 1994 to 1996, Inmet Mining conducted three helicopter-supported, diamond drilling programs completing 29 drill holes totaling 13,685.50 m. The details of these drill holes can be found in Table 10.1 and located on Figure 10-2.

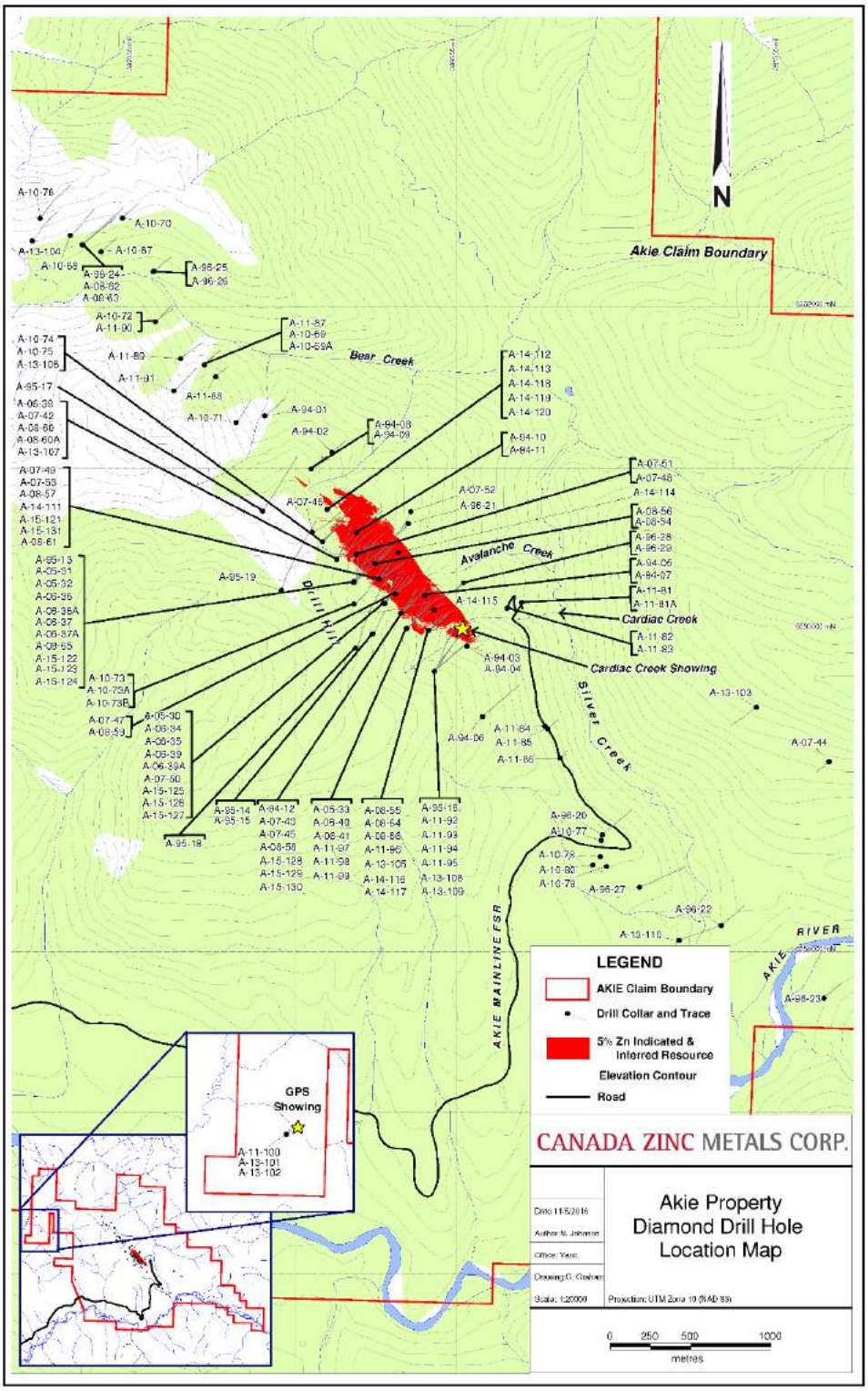


FIGURE 10-1: DRILL HOLE LOCATION MAP FOR ALL DRILLING ON THE AKIE PROPERTY (CANADA ZINC METALS)

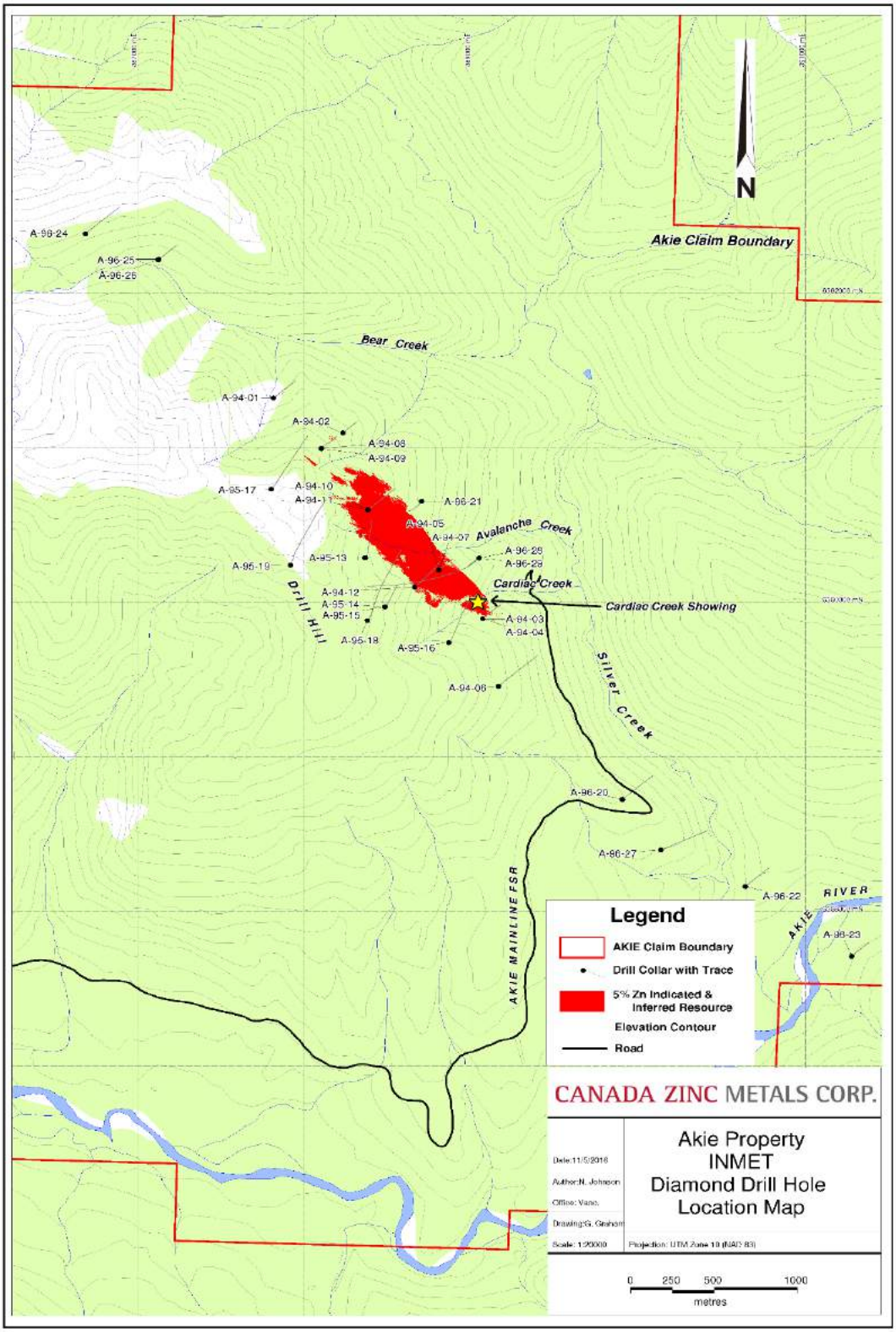


FIGURE 10-2: DRILL HOLE LOCATION MAP FOR ALL INMET MINING DRILL HOLES (CANADA ZINC METALS)

In 1994, Inmet Mining initiated a diamond drilling program to test new discoveries found through prospecting and soil sampling, including the Cardiac Creek showing and several soil anomalies. Twelve NQ-sized drill holes were completed totaling 3,753.20 m (A-94-01 to A-94-12). The drilling was conducted on approximate 400 m centres with two drill holes fanned from most setups. The drilling covered a strike length of 2.3 km across the prospective panel of Gunsteel Formation shale. These drill holes tested for mineralization primarily within 250 m of surface. Drill hole A-94-12 was an exception to this, testing for mineralization 400 m below surface.

The drilling defined a rather simple sequence of geology on a 400 m to 500 m thick panel of Gunsteel carbonaceous siliceous shale overlying a thin layer of debris flow/limestone and a thick sequence of calcareous siltstone (Silurian Siltstone) of the Road River Group. All drill holes were terminated within footwall siltstone unless previously abandoned due to poor ground conditions or excessive drill hole deviation (Figure 10-3).

Mineralization was encountered towards the base of the Gunsteel Formation shale in the majority of drill holes. This mineralization consisted of variably thick intervals of interbedded shale with pyrite, sphalerite and galena sulphides that were underlain by thin and discontinuous units of bedded barite (Baxter, 1995). Figure 10-3 is a schematic cross section through the host stratigraphy depicting the Cardiac Creek horizon towards the base of the Gunsteel Formation. The results from this program are listed in Appendix 2.

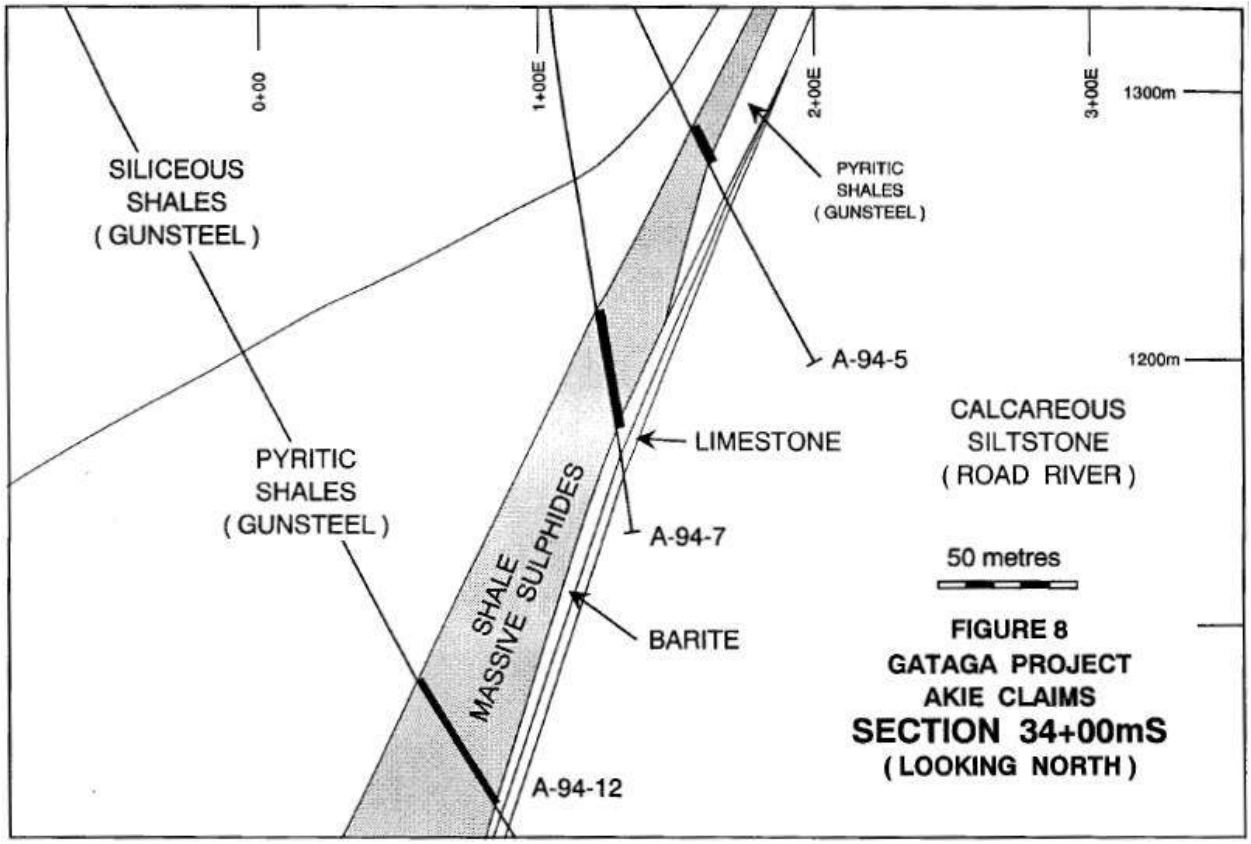


FIGURE 10-3: EARLY SCHEMATIC CROSS SECTION
(SIMPLIFIED GEOLOGY AND THE CARDIAC CREEK HORIZON AT THE BASE OF THE GUNSTEEL FORMATION)
(BAXTER, 1995)

Based on the success of the 1994 drilling program, Inmet Mining conducted additional drilling campaigns in 1995 and 1996. The 1995 drilling program was primarily focused on testing the continuity of the Cardiac Creek horizon at depth (Baxter, 1996b). Seven BQ- to NQ-sized drill holes were completed totaling 5,314 m (A-95-13 to A-95-19). These drill holes were widely spaced covering a strike extent of 1.4 km and tested the mineralization at depths of approximately 500 m to 800 m below surface. Due to the location of the intended targets at depth, some drill holes were collared into the overlying Ordovician siltstone and/or graptolitic black shale present in the hanging wall thrust. These holes cut through the entire panel of Gunsteel Formation shale. However, at depth it appeared that the thin layer of debris flow present at the base of the Gunsteel Formation shale thickened (Figure 10-4). In addition to a single horizon of mineralization at the base of the Gunsteel Formation shale, drilling intercepted two apparently separate mineralized horizons. This was observed in drill holes A-95-13, A-95-16, A-95-17 and A-95-18 and can be seen in Figure 10-4.

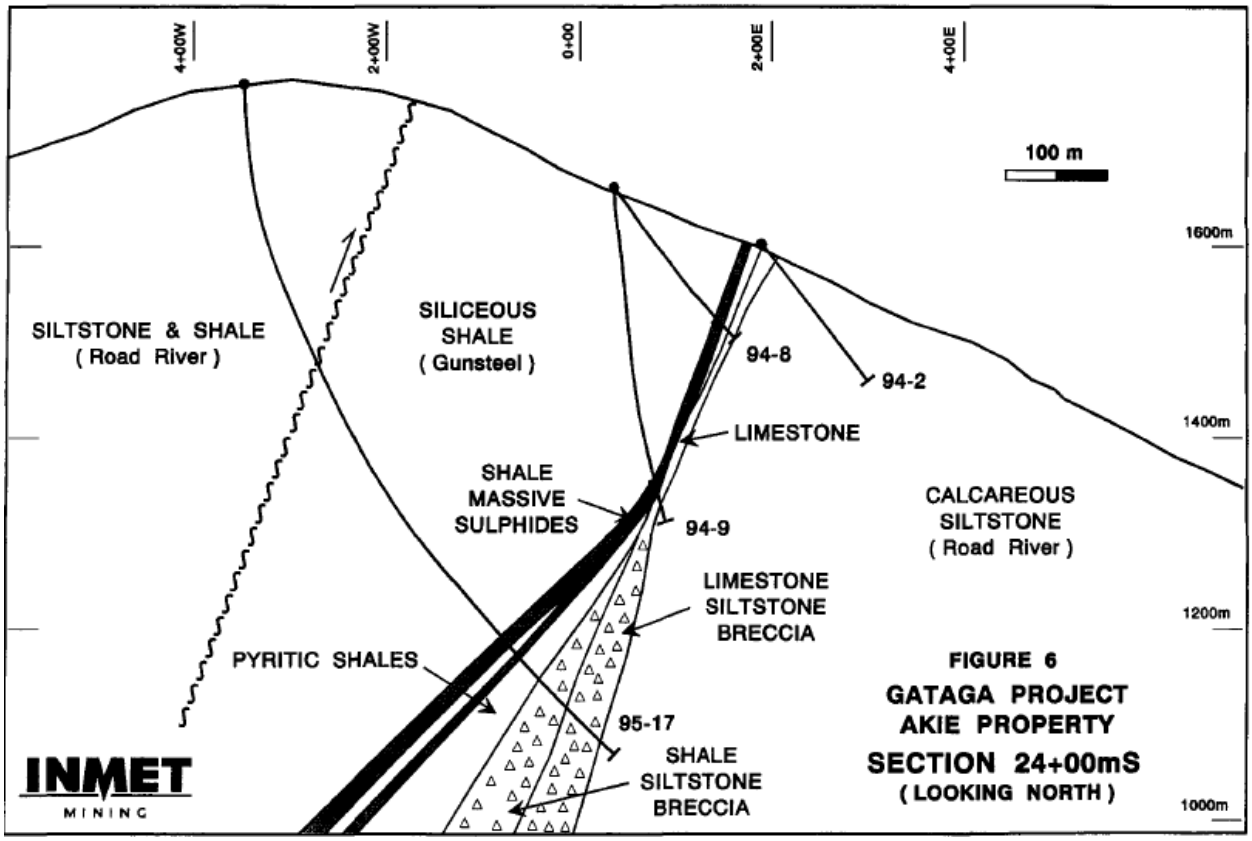


FIGURE 10-4: SCHEMATIC CROSS SECTION
(HW THRUST GEOLOGY AND THE THICKENING OF DEBRIS FLOW AND SPLITTING OF MINERALIZED HORIZONS AT DEPTH)
(BAXTER, 1996A)

Significant intervals of Cardiac Creek Zone-style mineralization were intercepted in all drill holes with the exception of A-95-14 and A-95-15 which were abandoned due to excessive deviation and poor ground conditions. These mineralized intervals ranged in thickness from 2 m to greater than 34 m. The results from the 1995 drilling can be seen in Appendix 2.

The 1994 and 1995 drilling programs tended to focus on testing the broad extents of the emerging Cardiac Creek deposit, whereas the 1996 program focused on testing primarily other property scale targets. Ten BQ- to NQ-sized drill holes (A-96-20 to A-96-29) were completed totaling 4,483.80 m and covered a strike extent of approximately 7 km (the entire length of the property). This strike extent also roughly represents the entire length of the main prospective panel of Gunsteel Formation shale on the Akie property. The 1996 drilling enhanced the general understanding of the lithology of the prospective stratigraphy.

Drill holes A-96-20, 22, 23 and 27 all tested zinc and lead soil anomalies to the southeast of the Cardiac Creek deposit (Baxter, 1996c). These holes were widely spaced and covered a strike extent of 1.7 km. Drill hole A-96-22, 1.5 km southeast of the Cardiac Creek deposit, intersected a 4.6 m thick interval of

30% to 75% laminar bedded massive pyrite which returned a 1.7 m interval grading 1.36% Zn. However, the other drill holes failed to intersect a meaningful mineralization (Baxter, 1996c). Drill holes A-96-24, 25 and 26 were drilled approximately 2.5 km to the northwest of the Cardiac Creek deposit and targeted a large lead soil anomaly (Baxter, 1996c) which is commonly referred to as the North Lead Anomaly. Drill hole A-96-24 intersected a 0.8 m thick interval of massive pyrite, galena and sphalerite mineralization directly overlying the debris flow present at the Gunsteel Formation shale/Road River Group contact (Plate 12). This 0.8 m interval graded 11.6% Zn and 9.05% Pb. Overlying the massive sulphide lens was 45 m of 5% to 12% laminar bedded pyrite interbedded with Gunsteel Formation shale (Baxter, 1996c). Follow-up drill hole A-96-24, A-96-25 and A-96-26 were drilled 400 m along strike to the southeast. Minor barite mineralization was intersected in A-96-25, but in general no significant mineralization was encountered in these two drill holes. In addition, the lithology present in holes A-96-24 to A-96-26 was dissimilar to that encountered on the Cardiac Creek deposit suggesting the presence of a large fault structure separating the two target areas (Baxter, 1996c). This was referred to as the Bear Valley Block which is now commonly referred to as the North Lead Zone or North Lead Anomaly.

PLATE 12: 5-CENTIMETRE PIECE OF THE 0.8 METRE INTERVAL OF MASSIVE PYRITE, GALENA AND SPHALERITE INTERSECTED IN A-96-24
(PHOTO BY JOHNSON, 2008)

Limited drilling tested the Cardiac Creek deposit in 1996. Drill holes A-95-19 (started in 1995 and finished in 1996), A-96-21, A-96-28 and A-96-29 all attempted to obtain intersections of the Cardiac Creek Zone located approximately 1 km below surface. Drill hole A-95-19 successfully intersected a 12.6 m interval of the upper hanging wall zone comprised of 30% to 70% laminar bedded pyrite. However, the Cardiac Creek Zone was displaced, at an unknown distance, by a fault located at the Gunsteel Formation shale/Road River Group contact. Drill hole A-96-29 encountered a similar fault present at the Gunsteel Formation shale/Road River Group contact that also seemed to have offset the Cardiac Creek Zone by an unknown amount of displacement, but it was believed to be a minimum of 150 m (Baxter, 1996c). Drill holes A-96-21 and A-96-28 were both abandoned due to excessive deviation and poor ground conditions (Baxter, 1996c). The significant results from this program can be seen in Appendix 2.

The drilling conducted on the Cardiac Creek Zone in 1994 and 1995 allowed Inmet Mining to produce a historical, non-43-101 compliant geological resource for the Cardiac Creek deposit of 12 million tonnes grading 8.6% Zn and 1.5% Pb (MacIntyre, 2008). The approximate outline of this historical resource can be seen in Figure 10-5.

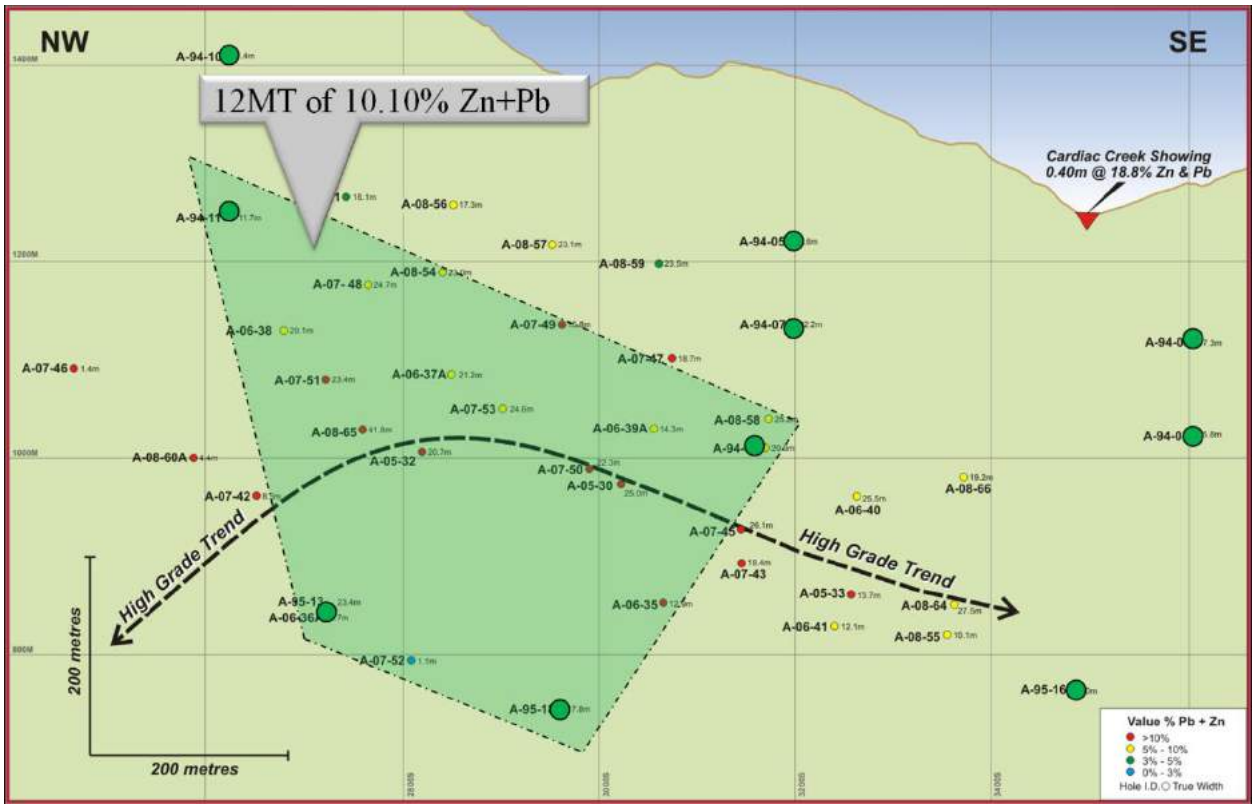


FIGURE 10-5: LONG-SECTION ACROSS THE CARDIAC CREEK DEPOSIT
(PIERCE POINT LOCATION OF THE INMET MINING DRILL HOLES AND THE APPROXIMATE OUTLINE OF THE NON-43-101 COMPLIANT PRELIMINARY RESOURCE)
(JOHNSON AND FRASER, 2009)

10.2 CANADA ZINC METALS DRILL PROGRAMS (2005–2015)

The following is a summary of the drilling activities carried out by Canada Zinc Metals from 2005 to the completion of the most recent drilling program conducted during the summer of 2015. This information is based on assessment reports filed by Canada Zinc Metals as well as internal company reports which provide a detailed review of drilling and include drill logs, analytical results, interpretation and conclusions. Further information was obtained based on personal communications with Canada Zinc Metals project geologist Nicholas Johnson. The assessment reports can be obtained in PDF format from BC's Ministry of Energy and Mines ARIS website at:
http://www.empr.gov.bc.ca/mining/geoscience/aris/pages/default.aspx.

From 2005 to 2015, Canada Zinc Metals conducted nine helicopter-supported diamond drilling programs completing 110 drill holes totaling 45,709 m. The details of these drill holes can be found in Table 10.1 and can be located in Figure 10-6.

In 2005, Canada Zinc Metals initiated a late-season (October to December) drill program designed to test the core of the preliminary resource outlined by Inmet Mining (Vanwermeskerken and Metcalfe, 2006). Four HQ-sized drill holes were completed totaling 1,998.90 m (A-05-30 to A-05-33). The drilling was conducted on approximate 200 m centres from three setups across the centre of the deposit, with the intent of intercepting mineralization between the 900 m and 1,000 m elevation mark.

Due to the late start of the 2005 drill program and the onset of winter conditions, the logging of drill core was predominantly restricted to the mineralized sections referred to as the "Cardiac Creek Unit" (Vanwermeskerken and Metcalfe, 2006). In general, all of the drilling intersected the siliceous shale of the Gunsteel Formation with the Cardiac Creek Zone present towards the base of the formation. The shale was underlain by the previously known debris flows of the Paul River Formation and calcareous siltstone of the Road River Group. No new lithological units were intersected or recognized in the 2005 drilling.

Mineralization was intersected in three drill holes (A-05-30, A-05-32 and A-05-33). Drill hole A-05-31 was abandoned due to poor ground conditions. The mineralization intersected returned higher than expected grades of zinc and lead over significant widths in the three drill holes. Results from this program included: 11.87% Zn, 2.83% Pb and 23 g/t Ag over 34.05 m in A-05-30; 11.96% Zn, 2.73% Pb and 22 g/t Ag over 26.70 m in A-05-32; and 9.81% Zn, 2.20% Pb and 19 g/t over 11.50 m in A-05-33 (Vanwermeskerken and Metcalfe, 2006). In addition, the presence of massive medium-grained pyrite associated with the underlying debris flow in all three drill holes suggests the presence of a possible vent in close proximity to the deposit. The results of this program redefined the nature of the Cardiac Creek deposit, and indicated the presence of a high-grade core (Vanwermeskerken and Metcalfe, 2006). Pierce points can be located in Figure 10-8.

Based on the results of the 2005 program, follow-up drilling in 2006, 2007 and 2008 began to define the high-grade core of the deposit as well as expand upon its known boundaries. Thirty-seven HQ- and NQ-sized drill holes were completed totaling 17,636.96 m (A-06-34 to A-08-66). The drilling was conducted on approximate 100 m centres with several drill holes being completed from individual setups. The drilling covered the entire strike extent of the deposit of approximately 1.2 km and straddled Cardiac and Avalanche creeks.

New lithological units were recognized in these drilling programs. The soft shale of the Akie Formation was present as a thin wedge situated directly below the hanging wall thrust and located stratigraphically above the siliceous shale of the Gunsteel Formation. Several sub-units were recognized within the Gunsteel Formation, including fragmental units, nodular barite units, the mineral facies, and a massive sulphide lens associated with the Cardiac Creek deposit. A schematic cross section depicting the geology can be seen in Figure 10-7.

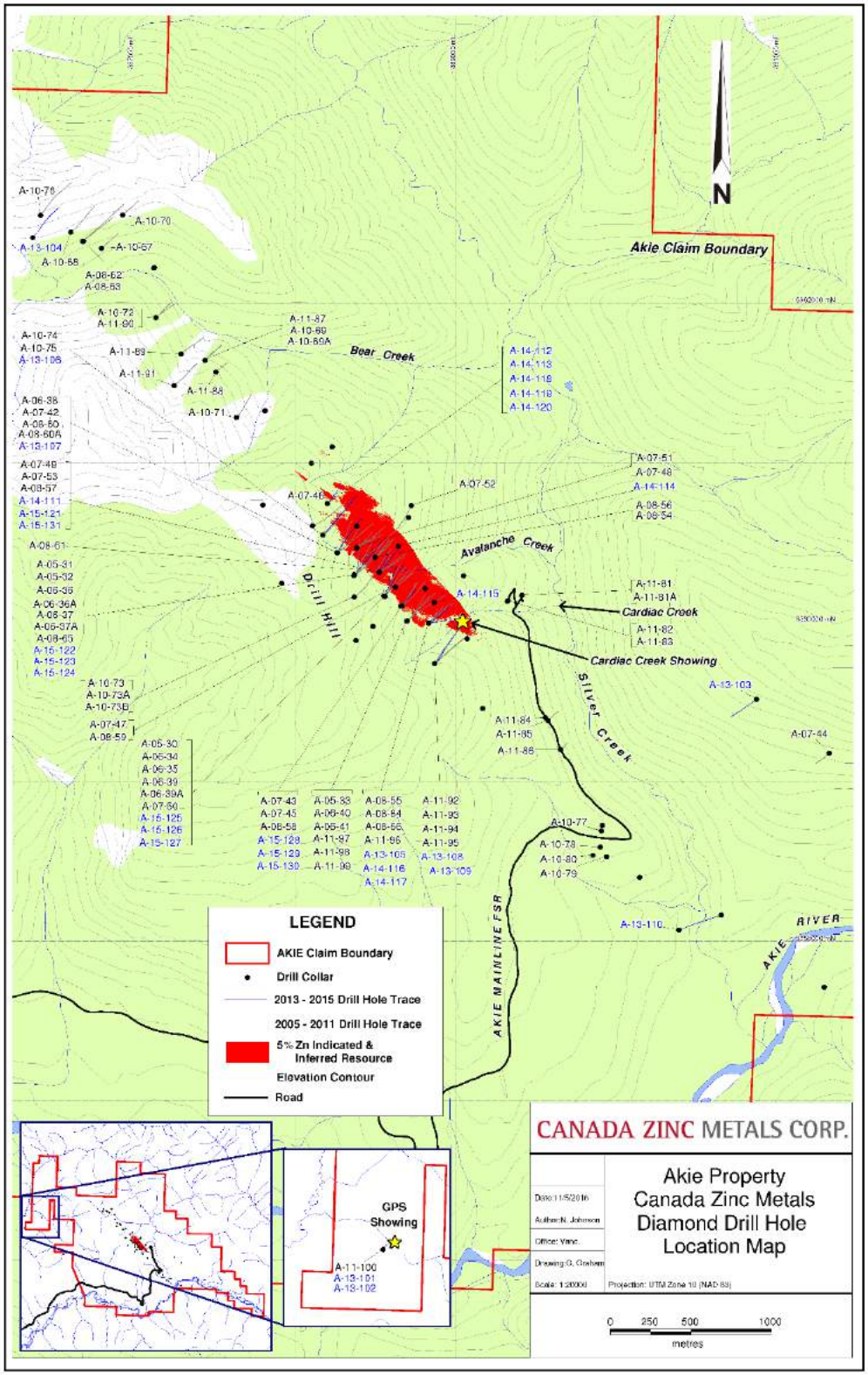


FIGURE 10-6: DRILL HOLE LOCATION MAP WITH ALL CANADA ZINC METALS DRILL HOLES (CANADA ZINC METALS)

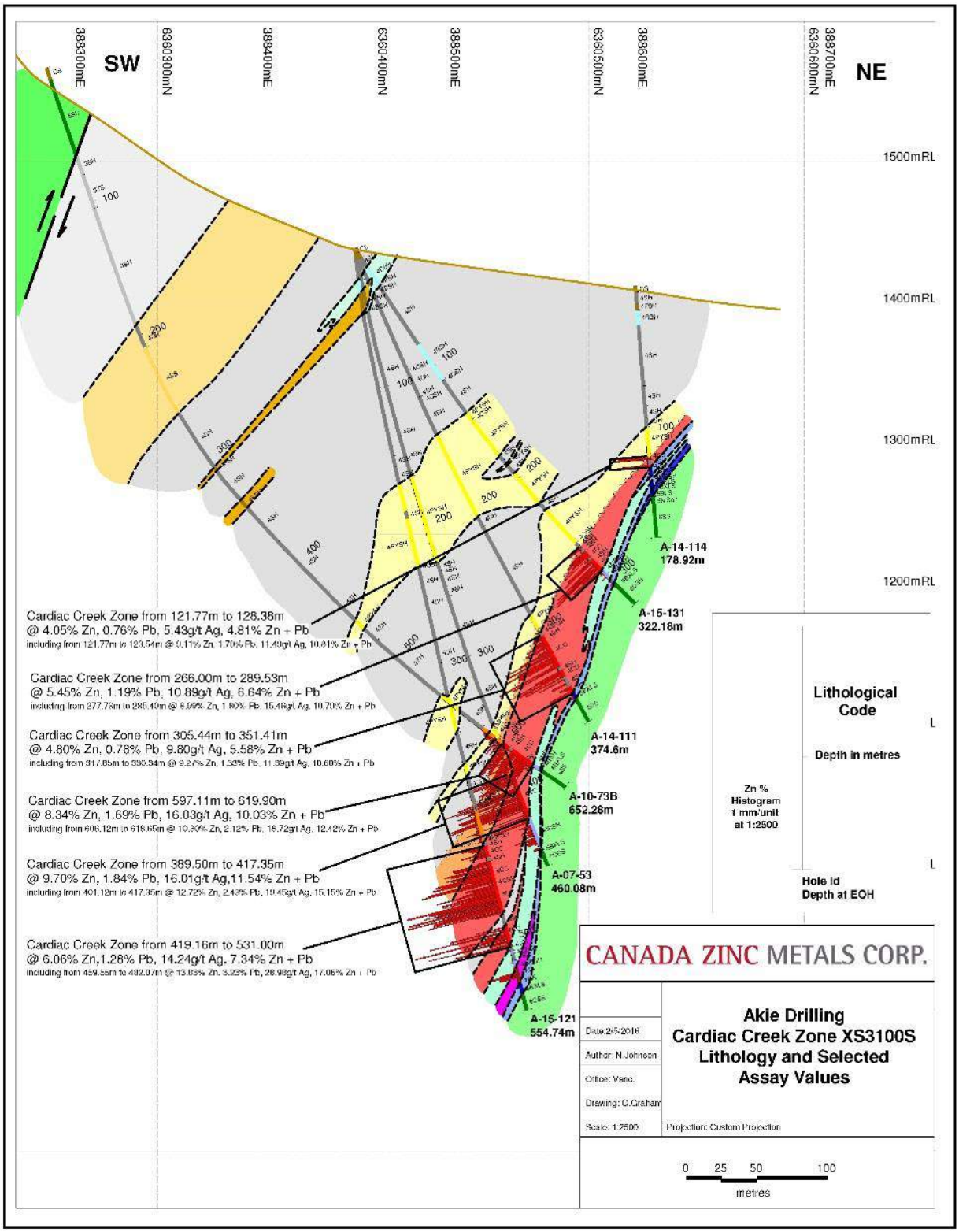


FIGURE 10-7: SCHEMATIC CROSS SECTION
(SIMPLIFIED GEOLOGY AND THE MINERAL FACIES ASSOCIATED WITH THE CARDIAC CREEK DEPOSIT)
(JOHNSON, 2016A)

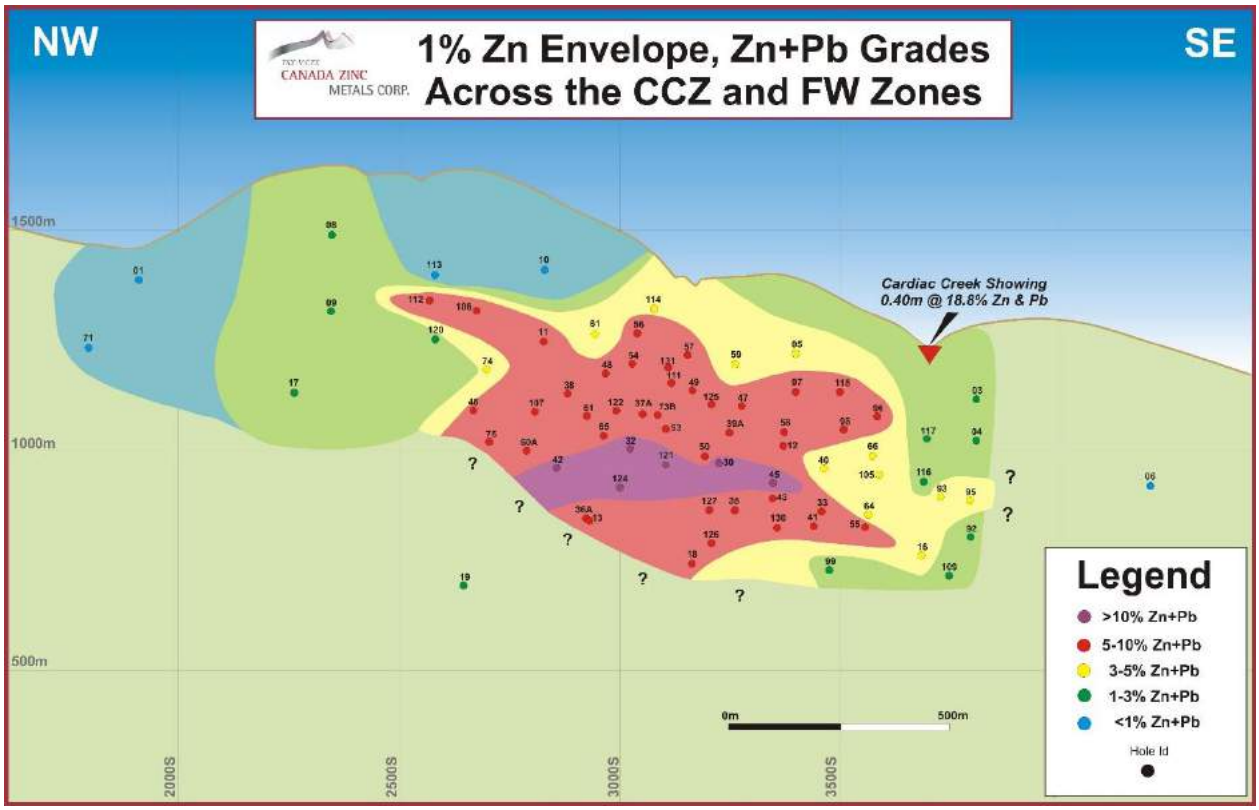


FIGURE 10-8: VERTICAL LONG-SECTION ACROSS THE CARDIAC CREEK DEPOSIT (JOHNSON, 2016B)

Of the 37 drill holes, 29 successfully intersected the Cardiac Creek Zone and 5 were abandoned due to poor ground conditions and/or excessive deviation. For due diligence purposes, drill holes A-06-36A and A-08-58 were twins of A-95-13 and A-94-12, respectively. Drilling results continued to demonstrate the high-grade nature of the deposit as well as its lateral continuity. The results can be seen in Appendix 2 and the holes located in Figure 10-6. Pierce points can be located in Figure 10-8.

Three drill holes tested targets other than the Cardiac Creek deposit on the Akie property. Drill hole A-07-44 tested the edge of the South Zinc soil anomaly defined by Inmet Mining. The Gunsteel Formation shale was intersected; however, the source of the overlying zinc anomaly was not discovered and no significant mineralization was encountered in A-07-44. Drill holes A-08-62 and A-08-63 tested the up- and down-dip extents of the massive sulphide mineralization intersected in A-96-24 (Plate 12) at the North Lead Anomaly. Although no massive sulphide mineralization was intersected in either drill hole, both holes did encounter thick intervals of laminated pyrite with nodular barite mineralization that returned highly anomalous zinc (0.1% to 0.6%) and lead (100 ppm to 900 ppm) values, and were similar in character to the Proximal facies mineralization of the Cardiac Creek deposit (Johnson, 2009). In addition, vent-proximal features were present in the siltstone of the Road River Group in drill hole A-08-

63, including sulphide replacement of the Paul River Formation debris flows, silicification, sulphide stringers and breccias, all which provided encouraging results (Johnson, 2009).

The 2010 and 2011 drilling programs focused on multiple targets across the Akie property covering an approximate strike length of 6 km, including the Cardiac Creek deposit, the North Lead Anomaly, the NW Extension and the SE Extension. Thirty-eight drill holes were collared totaling 12,856.36 m (A-10-67 to A-11-100) of which several were for geotechnical purposes and several deviated off target and were abandoned. Nine holes successfully intersected the Cardiac Creek deposit in the area of the resource block model. The results from these drill programs can be seen in Appendix 2 and the locations in Figures 10-6 and 10-8.

In addition to the debris flows and limestone, new lithological units associated with the Paul River Formation were identified in the 2010 drilling program. This included siliceous shale interbedded with regular thinly bedded siltstone to conglomerate lenses and siliceous shale containing disrupted chert lenses and layers, and fine sub-millimetre laminations of pyrite. Following a reinterpretation of the drilling data, it was noted that the Paul River Formation generally thickens at depth and to the northwest towards the NW Extension and North Lead Anomaly targets (Figure 10-9). Brassy yellow pyrite and nodular to laminar barite mineralization typically mark the boundary between the Paul River Formation and the Gunsteel Formation.

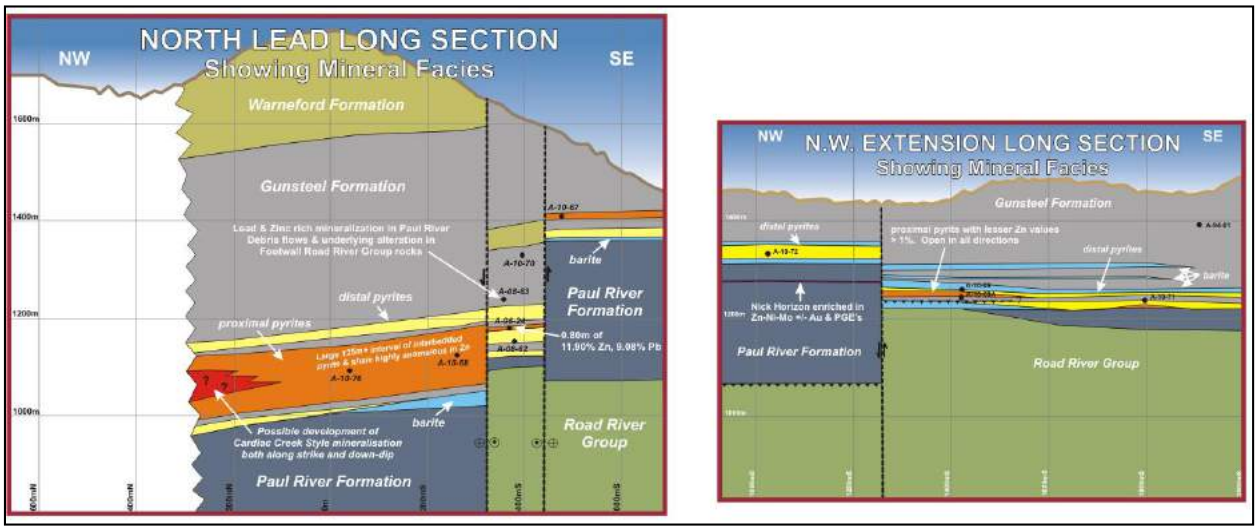


FIGURE 10-9: SCHEMATIC LONG-SECTIONS (CANADA ZINC METALS)

Facies Transition across the NW Extension and North Lead Anomaly Property Targets.

Note: the thickening of the Paul River Formation (blue grey) towards the northwest and at depth.

Drilling at the North Lead Anomaly was restricted to the 2010 drill program and involved the completion of four drill holes totaling 2,584.79 m. The drilling tested the up- and down-dip as well as the strike extent of the mineralization and alteration intersected in the previous drilling. While no additional alteration or vent-proximal features were intersected, thick, 125 m intervals of laminar to bedded pyrite mineralization interbedded with Gunsteel Formation shale was encountered down-dip and along strike to the northwest in drill holes A-10-68 and A-10-76 (Figure 10-9). This mineralization was highly anomalous with zinc values ranging from less than 1,000 ppm to greater than 2% (Johnson, 2011).

The NW Extension target is situated between the Cardiac Creek deposit and the North Lead Anomaly. In 2010 and 2011, nine drill holes were completed on this target totaling 3,255.72 m. The 2010 program tested for Cardiac Creek-style mineralization at the 1,000 m elevation where the bulk of the high-grade mineralization occurs at the deposit. Three widely spaced drill holes were completed on approximate 400 m centres. Proximal facies mineralization was intersected in A-10-69 over 14.87 m and returned highly anomalous zinc values consistently in excess of 2,000 ppm and reaching 1.90% (Johnson, 2011). In addition to the targeted Cardiac Creek horizon mineralization, a thin lens of sulphide mineralization was intersected in A-10-72 within the underlying Paul River Formation (Plate 13). This 1.17 m interval returned 2.69% Zn, 0.60% Ni and 4.36 g/t Ag and contained highly anomalous values across a diverse suite of elements, including molybdenum, copper, lead, cobalt, arsenic, uranium, cadmium, antimony, bismuth, vanadium, phosphorus, mercury, thallium, selenium, rhenium, gold and palladium. This mineralization is of similar character to the Nick Deposit in the Yukon (Johnson, 2011).

PLATE 13: "NICK"-STYLE MINERALIZATION INTERSECTED IN A-10-72 HOSTED WITHIN THE SILICEOUS SHALE OF THE PAUL RIVER FORMATION (JOHNSON, 2011)

Follow-up drilling in 2011 tested the discoveries made in the previous year. Intervals of Proximal facies mineralization were intersected along strike and up-dip of A-10-69; however, the mineralized horizon appeared to be offset at depth due to brittle faulting. These intervals of Proximal facies mineralization were highly anomalous in zinc with values consistently in excess of 1,000 ppm. A thin 1.60 m massive sulphide lens underlying the Proximal facies mineralization was intersected in A-11-88, and returned 6.99% Zn, 0.25% Pb and 2.35 g/t Ag. The NW Extension mineralization remains open along strike.

The 2011 drilling tested the up-dip potential for additional "Nick"-style mineralization; however, no additional intervals were encountered.

In addition to the exploration drilling, 10 geotechnical drill holes were completed in 2010 and 2011 totaling 516.54 m. The drilling was designed to provide engineering and hydrogeological data to support design and permitting for future underground exploration. While the drilling was intended for geotechnical purposes, near surface mineralization was intersected in drill holes A-11-84 and A-11-85 consisting of laminar to bedded pyrite and nodular barite. The mineralization appeared to represent the southeast strike extension of the Cardiac Creek horizon. In fact, the first exploration drill hole of the 2011 drilling program tested the down-dip extent of this mineralization, but returned nominal results.

Drilling in 2013 focused on a number of different targets: the GPS bedded barite showing, follow-up drilling at the North Lead Anomaly, South Zinc Anomaly, the Cardiac Creek deposit and the SE Extension. A total of 4,851.41 m was completed in 10 drill holes with 1 being abandoned.

Exploratory drilling was conducted on the GPS barite bedded showing that was discovered in 2009. In 2011, an initial attempt to test the GPS showing resulted in the abandonment of hole A-11-100 due to poor ground conditions; however, the first two drill holes of the 2013 program totaling 662.64 m were successful in testing the showing. A thick sequence of Earn Group lithology was encountered consisting primarily of Akie and Paul River Formation soft shales, cherty shales and debris flows with minor intervals of Gunsteel Formation shales. Poorly developed mineralization consisting of laminar beds of pyrite and minor nodular barite was intersected at contact between the Akie and Paul River Formation rocks which was interpreted to represent the down-dip extent of the showing. Sampling returned no significant results (Johnson, 2014a).

Drill hole A-13-103 followed up on the 2007 drill hole A-07-44 that attempted to determine the source of the large South Zinc Anomaly located on the eastern side of Silver Creek. Unfortunately there was no mineralization associated with the Cardiac Creek horizon present in drill hole A-13-103 and nothing to explain the origin of the South Zinc Anomaly. A narrow interval of "Nick"-style mineralization was noted at the unconformable contact between the Kwadacha Limestone of the Paul River Formation and the underlying Silurian Siltstone of the Road River Group. This narrow interval from 252.37 m to 252.87 m is highly anomalous in a suite of elements, including Pb, Zn, Ni, U, V, P, and numerous other elements (Plate 14) (Johnson, 2014a).

PLATE 14: "NICK"-STYLE MINERALIZATION IN HOLE A-13-103 @ 252.37 M (JOHNSON, 2014A)

A single drill hole tested the North Lead Anomaly: hole A-13-104. The down-dip extension of the mineralization observed in both holes A-10-68 and A-10-76, which represents the North Lead Zone, was present in hole A-13-104 over an extremely thick interval from 474.83 m to 646.00 m. Distal and Proximal facies mineralization was interbedded with Gunsteel Formation shale. This appeared to be very similar in character to the mineralization encountered in the two up-dip drill holes (A-08-68 and A-10-76). The stratigraphy and mineralization was found to be recumbent to gently dipping to the southwest rather than steeply dipping as previously thought. Sampling indicated anomalous zinc grades in excess of 1,000 ppm and elevated lead, silver and thallium throughout the entire mineralized sequence. The mineralization present at the North Lead Anomaly remains open along strike to the northwest and down-dip (Johnson, 2014a).

The drilling on the Cardiac Creek deposit in 2013 was for infill and expansion purposes. Drill holes A-13-105 and A-13-107 were infill, and holes A-13-106 and A-13-109 both tested and expanded the known limits of the deposit. The drilling did not close off any area of the deposit; however, the grade encountered in hole A-13-109 from the Cardiac Creek horizon was weaker than expected. A total of 2,499.06 m was completed in 4 drill holes and 1 abandoned hole. The drill hole locations can be found in Figure 10-6 with the collar details in Table 10.1. The pierce points can be seen in Figure 10-8.

Drill hole A-13-105 intersected a thick interval of mineralization grading greater than 1% Zn over 54.33 m from 357.00 m to 411.33 m that contained several higher grade intervals. This intercept is comparable in grade and width to the surrounding intercepts in holes A-08-64 and A-08-66. Drill hole A-13-106 encountered a narrow, 12.06 m thick intersection of high-grade mineralization from 476.00 m to 488.06 m. Faulting is present along the upper and lower contacts of the mineralization suggesting that it has been displaced from depth to its current position. In addition to the Cardiac Creek Zone mineralization drill hole A-13-106 also intersected a narrow interval of "Nick"-style mineralization along the unconformable contact between the Kwadacha Limestone and the Silurian Siltstone, similar to the intercept from A-13-103 (Plate 15). The sample was found to be anomalous in lead, zinc, nickel, uranium, phosphorus, arsenic and other elements.

Drill hole A-13-107 intersected a broad interval of mineralization grading greater than 1% Zn over 26.61 m from 541.53 m to 568.14 m that contained a couple of higher grade intervals. The grade is comparable to the surrounding drill holes, such as A-08-60A. The last hole, A-13-109, looked to expand the deposit along the southeastern edge. A thick 40.02 m interval from 615.56 m to 655.58 m was intersected but the grades were lower than expected. Narrow intervals of low- to moderate-grade material are present within the overall envelope. A low-grade Footwall Zone and a small massive sulphide lens were also intersected from 667.66 m to 677.45 m and from 684.12 m to 685.30 m, respectively (Johnson, 2014a).

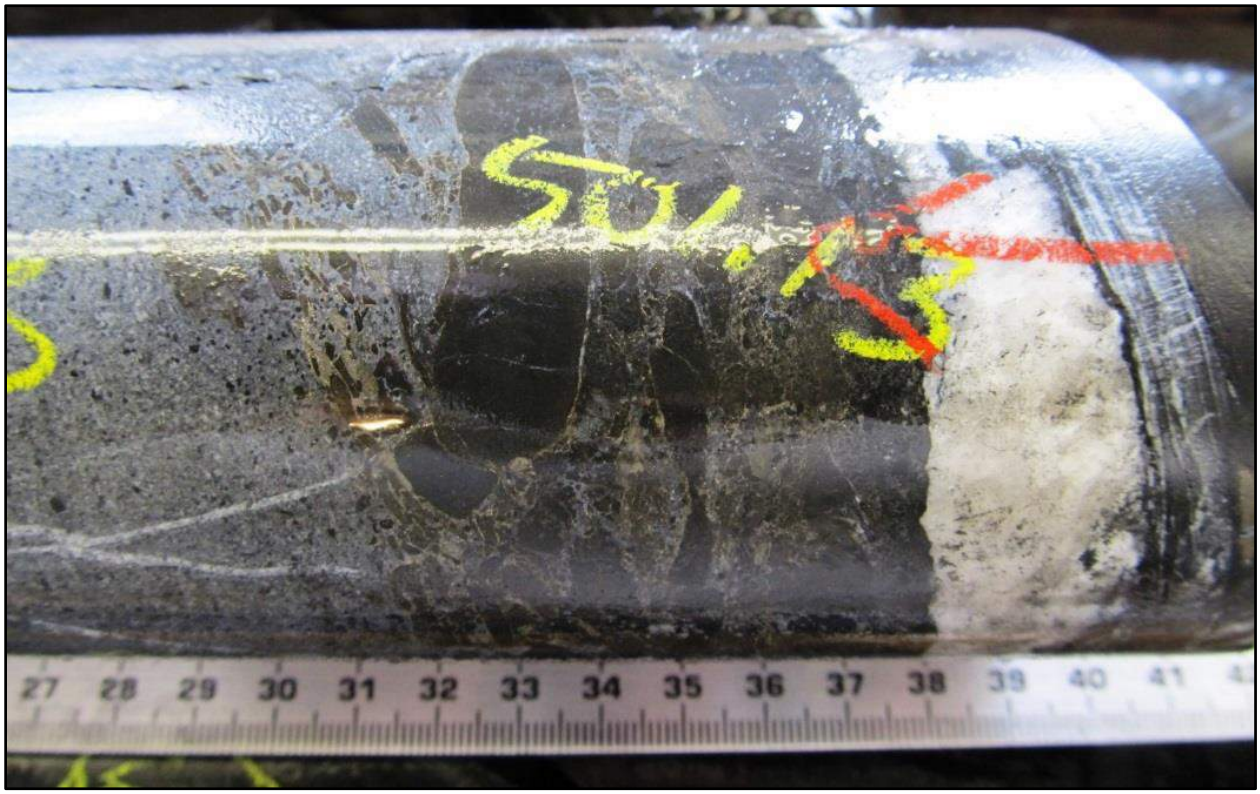


PLATE 15: "NICK"-STYLE MINERALIZATION AT THE KWADACHA LIMESTONE AND SILURIAN SILTSTONE CONTACT A-13-106 @ 501.13 M (PHOTO BY JOHNSON, 2013)

The final drill hole of the 2013 exploration program, A-13-110, targeted the down-dip extension of zinc-rich mineralization present in drill hole A-96-22. No mineralization was encountered along the prospective horizon. However, it was discovered that the Earn Group stratigraphy intersected in the upper sequence of the drill hole was in thrust contact with a previously unknown panel of Gunsteel Formation shale present from 450.24 m to 539.39 m. Unfortunately, this new panel was barren with only very weak nodular barite and laminated pyrite present along the Gunsteel Formation and Silurian Siltstone contact (Johnson, 2014a). A full table of drill hole results can be found in Appendix 2.

All of the drilling in 2014 and 2015 concentrated on the Cardiac Creek deposit. A number of different areas of the deposit were targeted, including: the northwest and southeast strike extents, the up-dip extent, down-dip of the high-grade core, and infill targets. A total of 8,365.39 m was completed in 21 drill holes and 5 of these were abandoned due to drill hole deviation or poor ground conditions. Drill hole locations can be found in Figure 10-6 and the collar details are shown in Table 10.1. The pierce points can be seen in Figure 10-8.

Three drill holes (A-14-112, A-14-113, and A-14-120) focused on the northwest edge of the deposit. Hole A-14-112 obtained a pierce point located approximately 130 m along strike from A-13-106 intersecting an envelope of mineralization grading 5.27% Zn+Pb and 6.87 g/t Ag over 13.70 m (true width) from 337.15 m to 356.30 m (Plate 16). Higher grade intervals, such as 6.59% Zn+Pb and 7.86 g/t Ag over 9.52 m (true width) from 343.00 m to 356.30 m and 7.17% Zn+Pb and 8.23 g/t Ag over 5.23 m (true width) from 349.00 m to 356.30 m were encountered. This result was followed up with holes A-14-113 and A-14-120. Stockwork veining and faulting limited the Cardiac Creek horizon in grade and thickness in hole A-14-113 and hole A-14-120 intersected 12.98 m (true width) of mineralization returning 1.59% Zn+Pb and 3.22 g/t Ag from 409.00 m to 432.82 m. The highest grade material was present at the base of the mineralized interval with 1.27 m (true width) of 4.59% Zn+Pb and 6.90 g/t Ag from 423.87 m to 426.20 m (Johnson, 2014c).

PLATE 16: HIGH-GRADE MINERALIZATION IN THE LOWER HALF OF THE CARDIAC CREEK ZONE IN HOLE A-14-112 (JOHNSON, 2014C)

A single drill hole (A-14-114) tested the up-dip extents of the deposit in the vicinity of A-08-56 and A-08-57. Hole A-14-114 intersected two narrow high-grade intervals separated by a thick shale interbed. The overall envelope of mineralization returned a grade of 4.81% Zn+Pb and 5.43 g/t Ag over 2.64 m (true width) from 121.77 m to 128.38 m. The upper interval returned 10.81% Zn+Pb and 11.49 g/t Ag over 0.76 m (true width) from 121.77 m to 123.54 m, and the lower interval returned 10.37% Zn+Pb and 11.90 g/t Ag over 0.46 m (true width) from 127.30 m to 128.38 m. Additional "Nick"-style mineralization was also encountered in A-14-114 (Johnson, 2014c).

One of the objectives for the 2015 drill program was to test the down-dip extents of the deposit and high-grade core. Drill holes A-15-121, A-15-124, A-15-126, A-15-127 and A-15-130 all tested this area which had seen limited drilling in the past. This drilling was very successful in achieving the intended targets.

Drill hole A-15-121 provided a pierce point located in the central core of the deposit down-dip of A-08-53 and along strike of holes A-05-30 and A-05-32. The results from this hole were very comparable to the surrounding holes with an extremely thick intersection of high-grade lead and zinc mineralization representing the Cardiac Creek Zone returning 36.89 m (true width) of 9.85% Zn+Pb and 16.38 g/t Ag, which includes a very high-grade intersection of 12.98 m (true width) of 17.06% Zn+Pb and 28.98 g/t Ag. The drill hole also contained a very high-grade Footwall Zone returning 8.86 m (true width) of 10.24% Zn+Pb and 21.51 g/t Ag. Hole A-15-121 also included a 12.46 m interval of massive sulphide dominated by pyrite with minor carbonate-sphalerite-galena mineralization. An example of the mineralization present in hole A-15-121 can be seen in Plate 17. Similar to hole A-15-121, drill hole A-15-124 obtained a thick intersection of high-grade mineralization returning 38.43 m (true width) grading 7.72% Zn+Pb and 12.30 g/t Ag, including 11.09 m (true width) of 17.20% Zn+Pb and 26.43 g/t Ag. Drilling down-dip of holes A-07-50 and along strike of A-06-35 produced similar results to hole A-06-35. The main interval of Cardiac Creek Zone mineralization is present from 601.13 m to 656.41 m. Drill hole A-15-127 achieved a pierce point located down-dip of A-07-50 and along strike of A-06-35. The mineralization intersected was comparable to A-06-35 returning 10.86 m (true width) of 8.53% Zn+Pb and 14.45 g/t Ag and a Footwall Zone of 6.07 m (true width) of 13.17% Zn+Pb and 21.32 g/t Ag (Johnson, 2016a).

Drill holes A-15-126 and A-15-130 provided additional information concerning the down-dip extent of the deposit. Drill hole A-15-126 provided a pierce point in the immediate vicinity of the historical Inmet Mining drill hole A-95-18; however, the mineralization is hosted within three distinct intervals representing a Hangwall Zone, the Cardiac Creek Zone and the Footwall Zone separated by thick intervals of black siliceous shale. The Cardiac Creek Zone returned 5.45% Zn+Pb and 9.79 g/t Ag over 11.72 m (true width). The final hole testing the down-dip extents of the deposit was A-15-130 which provided a pierce point directly down-dip of A-07-43. This hole was also comparable to A-06-35, returning a 12.15 m (true width) intersection grading 8.35% Zn+Pb and 12.84 g/t Ag (Johnson, 2016a).

PLATE 17: MOTTLED TEXTURED HIGH-GRADE PB-ZN MINERALIZATION WITH FOLDED BARITE IN A-15-121 @ ~480.50 M (PHOTO BY JOHNSON, 2015)

A number of holes in the 2014 and 2015 drilling programs focused on filling in large gaps or holes across the deposit where the density of drilling was low. This included A-14-115, A-14-116, A-14-117, A-15-122, A-15-125, and A-15-131. Results of these holes were similar to those around them. Examples include: A-14-115 that returned 20.87 m (true width) of 6.01% Zn+Pb and 7.31 g/t Ag, including 6.66 m (true width) of 9.52% Zn+Pb and 11.71 g/t Ag; A-15-122 which returned 23.36 m (true width) of 10.31% Zn+Pb and 14.64 g/t Ag, including 12.35 m (true width) grading 13.62% Zn+Pb and 17.92 g/t Ag; and, A-15-125 which returned 20.83 m (true width) of 9.38% Zn+Pb and 12.99 g/t Ag, including 8.68 m (true width) of 15.45% Zn+Pb and 21.76 g/t Ag (Johnson, 2014c; Johnson, 2016a).

The 2015 drilling also encountered additional "Nick"-style mineralization in holes A-15-125 and A-15-131. Both intersections are thin and occur along the contact between the debris flows of the Paul River Formation and the calcareous siltstones (Silurian Siltstone) of the Road River Group. Subsequently, all the analytical results from 2006 to 2014 were reviewed to determine the presence of previously unrecognized intervals of "Nick"-style mineralization. Table 10.2 presents all of the intersections of recognized "Nick"-style mineralization encountered to date on the Akie property, their stratigraphic position and elemental enrichment. Based on the intercepts, there appears to be a core group of elements that are enriched within this style of mineralization, including:

Pb, Zn, Ni, U, V, P, La, Cr, Se

A diverse group of secondary elemental enrichment is variable due to dilution of the surrounding material within a given sample. The similarities in the suite of elements from all the occurrences suggest a genetic link despite the variation in the stratigraphic locations. The variation in stratigraphic settings for each occurrence is presented in (Figure 10-10) (Johnson, 2016a).

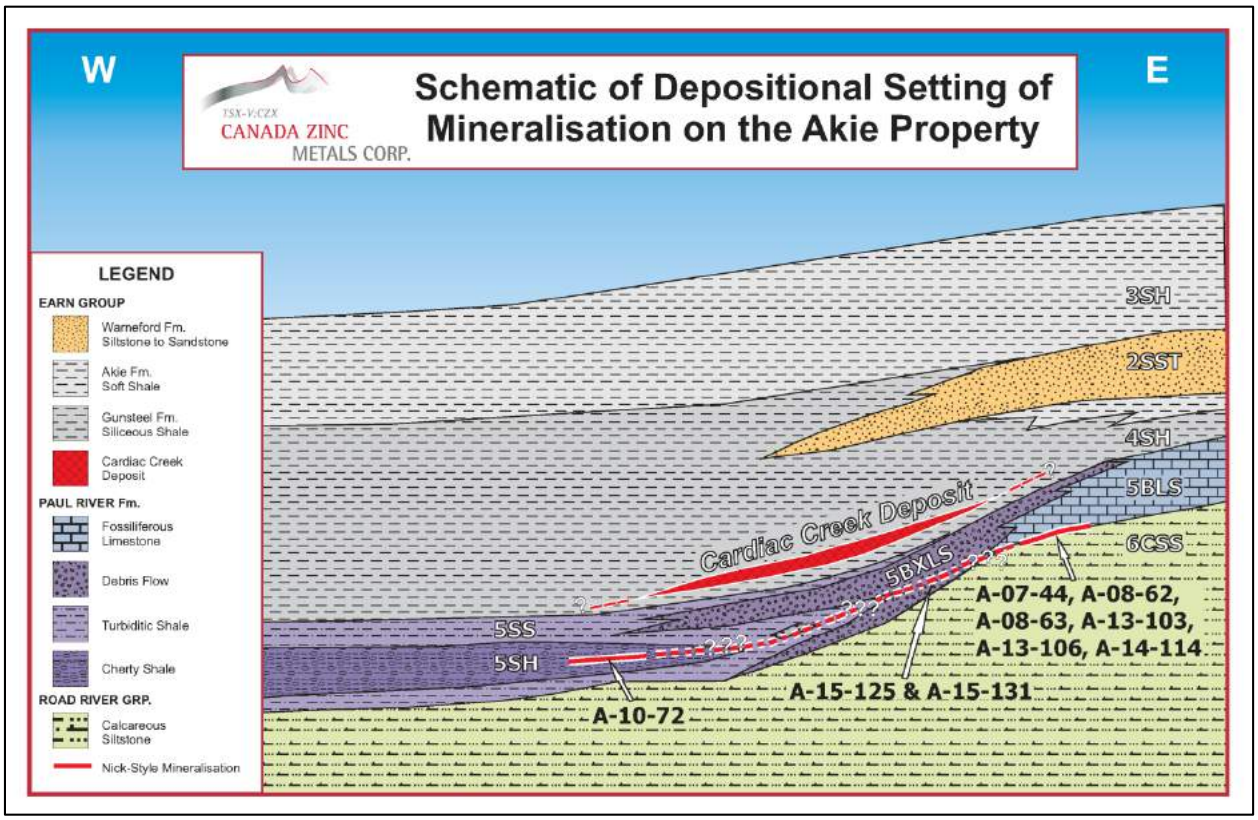


FIGURE 10-10: DEPOSITIONAL SETTING OF THE CARDIAC CREEK AND "NICK"-STYLE MINERALIZATION ON THE AKIE PROPERTY (JOHNSON, 2016A)

TABLE 10.1: DRILL HOLE COLLAR INFORMATION

Hole ID	UTM N (m)	UTM E (m)	Elev (m)	Azimuth (°)	Dip (°)	Length (m)	Type
A-94-01	6361324*	387814*	1475*	050	-55	262.40	Exploration
A-94-02	6361098	388230	1545	050	-54	178.90	Exploration
A-94-03	6359895	389067	1252	050	-54	233.50	Exploration
A-94-04	6369895	389067	1252	050	-73	296.00	Exploration
A-94-05	6360212	388806	1345	050	-65	230.70	Exploration
A-94-06	6359460	389162	1298	050	-57	540.70	Exploration
A-94-07	6360211	388806	1344	050	-87	272.80	Exploration
A-94-08	6360997	388101	1624	050	-55	203.00	Exploration
A-94-09	6360997	388101	1624	050	-85	350.80	Exploration
A-94-10	6360601	388381	1572	050	-49	294.70	Exploration
A-94-11	6360600	388381	1570	050	-78	370.90	Exploration
A-94-12	6360101	388660	1429	050	-71	518.80	Exploration
A-95-13	6360290	388263	1526	050	-82	818.40	Exploration
A-95-14*	6359973	388482	1528	055	-79	124.10	Abandoned
A-95-15*	6359973	388482	1528	055	-84	578.20	Abandoned
A-95-16	6359741	388866	1355	050	-83	741.30	Exploration
A-95-17	6360735	387802	1726	055	-87	829.10	Exploration
A-95-18	6359884	388376	1559	055	-87	1030.50	Exploration
A-95-19	6360243	387917	1655	035	-88	1192.40	Exploration
A-96-20	6358726	389904	1074	050	-60	438.30	Exploration
A-96-21	6360657	388702	1424	203	-84	601.10	Abandoned
A-96-22*	6358163	390641	943	050	-50	282.90	Exploration
A-96-23*	6357713	391278	890	050	-50	206.70	Exploration
A-96-24	6362387	386687	1587	050	-60	541.90	Exploration
A-96-25	6362221	387128	1456	050	-45	214.60	Exploration
A-96-26*	6362219	387124	1480	050	-87	129.50	Exploration
A-96-27	6358400	390135	994	070	-62	593.80	Exploration
A-96-28	6360288	389046	1229	230	-70	211.80	Exploration
A-96-29	6360288	389046	1230	230	-75	1262.20	Exploration
A-05-30	6360161	388557	1484	050	-78	599.00	Exploration
A-05-31*	6360296	388366	1543	060	-70	132.50	Abandoned
A-05-32	6360292	388366	1526	055	-68	638.40	Exploration
A-05-33	6360006	388693	1398	060	-77.5	629.00	Exploration

Hole ID	UTM N (m)	UTM E (m)	Elev (m)	Azimuth (°)	Dip (°)	Length (m)	Type
A-06-34*	6360165	388550	1497	050	-86	330.50	Abandoned
A-06-35*	6360165	388550	1497	050	-74	696.00	Exploration
A-06-36	6360291	388364	1527	055	-80	75.29	Abandoned
A-06-36A	6360291	388364	1527	055	-80	791.67	Exploration
A-06-37*	6360296	388366	1543	055	-65	24.99	Abandoned
A-06-37A	6360292	388365	1526	055	-65	593.45	Exploration
A-06-38	6360435	388260	1603	055	-70	599.55	Exploration
A-06-39*	6360165	388550	1497	055	-72	15.40	Abandoned
A-06-39A*	6360165	388550	1497	055	-71.5	542.24	Exploration
A-06-40	6360005	388691	1398	055	-73	535.54	Exploration
A-06-41	6360005	388691	1398	055	-83	675.74	Exploration
A-07-42	6360435	388260	1603	060	-80	712.02	Exploration
A-07-43	6360100	388659	1430	055	-81	629.72	Exploration
A-07-44	6359179	391309	1269	230	-65	221.04	Exploration
A-07-45	6360101	388659	1429	040	-78	584.00	Exploration
A-07-46	6360603	388109	1720	069	-74	730.61	Exploration
A-07-47	6360219	388623	1443	055	-72	401.12	Exploration
A-07-48	6360464	388380	1544	063	-68.5	446.84	Exploration
A-07-49	6360311	388522	1439	060	-64	387.71	Exploration
A-07-50	6360160	388554	1485	025	-78	587.22	Exploration
A-07-51	6360464	388380	1544	063	-80	513.90	Exploration
A-07-52*	6360732	388719	1424	205	-63	852.00	Exploration
A-07-53	6360311	388522	1438	060	-79	460.08	Exploration
A-08-54	6360407	388496	1469	050	-76	338.28	Exploration
A-08-55	6359993	388827	1322	050	-83	564.75	Exploration
A-08-56	6360407	388497	1467	050	-60	277.62	Exploration
A-08-57	6360313	388521	1438	060	-58	319.00	Exploration
A-08-58	6360102	388657	1431	052	-72	479.00	Exploration
A-08-59	6360220	388622	1443	055	-65	329.00	Exploration
A-08-60	6360435	388258	1604	050	-79	146.00	Abandoned
A-08-60A	6360435	388258	1605	050	-83	688.00	Exploration
A-08-61	6360465	388380	1544	065	-62	377.00	Exploration
A-08-62	6362386	386683	1589	050	-70	566.00	Exploration
A-08-63	6362386	386683	1589	050	-58	548.00	Exploration

Hole ID	UTM N (m)	UTM E (m)	Elev (m)	Azimuth (°)	Dip (°)	Length (m)	Type
A-08-64	6359994	388828	1323	050	-80	551.00	Exploration
A-08-65	6360295	388368	1527	042	-77	633.00	Exploration
A-08-66	6359994	388828	1322	050	-72	413.00	Exploration
A-10-67*	6362343	386800	1543	050	-78	553.83	Exploration
A-10-68*	6362445	386610	1652	050	-78	808.29	Exploration
A-10-69*	6361641	387441	1475	050	-76	236.00	Exploration
A-10-69A*	6361641	387441	1475	050	-82	335.00	Exploration
A-10-70*	6362552	386932	1656	050	-74	400.00	Exploration
A-10-71*	6361283	387637	1542	050	-76	443.00	Exploration
A-10-72*	6361909	387138	1510	050	-72	533.00	Exploration
A-10-73*	6360159	388365	1566	055	-74	71.00	Abandoned
A-10-73A*	6360159	388365	1566	055	-78	32.95	Abandoned
A-10-73B*	6360159	388365	1566	055	-72	652.28	Exploration
A-10-74*	6360545	388172	1700	060	-76	645.27	Exploration
A-10-75*	6360545	388172	1700	060	-82	778.15	Exploration
A-10-76*	6362550	386423	1729	050	-82	822.67	Exploration
A-10-77*	6358691	389899	1068	050	-90	6.71	Technical
A-10-78*	6358591	389892	1057	050	-90	40.23	Technical
A-10-79*	6358529	389929	1049	050	-90	5.18	Technical
A-10-80*	6358538	389846	1051	050	-90	5.33	Technical
A-11-81*	6360166	389405	1041	050	-90	25.00	Technical
A-11-81A*	6360168	389406	1041	050	-90	10.00	Technical
A-11-82*	6360132	389315	1085	050	-90	175.26	Technical
A-11-83*	6360134	389317	1085	050	-90	30.00	Technical
A-11-84*	6359400	389549	1081	050	-90	45.73	Technical
A-11-85*	6359384	389566	1081	055	-60	173.10	Technical
A-11-86*	6359202	389644	1066	050	-83	505.05	Exploration
A-11-87*	6361641	387440	1475	050	-55	231.65	Exploration
A-11-88*	6361569	387510	1518	050	-72	299.62	Exploration
A-11-89*	6361680	387293	1506	050	-65	374.60	Exploration
A-11-90*	6361909	387137	1510	050	-62	281.64	Exploration
A-11-91*	6361481	387250	1582	050	-70	521.21	Exploration
A-11-92*	6359740	388865	1354	050	-68	648.32	Exploration
A-11-93*	6359740	388865	1354	035	-60	590.40	Exploration

Hole ID	UTM N (m)	UTM E (m)	Elev (m)	Azimuth (°)	Dip (°)	Length (m)	Type
A-11-94*	6359740	388865	1354	030	-48	162.46	Abandoned
A-11-95*	6359740	388865	1354	050	-62	593.45	Exploration
A-11-96*	6359993	388827	1322	050	-55	336.81	Exploration
A-11-97*	6360006	388692	1398	050	-85	99.06	Abandoned
A-11-98*	6360006	388692	1398	050	-59	471.83	Exploration
A-11-99*	6360006	388692	1398	050	-85	813.22	Exploration
A-11-100*	6362031	382560	1381	050	-70	99.06	Abandoned
A-13-101*	382560	6362031	1381	050	-55	269.75	Exploration
A-13-102*	382560	6362031	1381	050	-80	392.89	Exploration
A-13-103*	390858	6359518	1295	230	-60	373.88	Exploration
A-13-104*	386374	6362410	1650	050	-75	737.01	Exploration
A-13-105*	388828	6359993	1322	070	-75	442.87	Exploration
A-13-106*	388172	6360545	1700	045	-59	531.27	Exploration
A-13-107*	388260	6360434	1600	035	-68	626.36	Exploration
A-13-108*	388865	6359740	1354	050	-77	152.10	Abandoned
A-13-109*	388865	6359740	1354	050	-78	746.46	Exploration
A-13-110*	390378	6358071	935	070	-65	578.82	Exploration
A-14-111*	388521	6360311	1438	040	-66	374.60	Exploration
A-14-112*	388200	6360744	1651	048	-75	397.46	Exploration
A-14-113*	388200	6360744	1651	048	-62	338.38	Exploration
A-14-114*	388640	6360477	1412	050	-85	178.92	Exploration
A-14-115*	388860	6360123	1317	050	-68	240.79	Exploration
A-14-116*	388827	6359993	1322	080	-62	476.40	Exploration
A-14-117*	388827	6359993	1322	080	-52	387.10	Exploration
A-14-118*	388200	6360744	1651	062	-83	62.18	Abandoned
A-14-119*	388200	6360744	1651	056	-83	36.58	Abandoned
A-14-120*	388200	6360744	1651	056	-80	461.47	Exploration
A-15-121*	388522	6360311	1438	035	-83	554.74	Exploration
A-15-122*	388362	6360290	1525	042	-64	553.21	Exploration
A-15-123*	388362	6360290	1525	042	-79	270.66	Abandoned
A-15-124*	388362	6360290	1525	045	-75	706.88	Exploration
A-15-125*	388557	6360161	1484	030	-65	461.77	Exploration
A-15-126*	388557	6360161	1484	030	-81	814.43	Exploration
A-15-127*	388557	6360161	1484	025	-76	716.28	Exploration

Hole ID	UTM N (m)	UTM E (m)	Elev (m)	Azimuth (°)	Dip (°)	Length (m)	Type
A-15-128*	388660	6360101	1429	030	-84	137.47	Abandoned
A-15-129*	388660	6360101	1429	030	-84	119.48	Abandoned
A-15-130*	388660	6360101	1429	035	-86	690.08	Exploration
A-15-131*	388522	6360311	1438	040	-57	322.18	Exploration

(*) Denotes un-surveyed drill hole collar

TABLE 10.2: TABLE OF "NICK"-STYLE INTERCEPTS RECOGNIZED IN DRILL CORE ON THE AKIE PROPERTY SINCE 2007 (JOHNSON, 2016A)

Hole ID	From/To (m)	Length (m)	Sample #	Elemental Enrichment	Stratigraphic Location
A-07-44	206.40 to 207.31	0.91	Unsampled	-	Limestone/RRG contact
A-08-62	542.00 to 542.94	0.94	855421	Cu, Pb, Zn, Ni, U, V, P, La, Cr, Se	Limestone/RRG contact
A-08-63	472.28 to 473.13	0.85	855656	Pb, Zn, U, P, Cr, Se	Limestone/RRG contact
A-10-72*	299.40 to 300.57	1.17	856376, 856377	Mo, Cu, Pb, Zn, Ag, Ni, Co, Fe, As, U, Cd, Sb, Bi, V, Ca, P, Ca, Hg, Tl, S, Ga, Se, Au Te, Ge, Sn, Y, Ce, Re, Pd, Pt	Cherty shales
A-13-103*	252.37 to 252.87	0.50	1195656	Mo, Cu, Pb, Zn, Ag, Ni, Co, As, U, Cd, Sb, V, P, La, Cr, Hg, Tl, Se, Au, Te, Cs, Ge, Y, Ce, Re, Pt	Limestone/RRG contact
A-13-106*	499.90 to 501.13	1.23	1196258	Pb, Zn, Ni, As, U, P, Se, Re, Pt	Limestone/RRG contact
A-14-114	148.30 to 149.69	1.39	269976, 269977, 269978, 269979	Mo, Cu, Pb, Zn, Ni, U, Sb, V, P, La, Cr, Hg, Tl, Se	Limestone/RRG contact
A-15-125	443.58 to 444.02	0.44	2695158	Pb, Zn, Ni, U, V, P, La, Cr	Debris flow/RRG contact
A-15-131	300.60 to 301.20	0.60	2695716	Cu, Pb, Zn, Ni, U, V, P, La, Cr, Hg, Se	Debris flow/RRG contact

(*) denotes the use of Acme Analytical Group 1F 54 element package to obtain rare earths and PGEs.

10.3 SAMPLING METHOD AND APPROACH

Work completed on the Akie property is described in various assessment and internal reports. A review of these reports suggests that rock samples collected from the property were either random grab samples or chip samples over a specific width. With respect to the Inmet Mining drill core, an examination of the core remaining on the property indicates that only the mineralized intervals were split and sampled. These intervals were removed from the property and stored in a Vancouver warehouse (Chris Graf, pers. comm.). When Canada Zinc Metals acquired Ecstall Mining, any remaining mineralized intervals were returned to the property (Johnson, pers. comm.). An examination of drill logs indicates that the core was sampled in intervals ranging from 0.20 m and 2.50 m. The length of sample intervals appears to have been determined by the amount and type of sulphide present; shorter intervals were taken within the massive sulphide zone.

The following description of the sampling method and approach was provided by Nick Johnson, Project Geologist for Canada Zinc Metals.

From 2005 to 2015, Canada Zinc Metals implemented the following stringent procedures with regards to the sampling methodology and preservation of the sampling record:

1. The drill core is delivered by air in bundles of 8–12 core boxes in a steel mesh cage to prevent loss of core during flight.

2. A geotechnician prepares the boxes of core for the geologist by measuring the “from” and “to” down-hole distance of each box marked on the upper left hand corner and bottom right hand corner of each box. This information, including the box number and drill hole number are recorded on an aluminum tag and stapled to the left hand side of each box.

3. The geologist records his or her observations on a predefined Excel worksheet with drill-log headings such as lithology, mineralization, structure, RQD, alteration, sampling, etc.

4. Sampling is at the discretion of the geologist who is instructed to sample all observed exhalative mineralization and any other observed features of interest for exploration purposes. Sample boundaries must conform to lithological boundaries.

5. Sampling is generally restricted to a minimum of 30 cm and a maximum of 1.50 m. The beginning and end of a sample are marked with a lumber crayon. Sample boundaries and sample numbers are marked with a permanent marker on the wooden divider of the core box just above the sample. Sample boundaries are also marked by an aluminum tag stapled to the core box. The sample number, from and to distance, and project name are recorded on a paper sample tag; the sample number is also recorded on an aluminum tag and both are stapled to the core box at the beginning of a sample.

6. QA/QC procedures are in place during sampling of the drill core. A series of standards, blanks and duplicates are inserted in the sample stream every ten samples. Each sample has its own sample number.

7. Once all of the geological observations and sampling have been recorded, the core boxes are then photographed to obtain a visual record of the drill core as well as the samples collected. The photographs are taken before the core is cut.

8. The remaining paper sample stubs are kept and stored for record purposes.

9. A rock saw is used to cut the sampled core perpendicular to the dominant fabric. One half is returned to the core box and the other half is placed in a polyurethane sampling bag.

10. All samples are double-bagged due to the fissile nature of the drill core which produces sharp edges along breaks and fractures. Samples are double-bagged to avoid cross contamination during transport.

11. The sample tag is placed in the outer bag to maintain legibility and prevent deterioration. Each sample bag is then sealed using a plastic security zap-strap.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

Assessment reports reviewed by the author indicate that the 1994 to 1996 analytical work was completed at International Plasma Laboratory Ltd. (IPL) in Vancouver BC. These reports also include copies of the original assay certificates and a description of the analytical procedures used by IPL. The author believes that sample preparation and sample security were done in an appropriate manner, following industry best practices applicable at the time.

IPL is officially registered with and certified by the BC Ministry of Environment, Lands and Parks (BCMOE) and the Canadian Association for Environmental Analytical Laboratories (CAEAL). IPL's analytical procedures comply with the applicable requirements of the BCMOE, Environment Canada, American Society for Testing and Materials (ASTM), American Water Works Association (AWWA) and US Environmental Protection Agency (USEPA).

Standard sample preparation for rock samples involves logging the sample into the laboratory sample tracking system, drying, crushing and pulverizing the entire sample so that greater than 80% passes a 75-micron screen. Trace elements are determined by leaching a sample aliquot in aqua regia with an analysis by inductively coupled plasma (ICP) emission spectrometry and mass spectrometry. IPL maintains an internal quality-control program, including the use of blank, duplicate and standard samples inserted into the sample stream. The author believes that the IPL sample preparation and analytical methods conform to reasonable data verification controls.

Analytical work for the 2005 to 2008 and 2010 to 2011 drilling programs was completed by Acme Analytical Laboratories (Vancouver) Ltd. (AcmeLabs). In 2012, AcmeLabs was acquired by Bureau Veritas Minerals and, in 2014 it transitioned to Bureau Veritas Commodities Canada Ltd. In March 2014, Bureau Veritas Commodities Canada introduced an integrated coding system for sample preparation and analytical packages. In January 2015, the Vancouver branch of AcmeLabs was rebranded as Bureau Veritas Mineral Laboratory (Bureau Veritas). The analytical work for the 2013 to 2015 drilling programs was completed by Bureau Veritas. Vancouver's Bureau Veritas laboratory is ISO 9001:2008 and ISO/IEC 17025:2005 certified.

Robert Sim visited the Akie property on two occasions; October 16–17, 2007 and again from September 18–20, 2013 during which he reviewed the drill core and data recording practices. The area above the Cardiac Creek deposit was observed from a helicopter and several drill pads were inspected and core drilling was observed in hole A-13-109. The site visits included a detailed review of the data stream from logging to database entry, to section plotting and, finally, a review of the information with respect to the surrounding geologic interpretation. Mr. Sim found the camp and facilities clean and well-organized. Site personnel were found to follow an effective and methodical approach to processing the drill core. Mr. Sim also inspected the core sampling facility and equipment which was found to be clean, organized

and in good working condition. He indicated that Canada Zinc Metals activities were, and continue to be, conducted in a professional manner and that the reviewed equipment and practices followed accepted industry standards and practices.

The following subsections describe the chain of custody/security, sample preparation and analytical procedures for the 2005 to 2015 drilling programs.

11.1 CHAIN OF CUSTODY AND SECURITY

Before samples are shipped from the exploration camp to the lab, individual samples are laid out in consecutive order. Samples, five to a bag, are placed into rice bags and sealed with a plastic zap-strap and security tag. The laboratory's address and phone number, the expeditor's address and phone number, and the sample sequence and bag number are recorded on the outside of the rice bag. The contents of each bag and the security tag number are recorded on a spreadsheet. The lab submission form documents the submitted samples and the desired analytic packages. Both the lab submission form and sample tracking sheets are placed in the first bag of each shipment. Separate copies are emailed to a lab representative and digital or hard copies of these forms are kept for record-keeping purposes.

Shipments are backhauled via the grocery truck (Gautier Ventures Inc.) to the project's expeditor located in Mackenzie, BC. In Mackenzie, the samples are placed on a wooden pallet, shrink-wrapped, and held until pickup. The samples are then shipped to Vancouver's Bureau Veritas lab using bonded transport contractors, such as Bandstra Transportation Systems Ltd., and/or Van-Kam Freightways Ltd. The tracking numbers for each shipment are recorded and given to the Akie site personnel for record-keeping purposes. Bureau Veritas records the delivery data which is available for review by Canada Zinc Metals personnel using Bureau Veritas' "Web Access" (an online database containing searchable analyses information). This information includes delivery date, expected date of completion, sample preparation method requested, analyses requested, etc.

All procedures are carefully implemented and meet or exceed industry standards for collection, handling and transport of drill core samples.

11.2 SAMPLE PREPARATION AND ANALYSES

Upon delivery of the samples to Bureau Veritas' Vancouver lab, the samples are prepared before they are crushed and analyzed. The preparation method is as follows:

1. After receiving the samples by bonded carrier, the shipment is initially inspected for completeness.

2. Samples are then sorted and inspected for quality of usefulness. This includes determining the quantity and condition of each sample. Pulps samples are inspected for homogeneity and fineness.

Drill core samples are then prepared for analysis using the Bureau Veritas PRP70-250 sample preparation method. Under the newly integrated coding system, this method replaces Acme's code R200-250. The PRP70-250 method is as follows:

1. Each drill core sample is crushed in a jaw crusher to 70% passing 10 mesh (2 mm). Between each routine sample, the crusher is cleaned with a brush and compressed air.

2. Samples are homogenized and split to obtain a 250 g split using a riffle splitter.

3. The 250 g split is then pulverized to 85% passing 200 mesh (75 microns). The crusher and pulverizer are cleaned with a brush and air compressor between each routine sample. A granite-quartz wash is used to scour the equipment following any high-grade samples, between any changes in rock colour, and at the end of each file.

4. Granite-quartz is crushed and pulverized as the first sample in sequence and is carried through to analysis.

After the samples have been prepared, three separate analyses are then completed: Bureau Veritas AQ270/AQ371 package (previously Acme Group 7AR/7AX), LF301 for Ba package (previously Acme Group 4A-Ba), and the SPG01 package (previously Acme Group 8 SG). Each of these analyses is briefly summarized here:

AQ270/AQ371 Package

The Acme Group 7AR package used in 2005 and 2006 provided assay data for 24 elements including zinc, lead and silver with no known upper detection limits. The Acme Group 7AX package used since 2007 provided assay data for 34 elements at a lower detection limit, including lead, zinc, silver and numerous trace elements. The Acme Group 7AX package has upper detection limits for zinc at 200,000 ppm (20%) and lead at 40,000 ppm (4%). These samples are automatically rerun using the Acme Group 7AR which provides the value in excess of these limits. Under the newly integrated coding system, the Acme Group 7AX/7AR analytical package has become Bureau Veritas AQ270/AQ371. The package has changed in name only.

The methodology remains unchanged and the technique is as follows:

1. Prepared samples (1 g) are digested for one hour in a hot-water bath with a modified aqua regia solution consisting of equal parts concentrated HCl, HNO3 and H2O.

2. Samples are made up to volume with dilute HCl in a Class A volumetric flask.
3. Samples are then analyzed using an ICP atomic emission spectrometer and/or ICP mass spectrometer.
4. Any high-grade samples are reweighed at lower weight to accommodate analysis up to the 100% upper limit.

LF301 for Ba Package

Under the newly integrated coding system, the Acme Group 4A-Ba analytical package has become Bureau Veritas LF301-Ba. This package provides litho-geochemical data for all major oxides and is used to obtain accurate barium values in the drill core samples. The general insolubility of barium renders other analytical techniques ineffective. The package has changed in name only.

The methodology remains unchanged and the technique is as follows:

1. Prepared samples are mixed with a lithium metaborate/tetraborate flux.
2. Crucibles are fused in a furnace.
3. Cooled beads are then dissolved in ACS (American Chemical Society)-grade nitric acid.
4. Samples are analyzed using an ICP-emission spectrometer.

SPG01 Package

Under newly integrated coding system, the Acme Group 8-SG analytical package has become Bureau Veritas SPG01. This package provides the specific gravity of each drill core sample which is conducted on the pulverized pulps. The package has changed in name only.

The methodology remains unchanged and the technique is as follows:

1. A split of dry pulp is collected from a sample and weighed to a Class A volumetric flask.
2. The flask and pulp are carefully weighed on a top-loading balance.
3. The weights are measured and recorded.
4. Specific gravity is then calculated for the sample.

11.3 QA/QC OF ANALYTICAL DATA

Canada Zinc Metals maintained a strict QA/QC policy regarding drill core sampling. Standards, blanks and duplicates were inserted into the sample stream at a rate of one in thirty samples and given their own sample number.

During the 2005 drilling program, blank material was obtained from a local outcrop which contained no visible signs of mineralization. In the 2006 to 2008, 2010 to 2011, and 2013 to 2015 drilling programs, blank material was purchased from WCM Minerals, Burnaby BC, Canada. Standard reference material

was also purchased from WCM Minerals. A total of ten certified standards for zinc, lead, silver and copper have been used in the drilling completed at the Akie property (i.e., PB109, PB110, PB111, PB112, PB118, PB123, PB129, PB130, PB136, and PB145). Core duplicate samples were obtained by sawing one-quarter core splits from the sampled interval. Due to the variability observed in the core duplicates from 2006 and 2007, it was recommended that pulp and coarse duplicates be taken as a split from the pulp and reject portion of a sample during sample preparation at Acme labs. This recommendation was implemented for all subsequent drilling programs after 2007.

Due to the significant contrast in assay results of the Cardiac Creek Zone between the 2005 Canada Zinc Metals drill program and the historical Inmet Mining drill programs, Canada Zinc Metals had pulp duplicate samples taken from all "significantly mineralized" intervals and had them re-analyzed at Global Discovery labs in Vancouver, BC. Global was a lab run by Teck Cominco Corp. The re-analysis by Global Discovery labs demonstrated the validity of the results in 2005 and 2006, showing similar results for lead, zinc and silver, and this protocol was subsequently discontinued in early 2007. The comparison graphs between the two labs can be seen in the previous technical report by MacIntyre and Sim (2008). In 2013, check assays were re-initiated and approximately 10% of all samples submitted to Bureau Veritas were also sent to ALS's Vancouver laboratory.

STANDARD REFERENCE MATERIAL (SRM) PERFORMANCE

The performance of standard reference material (SRM or standards) is evaluated using the following criterion: 90% of the results must fall within ±10% of the accepted value for the assay process to be in control. Results are presented using statistical process control charts. In the control chart, the "accepted" or average value is indicated by a green horizontal line. Control limits at ±10% of the accepted value are indicated by red lines above and below the line showing the accepted value. The assay results for the standard appear on the chart are indicated by a blue line. Examples from standards PB136 and PB145 are shown in Figures 11-1 and 11-2, respectively.

The results for all standards fall within the control limits more frequently than the prescribed rate, showing that no systematic assaying problems exist.

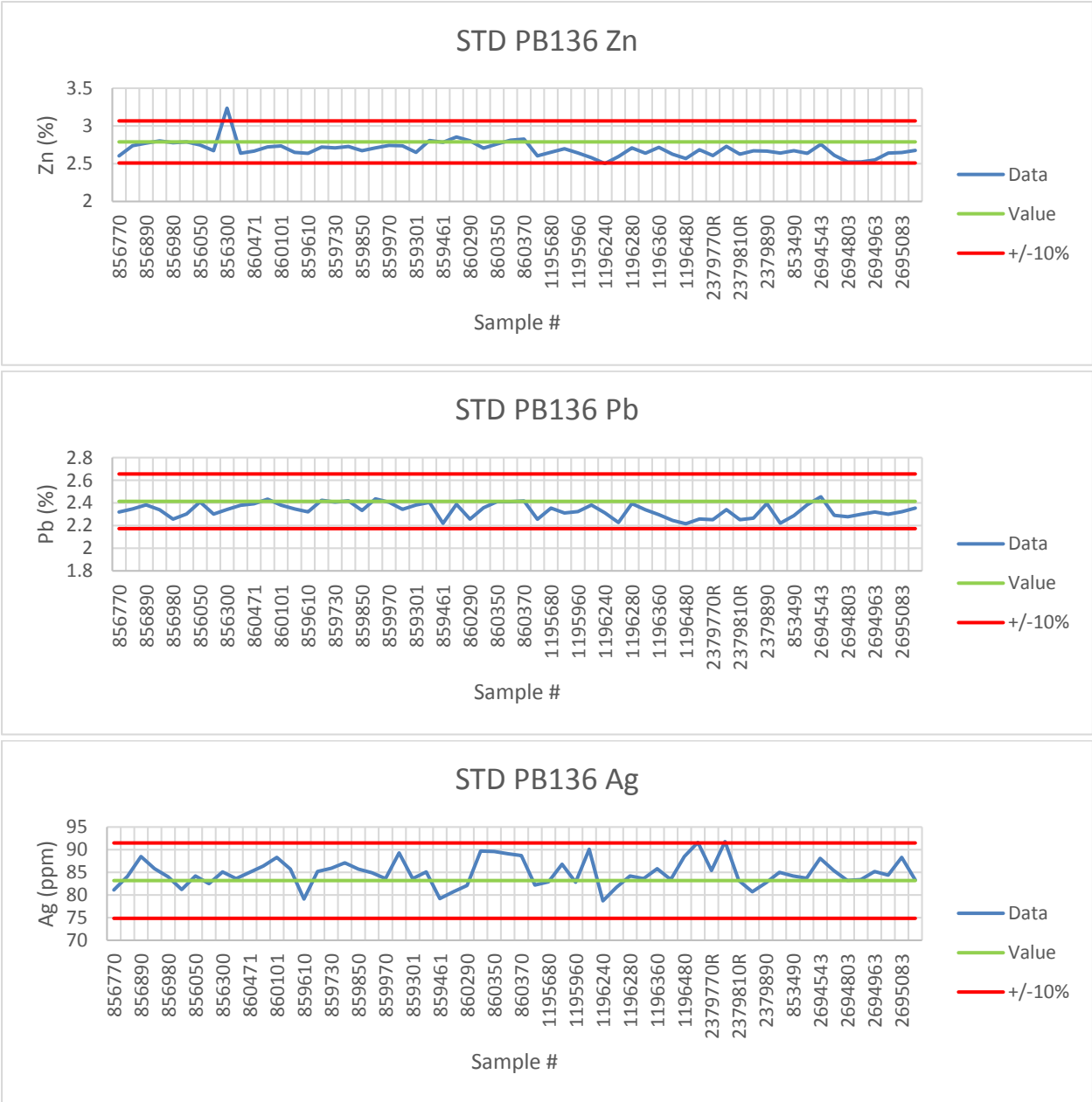
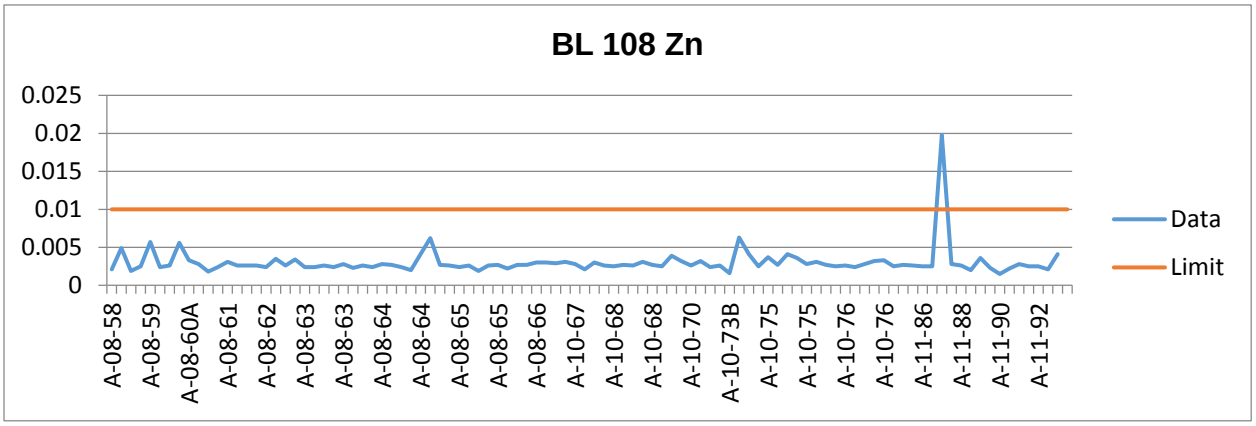


FIGURE 11-1: SRM RESULTS FROM STD PB136 FOR ZINC, LEAD AND SILVER

FIGURE 11-2: SRM RESULTS FROM STD PB145 FOR ZINC, LEAD AND SILVER

SAMPLE BLANK PERFORMANCE

Control results exceeded the control limit for the blank material assays less than 5% of the time. An example of the blank sample performance is shown in Figure 11-3. During the 2005 drilling program, locally sourced rock was used as blank material but was found to be non-sterile. Since then, a more appropriate blank material has been purchased and used in the QA/QC process.



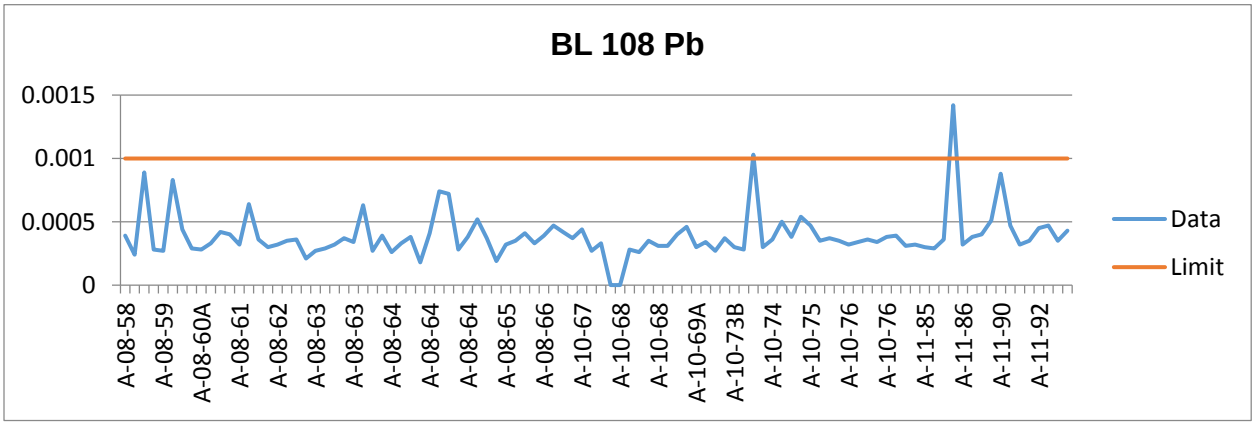
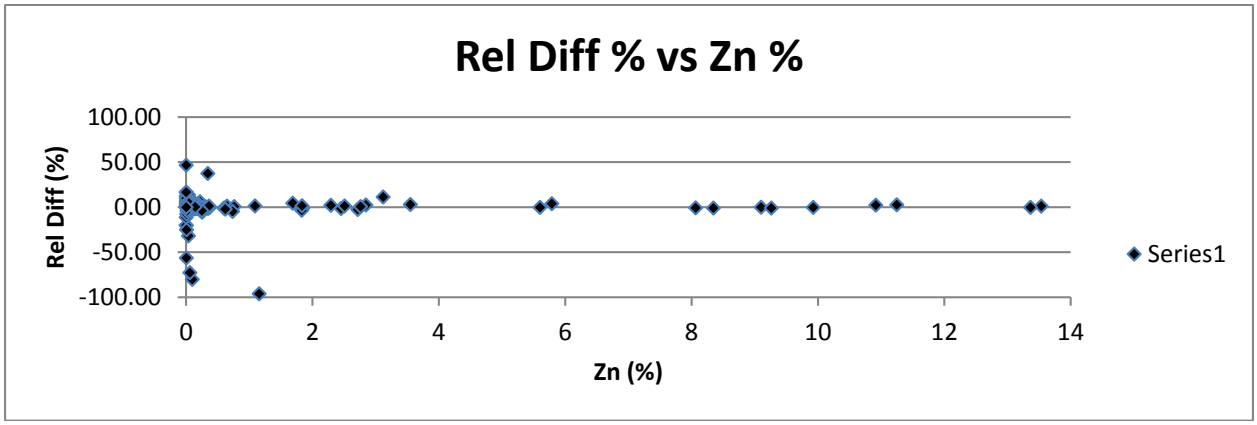


FIGURE 11-3: BLANK RESULTS FROM BL 108 FOR ZINC AND LEAD

DUPLICATE SAMPLE PERFORMANCE

The results of the coarse (reject) and pulp duplicates both demonstrate a relatively erratic distribution of variability that diminishes as the grade of samples increases (Figures 11-4 and 11-5). The pulp duplicates showed an average relative difference of 0% Zn, 1% Pb and 1% Ag. The coarse duplicates showed an average relative difference of 0% Zn, 1% Pb and 2% Ag. These results are considered acceptable for both types of sample duplicates.



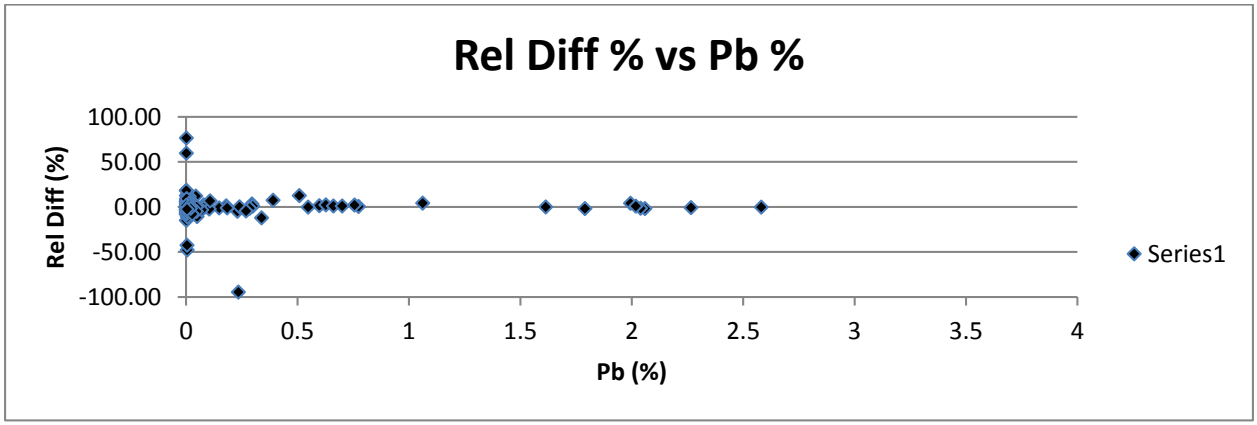


FIGURE 11-4: RELATIVE DIFFERENCE OF PULP DUPLICATE SAMPLES FOR ZINC AND LEAD

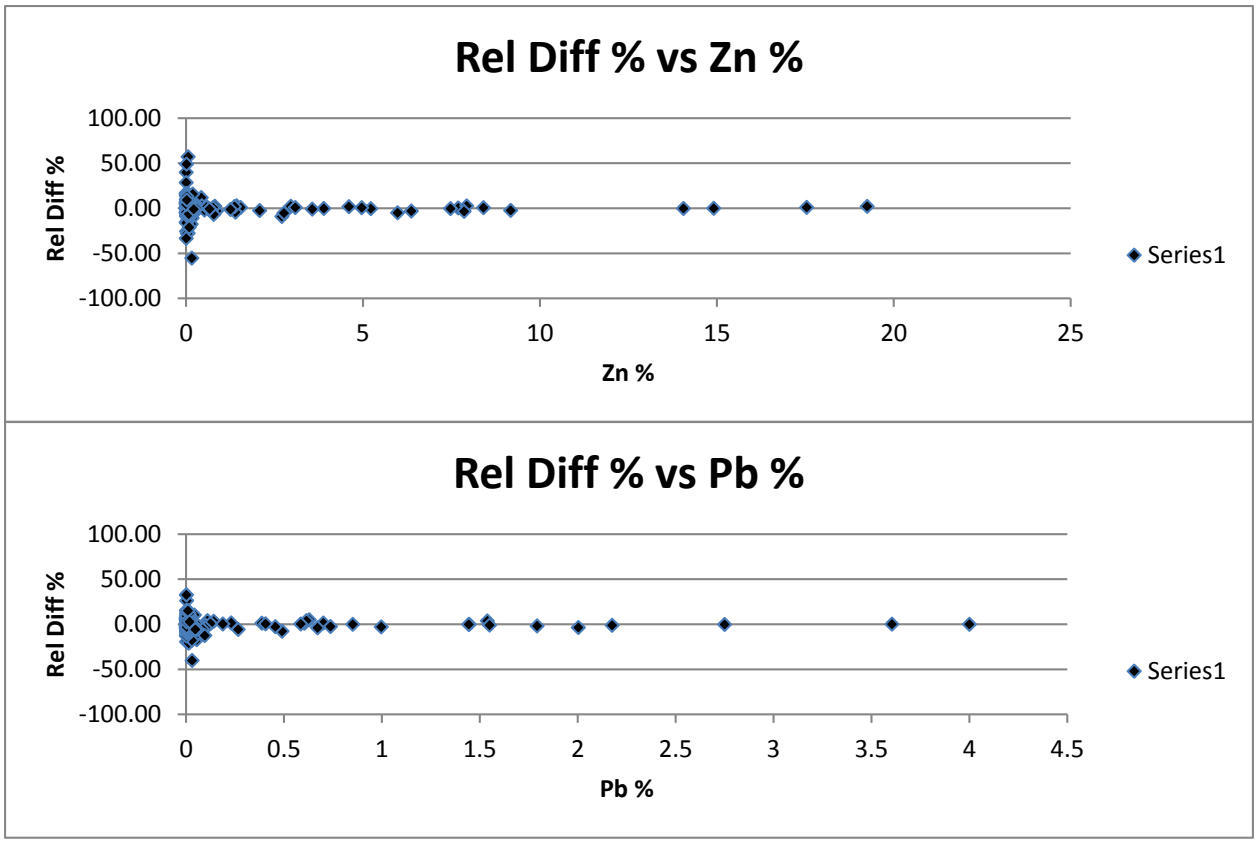


FIGURE 11-5: RELATIVE DIFFERENCE OF COARSE DUPLICATE SAMPLES FOR ZINC AND LEAD

CHECK ASSAYS

Independent confirmation of the analyses was evaluated through testing of duplicate samples at an outside umpire laboratory. Following the completion of each drilling campaign, approximately 10% of the submitted samples were resubmitted to ALS Canada Ltd. in Vancouver. Pulps of the submitted samples were re-homogenised via light pulverising. Analysis was completed using the ALS ME-OG46 assay package for zinc, lead and silver. A prepared sample of 0.4 grams is digested with concentrated nitric acid for 90 minutes in a graphite heating block. The solution is then diluted with concentrated hydrochloric acid before cooling to room temperature. The samples are then diluted in a volumetric flask with de-mineralized water and analyzed using ICP-ES. The re-analysis conducted by ALS demonstrates the validity of the results between 2013 and 2015, showing similar results for zinc, lead, and silver. The comparison graphs of zinc and lead grades received from the two labs can be seen in Figures 11-6 and 11-7, respectively.

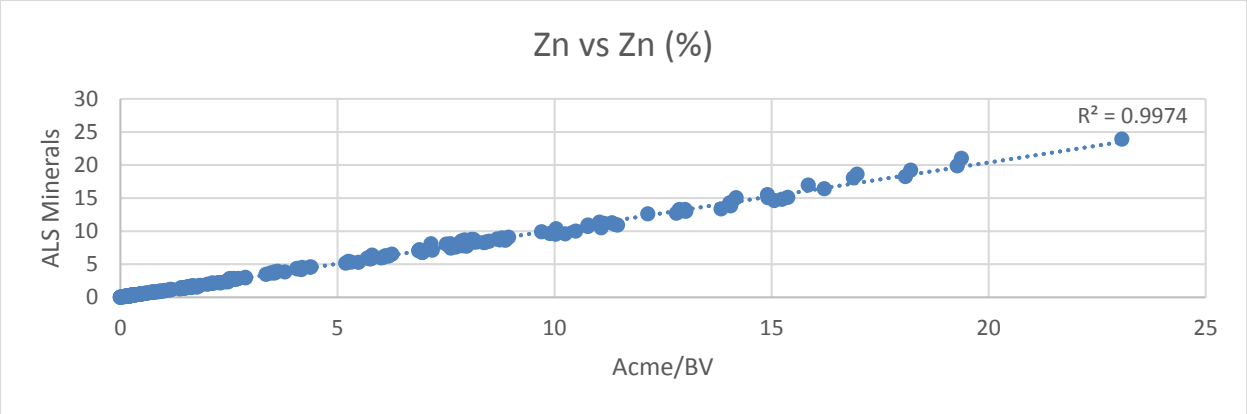


FIGURE 11-6: COMPARISON GRAPH FOR ZINC

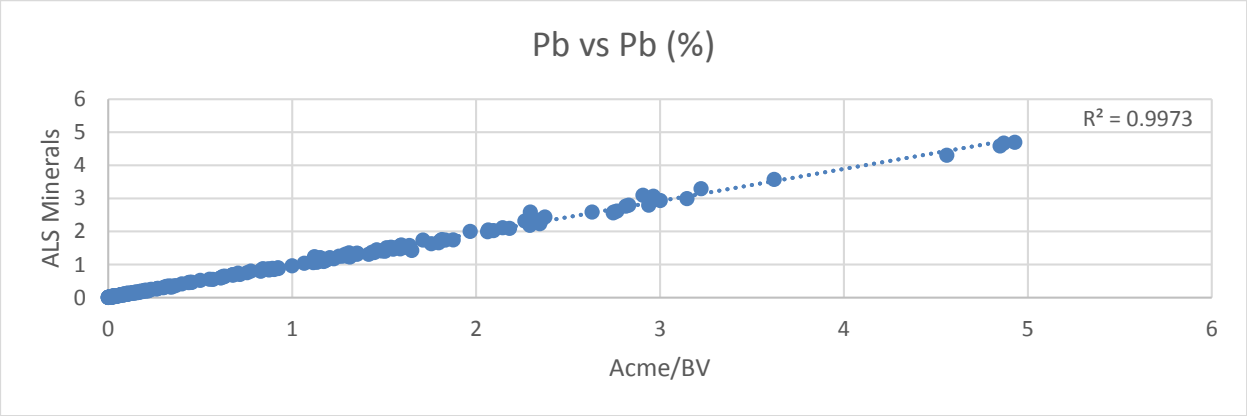


FIGURE 11-7: COMPARISON GRAPH FOR LEAD

CONCLUSIONS

Results from the standard reference material indicate that the zinc, lead and silver assay processes are under sufficient control to produce reliable sample assay data for a resource estimate. Blank results indicate no contamination in the assay process. Coarse reject results confirm that the sample preparation protocol is reliable. Comparisons of inter-lab pulp duplicates show good results with most differences attributed to samples in the low-grade range.

The Akie deposit sampling and assaying program produces sample information that is accurate and reliable and meets industry standards for zinc, lead and silver. The assay results are sufficiently accurate and precise for use in resource estimation.

12 DATA VERIFICATION

The source of some of the data for the Akie Mineral claims has been the historical work reported by previous operators, which includes geochemical surveys, geophysical surveys and diamond drilling. Examination of the analytical results presented in publicly available assessment reports and in a previous compilation report (Baxter, 1996c) suggests that quality assurance was performed to the best practice standards of the day.

On August 26, 2005, a sample of thin-bedded massive sulphide was collected by D.G. MacIntyre from the Cardiac Creek showing; this was submitted to Acme Analytical Laboratories in Vancouver for analysis. The sample assayed 23.82% Zn, 4.6% Pb and 29 g/t Ag. A copy of the analytical certificate is contained in the previous technical report (MacIntyre, 2005). These values are similar to those reported elsewhere for the Cardiac Creek showing (e.g., by Baxter in 1995 and 1996) and confirm the high-grade nature of the massive sulphide mineralization.

As part of the data validation, 7 drill holes, representing about 7% of the drilling database located in the vicinity of the resource model, were randomly selected for manual validation of the assay result back to the original (assay certificate) data source. Of the 800 samples checked, four typographical errors were identified during the manual validation. Similar validation programs were conducted following the 2008 and 2012 resource estimates with similar results. Manual validation indicates that the assay results in the database are free of errors that could materially impact the estimate of mineral resources.

During the site visits, the QP visually correlated the sphalerite and galena contents of drill core with the reported assay grades for a random selection of drill holes. No discrepancies were noted. The sampling protocols used to develop the Canada Zinc Metals sample database follow accepted industry standards and have been verified through an extensive QA/QC program.

A portion of the database is derived from drilling data generated by Inmet from 1994 to 1996. Although this includes a total of 29 holes in the database, only nine of these holes are located in the vicinity of the resource model. The collar locations of these holes have been verified in the field by Canada Zinc Metals site personnel. The drill core from these holes is stored on the Akie property, and the remaining mineralized intervals have been transported back to the Akie property and stored in the on-site core racks. There are no assay certificates available for the Inmet Mining data. However, the mineralized intervals from Inmet Mining drill holes were visually reviewed and validated in 1996 by Robert Sim who, at that time, was an employee of Inmet Mining at the Vancouver office. All drilling activities conducted by Inmet Mining between 1994 and 1996 were conducted in a professional manner and the resulting data can be considered valid and reliable. The data verification process indicates that the database is sound and reliable for the purposes of resource estimation.

13 MINERAL PROCESSING AND METALLUGICAL TESTING

Canada Zinc Metals has completed preliminary metallurgical testing, but additional work is warranted. Since 2007, four individual metallurgical tests with small sample volumes have been tested at two reputable laboratories in Canada. The four test programs and their resulting recommendations are summarized here.

Results demonstrated that acceptable zinc recoveries can be achieved, but lead and silver recoveries require further improvements.

Heavy liquid separation tests conducted on feed samples indicate that approximately 30% to 45% of the run-of-mine feed mass could be rejected as low grade waste with low metal losses. This would reduce feed tonnage going to the grinding circuit of a future processing plant or to downstream processes, but it would also increase head grades.

Additional benefits would include a lower work index of the sinks (i.e., the pre-concentrate product) that would be processed through the grinding circuit and a lower organic carbon of the sinks resulting in lower reagent consumption rates.

Sample head-grade tests have varied, and modal analyses on the samples has shown that there is fine-grained mineralization of the economic minerals.

The recommended course of action for Akie's metallurgy is as follows:

1. Fresh and representative samples should be obtained for prefeasibility-level development work. Metallurgical test program sample criteria should be:

    - representative of planned resources, particularly in earlier years;
    - representative of ore types, specifically for grain size, impurities and associated minerals of significance; and
    - representative of various rock types for hardness tests.

2. Future metallurgical test programs should include the following:

    - heavy liquid separation tests;
    - mineralogy to determine liberation and grind sizes;
    - hardness tests on heavy liquid separation sink and float products; and
    - flotation tests to produce optimum, separate lead/zinc concentrates with maximum silver recoveries (Note: Source of silver not recovered into lead/zinc concentrates needs to be

determined by mineralogy and by cyanidation of tailings to determine whether silver is interlocked in the non-sulphides.).

14 MINERAL RESOURCE ESTIMATES

14.1 INTRODUCTION

The mineral resource estimate was prepared under the direction of Robert Sim, P.Geo, with the assistance of Bruce Davis, PhD, FAusIMM. Mr. Sim is the independent Qualified Person (QP) within the meaning of NI 43-101 for the purposes of mineral resource estimates contained in this report.

The mineral resource conforms to the generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practices Guidelines* (November, 2003), and are reported in accordance with the Canadian Securities Administrators (CSA) National Instrument 43-101 (NI 43-101). The previous resource estimate for the Cardiac Creek deposit is described in a technical report dated April 27, 2012. Several drilling campaigns have been completed during the 2013, 2014 and 2015 field seasons that have provided 31 additional drill holes into the deposit, resulting in the further upgrading of previous Inferred class resources into the Indicated category.

Estimations are made from 3D block models based on geostatistical applications using commercial mine planning software (MineSight® v10.50-2). The project limits are based in the UTM coordinate system using a nominal block size measuring 5 m x 10 m x 5 m; the longer blocks are parallel to the strike of the deposit at Az315°. The primary orientation of the drilling is at Az50°, and designed to intersect the steeply dipping deposit (-70° southwest) from the hanging wall side. There are several deep holes drilled from the footwall side of the deposit.

The resource estimate was generated using drill hole sample assay results and the interpretation of a geological model which relates to the spatial distribution of zinc, lead, and silver. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. The resources were classified according to their proximity to the sample data locations and are reported, as required by NI 43-101, according to the CIM *Definition Standards for Mineral Resources and Mineral Reserves* (May, 2014).

This report includes estimates for mineral resources. No mineral reserves were prepared or reported.

14.2 AVAILABLE DATA

Three drilling programs have been completed since the previous resource estimate, adding an additional 31 holes to the database. Of these, six were terminated prematurely as they deviated off the planned target and five holes tested other exploration targets on the property. The remaining 20 new holes have pierced the Cardiac Creek Zone, increasing the understanding of the shape, location and grade distribution of the deposit. There are a total of 139 drill holes on the property with a total core length of 59,260 m. Of these 139 drill holes, 104 of them, totaling 46,886 m, are within close enough proximity of the block model to contribute to the estimation of the mineral resource. The remaining 35 drill holes

test the zone over a total strike length of almost 7 km, or they test other exploration targets on the Property. The distribution of the new and previous drill holes is shown in Figures 14-1 and 14-2.

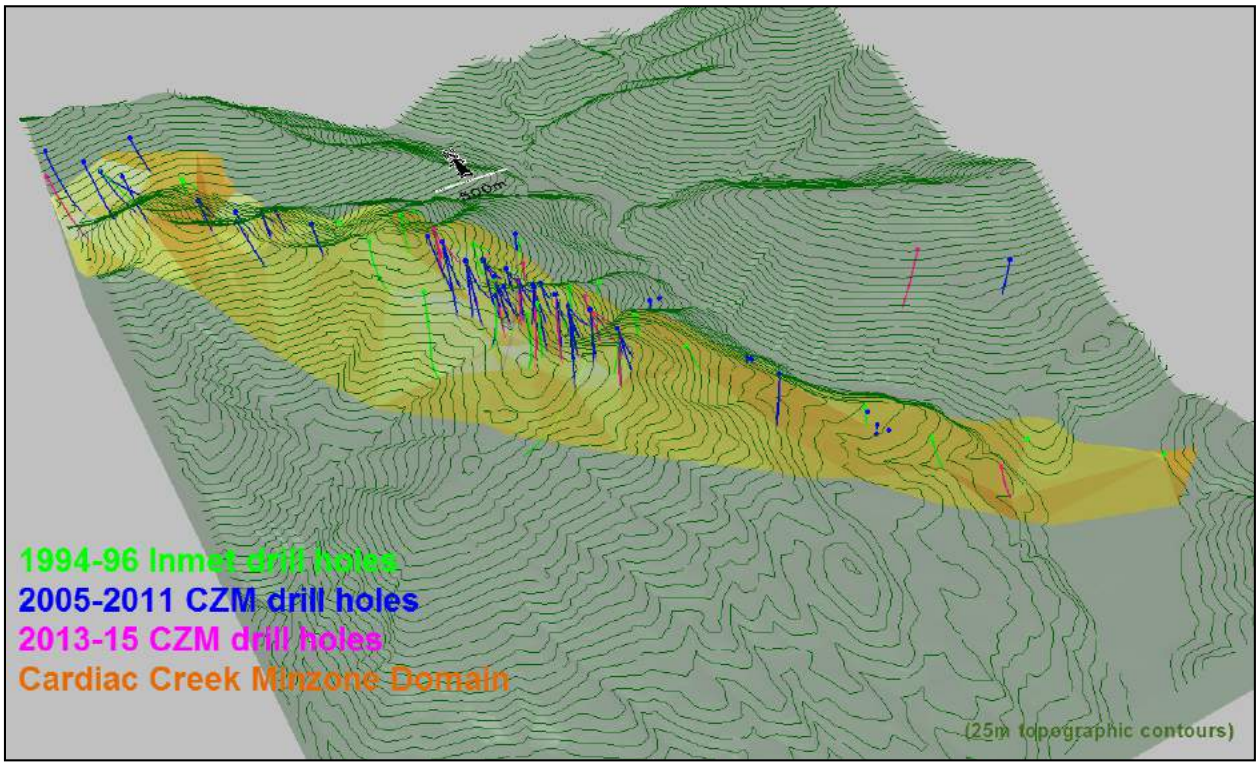


FIGURE 14-1: ISOMETRIC VIEW LOOKING NORTHEAST OF THE MINZONE DOMAIN AND DRILL HOLES BY VINTAGE

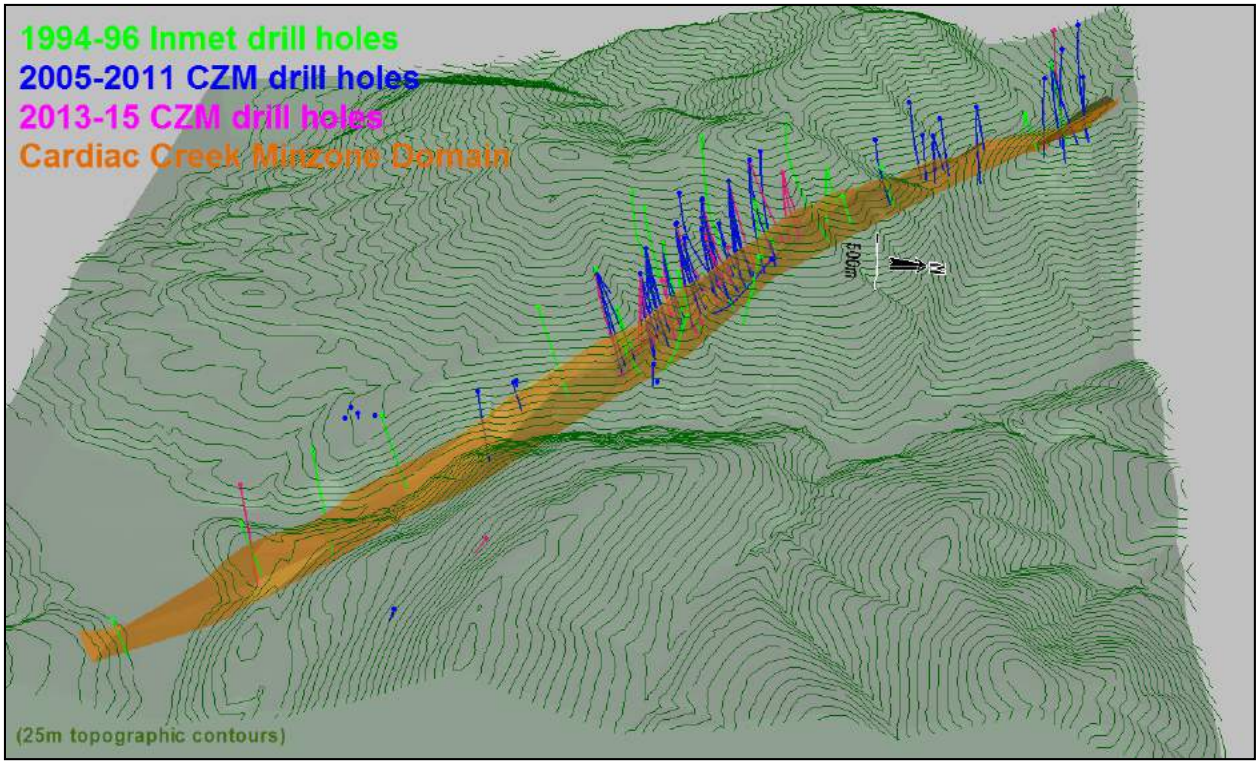


FIGURE 14-2: ISOMETRIC VIEW LOOKING WEST OF THE MINZONE DOMAIN AND DRILL HOLES BY VINTAGE

The challenges regarding access to this rugged terrain, combined with often severe drill hole deviations, have resulted in a somewhat variable distribution of drill holes into the Cardiac Creek deposit. The spacing of pierce points into the mineralized zone (Minzone) is highly variable, ranging from 40 m to more than 500 m, with an average of approximately 100 m, in the central part of the resource area.

Select intervals within the drill holes were sampled and analyzed based on a visual observation of sulphide mineralization. A total of 10,683 m of core, in 11,057 individual samples, were analyzed for zinc, lead, and silver (often as part of a 26-element package). Sample intervals, which range from 0.04 m to 3.05 m long, with an average length of 1 m, were selected so they do not straddle a geologic boundary; these were also selected to represent intervals of similar sulphide type or content.

The basic statistical properties of the total sample database are shown in Table 14.1. The statistical properties of the data in the vicinity of the resource model, excluding exploration drill holes, are shown in Table 14.2. The distribution of zinc grades in drilling is shown in Figure 14-3.

TABLE 14.1: SUMMARY OF BASIC STATISTICS OF SAMPLE DATABASE

Element	# of Samples	Total Sample Length (m)	Min	Max	Mean	Std. Dev.
Zinc (%)	11,056	10,683	0	36.73	1.36	3.466
Lead (%)	11,056	10,683	0	18.05	0.26	0.750
Silver (g/t)	11,056	10,683	0	119.0	3.4	5.80
Density (t/m^3)	10,611	10,106	1.53	4.64	2.76	0.303

Note: Original sample data weighted by sample length.

TABLE 14.2: SUMMARY OF BASIC STATISTICS OF DATA PROXIMAL TO THE RESOURCE MODEL

Element	# of Samples	Total Sample Length (m)	Min	Max	Mean	Std. Dev.
Zinc (%)	8,742	8,374	0	36.73	1.70	3.842
Lead (%)	8,742	8,374	0	18.05	0.32	0.830
Silver (g/t)	8,742	8,374	0	119.0	3.9	6.41
Density (t/m^3)	8,379	7,901	1.53	4.64	2.80	0.314

Note: Original sample data weighted by sample length. Exploration drill holes that are too distant to influence the resource model are excluded.

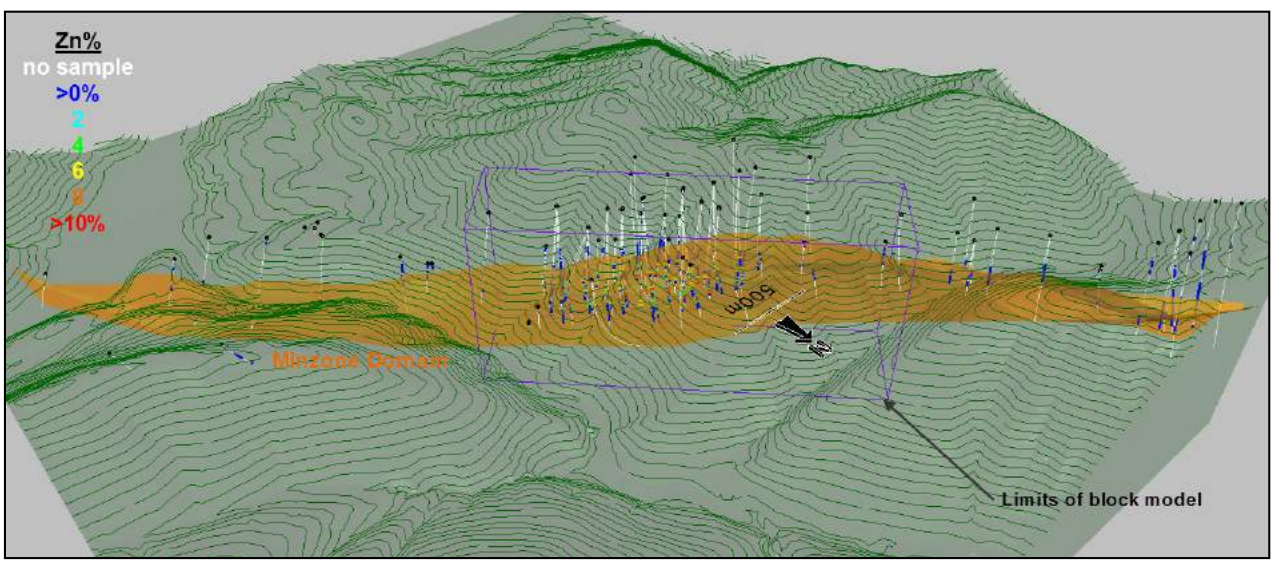


FIGURE 14-3: ISOMETRIC VIEW LOOKING SOUTHWEST SHOWING ZINC GRADES IN DRILLING

14.3 GEOLOGICAL MODEL, DOMAINS AND CODING

The Cardiac Creek deposit exhibits properties that are typical of a sedimentary exhalative (SEDEX) deposit, which is common in this area of British Columbia. The deposit occurs as a planar, sheet-like zone of semi-massive to massive sulphides comprised of varying amounts of pyrite, sphalerite, and galena (+/- barite) which has been traced over a strike length of 7 km to a depth of 1,300 m below surface. The mineralized zone ranges from less than 1 m thick to as much as 40 m, with an average of about 20 m (true thickness) in the area of potential economic interest. This Minzone represents the mineralized portion of the Cardiac Creek deposit described earlier in this report.

The Minzone was interpreted from drill hole assay sample data. Points representing the top and bottom of the zones of mineralization, generally above a grade of 1% Zn, were interpreted in all drill holes. The threshold grade of 1% Zn is derived from visual observations of the "natural" increase in the zinc grade in the drill holes, and is supported by an inflection in the distribution of zinc sample data on a cumulative probability plot. Several additional points were added to provide projections of the mineralization into areas currently without any drilling activity (i.e., to project the Minzone through to surface or extend the zone at depth). The resulting points are then triangulated into 3D surfaces which are then joined to form a 3D wireframe solid domain. During the interpretation of the Minzone domain, attempts were made to retain its overall planar nature. In doing so, some low-grade intervals, in the range of 0.5% Zn, were included within the domain. Alternatively, some mineralized zones were excluded because they were considered somewhat anomalous, possibly representing only localized fault splays or veins. In general, these deviations from the interpretation of the overall Minzone domain do not represent significant potential resources. The interpreted Minzone domain is shown in Figures 14-1 to 14-3.

Other than some thin surficial oxidation where sulphides occur at surface, there are no indications of significant oxidation of the resource. There is relatively little overburden in the area of the mineral resource, and, as a result, no adjustments have been made to account for overburden in the model.

14.4 BULK DENSITY DATA

There are a total of 10,611 sample intervals in the drill hole database that have measured values for bulk density; these determinations were conducted at Acme Analytical Laboratories Ltd. using the weight-in-air versus the weight-in-water method [specific gravity (SG) = weight in air/weight in water]. This represents approximately 96% of the total sample intervals sampled for zinc in the database, and 95% of the intervals contained within the Minzone domain. Overall, values range from a minimum of 0.64 t/m^3 to a maximum of 4.64 t/m^3, with a mean of 2.77 t/m^3. There are three SG values in the database with values less than 1 t/m^3. When limited to samples within the Minzone domain, the average bulk density increases to 3.01 t/m^3.

Comparisons between zinc grade and bulk density in samples within the Minzone domain show a correlation coefficient of 0.72. Intervals with missing (measured) bulk densities were assigned an SG value using the following regression formula:

$$SG = 2.792 + (Zn\% * 0.049)$$

14.5 COMPOSITING

Compositing of drill hole samples is carried out to standardize the database for further statistical evaluation. This step eliminates any effects related to the sample length which may exist in the data.

Drill hole composites are weighted by both the length and bulk density of the original sample interval and were generated "down-the-hole" which means that composites begin at the top of each hole and are generated at 1 m intervals down the length of the hole. The contacts of the Minzone domain were honoured during compositing of drill holes. Several holes were randomly selected and the composited values were checked for accuracy. No errors were found.

14.6 EXPLORATORY DATA ANALYSIS

Exploratory data analysis (EDA) involves the statistical summarization of the database to better understand the characteristics of the data that may control grade. One of the main purposes of this exercise is to determine if there is evidence of spatial distinctions in grade which may require the separation and isolation of domains during interpolation. The application of separate domains prevents unwanted mixing of data during interpolation and, therefore, the resulting grade model will better reflect the unique properties of the deposit. However, applying domain boundaries in areas where the data is not statistically unique may impose a bias in the distribution of grades in the model.

A domain boundary, which segregates the data during interpolation, is typically applied if the average grade in one domain is significantly different from that of another domain. A boundary may also be applied if there is evidence that a significant change in the grade distribution has occurred across the contact.

BASIC STATISTICS BY DOMAIN

The basic statistics for the distribution of zinc, lead and silver inside and surrounding the Minzone domain are shown in Tables 14.3 and 14.4. Note that this is limited to drill holes that are in the vicinity of the resource model, excluding exploration drill holes. As stated previously, samples are generally selected based on the visual observations of sulphide mineralization. As a result, much of the area surrounding the Minzone domain has not been sampled or analyzed.

TABLE 14.3: SUMMARY OF BASIC STATISTICS OF COMPOSITED SAMPLES INSIDE MINZONE DOMAIN

Element	# of Samples	Total Sample Length (m)	Min	Max	Mean	Std. Dev.
Zinc (%)	3,027	3,019	0.0	35.15	4.58	4.901
Lead (%)	3,027	3,019	0.0	13.41	0.88	1.117
Silver (g/t)	3,027	3,019	0.3	73.9	8.6	8.05
Density (t/m^3)	2,883	2,880	2.15	4.61	3.03	0.341

Note: 1 m composited sample data weighted by sample length. Limited to drill holes in the vicinity of the resource model.

TABLE 14.4: SUMMARY OF BASIC STATISTICS OF COMPOSITED SAMPLES OUTSIDE MINZONE DOMAIN

Element	# of Samples	Total Sample Length (m)	Min	Max	Mean	Std. Dev.
Zinc (%)	5,572	5,356	0.0	6.37	0.13	0.268
Lead (%)	5,572	5,356	0.0	3.89	0.02	0.073
Silver (g/t)	5,572	5,356	0.2	22.2	1.4	1.65
Density (t/m^3)	5,173	5,026	1.99	4.29	2.67	0.182

Note: 1 m composited sample data weighted by sample length. Limited to drill holes in the vicinity of the resource model.

The results in Tables 14.3 and 14.4 show that although there are several rare mineralized intervals outside of the Minzone domain, the mean grades differ significantly between these datasets.

CONTACT PROFILES

Contact profiles evaluate the nature of grade trends between two domains: they graphically display the average grades at increasing distances from the contact boundary. Those contact profiles that show a marked difference in grade across a domain boundary indicate that the two datasets should be isolated during interpolation. Conversely, if a more gradual change in grade occurs across a contact, the introduction of a hard boundary (e.g., segregation during interpolation) may result in a much different trend in the grade model; in this case, the change in grade between domains in the model is often more abrupt than the trends seen in the raw data. Finally, a flat contact profile indicates no grade changes across the boundary; in the case, hard or soft domain boundaries will produce similar results in the model.

A series of contact profiles were generated to evaluate the nature of zinc, lead, and silver grades across the Minzone domain boundary. Abrupt changes in all grades occur across this contact. An example showing the change in zinc grade at the Minzone domain contact is shown in Figure 14-4.

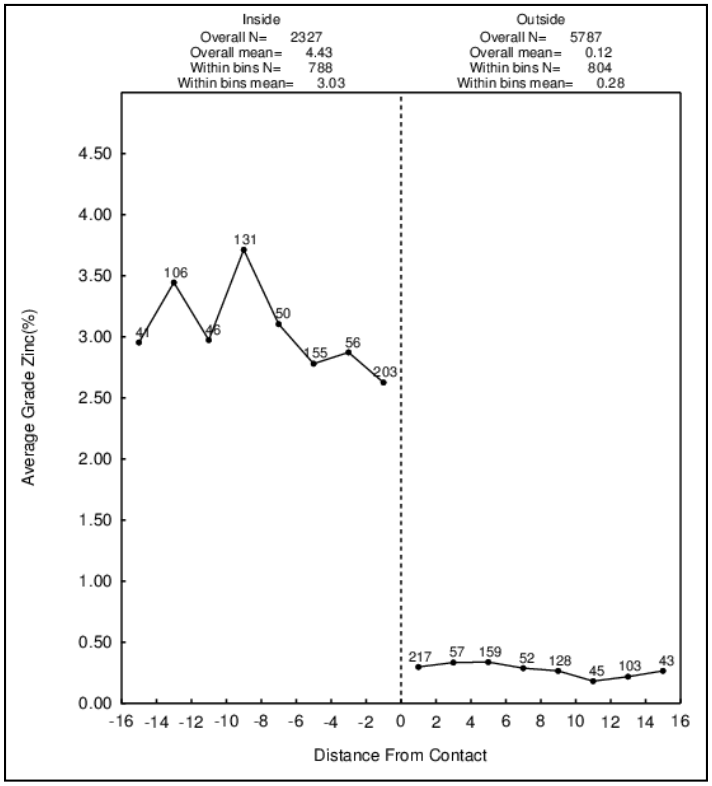


FIGURE 14-4: CONTACT PROFILE FOR ZINC INSIDE VS. OUTSIDE MINZONE DOMAIN

CONCLUSIONS AND MODELING IMPLICATIONS

The results of the EDA indicate that the zinc, lead, and silver grades within the Minzone domain are significantly different than those in the surrounding area, and that the Minzone domain should be treated as a distinct or hard domain during block grade estimations.

Due to the overall low grades in the area surrounding the Minzone domain, grade estimates were not conducted for this portion of the model.

14.7 EVALUATION OF OUTLIER GRADES

Histograms and probability plots for the distribution of zinc, lead, and silver were reviewed to identify the presence of anomalous outlier grades in the composite (1 m drilling) database. Following a review of the physical location of potentially erratic samples in relation to the surrounding sample data, it was decided that these would be controlled during block grade interpolations using an outlier limitation. An outlier limitation controls the distance of influence of samples above a defined grade threshold. During grade interpolations, samples above the outlier thresholds are limited to a maximum distance-of-influence of 35 m. The grade thresholds for zinc, lead, and silver, and the resulting affect on the model, are shown in Table 14.5. These measures are considered appropriate for a deposit with this distribution of delineation drilling.

TABLE 14.5: OUTLIER GRADE ANALYSIS INSIDE MINZONE DOMAIN

Element	O/L Limit	Distance of Influence (m)	# of Samples Affected	Metal Lost (%)
Zinc (%)	25	35	6	-0.6
Lead (%)	6	35	11	-1.0
Silver (g/t)	40	35	16	-0.6

Note: 1 m composited drill hole data.

14.8 VARIOGRAPHY

The degree of spatial variability in a mineral deposit depends on both the distance and direction between points of comparison. Typically, the variability between samples increases as the distance between those samples increases. If the degree of variability is related to the direction of comparison, then the deposit is said to exhibit anisotropic tendencies which can be summarized with the search ellipse. The semi-variogram is a common function used to measure the spatial variability within a deposit.

The components of the variogram include the nugget, the sill and the range. Often samples compared over very short distances, even samples compared from the same location, show some degree of variability. As a result, the curve of the variogram often begins at some point on the y-axis above the origin: this point is called the *nugget*. The nugget is a measure of not only the natural variability of the data over very short distances but also a measure of the variability which can be introduced due to errors during sample collection, preparation, and the assay process.

The amount of variability between samples typically increases as the distance between the samples increases. Eventually, the degree of variability between samples reaches a constant, maximum value: this is called the *sill*, and the distance between samples at which this occurs is called the *range*.

In this report, the spatial evaluation of the data was conducted using a correlogram rather than the traditional variogram. The correlogram is normalized to the variance of the data and is less sensitive to outlier values, generally giving better results.

Variograms were generated using the commercial software package Sage 2001© developed by Isaaks & Co. Multidirectional variograms were generated for zinc, lead, and silver in the Minzone domain; the results are summarized in Table 14.6.

TABLE 14.6: VARIOGRAM PARAMETERS

				1st Structure			2nd Structure		
Element	**Nugget**	**Sill 1**	**Sill 2**	**Range (ft)**	**Azimuth (º)**	**Dip**	**Range (ft)**	**Azimuth (º)**	**Dip**
Zinc	0.241	0.250	0.510	78	70	-75	618	144	-3
	Spherical			11	239	43	342	1	135
				7	1	32	73	15	41
Lead	0.268	0.266	0.466	63	249	77	505	146	-1
	Spherical			7	3	29	101	11	185
				4	219	27	10	7	47
Silver	0.277	0.231	0.492	75	71	-61	585	135	-7
	Spherical			6	262	38	37	24	168
				5	156	23	134	14	56

Note: Correlograms conducted on 1 m composite sample data.

14.9 MODEL SETUP AND LIMITS

A block model was initialized in MineSight® and the dimensions are defined in Table 14.7. The selection of a nominal block size measuring 5 m x 10 m x 5 m is considered appropriate with respect to the current drill hole spacing as well as the selective mining unit (SMU) size typical of an operation of this type and scale. The block model is horizontally rotated so that the *Y*-axis is parallel to the strike of the Minzone at 315°. The origin of the rotation in UTM coordinates is 389150E, 6359450N. The block model limits are represented by the purple rectangle in Figure 14-3.

TABLE 14.7: BLOCK MODEL LIMITS

Direction	Minimum	Maximum	Block Size (m)	# of Blocks
X (Az45º)	0	600	5	120
Y (Az315º)	0	2,400	10	240
Z (elevation)	500	1,600	5	220

Note: -45° rotation about origin at 389150E, 6359450N.

Blocks in the model were assigned a code number depending on whether they were located wholly or partially within the Minzone domain. Partial block values (i.e., percentage of block inside Minzone domain) were also determined; these were used as weighting items when determining resources.

14.10 INTERPOLATION PARAMETERS

The block model grades for zinc, lead, and silver were estimated using Ordinary Kriging (OK). The results of the OK estimation were compared with the Hermitian Polynomial Change of Support model (also referred to as the Discrete Gaussian Correction). This method is described in more detail in Section 14.11.

The Cardiac Creek OK model was generated with a relatively limited number samples to match the change of support or Herco (Hermitian Correction) grade distribution. This approach reduces the amount of smoothing or averaging in the model, and, while there may be some uncertainty on a localized scale, this approach produces reliable estimates of the recoverable grade and tonnage for the overall deposit.

The estimation parameters for the various elements in the resource block model are shown in Table 14.8.

In the block model, bulk density estimates were calculated using the inverse-distance (ID) weighted (i.e., ID to the power of 2) interpolation method. The parameters used in specific gravity (SG) estimates are also shown in Table 14.8.

All grade estimations use length-weighted composite drill hole sample data.

During grade estimations, the search orientations were designed to follow the general interpreted trend of mineralization. A temporary elevation item is assigned to all composited drill hole samples and model blocks which is “relative” to this trend surface. This approach incorporates a dynamic anisotropy during block grade interpolation that replicates the banded nature of mineralization, seen in drilling, in the resource block model.

The interpolation parameters for zinc, lead, and silver are summarized in Table 14.8.

TABLE 14.8: INTERPOLATION PARAMETERS

Element	Search Ellipse[1] Range (m)			# of Composites[2]			Other
	X	Y	Z[3]	Min/block	Max/block	Max/hole	
Zinc	500	500	10	5	21	7	1 DH per octant
Lead	500	500	12	5	27	9	1 DH per quadrant
Silver	500	500	10	5	21	7	1 DH per quadrant
SG[4]	250	250	70	3	15	5	1 DH per quadrant

[1] Ellipse orientation parallel to Minzone at Az315°, Dip -70° SW.

[2] 1 m composite length.

[3] *Z* search based on values relative to "trend" plane (centre of Minzone domain).

[4] SG estimated using ID^2 method.

Note: DH = drill hole.

14.11 VALIDATION

The results of the modeling process were validated using several methods. These include a thorough visual review of the model grades in relation to the underlying drill hole sample grades, comparisons with the change of support model, comparisons with other estimation methods and grade distribution comparisons using swath plots.

VISUAL INSPECTION

A detailed visual inspection of the block model was conducted in both section and plan to ensure the desired results following interpolation. This includes confirmation of the proper coding of blocks within the Minzone domain. The zinc, lead, and silver grades in the model appear to be a valid representation of the underlying drill hole sample data.

MODEL CHECKS FOR CHANGE OF SUPPORT

The relative degree of smoothing in the block model estimates were evaluated using the Discrete Gaussian of Hermitian Polynomial Change of Support method (described by Journel and Huijbregts, Mining Geostatistics, 1978). With this method, the distribution of the hypothetical block grades can be directly compared to the estimated (OK) model through the use of pseudo-grade/tonnage curves. Adjustments are made to the block model interpolation parameters until an acceptable match is made with the Herco distribution. In general, the estimated model should be slightly higher in tonnage and slightly lower in grade when compared to the Herco distribution at the projected cut-off grade. These differences account for selectivity and other potential ore-handling issues which commonly occur during mining.

The Herco (Hermitian correction) distribution is derived from the declustered composite grades which have been adjusted to account for the change in support, going from smaller drill hole composite

samples to the large blocks in the model. The transformation results in a less skewed distribution but with the same mean as the original declustered samples.

The Herco analysis was conducted on the distribution of zinc, lead and silver in the block model. An example showing the distribution of zinc models is shown in Figure 14-5.

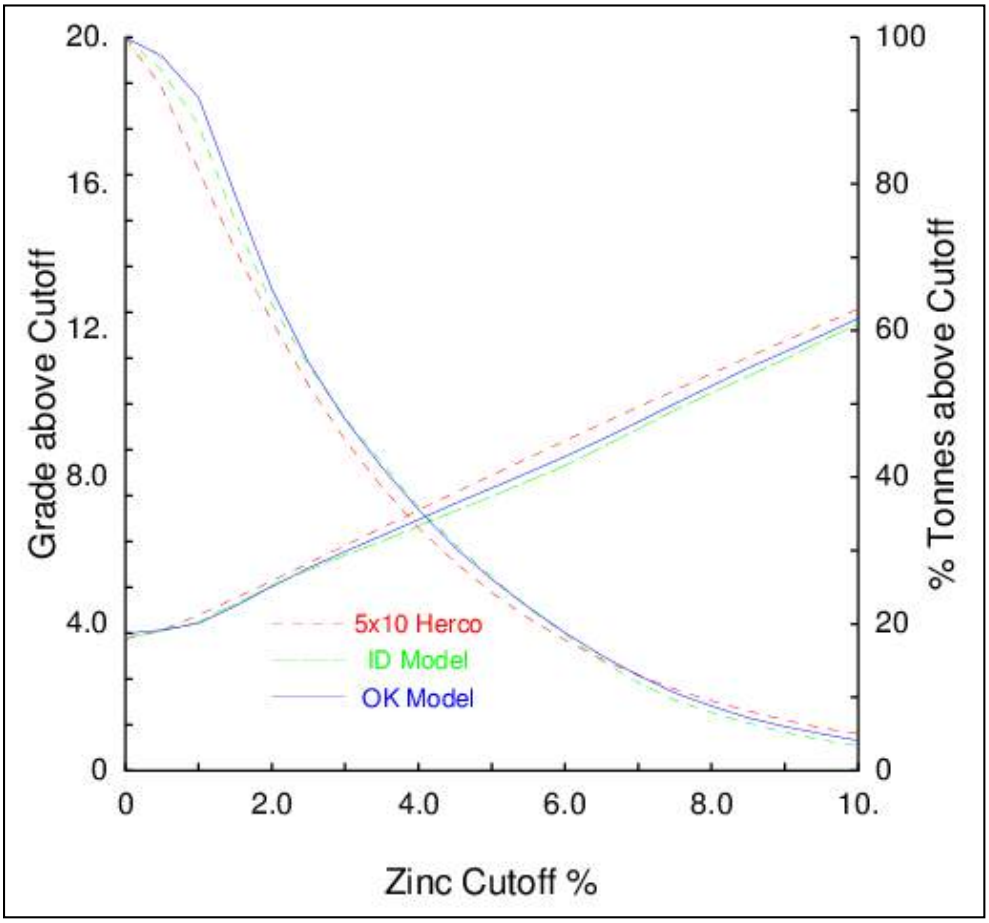


FIGURE 14-5: HERCO GRADE/TONNAGE PLOT FOR ZINC MODELS

COMPARISON OF INTERPOLATION METHODS

For comparison purposes, additional models for zinc, lead and silver were generated using both the inverse distance weighted (IDW) and nearest neighbour (NN) interpolation methods (the NN model was made using data composited to 5 m intervals).

Comparisons are made between these models on grade/tonnage curves. An example of the grade/tonnage curves for zinc is shown in Figure 14-6. There is good correlation between the OK and ID models throughout the range of cut-off grades. The NN distribution, generally showing less tonnage and higher grade, is the result of the absence of smoothing in this modeling approach. Reproduction of the model using different methods tends to increase the confidence in the overall resource.

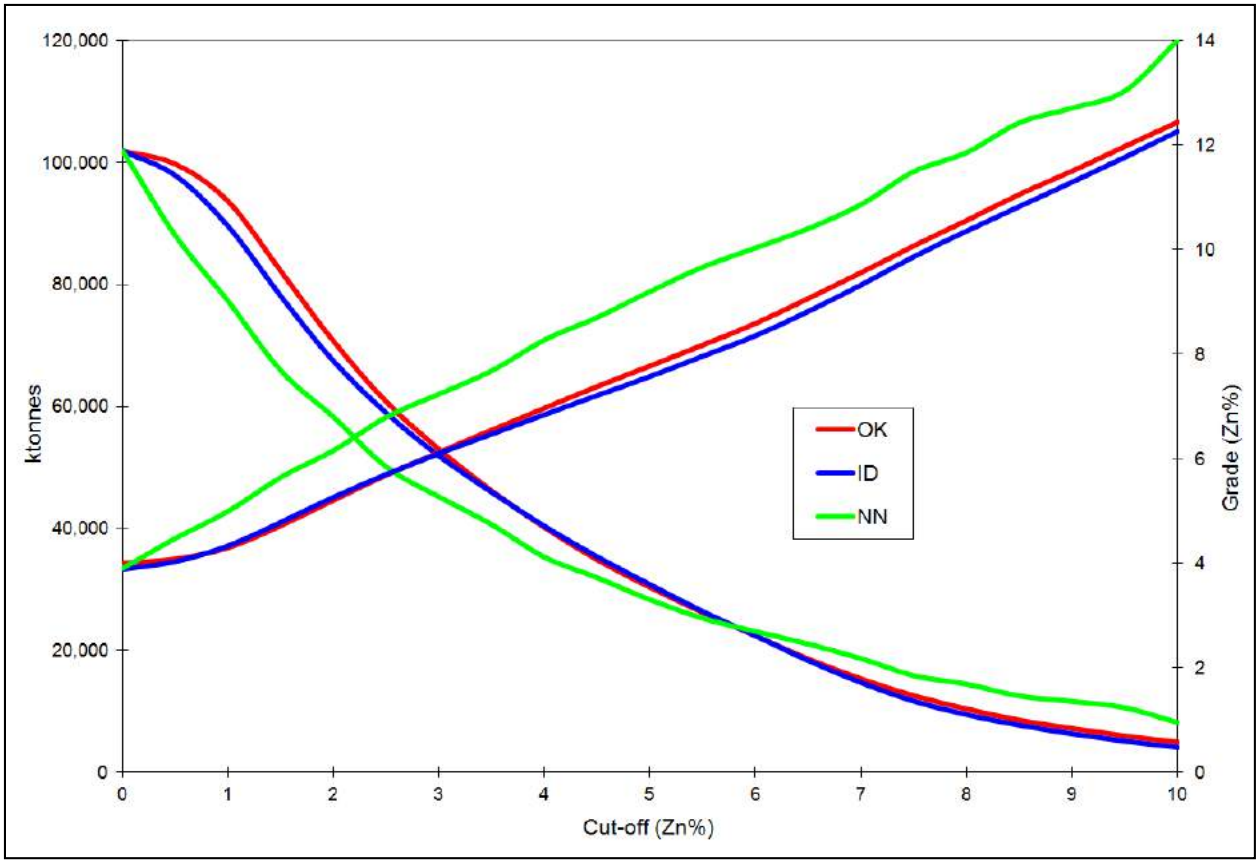


FIGURE 14-6: GRADE/TONNAGE COMPARISON OF ZINC MODELS

SWATH PLOTS (DRIFT ANALYSIS)

A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated in several directions through the deposit. Grade variations from the OK model are compared using the swath plot to the distribution derived from the declustered (NN) grade model.

On a local scale, the NN model does not provide reliable estimations of grade, but, on a much larger scale, it represents an unbiased estimation of the grade distribution based on the underlying data. Therefore, if the OK model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be similar to the NN distribution of grade.

Swath plots have been generated in three orthogonal directions for all models. An example showing the zinc distribution in north-south swaths is shown in Figure 14-7.

There is good correspondence between the models in most areas. The degree of smoothing in the OK model is evident in the peaks and valleys shown in the swath plots. Areas where there are large differences between the models tend to be the result of “edge” effects, where there is less available

data to support a comparison. The validation results indicate that the OK model is a reasonable reflection of the underlying sample data.

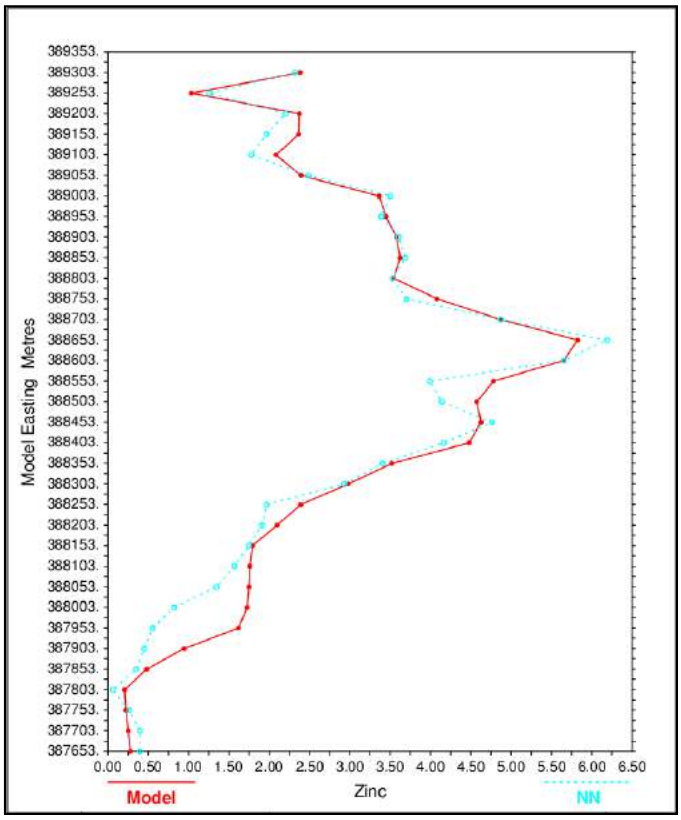


FIGURE 14-7: SWATH PLOT OF ZINC MODELS BY EASTING

14.12 RESOURCE CLASSIFICATION

A common method used in the classification of mineral resources involves geostatistical methods which define categories based on confidence limits. Measured resources are defined as material in which the predicted grade is within ±15% on a quarterly basis, at a 90% confidence limit. In other words, there is a 90% chance that the recovered grade for a quarter-year of production will be within ±15% of the actually achieved production grades. Similarly, Indicated resources are defined as material in which the predicted grade is within ±15% on an annual basis at a 90% confidence limit.

The method of estimating confidence intervals is an approximate method that has been shown to perform well when the volume being predicted from samples is sufficiently large (Davis, 1997). In this case, the smallest volume where the method would most likely be appropriate is the production from one annual quarter. Using these guidelines, an idealized block configured to approximate the volume produced in one month is estimated by ordinary kriging using a series of idealized sample grids. Relative variograms for zinc grade are used in the estimation of the block. Relative variograms are used rather

than ordinary variograms because the standard deviations from the kriging variances are expressed directly in terms of a relative percentage.

The kriging variances from the ideal blocks and grids are divided by twelve (assuming approximate independence in the production from month to month) to get a variance for yearly ore output. The square root of this kriging variance is then used to construct confidence limits under the assumption of normally distributed errors of estimation.

The classification is based on the distribution of zinc because zinc is the main metal contributing to the potential revenue of the deposit. Based on preliminary analysis of available data, annual production forecasts, within ±15% accuracy at 90% confidence limits, can be achieved with drill holes spaced on a nominal grid pattern of approximately 100 m.

As a result, the following criteria were used to determine resource classification in the Indicated and Inferred categories. At this stage of project evaluation, there are no resources included in the Measured category.

INDICATED RESOURCES

Resources in this category are delineated from multiple drill holes located on a nominal 100 m grid pattern. Indicated resources must exhibit a high degree of continuity between drill holes.

INFERRED RESOURCES

Resources in this category include blocks in the Minzone domain within a maximum distance of 150 m from a drill hole.

14.13 MINERAL RESOURCES

CIM *Definition Standards for Mineral Resources and Mineral Reserves* (May, 2014) define a mineral resource as:

"[A] concentration or occurrence of solid material of economic interest, in or on the Earth's crust in such form, grade or quality and quantity, that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

The "reasonable prospects for eventual economic extraction" requirement generally implies that quantity and grade estimates meet certain economic thresholds and that mineral resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recovery.

The "base case" cut-off grade of 5% zinc is considered reasonable based on assumptions derived from operations with similar characteristics, scale, and location. The distribution of Indicated and Inferred mineral resources, above a cut-off grade of 5% Zn, occurs as a continuous zone which is favourable with respect to selectivity and other factors when considering possible mining options. The current resource extends to a maximum depth of 800 m below surface. The true thickness of the base case resource typically ranges between 8 m and 30 m, with an average of about 15 m. The shape and location of the deposit indicates that it is potentially amenable to underground mining methods, or a combination of surface and underground methods, and, as a result, the stated resource is considered to exhibit reasonable prospects for eventual economic extraction. It is important to note that this is not a mineral reserve because the actual economic viability has not been demonstrated.

The estimate of mineral resources for the Cardiac Creek deposit is presented in Table 14.9. The location of the mineral resource is shown in Figure 14-8.

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource. Resources in the Inferred category have a lower level of confidence than that applying to Indicated resources and, although there is sufficient evidence to imply geologic grade and continuity, these characteristics cannot be verified based on the current data. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

TABLE 14.9: ESTIMATE OF MINERAL RESOURCES (5% ZINC CUT-OFF)

Category	Tonnes (000)	Zn (%)	Pb (%)	Ag (g/t)
Indicated	19,647	8.17	1.58	13.6
Inferred	8,070	6.81	1.16	11.2

Note: Mineral resources are not mineral reserves because the economic viability has not been demonstrated.

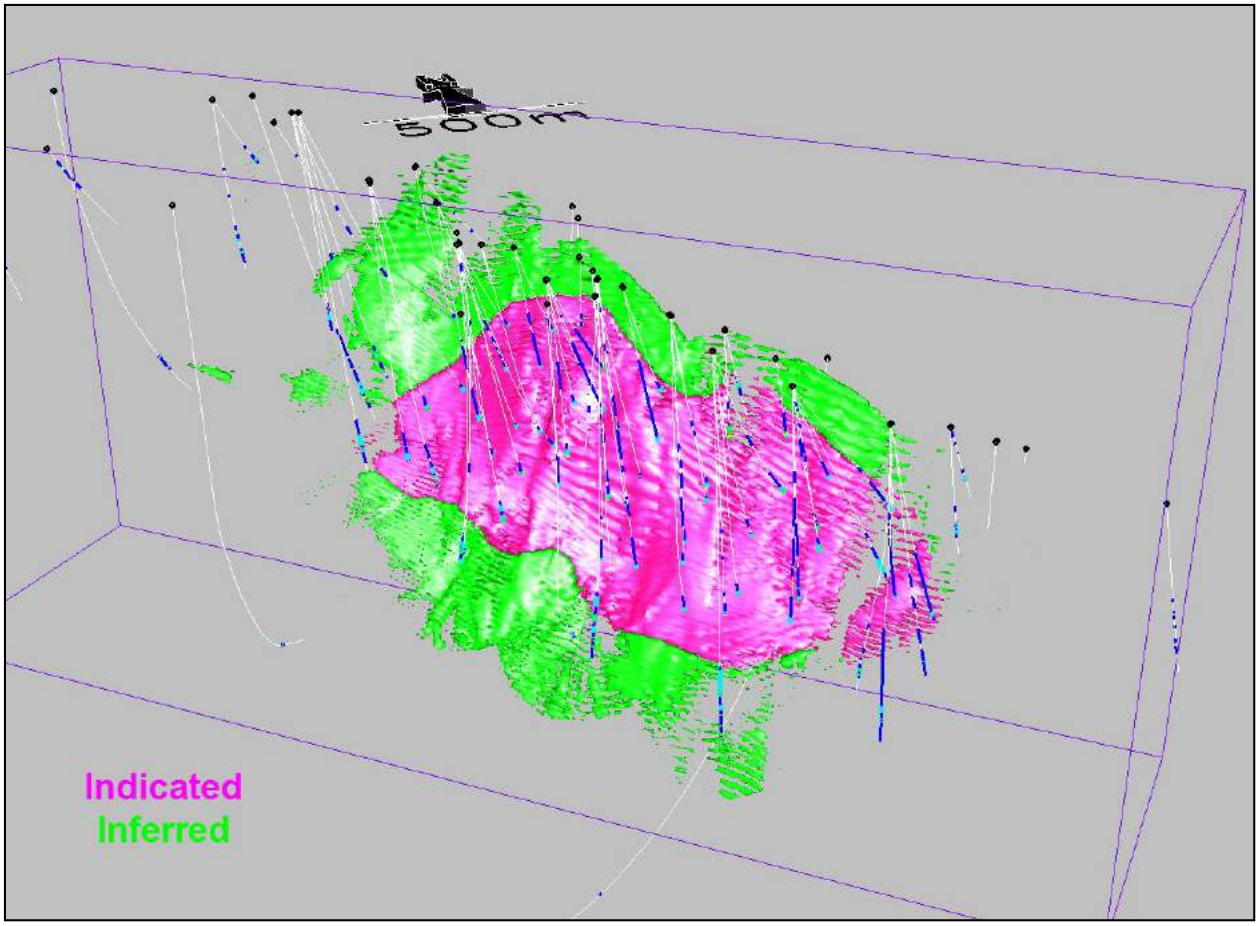


FIGURE 14-8: DISTRIBUTION OF MINERAL RESOURCES BY CLASS

14.14 SENSITIVITY OF MINERAL RESOURCES

The sensitivity of mineral resources is demonstrated by listing resources at a series of cut-off thresholds as shown in Table 14.10.

TABLE 14.10: SENSITIVITY OF MINERAL RESOURCES

Cut-off Grade (Zn %)	Tonnes (000)	Zn (%)	Pb (%)	Ag (g/t)
Indicated Resources				
2	37,141	5.93	1.14	10.4
3	30,504	6.68	1.29	11.5
4	24,875	7.40	1.44	12.6
5 (base case)	**19,647**	**8.17**	**1.58**	**13.6**
6	15,137	8.97	1.73	14.7
7	11,346	9.81	1.90	15.8
Inferred Resources				
2	32,666	4.07	0.68	7.4
3	20,730	5.01	0.85	8.7
4	13,200	5.89	1.00	9.9
5 (base case)	**8,070**	**6.81**	**1.16**	**11.2**
6	4,810	7.72	1.32	12.4
7	2,671	8.74	1.49	13.6

Note: Mineral resources are not mineral reserves because the economic viability has not been demonstrated.

14.15 COMPARISON WITH THE PREVIOUS RESOURCE ESTIMATE

Table 14.11 compares the current mineral resource estimate with the previous mineral resource estimate generated in April 2012. The additional drilling now provides a continuous zone of 100 m spaced drill holes over the central part of the deposit and this configuration of drilling allows for the estimation of the majority of resources in the Indicated category. Indicated resources have increased by almost 7 million tonnes compared to the previous estimate, with little change in average grades. Conversely, Inferred class resources have decreased by over 8 million tonnes with reductions in zinc, lead and silver grades. The reduction of approximately 1.3 million tonnes of Inferred class resources has primarily occurred in the deeper parts of the deposit where drilling encountered lower grade mineralization.

TABLE 14.11: COMPARISON OF MAY 2016 AND APRIL 2012 MINERAL RESOURCES

	May 2016				April 2012			
Cut-off Grade (Zn %)	**Tonnes (000)**	**Zn (%)**	**Pb (%)**	**Ag (g/t)**	**Tonnes (000)**	**Zn (%)**	**Pb (%)**	**Ag (g/t)**
Indicated Resources								
2	37,141	5.93	1.14	10.4	20,088	6.59	1.31	11.2
3	30,504	6.68	1.29	11.5	17,683	7.15	1.43	12.0
4	24,875	7.40	1.44	12.6	15,195	7.75	1.56	12.8
5 (base case)	**19,647**	**8.17**	**1.58**	**13.6**	**12,731**	**8.38**	**1.68**	**13.7**
6	15,137	8.97	1.73	14.7	10,342	9.05	1.81	14.6
7	11,346	9.81	1.90	15.8	7,798	9.89	1.98	15.6
Inferred Resources								
2	32,666	4.07	0.68	7.4	48,102	4.62	0.83	8.1
3	20,730	5.01	0.85	8.7	33,016	5.61	1.02	9.4
4	13,200	5.89	1.00	9.9	23,278	6.50	1.19	10.5
5 (base case)	**8,070**	**6.81**	**1.16**	**11.2**	**16,287**	**7.38**	**1.34**	**11.6**
6	4,810	7.72	1.32	12.4	11,026	8.28	1.50	12.5
7	2,671	8.74	1.49	13.6	7,092	9.29	1.67	13.7

14.16 SUMMARY AND CONCLUSIONS

The drilling completed since the previous resource estimate in April 2012 provides consistent coverage of holes spaced at 100 m intervals throughout the majority of the deposit area. The current distribution of resources has 70% in the Indicated class and 30% in the Inferred category, where the previous 2012 estimate had roughly an even split between these two categories. Most of the new drill holes in the central and upper parts of the deposit returned similar results to previous surrounding drill holes (i.e., “no surprises”). Several of the deeper holes encountered lower grades than projected from previous drilling results resulting in a decrease in Inferred class resources.

15 MINERAL RESERVE ESTIMATES

There are no mineral reserve estimates for the Akie deposit.

16 MINING METHODS

This section is not applicable at this stage of the project.

17 RECOVERY METHODS

This section is not applicable at this stage of the project.

18 PROJECT INFRASTRUCTURE

This section is not applicable at this stage of the project.

19 MARKET STUDIES AND CONTRACTS

This section is not applicable at this stage of the project.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

In 2007, the company began limited environmental baseline assessments to ensure ongoing exploration was compliant with mineral exploration standards, and to ensure there would be rigorous baseline data available to support advanced permitting steps, such as underground exploration. Work included rock characterization, fisheries and wildlife, aquatic, climate, soil and water quality studies. Water quality sampling and analysis from a number of key water courses has continued almost continually since 2007, along with weather data and ongoing kinetic acid rock and metal leaching assessments.

In 2011, groundwater sampling began with the construction of several water monitoring wells near the planned portal and waste dump. Surface and groundwater quality and quantity monitoring and sampling have continued on an annual basis since 2011. The most recent sampling event was in June, 2016.

The baseline data was instrumental in obtaining a *Mines Act* permit (MX-13-116) and an Effluent Discharge permit (#106429) to construct the underground workings planned for advanced delineation drilling and the same data will be used as the project advances to mine development. Although the underground program is currently on hold, pending improved market conditions, both permits are valid and subsisting and remain in good standing if the company decides to proceed. The company has maintained good working relations with the two local communities: Tsay Keh Dene and Kwadacha (Fort Ware). Consultation with both communities is ongoing, with regularly scheduled meetings held every year. Opportunities for labour and contract support are extended each year to both communities and every year a number of workers from each community are directly and indirectly employed.

The company signed a tripartite Exploration Cooperation and Benefit Agreement with both communities on August 19, 2013. The general purpose of the agreement is to foster a relationship based on mutual respect, trust, mutual benefit and certainty for all parties and is also designed to mitigate any effects of the exploration programs on the traditional lands of the First Nations. The Agreement ensures that the company will continue to provide both communities with opportunities to give meaningful input into exploration permitting and environmental studies, with the goal to ensure exploration activities minimize impacts to First Nations' environmental values, heritage values, and traditional activities. The agreement sets out a framework for employment and training, contracting and business opportunities for members of the two First Nations, and funding for community development and participation and engagement.

21 CAPITAL AND OPERATING COSTS

This section is not applicable at this stage of the project.

22 ECONOMIC ANALYSIS

This section is not applicable at this stage of the project.

23 ADJACENT PROPERTIES

There are two properties adjacent to the Akie property: Fluke and Elf. Both properties are considered advanced prospects hosting known stratiform sphalerite, galena, pyrite and barite mineralization and interpreted to be situated at the identical stratigraphic horizon as the Cardiac Creek deposit. They are currently controlled by the Cirque Operating Corp. (100%), a joint venture between Teck Resources Ltd. (50%) and Korea Zinc Company Ltd. (50%). The following section is an unabridged excerpt from a previous technical report entitled *Geology, Diamond Drilling and Preliminary Resource Estimation, Akie Zinc-Lead-Silver Property, Northeast British Columbia, Canada* by Donald G. MacIntyre and Robert C. Sim (2008) which covers the historical work on the Elf and Fluke properties. Exploration activities conducted by Teck Resources in 2013 and 2014 have also been summarized from recent assessment reports. Sample data collected on the Fluke and Elf properties has not been used in the estimate of mineral resources for the Cardiac Creek Deposit.

23.1 FLUKE PROPERTY

The Fluke property covers a northwest-trending synclinal keel of Gunsteel strata that is bounded by Silurian Siltstone to the southwest and middle Devonian limestone to the northeast (Roberts, 1978). The Silurian rocks have been thrust northeastward over the Gunsteel syncline. In 1978, the property was staked by Cyprus Anvil Mining Corporation (Cyprus Anvil) to cover a small showing of laminar-banded pyrite with galena-sphalerite-rich bands that are exposed in a small northeast flowing tributary of the Akie River. Several nodular barite beds also crop out on the property. At surface, the mineralized interval is about 1 m thick and dips to the west. The host rocks are intensely deformed, carbonaceous cherty argillite and siliceous shale of the late Devonian Gunsteel Formation. Assays as high as 15% Zn+Pb and 35 g/t Ag have been reported. Cyprus Anvil drilled the property in 1980, 1981 and 1982. Only one drill hole intersected sulphide mineralization at approximately 200 m down-dip from the surface showing (Paradis *et al*., 1998). Recently, Teck Resources conducted a couple of limited exploration programs on the Fluke property. In 2013, a small soil sampling program was conducted over the known Fluke and Pook showings to determine the preferred soil horizon for future soil geochemistry surveys. A total of 96 samples were collected (Rasmussen and Thiessen, 2013). In 2014, Teck Resources contracted Geotech Ltd. to conduct an airborne VTEM geophysical survey over the Fluke property. A total of 83.3 line km were flown along 200 m spaced flight lines oriented at an azimuth of 50°. The results of this survey produced a number of linear northwest-southeast EM conductors that generally agreed with the known geology (Loughrey, 2015a and 2015b). No new drilling took place as part of this recent exploration work.

23.2 ELF PROPERTY

In 1978, the Elf property was staked by Cyprus Anvil to cover an area of moderately anomalous stream sediment geochemistry and the occurrence of a boulder of white barite containing high-grade galena

and sphalerite in Elf Creek (Roberts, 1979). Subsequent soil sampling resulted in the discovery of an outcrop of bedded barite with high-grade bands of galena and sphalerite on the heavily timbered south-facing slope north of Elf Creek. The mineralized zone has been exposed on surface by trenching and is up to 4 m thick. A sulphide-rich sample from this zone assayed 14.1% Zn, 25% Pb and 106 g/t Ag (MacIntyre, 1998). Host rocks are carbonaceous cherty argillite and siliceous shale of the Gunsteel Formation. In 1979 and 1980, the property was drill tested. Drill holes intersected laminar-banded pyrite at depth; barite-sulphide mineralization similar to the surface showings was not intersected. The best drill intersection contained 13.8% Zn+Pb with 27 g/t Ag over 11 m (Paradis *et al.*, 1998). Drilling and surface mapping suggests the Elf mineralization is contained within a steeply dipping, overturned fold limb that is over thrust to the west by Silurian dolomitic siltstone. Intense folding and structural imbrication of the Gunsteel host rocks has made defining the geometry of the mineralized interval difficult. In 1995, exploration on the Elf property resulted in the discovery of two additional mineralized showings referred to as the Joel Creek and Ian Creek showings consisting of laminated to disseminated pyrite with nodular to disseminated barite (Henry *et al.*, 2014). In 2013 and 2014, Teck Resources conducted two limited exploration programs on the Elf property similar in nature to those on the Fluke property. In 2013, a small soil sampling program was conducted over the known Elf showing and surrounding area to determine the preferred soil horizon for future soil geochemistry surveys. A total of 649 samples were collected. New lead anomalies were outlined southeast of the Elf showing (Henry *et al.*, 2014). Henry *et al.* (2014) also references earlier sampling taken on the Elf showing that returned 0.22% Zn, 10.46% Pb, and 22.58 g/t Ag over 4 m. In 2014, Teck Resources contracted Geotech Ltd. to conduct an airborne VTEM geophysical survey over the Elf property. A total of 228 line km were flown along 200 m spaced flight lines oriented at an azimuth of 50°. The results of this survey produced a number of linear northwest-southeast EM conductors that generally agreed with the known geology (Loughrey, 2015c and 2015d).

24 OTHER RELEVANT DATA AND INFORMATION

The author has reviewed the sources of information cited in the Reference Section, including drill hole logs, cross sections and property maps at various scales produced by the different operators on the Akie property. Some of the reports reviewed are publicly available as assessment reports through the BC Ministry of Energy and Mines, and others are internal reports written by, or for the property operator. The author is not aware of any additional sources of information that might significantly change the conclusions presented in this Technical Report.

25 INTERPRETATION AND CONCLUSIONS

The Akie property contains a large zinc-lead-silver-bearing deposit which exhibits classical features of a SEDEX-type deposit. It is similar in character and style to that of other deposits in this area of BC and the Yukon. Mineralization occurs within a thick sheet-like zone that dips steeply to the southwest and has been intersected in drilling over a strike length of almost 7 km.

Analysis of the drill sample database shows that it is sound and reliable for the purposes of resource estimation. The resource model has been developed in accordance with accepted industry standards resulting in a mineral resource defined within the Inferred category. The potentially economic portion of the deposit occurs over a strike length of 1,300 m, extends to 800 m below surface, and averages about 20 m thick.

Metallurgical studies to date, although preliminary in nature, indicate that the deposit is amenable to standard extraction methods used at similar deposits.

The objective of this report is to update the estimate of mineral resources for the Cardiac Creek deposit and provide recommendations with respect to the next stage of advancement of the project. The additional drilling up to and including the 2015 data produced an Indicated Resource of 19.6 million tonnes at an average grade of 8.17% Zn, 1.58% Pb and 13.6 g/t Ag and an Inferred Resource of 8.1 million tonnes at an average grade of 6.81% Zn, 1.16% Pb and 11.2 g/t Ag (at 5% Zn cut-off).

Most of the central part of the deposit is now delineated with sufficient drilling to define a majority of the mineral resource in the Indicated category. This increased confidence in the resource estimate leads to a better understanding of the economic potential of the deposit. It is recommended that additional drilling be completed that will increase the amount of resources in the Indicated category and also test for additional resources in the Inferred category. It is also recommended that further economic analysis is conducted in the form of an updated PEA or possibly a pre-feasibility study.

26 RECOMMENDATIONS

The following recommendations are proposed for the Akie project:

26.1 DRILLING

Further drilling is recommended to expand and delineate the mineral resource on the Cardiac Creek deposit.

A total of 10 drill holes representing approximately 6,000 m of drilling are recommended to expand the overall limits of the deposit and to expand the base case resource (> 5% Zn) in both the Inferred and Indicated categories. Expansion targets should be planned with sufficient spacing to provide maximum benefit to future resource calculations with approximate step-outs of 200 m to 300 m. Select infill targets on approximate 100 m spaced centres (Figure 26-1) are recommended to continue to provide infill information within the base case resource. These holes will provide additional data to guide the planned underground exploration and determine the deposit's characteristics, future development, and underground exploration targets.

To achieve these stated objectives, the following specific target areas are recommended for future drilling:

- Northwest strike extent of the deposit along strike of the intercepts in holes A-07-46 and A-10-75.
- Down-dip extents of the deposit in two distinct areas: down-dip of holes A-07-42, A-08-60A and A-10-75 to test the high-grade mineralization encountered in the footwall zone of these holes, and the down-dip extent of the high-grade mineralization encountered in holes A-15-121, A-15-124, and A-95-18 and A-15-126.
- Southeast strike extent of the deposit along strike of the intercepts in holes A-11-92 and A-11-95.

Additional exploration drilling is recommended on the North Lead Anomaly target present on the Akie property. Approximately 1,000 m of drilling in two drill holes is recommended to continue to test the down-dip and northwest strike extension of the mineralization present there.

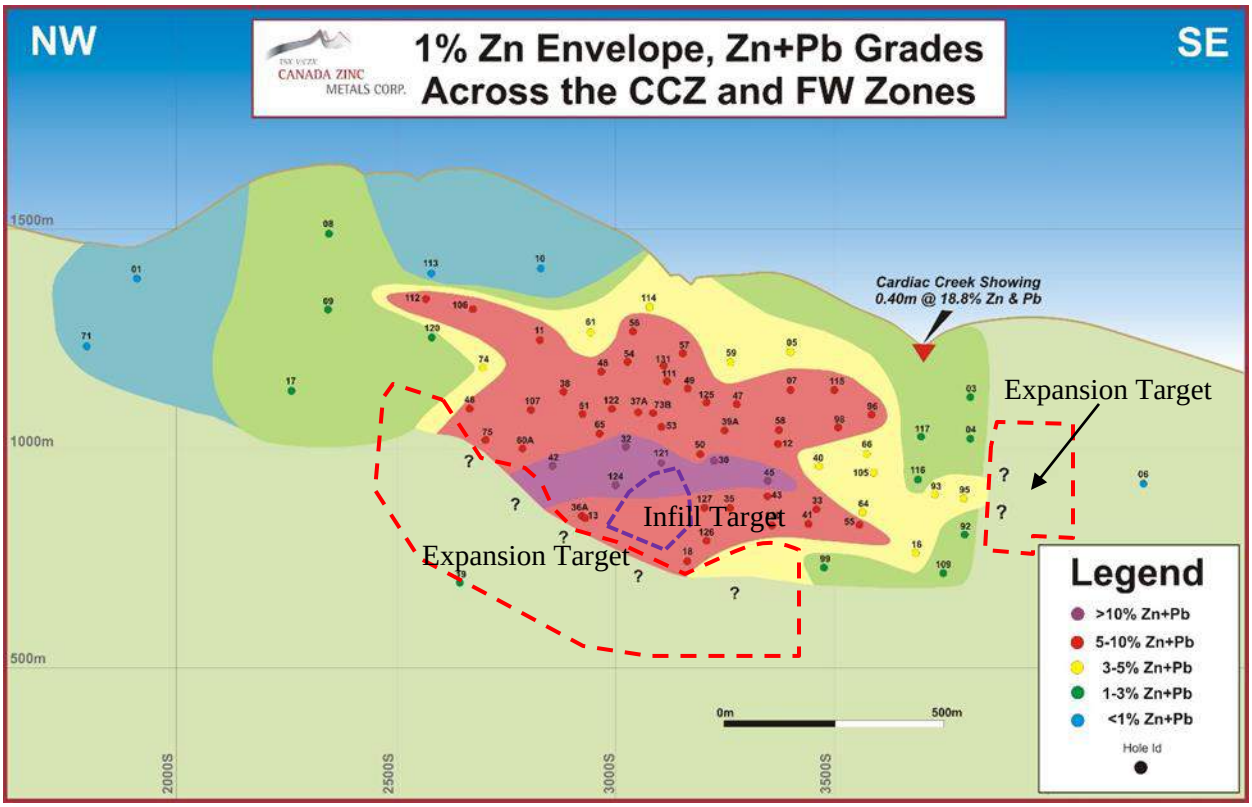


FIGURE 26-1: VERTICAL LONG-SECTION ACROSS THE CARDIAC CREEK DEPOSIT WITH TARGET AREAS FOR FUTURE DRILLING
(MODIFIED FROM JOHNSON, 2016B)

Table 26.1 outlines the proposed budget for this surface work.

TABLE 26.1: PROPOSED BUDGET FOR SURFACE WORK

Activity	Total
Drilling (6,000 m @ $125/m)	$750,000
Helicopter	$600,000
Personnel (Geologists, Techs, Labour)	$250,000
Accommodations (camp, food, cooks, etc.)	$200,000
Fuel (diesel, gasoline, propane)	$75,000
Assaying (approximately 1,500 samples)	$68,000
Drill Pad Construction	$65,000
Materials (core boxes, core racks, field supplies, etc.)	$50,000
Freight	$30,000
Communications	$15,000
Travel	$15,000
Sub-Total	**$2,118,000**
Contingency (10%)	$211,800
Total	**$2,329,800**

26.2 METALLURGICAL TESTING

Continue metallurgical work including grinding, flotation and cleaning test work to test a series of representative samples at an estimated cost of $250,000.

The recommended course of action for Akie's metallurgy is as follows:

Fresh and representative samples should be obtained for prefeasibility-level development work. Metallurgical test program sample criteria should include the following:

- representative of planned resources, particularly in earlier years;
- representative of ore types, specifically for grain size, impurities and associated minerals of significance; and
- representative of various rock types for hardness tests.

Future metallurgical test program should include the following:

- heavy liquid separation tests;
- mineralogy to determine liberation and grind sizes;
- hardness tests on heavy liquid separation sink and float products; and

- flotation tests to produce optimum, separate lead/zinc concentrates with maximum silver recoveries (Note: Source of silver not recovered into lead/zinc concentrates needs to be determined by mineralogy and by cyanidation of tailings to determine whether silver is interlocked in the non-sulphides.).

26.3 ENVIRONMENTAL BASELINE STUDY

Continue focused environmental baseline studies to ensure compliance and facilitate future permitting tasks. Work will include ongoing kinetic rock characterization, surface and groundwater quality and climate data. The estimated cost for continued and future environmental activities is $75,000.

26.4 SOCIAL AND COMMUNITY IMPACT STUDY

Continue to consult with the communities of Tsay Keh Dene and Kwadacha. Focused archaeological and traditional use studies will be necessary as the project advances beyond detailed drill definition. The estimated cost for future social and community activities is $75,000.

26.5 PRELIMINARY ECONOMIC ANALYSIS

Complete a preliminary but comprehensive technical and economic analysis to gain a better understanding of the project's potential and to identify areas of potential risk. The estimated cost for PEA is $350,000.

26.6 UNDERGROUND EXPLORATION DECLINE

Initial engineering studies have outlined development plans to establish underground access to the deposit via a ramp decline developed in the footwall of the deposit. A *Mines Act* permit (and related Effluent Discharge permit was issued by the BC Government and allows for the construction and development of an underground decline that will provide access to the deposit at a depth of approximately 500 m below surface. This decline will allow for detailed delineation drilling of the mineral resource (in the Measured category), and will provide a viable platform to test deeper exploration targets located below the current resource. The permits are valid and subsisting and remain in good standing until December 31st, 2017 and can be extended by application if construction has not commenced by that date.

Direct underground access into the deposit will also allow bulk samples collection for metallurgical purposes, provide an opportunity to conduct test mining to evaluate the continuity of the mineralized zone and assess the ground conditions for mine design purposes.

It is recommended that Canada Zinc Metals review and update cost estimates from several qualified underground contractors and consider various design options before finalizing construction costs and the project schedule.

27 REFERENCES

Baxter P., (1995): Soil Geochemical, Geophysical and Diamond Drilling Assessment Report, Akie Claims, NTS 94F7W *B.C. Ministry of Energy and Mines* Assessment Report No. 23870, 1311 pages.

Baxter P., (1996): Diamond Drilling Assessment Report, Akie Claims, NTS 94F7W; *B.C. Ministry of Energy and Mines* Assessment Report No. 24323, 41 pages.

Baxter P., (1996a): Soil Geochemical and Diamond Drilling Assessment Report, Akie Claims, NTS 94F7W; *B.C. Ministry of Energy and Mines* Assessment Report No. 24439, 173 pages.

Baxter P., (1996b): Gataga Project, Akie Claims, 1996 Soil Geochemical and Diamond Drilling Assessment Report, NTS 94F7W; *B.C. Ministry of Energy and Mines* Assessment Report No. 24703, 157 pages.

Baxter P., (1996c): Summary and Compilation Report, Gataga Project, Akie Claims; *Inmet Mining Corp.*, internal company report, 35 pages.

Baxter P., Kapusta J., Morrison I., and Wells G., (1996): Cardiac Creek Zn-Pb-Ag deposit, Akie property (abstract); Cordillera Roundup, 1996, *British Columbia-Yukon Chamber of Mines*, Abstracts, pages 1-2.

Carne R.C., Cathro, R.J., (1982): Sedimentary Exhalative (SEDEX) Zinc-Lead-Silver Deposits, Northern Canadian Cordillera; *CIM Bulletin,* v.75 no. 840, pages 66-78.

Condor Consulting Ltd., (2014): Processing and Analysis of a VTEM EM & Magnetic Survey, Akie, Pie and Mt. Alcock Blocks, British Columbia, *Canada Zinc Metals Corp.*, internal company report, 64pages.

Davis B. M., (1997): Some Methods of Producing Interval Estimates for Global and Local Resources, SME Preprint 97-5, 4p.

Demerse D., Hopkins J., (2008): Lithology and Structural Geology of the Akie Property, Kechika Trough, Northeastern British Columbia; *Mantles Resources Inc*., internal company report, 248 pages.

Gadd Michael G., Layton-Matthews D., Peter Jan M., Paradis Suzanne J., (2015): The world-class Howard's Pass SEDEX Zn-Pb district, Selwyn Basin, Yukon. Part 1: Trace element compositions of pyrite record input of hydrothermal, diagentic, and metamorphic fluids to mineralization. *Mineralium Deposita Online*, 24 pages.

Goodfellow W.D., and Lydon J.W., (2007): Sedimentary Exhalative (SEDEX) deposits, in Goodfellow, W.D, ed, Mineral Deposits of Canada: A Synthesis of Major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods: Geological Association of Canada, Mineral Deposits Division, Special Publication No. 5, pages 163-183.

Henry A., Thiessen E., Rasmussen K., (2014): Report on the 2013 Soil Geochemistry Program for the Elf Property, B.C. Ministry of Energy and Mines, BC Geological Survey, Assessment Report 34789, 191 pages.

Hodgson G.D., (1979): Dog Claims, *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 7318, 39 pages.

Hodgson G.D., Faulkner, R.L., (1979): Dog Claims, *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 7967, 29 pages.

Hodgson G.D., (1980): Dog Claims: Geology, 1980; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 8673, 7 pages.

Hodgson G.D., (1981): Dog Claims: Geology, Geochemistry and Geophysics, *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 9759, 26 pages.

Johnson N., and Metcalfe P., (2007): Summary report on the 2006 Akie Diamond Drill Project; *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 28,954, 43 pages.

Johnson N., (2008): Summary Report on the 2007 Diamond Drilling, Akie Project Program, Akie Claims; *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 29,860, 841 pages.

Johnson N., (2009): Summary Report on the 2008 Diamond Drilling Program, Akie Project, Akie Claims; *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 31,103, 672 pages.

Johnson N., Fraser J., (2009): The Cardiac Creek Zn-Pb-Ag SEDEX Deposit – Expansion and Exploration; *Canada Zinc Metals Corp*. – internal company presentation for Cordilleran Round Up 2009, 21 slides.

Johnson N., (2011): Summary Report on the 2010 Diamond Drilling Program, Akie Project, Akie Property; *Ecstall Mining Corp*. – internal company report filed for assessment credit, 578 pages.

Johnson N., (2013): The 2012 Kechika Regional Exploration Program, Summary Report: Hydrogeochemistry, Drill Core Review & VTEM Geophysics; *Canada Zinc Metals Corp.* – internal company report, 121 pages.

Johnson N., (2014a): The 2013 Diamond Drilling Program on the Akie Property; Summary Report. *Canada Zinc Metals Corp.*, internal company report filed for assessment credit, 509 pages.

Johnson N., (2014b): Geochemical Report on the Sitka Property; Summary Report. *Canada Zinc Metals Corp.* – internal company report filed for assessment credit, 240 pages.

Johnson N., (2014c): The 2014 Diamond Drilling Program on the Akie Property; Executive Summary. *Canada Zinc Metals Corp.* – internal company report, 298 pages.

Johnson N., (2016a): The 2015 Diamond Drilling Program on the Akie Property; Summary Report. *Canada Zinc Metals Corp.* – internal company report filed for assessment credit, 608 pages.

Johnson N., (2016b): The Cardiac Creek Zn-Pb-Ag SEDEX Deposit; Update and Insight. *Canada Zinc Metals Corp.* – internal company presentation for the Cordilleran Round Up 2016, 27 slides.

Kapusta J., (1995): Gataga Project Cardiac Creek Horizon – Metal Zonation; *Inmet Mining Corp.* internal company report.

Lehne R.W., (1995): Microscopy of Selected Samples from the Gataga Pb-Zn Project/Canada; *Sachtleben Bergau GMBH & Co., Inmet Mining Corp.* – internal company report, 28 pages.

Loughrey L., (2015a): Report on the 2014 VTEM Survey for the Fluke Property, B.C. Ministry of Energy and Mines, BC Geological Survey, Assessment Report 35299A, 235 pages.

Loughrey L., (2015b): Report on the 2014 VTEM Survey for the Fluke Property, B.C. Ministry of Energy and Mines, BC Geological Survey, Assessment Report 35299B, 5 pages.

Loughrey L., (2015c): Report on the 2014 VTEM Survey for the Elf Property, B.C. Ministry of Energy and Mines, BC Geological Survey, Assessment Report 35297A, 238 pages.

Loughrey L., (2015d): Report on the 2014 VTEM Survey for the Elf Property, B.C. Ministry of Energy and Mines, BC Geological Survey, Assessment Report 35297B, 5 pages.

MacIntyre D.G., (1998): Geology, Geochemistry and Mineral Deposits of the Akie River Area, Northeast British Columbia, *B.C. Ministry of Energy and Mines*, Bulletin 103, 93 pages.

MacIntyre D.G., (2005): Geological report on the Akie Property; technical 43-101 report filed on the SEDAR website, October 2005.

MacIntyre D.G., Sim R.C., (2008): Technical Report: Geology, Diamond Drilling and Preliminary Resource Estimation, Akie Zinc-Lead-Silver Property, Northeast British Columbia, Canada; 43-101 report filed on the SEDAR website, May 2008.

McClay K.R., Insley M.W., and Anderton R., (1989): Inversion of the Kechika Trough, northeastern British Columbia, Canada; *in* Inversion Tectonics, Cooper, M.A. and Williams, G.D. (editors), *Geological Society Special Publications* No. 44, pages 235-257.

Paradis S., Nelson J.L., and Irwin S.E.B. (1998): Age constraints on the Devonian shale-hosted Zn-Pb-Ba deposits, Gataga District, Northeastern British Columbia, Canada; *Economic Geology*, volume 93, pages 184-200.

Pigage, L.C., (1986): Geology of the Cirque barite-zinc-lead-silver deposits, Northeastern British Columbia; *in* Mineral Deposits of Northern Cordillera, J. Morin (editor*), Canadian Institute of Mining and Metallurgy*, Special Volume 37, pages 71-86.

Rasmussen K., Thiessen, E., (2013): Report on the 2013 Soil Geochemistry Program for the Fluke Property, B.C. Ministry of Energy and Mines; BC Geological Survey, Assessment Report 34208, 72 pages.

Roberts, W.J., (1978): Geological and geochemical report on the Fluke Group; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 7270, 14 pages.

Roberts, W.J., (1979): Geological report on the Elf Group; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 7303, 10 pages.

Sim, R., (2012): Technical Report: Akie Zinc-Lead-Silver Project, British Columbia, Canada; 43-101 report filed on the SEDAR website, April 2012.

Vanwermeskerken, M. and Metcalfe P., (2006): Summary report on the 2005 Akie diamond drill project, *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 28,435, 105 pages.

Wells, G.S. (1992): Geochemical Assessment Report - Akie Claims, *B.C. Ministry of Energy Mines and Petroleum Resources*, Assessment Report 22,822, 37 pages.

28 DATE AND SIGNATURE PAGE

CERTIFICATE of QUALIFIED PERSON

Robert Sim, P.Geo, SIM Geological Inc.

I, Robert Sim, P.Geo, do hereby certify that:

1. I am an independent consultant of:

   SIM Geological Inc.
   508 – 1950 Robson St., Vancouver
   British Columbia, Canada V6G 1E8

2. I graduated from Lakehead University with an Honours Bachelor of Science (Geology) in 1984.

3. I am a member, in good standing, of the Association of Professional Engineers and Geoscientists of British Columbia, License Number 24076.

4. I have practiced my profession continuously for 32 years and have been involved in mineral exploration, mine site geology and operations, mineral resource and reserve estimations and feasibility studies on numerous underground and open pit base metal and gold deposits in Canada, the United States, Central and South America, Europe, Asia, Africa and Australia.

5. 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.

6. I am the author of the technical report titled *Mineral Resource Estimate for the Akie Zinc-Lead-Silver Project, British Columbia, Canada*, dated June 28, 2016, with an effective date of May 16, 2016 (the "Technical Report"), and accept professional responsibility for the preparation of this report.

7. I have visited the Property on two occasions, on October 16-17, 2007 and also from September 18-20, 2013.

8. I have had prior involvement with the property that is the subject of the Technical Report. I was an author of two previous Technical Reports dated May 28, 2008 and April 27, 2012.

9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

10. I am independent of Canada Zinc Metals Corp. applying all of the tests in Section 1.5 of NI 43-101.

11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

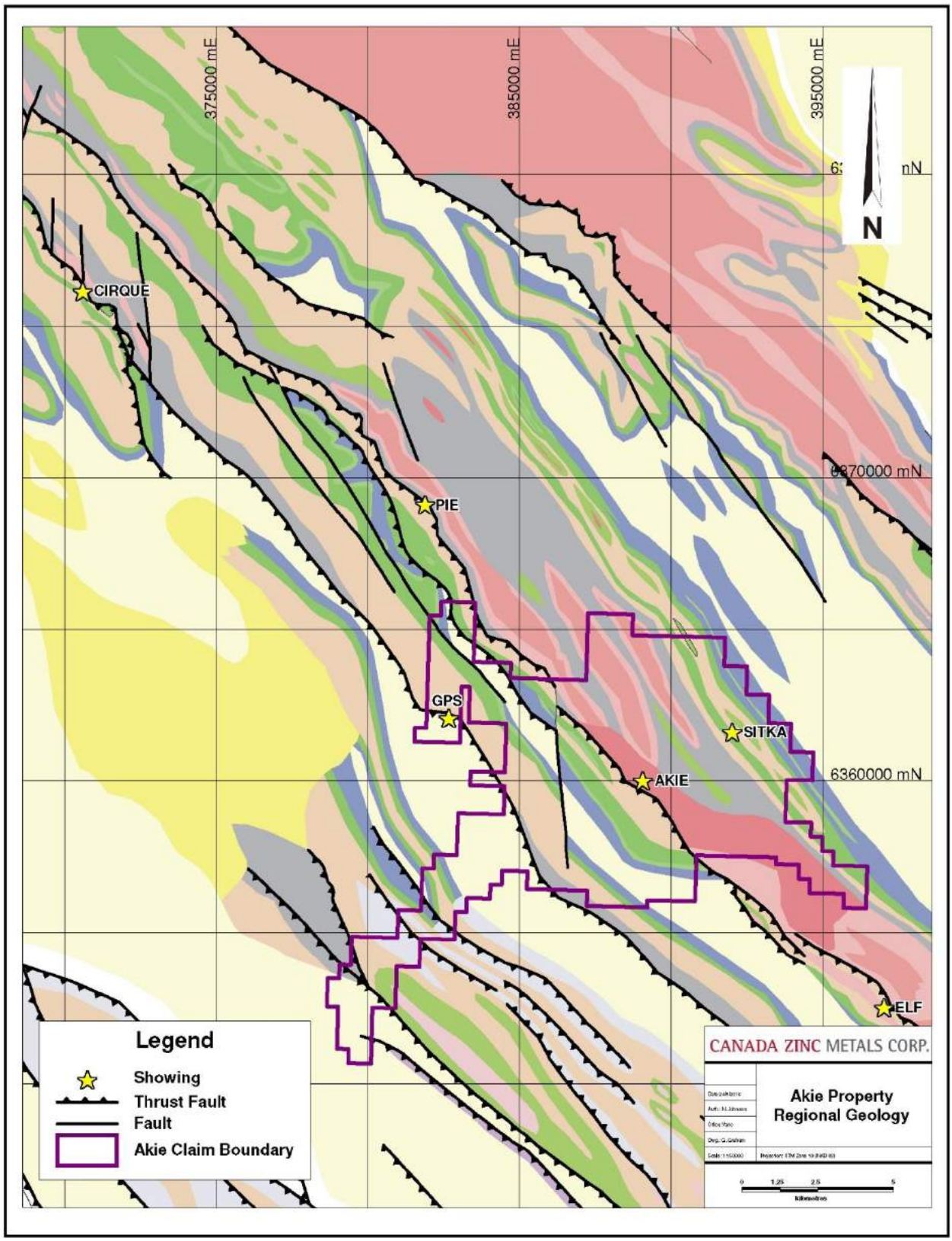
Dated this 28th day of June, 2016.

"original signed and sealed"

_____

Robert Sim, P.Geo

APPENDIX 1
REGIONAL GEOLOGY


375000 mE
385000 mE
395000 mE
N
CIRQUE
PIE
GPS
SITKA
AKIE
ELF
6370000 mN
6360000 mN
Legend
Showing
Thrust Fault
Fault
Akie Claim Boundary
CANADA ZINC METALS CORP.
Akie Property
Regional Geology

TSX-V:CZX
CANADA ZINC METALS CORP.

KECHIKA TROUGH
GEOLOGY LEGEND

TRIASSIC

Ts	Dolomitic siltstone, minor limestone, dolostone.

CARBONIFEROUS to PERMIAN

Mp	Pale grey to greenish grey chert.

UPPER DEVONIAN to MISSISSIPPIAN

DMe	Argillite, slate, shale, locally carbonaceous and pyritic; chert arenite and pebble conglomerate, polymictic conglomerate; limestone
DMa	AKIE FORMATION: brown weathering silty shale; minor siltstone.
Dg	GUNSTEEL FORMATION: blue grey weathering chert, cherty mudstone, argillite, shale; nodular and bedded barite +/- sulphides; minor pelagic limestone.
Db	Black, siliceous shale, minor sandstone and pebble conglomerate, barite.

LOWER to MIDDLE DEVONIAN

Dl	Medium to thick-bedded micritic and bioclastic limestone reefs and carbonate buildups; minor shaley argillite and chert; limestone, dark grey, argillaceous.

UPPER SILURIAN to MIDDLE DEVONIAN

Dc	Mainly limestone in western part of 94F; basal quartzities, shale and limestone debris flows in eastern part of 94F.

ORDOVICIAN to DEVONIAN

OSDr	Undivided, shale, black, graptolitic, mainly Ordovician; siltstone, tan, platy, mainly Silurian; sandstone, calcareous shale.

UPPER SILURIAN to MIDDLE DEVONIAN

DRs	Rusty-weathering black silty shale, limey siltstone; lower section includes interbedded limestone debris flows, crinoidal siltstone, calcarenite, graptolitic black shale, quartzose conglomerate and wacke near carbonate platform and reefs; basal chert.

SILURIAN

Sr	Brown to buff weathering dolomitic siltstone; platy, flaser-bedded; minor quartz wacke, limestone olistostromes; includes basal unit of dolostone, mudstone, black chert and argillite.

ORDOVICIAN

OR	Undivided shale, limestone, siltstone, limestone debris flows.

MIDDLE to UPPER ORDOVICIAN

ORs	Black graptolitic shale, minor black chert, siltstone.
ORv	Orange weathering ankeritic tuffs, altered flows and sills.
ORq	Mainly quartz wacke turbidites with minor interbeds of graptolitic black shale.

LOWER to UPPER ORDOVICIAN

ORc	Platy, laminated buff to cream weathering, limey siltstone, mudstone, limestone and debris flows near base.
OSk	SKOKI FORMATION: medium to thin-bedded dolostone, limestone, limey mudstone, crinoidal.

CAMBRIAN - ORDOVICIAN

COk	Nodular, wavy-banded phyllitic siltstone, limestone, shale, minor green tuff.

CAMBRIAN

mCc	Medium to thick-bedded limestone patch reefs, minor quartz wacke.
Cp	Quartzite, orange-weathering dolostones, minor siltstone, shale; may locally include Lynx Formation equivalents.

APPENDIX 2
DRILL HOLE RESULTS

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
A-94-01	No Significant Results								
A-94-02	No Significant Results								
A-94-03	163.90	176.70	12.80	10.74	CCZ	2.35	0.38	3.96	2.73
A-94-04	217.20	247.00	29.80	19.98	CCZ	1.57	0.24	4.19	1.81
incl	238.30	247.00	8.70	5.85		2.91	0.50	5.83	3.41
A-94-05	132.30	145.40	13.10	9.63	CCZ	3.54	0.61	5.04	4.15
and	153.50	161.10	7.60	5.63	FW	0.49	0.16	2.36	0.65
A-94-06	439.60	469.10	29.50		CCZ				
A-94-07	189.80	236.70	46.90	24.71	CCZ	4.46	0.83	8.37	5.29
incl	189.80	229.90	40.10	21.13		4.81	0.84	8.00	5.65
incl	197.80	229.90	32.10	16.92		5.18	0.92	8.58	6.10
incl	209.00	229.90	20.90	11.01		5.44	1.00	9.28	6.44
incl	216.70	229.90	13.20	6.96		5.82	1.05	10.43	6.87
A-94-08	173.90	179.80	5.90	5.22	CCZ	2.47	0.40	6.97	2.87
A-94-09	311.60	317.10	5.50	3.03	CCZ	1.25	0.09	4.70	1.34
A-94-10	No Significant Results								
A-94-11	330.20	353.30	23.10	16.89	CCZ	4.30	0.86	7.18	5.16
incl	337.20	353.30	16.10	11.78		5.40	1.11	8.49	6.51
A-94-12	437.00	477.40	40.40	30.73	CCZ	4.18	0.89	9.72	5.07
incl	443.20	470.80	27.60	20.99		5.46	1.07	10.37	6.53
incl	449.70	470.80	21.10	16.10		6.00	1.21	11.54	7.21
incl	455.50	469.50	14.00	10.71		6.74	1.30	11.48	8.04
incl	460.20	470.80	10.60	8.13		7.76	1.55	13.52	9.31
A-95-13	663.80	671.50	7.70	5.43	CCZ	2.86	0.50	6.49	3.36
and	698.60	735.80	37.00	26.63	FW	5.00	0.98	9.72	5.98
incl	702.80	734.10	31.10	22.41		5.55	1.09	10.50	6.64
incl	707.00	734.10	26.90	19.42		5.70	1.13	10.54	6.83
incl	713.60	729.90	16.30	11.68		6.82	1.33	11.64	8.15
A-95-14	Abandoned								
A-95-15	Abandoned								
A-95-16	621.20	636.70	15.50	12.93	CCZ	2.94	0.51	7.01	3.45
incl	625.30	635.50	10.20	8.51		3.78	0.66	8.23	4.44
and	648.40	659.90	11.50	9.64	FW	3.38	0.78	8.60	4.16
incl	652.70	659.90	7.20	6.04		4.59	1.11	11.72	5.70
A-95-17	658.00	662.10	4.10	3.61	CCZ	1.28	0.19	5.66	1.47
and	681.20	683.40	2.20	1.96	FW	1.86	0.30	6.70	2.16
A-95-18	926.20	937.90	11.30	10.78	CCZ	2.80	0.45	6.17	3.25
incl	928.40	934.40	5.60	5.53		3.85	0.60	7.17	4.45

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
and	977.40	1001.40	24.40	22.48	FW	4.30	0.74	8.28	5.08
incl	981.50	999.20	17.70	16.31		5.39	0.92	10.05	6.31
incl	984.10	995.00	10.90	10.04		7.10	1.18	12.46	8.28
incl	986.20	992.80	6.60	6.08		9.22	1.43	14.81	10.65
A-95-19	1074.50	1077.40	2.90	2.85	CCZ	1.34	0.31	7.25	1.65
A-95-20	No Significant Results								
A-95-21	Abandoned								
A-95-22	No Significant Results								
A-95-23	No Significant Results								
A-95-24	472.40	473.20	0.80	-	NLZ	11.60	9.05	3.50	20.65
A-95-25	No Significant Results								
A-95-26	No Significant Results								
A-95-27	No Significant Results								
A-95-28	Abandoned								
A-95-29	No Significant Results								
A-05-30	534.75	568.80	34.05	25.06	CCZ	11.87	2.83	23.98	14.70
incl	543.47	567.30	23.83	17.55		15.01	3.72	28.55	18.73
incl	543.47	561.40	17.93	13.20		17.22	4.20	30.14	21.42
A-05-31	Abandoned								
A-05-32	555.20	581.90	26.70	20.79	CCZ	11.96	2.73	22.23	14.69
incl	570.40	581.90	11.50	8.98		16.16	3.95	29.37	20.11
A-05-33	558.55	577.75	19.20	13.77	CCZ	8.71	1.83	16.01	10.54
incl	565.50	577.00	11.50	8.27		9.81	2.20	18.54	12.01
incl	571.00	577.00	6.00	4.32		11.97	2.79	22.00	14.76
A-06-34	Abandoned								
A-06-35	642.70	664.60	21.90	12.97	CCZ	8.91	1.80	16.03	10.71
incl	654.50	664.60	10.10	5.99		11.06	2.52	21.28	13.58
and	677.10	681.90	4.80	2.86	FW	9.33	2.16	19.71	11.49
A-06-36	Abandoned								
A-06-36A	673.50	687.20	13.70	8.75	HW	4.03	0.76	7.40	4.79
and	711.40	721.80	10.40	6.74	CCZ	5.81	1.19	11.21	7.00
incl	713.00	716.00	3.00	1.94		9.14	1.68	17.50	10.82
A-06-37	Abandoned								
A-06-37A	500.20	525.70	25.60	21.27	CCZ	8.35	1.73	16.36	10.08
incl	500.20	508.00	7.80	6.49		9.35	1.72	15.12	11.07
incl	511.00	525.70	14.70	12.28		9.46	2.05	17.01	11.50
incl	511.00	520.30	9.30	7.76		10.35	2.25	17.34	12.60
A-06-38	528.35	552.40	24.05	20.17	CCZ	7.78	1.35	14.17	9.13

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	528.35	542.20	13.85	11.61		8.99	1.68	16.57	10.67
incl	537.80	542.20	4.40	3.69		13.00	1.82	18.09	14.82
incl	544.90	547.75	2.85	2.39		12.39	1.66	14.67	14.05
A-06-39	Abandoned								
A-06-39A	490.00	508.10	18.10	14.39	CCZ	8.07	1.62	14.15	9.69
incl	490.00	503.00	13.00	10.33		9.60	1.89	15.27	11.49
incl	494.00	502.00	8.00	6.36		11.52	2.35	16.94	13.87
A-06-40	480.00	510.40	30.40	25.58	CCZ	5.49	0.86	10.69	6.35
incl	483.60	490.80	7.20	6.04		6.88	1.06	10.61	7.94
incl	493.00	505.30	12.30	10.36		7.33	1.19	11.55	8.52
incl	493.00	502.10	9.10	7.66		8.56	1.35	12.23	9.91
A-06-41	587.60	604.35	16.75	12.18	CCZ	6.56	1.20	12.20	7.76
incl	591.87	604.35	12.48	9.09		6.99	1.31	13.04	8.30
incl	596.70	604.35	7.65	5.58		7.65	1.49	14.67	9.14
A-07-42	632.80	658.54	25.74	19.30	HW	3.87	0.58	4.42	4.45
and	666.90	678.22	11.32	8.59	CCZ	13.83	3.24	21.11	17.07
A-07-43	544.20	571.81	27.61	18.42	CCZ	12.20	2.99	20.01	15.19
incl	559.92	571.81	11.89	7.95		15.64	4.29	29.04	19.93
A-07-44	No Significant Results								
A-07-45	508.39	545.40	37.01	26.11	CCZ	13.91	3.07	22.94	16.98
incl	512.36	544.37	32.01	22.60		15.35	3.40	25.24	18.75
incl	524.80	541.20	16.40	11.60		18.42	4.17	30.49	22.59
A-07-46	630.03	657.39	27.36	19.09	HW	2.46	0.33	4.90	2.79
and	671.00	673.12	2.12	1.49	CCZ	8.58	1.86	14.67	10.44
A-07-47	353.13	380.20	27.07	18.71	CCZ	9.63	1.83	13.69	11.46
incl	360.20	380.20	20.00	13.83		11.61	2.25	15.71	13.86
incl	368.88	380.20	11.32	7.84		13.45	2.48	17.81	15.93
A-07-48	384.57	419.71	35.14	24.75	CCZ	5.86	1.13	9.16	6.99
incl	387.37	394.41	7.04	4.94		9.10	1.04	7.45	10.14
and	405.26	414.11	8.85	6.25		8.07	1.60	14.31	9.67
A-07-49	332.38	352.57	20.19	15.89	CCZ	11.41	2.24	15.36	13.65
incl	344.96	352.57	7.61	6.02		14.47	3.23	21.01	17.70
A-07-50	525.38	554.78	29.40	22.39	CCZ	13.14	2.64	20.95	15.78
incl	533.00	553.98	20.98	15.98		16.67	3.41	25.44	20.08
A-07-51	463.37	498.98	35.61	23.42	CCZ	10.60	1.80	15.10	12.40
incl	472.46	497.00	24.54	16.18		13.25	2.24	17.04	15.49
A-07-52	741.00	744.00	3.00	1.18	CCZ	2.20	0.15	5.70	2.35
A-07-53	389.50	417.35	27.85	18.62	CCZ	9.70	1.84	16.01	11.54

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	401.12	417.35	16.23	10.86		12.72	2.43	19.45	15.15
A-08-54	285.28	303.62	18.34	13.99	CCZ	8.14	2.98	18.62	11.12
incl	288.05	300.18	12.13	9.25		10.17	1.75	12.45	11.92
A-08-55	495.10	512.85	17.75	10.10	CCZ	6.67	1.24	9.61	7.91
incl	502.62	509.98	7.36	4.49		7.59	1.51	11.12	9.10
A-08-56	245.45	256.47	11.02	9.54	CCZ	6.65	1.35	7.56	8.00
A-08-57	270.70	297.25	26.55	23.14	CCZ	7.95	1.34	10.71	9.29
incl	279.00	295.55	16.55	14.44		10.42	1.72	12.18	12.14
incl	285.20	295.55	10.35	9.04		12.72	2.04	14.45	14.76
A-08-58	419.86	450.85	30.99	25.87	CCZ	5.98	1.07	9.40	7.05
incl	430.66	450.85	20.19	16.89		7.91	1.44	11.74	9.35
incl	442.35	450.85	8.50	7.12		9.75	1.92	14.79	11.67
A-08-59	294.00	301.72	7.72	7.04		5.95	1.04	7.64	6.99
A-08-60	Abandoned								
A-08-60A	643.53	648.72	5.19	4.19	CCZ	11.22	2.78	20.86	14.00
A-08-61	332.79	350.31	17.52	16.16	CCZ	3.90	0.66	5.06	4.56
incl	337.05	350.31	13.26	12.24		4.85	0.82	6.04	5.67
A-08-62					NLZ				
A-08-63					NLZ				
A-08-64	460.29	497.85	37.56	23.09	CCZ	5.21	1.13	9.01	6.34
incl	464.00	479.17	15.17	9.29		6.82	1.35	9.99	8.17
incl	464.00	475.12	11.12	6.80		7.57	1.46	10.33	9.03
A-08-65	539.23	567.55	28.32	23.74	CCZ	8.46	1.69	13.40	10.15
incl	546.32	567.55	21.23	17.82		9.78	1.99	15.57	11.77
incl	546.32	553.80	7.48	6.27		10.54	1.94	14.15	12.48
incl	556.77	567.55	10.78	9.06		10.76	2.31	17.89	13.07
and	574.23	584.76	10.53	8.88	FW	10.03	2.06	19.40	12.09
A-08-66	362.35	381.65	19.30	15.70	CCZ	5.08	0.83	6.92	5.91
incl	373.42	381.65	8.23	6.71		5.96	1.00	7.31	6.96
A-10-67	129.00	141.05	12.05	6.57	CCZ	0.23	0.02	2.81	0.25
and	162.00	182.00	20.00	11.14		0.15	0.01	2.09	0.16
A-10-68	488.39	614.62	126.23	-	NLZ	Zn values range from <1000ppm to 2.09%			
incl	551.92	553.94	2.02	1.26		1.47	0.04	5.39	1.51
A-10-69	212.00	224.44	12.44	7.75	CCZ	0.81	0.07	2.68	0.88
A-10-69A	221.90	235.16	13.26	7.65	CCZ	0.17	0.01	3.06	0.18
A-10-70	350.20	351.00	0.80	0.53	NLZ	1.23	0.22	1.80	1.45
A-10-71	323.80	345.70	21.90	15.89	CCZ	0.16	0.02	3.10	0.18

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
A-10-72	182.60	190.41	7.82	4.54	CCZ	0.23	0.01	2.24	0.24
and	299.40	300.57	1.17	0.71	NICK	2.69	0.60% Ni	4.36	N/A
A-10-73	Abandoned								
A-10-73A	Abandoned								
A-10-73B	597.11	619.90	22.79	21.97	CCZ	8.34	1.69	16.03	10.03
incl	606.12	618.65	12.53	12.09		10.30	2.12	18.72	12.42
A-10-74	559.14	576.60	17.46	14.15	CCZ	5.70	0.89	8.52	6.59
incl	568.59	576.60	8.01	6.50		6.67	1.10	9.56	7.77
incl	570.17	576.60	6.43	5.22		7.15	1.16	10.28	8.31
A-10-75	666.66	691.36	24.70	15.95	HW	2.10	0.24	4.19	2.34
and	700.28	706.93	6.65	4.33	CCZ	5.89	1.10	10.78	6.99
incl	700.28	703.32	3.04	1.98		8.08	1.50	15.42	9.58
A-10-76	614.78	744.96	130.18	-	NLZ	Zn values range from <1000 to >4700ppm			
A-10-77	Geotech Drill Hole								-
A-10-78	Geotech Drill Hole								-
A-10-79	Geotech Drill Hole								-
A-10-80	Geotech Drill Hole								-
A-11-81	Geotech Drill Hole								-
A-11-81A	Geotech Drill Hole								-
A-11-82	Geotech Drill Hole								-
A-11-83	Geotech Drill Hole								-
A-11-84	No Significant Results								-
A-11-85	No Significant Results								-
A-11-86	54.85	109.50	54.65	24.59	CCZ	0.29	0.03	2.17	0.32
A-11-87	172.03	196.71	24.68	20.53	CCZ	0.18	-	-	0.18
A-11-88	206.26	223.82	17.56	10.96	CCZ	0.38	0.03	2.02	0.41
and	240.89	242.46	1.57	0.98	MS	6.99	0.25	2.35	7.24
A-11-89	218.29	237.29	19.00	13.68	CCZ	0.16	<0.01	1.92	0.16
incl	245.06	255.95	10.89	7.85		0.17	<0.01	1.01	0.17
and	275.00	293.67	18.67	13.48	FW	0.38	0.01	1.71	0.39
A-11-90	151.26	173.24	21.98	16.82	CCZ	0.31	0.02	2.85	0.33
A-11-91	No Significant Results								0.00
A-11-92	599.24	607.50	8.26	6.04	CCZ	1.83	0.30	5.43	2.13
incl	599.24	602.46	3.22	2.35		3.41	0.58	7.72	3.99
A-11-93	533.61	552.02	18.41	15.22	CCZ	6.61	1.45	9.84	8.06
incl	538.13	548.44	10.31	8.52		8.60	2.02	11.82	10.62

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	538.13	541.50	3.37	2.78		13.99	3.67	16.53	17.66
incl	544.74	548.44	3.70	3.06		9.84	1.97	9.84	11.81
A-11-94	Abandoned								
A-11-95	534.58	563.98	29.40	24.58	CCZ	2.67	0.40	5.21	3.07
incl	541.00	560.22	19.22	16.08		3.60	0.54	6.21	4.14
incl	544.13	559.33	15.20	12.72		3.98	0.61	6.84	4.59
incl	545.97	559.33	13.36	11.18		4.12	0.65	7.09	4.77
incl	547.61	559.33	11.72	9.81		4.30	0.68	7.43	4.98
incl	555.59	559.33	3.74	3.13		7.40	1.28	10.13	8.68
A-11-96	283.73	315.36	31.63	26.12	CCZ	4.80	0.84	7.70	5.64
incl	296.97	313.28	16.31	13.47		7.15	1.24	11.18	8.39
incl	300.00	311.91	11.91	9.83		7.42	1.29	11.32	8.71
incl	305.52	311.91	6.39	5.28		8.59	1.42	12.43	10.01
A-11-97	Abandoned								
A-11-98	412.36	450.42	38.06	32.79	CCZ	5.39	0.88	8.61	6.27
incl	424.39	450.42	26.03	22.45		7.09	1.17	10.97	8.26
incl	428.44	449.78	21.34	18.41		7.67	1.29	11.63	8.96
incl	435.75	450.42	14.67	12.67		9.69	1.58	14.08	11.27
incl	436.91	449.78	12.87	11.11		10.36	1.71	14.59	12.07
incl	439.94	449.78	9.84	8.50		12.50	2.04	17.01	14.54
A-11-99	628.24	689.17	60.93	28.43		2.42	0.36	5.99*	2.78
incl	657.79	689.17	31.38	14.66	CCZ	3.03	0.47	6.80*	3.50
incl	672.13	688.25	16.12	7.53		4.06	0.72	8.97	4.78
incl	675.44	688.25	12.81	5.98		4.31	0.77	9.58	5.08
incl	678.60	688.25	9.65	4.51		4.37	0.80	9.94	5.17
incl	678.60	683.34	4.74	2.21		5.18	0.94	11.94	6.12
and	708.49	730.72	22.23	10.42	FW	1.21	0.18	3.22	1.39
A-11-100	Abandoned								
A-13-101	No Significant Results								
A-13-102	No Significant Results								
A-13-103	252.37	252.87	0.50	-	NICK	0.39	0.90% Ni	1.1	0.39
A-13-104	287.60	362.88	75.28	-	??	0.22	281 ppm	1.7*	0.24
incl	321.20	333.93	12.73	-	??	0.37	443 ppm	1.9	0.41
and	474.83	651.30	176.47	-	NLZ	0.13	72 ppm	2.17	0.13

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	520.30	574.25	53.95	-		0.19	128 ppm	2.43	0.2
incl	587.33	615.09	27.76	-		0.19	98 ppm	1.81	0.19
A-13-105	357.00	411.33	54.33	40.08	CCZ	2.79	0.45	5.35*	3.24
incl	377.00	404.40	27.40	20.26		4.49	0.77	7.44	5.26
incl	392.85	404.40	11.55	8.56		6.42	1.21	9.51	7.63
incl	395.15	403.25	8.10	6.01		7.46	1.43	11.09	8.89
A-13-106	476.00	488.06	12.06	10.56	CCZ	6.47	1.06	10.70	7.53
incl	476.76	486.50	9.74	8.53		7.96	1.30	13.00	9.26
incl	477.21	484.78	7.57	6.63		9.03	1.50	13.69	10.53
and	499.90	501.13	1.23	-	NICK	0.11	0.29% Ni	<0.5	-
A-13-107	541.53	568.14	26.61	20.28	CCZ	5.55	1.02	10.15	6.57
incl	544.70	566.13	21.43	16.33		6.59	1.22	11.50	7.81
incl	552.34	561.83	9.49	7.24		12.08	1.80	14.39	13.88
and	568.14	577.26	9.12	6.98	FW	2.71	0.39	4.93	3.09
incl	572.47	577.26	4.79	3.67		4.89	0.71	8.87	5.60
A-13-108	Abandoned								
A-13-109	615.56	655.58	40.02	27.09	CCZ	1.5	0.20	3.69	1.70
incl	634.07	655.58	21.51	14.58		2.47	0.33	5.31	2.80
incl	639.00	655.58	16.58	11.24		2.95	0.41	5.98	3.37
incl	646.06	655.58	9.52	6.45		3.31	0.57	7.66	3.88
and	667.66	677.45	9.79	6.63	FW	1.00	0.16	3.13	1.17
incl	673.40	677.45	4.05	2.74		1.53	0.25	4.00	1.77
and	684.12	685.30	1.18	0.80	MS	3.64	0.08	12.07	3.72
A-13-110	No Significant Results								
A-14-111	305.44	351.41	45.97	34.75	CCZ	4.8	0.78	9.80*	5.58
incl	311.25	340.16	28.91	21.85		6.53	1.01	9.57*	7.54
incl	317	340.16	23.16	17.51		7.39	1.15	10.91	8.54
incl	317.85	340.16	22.31	16.87		7.33	1.16	11.01	8.49
incl	317.85	338.29	20.44	15.45		7.71	1.21	11.33	8.92
incl	317.85	330.34	12.49	9.44		8.93	1.25	10.54	10.18
incl	319.9	330.34	10.44	7.89		9.27	1.33	11.39	10.6
incl	319.9	329.07	9.17	6.93		9.11	1.23	10.93	10.34
A-14-112	337.15	356.3	19.15	13.70	CCZ	4.57	0.7	6.87	5.27
incl	343	356.3	13.3	9.52		5.71	0.88	7.86	6.59
incl	345.3	356.3	11	7.87		5.97	0.94	8.02	6.91

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	349	356.3	7.3	5.23		6.28	0.89	8.23	7.17
A-14-113	310.31	316.62	6.31	5.16	CCZ	0.52	0.05	2.61	0.57
A-14-114	121.77	128.38	6.61	2.84	CCZ	4.05	0.76	5.43	4.81
incl	121.77	123.54	1.77	0.76		9.11	1.7	11.49	10.81
incl	127.3	128.38	1.08	0.46		8.87	1.5	11.9	10.37
incl	148.3	149.69	1.39	??	NICK	0.3	0.06	654ppm (Ni)	0.36
A-14-115	173.69	208.75	35.06	24.51	CCZ	4.48	0.8	6.88	5.28
incl	173.69	203.56	29.87	20.87		5.09	0.92	7.31	6.01
incl	176.7	203.56	26.86	18.77		5.32	0.96	7.55	6.28
incl	176.7	184.9	8.2	5.72		6.04	1.26	8.18	7.3
incl	193.05	203.56	10.51	7.36		7.22	1.22	10.97	8.44
incl	191.54	201.05	9.51	6.66		8.21	1.31	11.71	9.52
incl	191.54	203.56	12.02	8.42		7.43	1.19	10.72	8.62
incl	194.35	201.05	6.7	4.69		8.45	1.45	12.4	9.9
incl	196.45	201.05	4.6	3.22		10.16	1.69	13.97	11.85
A-14-116	393.7	442.35	48.65	29.95	CCZ	2.27	0.29	4.46	2.56
incl	401.17	442.35	41.18	25.35		2.54	0.33	4.76	2.87
incl	401.74	440.65	38.91	23.95		2.6	0.34	4.79	2.94
incl	406.17	440.65	34.48	21.22		2.82	0.37	5.11	3.19
incl	406.17	442.35	36.18	22.27		2.75	0.36	5.08	3.11
incl	407.25	440.65	33.4	20.56		2.8	0.37	5.02	3.17
incl	407.25	417.3	10.05	6.19		3.11	0.38	6.2	3.49
incl	422.8	440.65	17.85	10.98	FW	3.15	0.43	4.98	3.58
incl	426.6	440.65	14.05	8.64		3.39	0.46	5.15	3.85
incl	437.4	440.65	3.25	2.00		5.87	0.70	6.09	6.57
A-14-117	327.83	371.47	43.64	30.80	CCZ	2.48	0.41	4.04	2.89
incl	332.29	371.47	39.18	27.65		2.69	0.44	4.42	3.13
incl	333.25	369.49	36.24	25.57		2.79	0.46	4.49	3.25
incl	343.2	369.49	26.29	18.55		3.28	0.56	5.25	3.84
incl	346	367.8	21.8	15.38		3.35	0.58	5.33	3.93
incl	350.3	367.8	17.5	12.35		3.57	0.63	5.59	4.2
incl	355	367.8	12.8	9.03		3.92	0.71	6.15	4.63
incl	357.65	367.8	10.15	7.16		4.52	0.81	7.14	5.33
incl	361.38	369.49	8.11	5.72		5.45	0.94	8.49	6.39
incl	362.25	367.8	5.55	3.92		6.21	1.11	9.49	7.32
A-14-118	Abandoned								
A-14-119	Abandoned								

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
A-14-120	409	432.82	23.82	12.98	CCZ	1.44	0.15	3.22	1.59
incl	417.81	429.25	11.44	6.23		2.2	0.23	4.01	2.43
incl	418.7	428.75	10.05	5.48		2.33	0.24	4.05	2.57
incl	418.7	426.2	7.5	4.09		2.76	0.27	4.53	3.03
incl	423.87	426.2	2.33	1.27		4.14	0.45	6.9	4.59
A-15-121	419.16	531	111.84	64.29	Envelope	6.06	1.28	14.24	7.34
incl	419.16	483.32	64.16	36.89	CCZ	8.03	1.82	16.38	9.85
incl	433.8	483.32	49.52	28.51		10.22	2.34	20.45	12.56
incl	445.9	482.07	36.17	20.84		12.76	2.93	25.01	15.69
incl	459.55	482.07	22.52	12.98		13.83	3.23	28.98	17.06
and	493.08	508.48	15.4	8.86	FW	8.88	1.36	21.51	10.24
and	523.06	535.52	12.46	7.14	MS	1.98	0.17	11.09	2.15
A-15-122	474.45	519.3	44.85	39.16	CCZ	5.75	1.12	11.16	6.87
incl	489	515.7	26.7	23.36		8.63	1.68	14.64	10.31
incl	498	512.1	14.1	12.35		11.4	2.22	17.92	13.62
A-15-124	577.63	662.3	84.67	58.53	Envelope	4.57	0.90	9.20	5.47
incl	601.13	656.41	55.28	38.43	CCZ	6.41	1.32	12.30	7.72
incl	607	656.41	49.41	34.41		7.00	1.46	13.33	8.46
incl	617	656.41	39.41	27.51		8.19	1.77	15.69	9.96
incl	625.8	656.41	30.61	21.41		9.47	2.11	18.22	11.58
incl	632.07	656.41	24.34	17.04		10.74	2.46	20.18	13.20
incl	640.6	656.41	15.81	11.09		13.99	3.21	26.43	17.20
A-15-123	Abandoned								
A-15-125	414.85	441.62	26.77	23.37	CCZ	7.25	1.28	12.28	8.53
incl	416.05	439.91	23.86	20.83		7.97	1.41	12.99	9.38
incl	421.87	439.91	18.04	15.76		9.71	1.74	15.75	11.45
incl	425.5	439.91	14.41	12.59		10.78	2.02	17.71	12.8
incl	429.98	439.91	9.93	8.68		12.98	2.47	21.76	15.45
A-15-126	651.22	747.00	95.78	52.46	Envelope	2.34	0.40	5.02	2.74
and	651.22	674.12	22.90	12.10	HW	3.06	0.48	7.01	3.54
and	695.40	716.51	21.11	11.72	CCZ	4.61	0.84	9.79	5.45
incl	696.25	716.00	19.75	10.97		4.70	0.84	9.83	5.54
and	728.47	747.00	18.53	10.42	FW	2.61	0.47	5.10	3.08
incl	728.47	741.65	13.18	7.40		3.17	0.60	6.54	3.77
A-15-127	617.36	674.40	57.04	35.66	Envelope	4.82	1.00	9.93	5.82
and	617.36	648.68	31.32	19.49	CCZ	5.15	1.05	10.54	6.20
incl	623.57	648.22	24.65	15.36		6.21	1.28	12.12	7.49
incl	625.91	648.22	22.31	13.91		6.56	1.38	12.92	7.94

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	TW (m)	ZONE	ZN (%)	PB (%)	AG (g/t)	ZN+PB (%)
incl	630.81	648.22	17.41	10.86		6.97	1.56	14.45	8.53
incl	632.37	648.22	15.85	9.89		7.15	1.61	15.00	8.76
incl	637.53	648.22	10.69	6.68		8.20	1.91	17.52	10.11
and	660.78	674.40	13.62	8.57	FW	8.09	1.74	16.52	9.83
incl	660.78	670.43	9.65	6.07		10.80	2.37	21.32	13.17
A-15-128	Abandoned								
A-15-129	Abandoned								
A-15-130	596.59	649.72	53.13	34.03	Envelope	3.47	0.65	7.01	4.12
and	601.00	625.75	24.75	15.82	CCZ	5.68	1.09	10.51	6.77
incl	606.75	625.75	19.00	12.15		6.97	1.38	12.84	8.35
and	637.43	649.72	12.29	7.91	FW	2.83	0.49	6.76	3.32
incl	637.43	640.22	2.79	1.79		8.75	1.73	15.41	10.48
A-15-131	266.00	289.53	23.53	21.17	CCZ	5.45	1.19	10.89	6.64
incl	270.13	288.53	18.40	16.57		6.46	1.24	12.24	7.70
incl	273.83	288.53	14.70	13.25		6.79	1.35	13.19	8.14
incl	277.73	288.53	10.80	9.74		8.22	1.61	16.00	9.83
incl	277.73	285.40	7.67	6.91		8.99	1.80	15.46	10.79
CCZ	Cardiac Creek Zone		HW/FW				NLZ	North Lead Zone	