NOTE TO READER

The technical report titled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project Saskatchewan, Canada" was originally filed on November 25, 2021 (the "**Initial Technical Report**"). The Initial Technical Report has been amended to clarify and correct certain portions of the report. The correct and current technical report titled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project Saskatchewan, Canada" dated January 31, 2022 is attached to this filing (the "**Amended Technical Report**").

The Amended Technical Report does not materially change any of the previous disclosures of Foran Mining Corporation (the "**Compan**y") as outlined in the Initial Technical Report. The changes are as follows:

- William Lewis's Qualified Person certificate appended to the report has been amended to include the dates of his 2021 site visit to the McIlvenna Bay Property;
- Section 6.2 (History) of the Initial Technical Report included a description of early exploration work competed by Foran Mining Corporation (the "**Company**") on the property to provide context to current work. Since this work was completed by the Company and not a previous operator on the property, this discussion has been removed in the Amended Technical Report to comply with the requirements of NI 43-101;
- Section 9.4 of the Initial Technical Report included a discussion of exploration work conducted by the Company on its nearby Bigstone Property, located 25km to the southwest of McIlvenna Bay. The Bigstone Property is a separate property from McIlvenna Bay and is the subject of its own current NI 43-101 technical report. Consequently, this disclosure has been removed in the Amended Technical Report; and
- additional disclosure has been provided regarding the treatment and discussion of historical property data from previous technical reports written by another Qualified Person. The disclosure has been amended in the applicable sections to confirm that this historical data had been reviewed, checked, and verified by the Qualified Persons responsible for the Amended Technical Report, to confirm the adequacy of the data for the current resource estimate.

MICON INTERNATIONAL LIMITED | mineral industry consultants

FORAN MINING CORPORATION

TECHNICAL REPORT
FOR THE
2021 MINERAL RESOURCE ESTIMATE
ON THE
MCILVENNA BAY PROJECT
SASKATCHEWAN, CANADA

EFFECTIVE DATE: September 6, 2021
REPORT DATE: November 25, 2021
Amended Report Date: January 31, 2022

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1.0 SUMMARY

1.1 GENERAL

Foran Mining Corporation (Foran) has retained Micon International Limited (Micon) to conduct an updated mineral resource estimate for the McIlvenna Bay Project (McIlvenna Bay Project) in Saskatchewan, Canada and to compile this Canadian National Instrument (NI) 43-101 Technical Report disclosing the results of that estimate. Micon conducted a mineral resource estimate for the McIlvenna Bay Project previously.

For compiling the mineral resource estimate, the Qualified Persons (QPs) used the following guidelines:

1. The CIM Definitions and Standards for Mineral Resources and Reserves, adopted by the CIM council on May 10, 2014.
2. The CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines, adopted by the CIM Council on November 29, 2019.

This report discloses technical information, the presentation of which requires the QPs to derive sub-totals, totals and weighted averages that inherently involve a degree of rounding and, consequently, introduce a margin of error. Where these occur, the QPs do not consider them to be material.

The conclusions and recommendations in this report reflect the QPs best independent judgment in light of the information available to them at the time of writing. Micon and the QPs reserve the right, but will not be obliged, to revise this report and conclusions if additional information becomes known to them subsequent to the date of this report. Use of this report acknowledges acceptance of the foregoing conditions.

This report is intended to be used by Foran subject to the terms and conditions of its agreement with Micon. That agreement permits Foran to file this report as a Technical Report on SEDAR (www.sedar.com) pursuant to provincial securities legislation or with the SEC in the United States.

Neither Micon nor the QPs have, nor have they previously had, any material interest in Foran or related entities. The relationship with Foran is solely a professional association between the client and the independent consultants. This report is prepared in return for fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report.

Micon and the QPs are pleased to acknowledge the helpful cooperation of Foran management and consulting field staff, all of whom made any and all data requested available and responded openly and helpfully to all questions, queries and requests for material.

The contents of this report supersede and replace all prior Technical Reports written for the McIlvenna Bay Project.

1.2 Property Location, Description and Ownership

The McIlvenna Bay property is located approximately 1 km south of Hanson Lake, Saskatchewan. McIlvenna Bay is located within NTS sheet 63L10 and the plan projection of the deposit is centred on UTM coordinates 640,600 E and 6,056,200 N (NAD 83, Zone 13). The corresponding geographic coordinates are 102°50' W and 54°38' N. The McIlvenna Bay deposit is located within the property boundaries.

Foran owns 100% of the McIlvenna Bay property, which comprises 38 claims totalling 20,954 ha.

1.3 Accessibility, Climate, Physiography, Local Resources and Infrastructure

1.3.1 Accessibility

McIlvenna Bay is located 1 km south of Hanson Lake, Saskatchewan, and approximately 95 km by road west of Flin Flon, Manitoba. The McIlvenna site is accessible via an 18 km long all-weather gravel road which connects to Saskatchewan Provincial Highway #106.

The regional mining towns of Flin Flon, Manitoba and Creighton, Saskatchewan (combined population 7,100), represent the largest commercial/residential centre in the area. Flin Flon provides a railhead that connects the area to the North American railway system. Electrical power is available from SaskPower at Creighton and/or Island Falls, Saskatchewan.

In addition to the various highways that connect Flin Flon and Creighton to various other parts of Manitoba and Saskatchewan, Flin Flon also has commercial flights to and from Winnipeg, Manitoba.

1.3.2 Physiography

The property is located within the Boreal Shield Ecozone and is covered with shield-type boreal forest. Topography is flat lying with occasional sharp dolomite cliffs and ridges up to 20 m high. Soil thickness on the limestone ridges is minimal, with occasional rock exposure, and the vegetation is dominated by larger conifer and poplar trees. Below the cliffs are poorly drained muskeg swamps with scattered tamarack and black spruce. Throughout the surrounding area, there are numerous lakes and ponds.

1.3.3 Climate

The climate in the Hanson Lake area is continental, with cold winters and moderate to warm summers. The area is classified as having a sub-humid high boreal eco-climate. The mean temperatures for January and July are -21°C and 18°C, respectively. Temperatures range from -40°C in the winter to 30°C in the summer. Annual precipitation averages about 350 mm of rain and 1,450 mm of snow. There are on average 119 frost-free days per year. Lake ice thaws in April and returns in November.

1.4 HISTORY

In 1957, the Parrex Mining Syndicate tested an electromagnetic (EM) conductor delineated under a small bay on the western side of Hanson Lake and intersected impressive zinc-lead massive sulphide mineralization which led to the development of the Hanson Lake (Western Nuclear) Mine. The mine operated between 1967 and 1969 and produced 162,200 tons of material averaging 9.99% Zn, 5.83% Pb, 0.51% Cu, and 4.0 oz/t Ag prior to being shut down.

In 1976, the Saskatchewan Mineral Development Corporation (SMDC) acquired a large exploration lease centred on Hanson Lake. The permit area covered much of the exposed portion of the Hanson Lake Block and extended several kilometres south of the present McIlvenna Bay Property.

From 1978 to 1988, Cameco tested selected Aerodat EM anomalies with ground follow-up exploration programs

In 1985, when the Granges-Troymin joint venture discovered the Balsam Zone, approximately 8 km southeast of Hanson Lake, Cameco re-evaluated its existing airborne EM data. In January, 1988, a ground magnetometer and HLEM survey defined an anomaly and six holes were subsequently drilled into what is now the McIlvenna Bay deposit. From 1989 to 1991, an additional 61 drill holes were completed. Fifty-six of the holes were drilled to test the deposit, of which only five failed to intersect economically significant mineralization.

Cameco suspended exploration activities at the McIlvenna Bay property after a corporate decision was made not to explore for base metals. The property remained idle until optioned in 1998 by Foran.

1.5 GEOLOGICAL SETTING AND MINERALIZATION

1.5.1 Regional Geology

The McIlvenna Bay Project is located on the western edge of the Paleoproterozoic Flin Flon Greenstone Belt (FFGB) which extends from north central Manitoba into northeastern Saskatchewan. The FFGB forms part of the Reindeer Zone, a subdivision of the Trans-Hudson Orogen, a continental-scale tectonic event which occurred approximately between 1.84 Ga and 1.80 Ga (Syme et al., 1999) as a result of the collision between the Superior and Hearne Archean Cratons.

As currently viewed, the FFGB contains eight geographically separate juvenile island arc volcanic assemblages (blocks), each being 20 km to 50 km across. From east to west, they are known as the Snow Lake, Four Mile Island, Sheridon, Flin Flon, Birch Lake, West Amisk, Hanson Lake, and Northern Lights assemblages (Zwanzig et al., 1997 and Maxeiner et al., 1999). These assemblages are separated by major structural features and/or areas of differing tectonostratigraphic origin. It is unclear whether the eight juvenile arc sequences represent different island arcs, or segments of a larger continuous arc (Syme et al., 1999). Within the belt, each tectonostratigraphic block has been broken into several sub-blocks, usually bounded by local to regional fault systems. Correlation of stratigraphy between sub-blocks is uncertain.

The exposed portion of the FFGB is approximately 250 km east-west by 75 km north-south. This apparent easterly trend is an artefact of the belt's tectonic contact with gneissic metasedimentary, metavolcanic, and plutonic rocks to the north (Kisseynew Domain) and the east-trending trace of Phanerozoic platformal cover rocks to the south. The FFGB extends hundreds of kilometres to the south-southwest beneath a thin cover of essentially flat-lying, Phanerozoic sedimentary rocks.

1.5.2 Local and Property Geology

The Hanson Lake Block, the host terrain of McIlvenna Bay, is bound to the east by the Sturgeon-Weir Shear Zone and to the west by the Tabbernor Fault Zone. The block extends an unknown distance to the south, beneath a nearly flat lying cover of Ordovician sandstones of the Winnipeg Formation and dolomites of the Red River Formation. To the north, the block is bound by the Kisseynew Domain, a gneissic metasedimentary belt and the Attitti Complex. The east end of the block hosts the Hanson Lake Pluton, a large compositionally variable granodiorite to pyroxenite intrusion.

At least two distinct folding events, both having northerly trending fold axes, have influenced the stratigraphy in the Hanson Lake Area. The Hanson Block structural fabric is dominated by a north to northwest-southeast trending, upright regional transposition foliation. A protracted D2 structural event resulted in tight to isoclinal, southwest plunging F2 folds and local southwest verging mylonite zones. D3 deformation resulted in tight north trending folds followed by a brittle D4 event characterized by north-south trending faults.

Peak regional metamorphism in the areas west and north of Hanson Lake reached upper amphibolite facies, as observed by the partial melting of the granodiorite-tonalite assemblage in the Jackpine and Tulabi Lake areas. At McIlvenna Bay, the Proterozoic sequence exhibits a greenschist metamorphic facies, as the deposit alteration assemblages are dominated by sericite and chlorite. The greenschist facies is probably a retrograde event after a previous amphibolite grade, since relict cordierite, anthophyllite, garnet and andalusite are commonly observed in the VMS alteration package.

Lacking any outcrop in the area of the deposit, the property geology has been interpreted from the drill core record with help from geophysical surveys.

The stratigraphy of the deposit area, divided into six formations, has been defined over a 2 km strike length by a total of 285 drill holes. The lowest formation intersected by drilling both structurally and stratigraphically is the McIlvenna Bay Formation, the host of McIlvenna Bay. The McIlvenna Bay Formation is overlain to the north by the Cap Tuffite Formation. The McIlvenna Bay Formation and the Cap Tuffite Formation may be genetically related but have been separated as they are temporally distinct, as demonstrated by the positioning of the McIlvenna Bay deposit between these two units, an obvious exhalative horizon (and hence a period of clastic and volcanosedimentary quiescence).

Overlying the Cap Tuffite Formation is the Koziol Iron Formation, a long and distinctive marker formation traceable for several kilometres along strike by mapping and geophysics. Topping the Koziol Iron Formation is the Rusk Formation, a thick package of mafic volcanics. The Rusk Formation, in turn, is overlain by the thin HW-A Formation, an exhalative massive sulphide horizon which grades laterally into iron formation. Capping the HW-A Formation is a thick unsorted bimodal package of mafic and felsic volcanics and mafic intrusions and minor iron formations, tentatively called the Upper Sequence, which may be thickened due to folding and faulting. The stratigraphic package has been cut by several different intrusions, the largest of which is the Davies Gabbro, represented by one or more sill-like plugs found within the Cap Tuffite Formation. The Proterozoic basement geology is unconformably overlain by the relatively flat lying to gently south-dipping Ordovician dolomites and sandstones of the Red River and Winnipeg Formations which have an average total thickness between 20 m and 30 m.

The McIlvenna Bay Formation, the host formation of the sulphide deposit, is known only to the extent that it has been drilled below the footwall of the deposit. The formation is at least 200 m thick (true thickness) and comprises the massive and semi-massive sulphides and copper-rich stringer zones that make up the McIlvenna Bay deposit, and a succession of variably altered felsic volcanics, volcaniclastics, and/or volcanic-derived sediments of rhyolitic composition.

1.5.3 Mineralization

McIlvenna Bay is a Volcanogenic Massive Sulphide (VMS) Deposit which consists of structurally modified, stratiform, volcanogenic, polymetallic massive sulphide mineralization and associated stringer style mineralization. The massive to semi-massive sulphides contain copper and/or zinc, with lower concentrations of silver, gold and lead, while the stringer style mineralization generally contains elevated copper and gold. The deposit has undergone moderate to strong deformation and upper greenschist to possibly lower amphibolite facies metamorphism. The sulphide lenses are now attenuated down the plunge to the northwest.

The McIlvenna Bay deposit includes five separate zones and two styles of mineralization that are mineralogically and texturally distinct and typical of VMS deposits, including:

- Massive to semi-massive sulphide mineralization in the Main Lens and Lens 3.
- Stockwork-style sulphide mineralization in the Copper Stockwork Zone (CS) that directly underlies the Main Lens.
- Two other small lenses of stockwork-style mineralization:
    - the Stringer Zone, which is located between the Main Lens and Lens 3.
    - the Copper Stockwork Footwall Zone (FW), which occurs as a separate lens underneath the CS for approximately 140 m of strike length, and could represent a fault offset and repetition of the Main Lens and CS.

1.6 EXPLORATION PROGRAMS

On acquisition of the property in 1998, Foran embarked on a diamond drilling program to test new targets, as well as to in-fill the existing drill pattern on the McIlvenna Bay Deposit.

Drilling continued during the winter of 1999-2000 but, after 2000, exploration work on the property ceased, and the option agreement with the Hanson Lake Joint Venture was allowed to lapse. Foran acquired a new option agreement in 2005 and resumed work.

In early 2007, Foran started exploration again, with a surface program followed by a drilling program during the winter of 2007-2008, A number of drill holes failed to intersect the deposit at depth. Subsequently, Foran determined that the holes which missed their targets were drilled at orientations that made it impossible to intersect the deposit at the targeted depths.

Exploration work underwent a hiatus until 2011 when, during the winter, Foran conducted a diamond drilling program which was successful in proving the continuity of the CS.

In 2012, Foran completed a drilling program which was directed at near-surface projections of the deposit, in order to upgrade the classification and extend the known mineralization. Drilling was dominantly completed utilizing HQ-sized core, to provide additional material for future metallurgical testwork. Geotechnical and hydrogeological studies were also conducted during the program. Several holes were also completed in 2013 targeting the CS as part of a regionally focused exploration drill program on the property.

No further exploration/drilling was conducted on the McIlvenna Bay deposit until the winter and summer of 2018. In December, 2017, Foran signed a Technical Services Agreement with Glencore Canada Corporation (Glencore) and with this agreement in place, Foran embarked on a large infill and expansion drill program. The 2018 infill drill program resulted in a significant expansion in the Indicated resources in the deposit and was coupled with a large metallurgical program completed in 2019. These programs culminated in the completion of a Prefeasibility Study which was released in 2020.

The Glencore Agreement was subsequently allowed to lapse and no further exploration was conducted on the deposit until 2021. This work and results are the subject of this report.

1.7 METALLURGICAL TESTWORK

Metallurgical testing of McIlvenna Bay samples has been undertaken in several programs since 2012. Initial characterisation was completed at ALS Metallurgy, with follow up programs at Base Metallurgical Laboratories (BML) in 2016 and 2019. Testwork has focused on two main mineralization styles: copper stockwork and massive sulphide, with the latter being further subdivided into Upper West and Z2 zones. The copper stockwork zone contains chalcopyrite as the main economic mineral, with minor amounts of sphalerite, and is considered moderate to hard in terms of grindability. The massive sulphide zone is of moderate grindability, with primary sulphides as sphalerite and chalcopyrite, and lesser amounts of galena.

Flotation testwork has focused on developing a flotation scheme to produce concentrate products from zone composite material, as well as blends of the zones themselves. The flowsheet consists of a primary grind to 80% passing size of 75 microns, sequential flotation of first copper and then zinc minerals, regrinding of the rougher concentrate to 80% passing 20-25 µm, cleaner flotation, and final concentrate dewatering.

In March, 2021, a follow up test program was initiated at BML to support the upcoming feasibility study and advance the metallurgy in several areas, including: development and evaluation of the SMBS depressant scheme to replace $ZnSO_4$/NaCN in the copper circuit; development of the pyrite flotation circuit to generate a low sulphide tailings; and further evaluation of blended composites including locked cycle testing. The work is currently ongoing with expected completion in December, 2021.

1.8 McIlvenna Bay Project Mineral Resource Estimate

The updated mineral resource estimate for Foran's McIlvenna Bay Project discussed herein is based upon Foran's drilling database, which includes both the historical drilling and Foran's drilling in results of 2021.

The 2021 drilling program was designed not only to improve the confidence of the known inferred mineralization, so that it could be upgraded to indicated, but also to potentially increase the mineral resources at depth. Previous iterations of the resource model have been completed and published since 2010, but these are now superseded by the current 2021 estimate discussed in this report.

The McIlvenna Bay mineral resources have been estimated using multiple tabular interpretations defined in five mineralization zones: Copper Stockwork (CS), Massive Sulphide (MS), Lens 3 (L3), Stringer Zone (SZ) and Copper Stockwork Footwall (FW). The five zones contain steep parallel, contiguous vein-type structures disposed next to each other with similar bearings and dips. The mineral resources for the McIlvenna Bay zones have been estimated assuming an underground mining scenario.

1.8.1 Supporting Database

The basis for the mineral resource estimate was a drill hole database provided by Foran. The database and underlying QA/QC data were validated by Foran prior to being used in the modelling and estimation. After a further validation of the database, it was decided to exclude four drill holes[1] from

[1] The excluded drill holes are MB-99-108, MB-21-230, MB-21-251 and MB-21-253. Drill hole 108 was removed due to an inaccurate collar location as confirmed by Foran. Drill hole 251 was excluded because it was abandoned during the drilling program. Drill holes 230 and 253 were excluded because the assays for these holes were still pending at the time of the mineral resource estimate.

the resource estimate due to: 1) an inaccurate collar survey for one hole; 2) one drill hole that was abandoned during the drilling program and 3) two drill holes because the assays had not been received by the time database was given to Micon. Table 1.1 summarizes the types and amount of data in the database and the portion of the data used for the mineral resource estimate.

Table 1.1
McIlvenna Bay Project Database

Data Type	In Database	Used For 2021 Resource Estimate*
Drill Collar	285	240
Assay Samples	11,737	5,652
Core Metreage	152,130	4,658**

*Excludes four drill holes from the resource estimate.
**Actual metres used within the resource wireframes.

The project topography was provided by Foran as a digital terrain model (DTM) in DXF format. The DTM was of sufficient quality, although, given the underground extraction assumption, it was not used for the mineral resource estimate.

1.8.2 Wireframes and Other Modelling Parameters

1.8.2.1 Wireframes

Foran and Micon jointly defined, five mineralized domains, representing different areas and styles of VMS mineralization using Leapfrog Version 2021.1.3:

- Massive Sulphide – Main mineralized lens with internal gradational boundaries. The lens was previously modelled as two separate zones (MS and Upper West), but contact plots show no justification for a hard boundary.
- CS – Copper stockwork zone sitting stratigraphically below the massive sulphide.
- Stringer Zone – Copper and zinc stringer zone in the hangingwall above the massive sulphides.
- Lens 3 – Massive sulphide lens sitting in the hangingwall to the Stringer zone.
- FW – Small massive to semi-massive zone ore zone below the CS.

Wireframes were generated based on a set of mineralized intercepts defined by Foran and validated by Micon. The wireframes for each of the five domains were validated against drill hole data and found to reasonably represent the mineralization and the host rock. All of the mineralization is hosted within the same lithological unit, the McIlvenna Bay Formation, with minor local exceptions where the Lens 3 and Stringer mineralization can cross the hanging wall contact into the cap tuffite unit. The host rock package is of variably mineralized felsic and mafic volcanics, capped by a unit of mixed felsic tuff and cherty sediments, locally mineralized and overlain by the Koziol Iron Formation.

All diamond drill holes are properly snapped to the 3D wireframes to ensure that the volume to be estimated matches both the drilling and logging data collected on the deposit.

1.8.2.2 Compositing

The selected intercepts for the McIlvenna Bay Project were composited into 1.0 m equal length intervals, with the composite length selected based on the most common original sample length.

1.8.2.3 Variography

Variography is the analysis of the spatial continuity of grade for the commodity of interest. In the case of the McIlvenna Bay deposit, the analysis was done on each individual zone using down-the-hole variograms and 3D variographic analysis, in order to define the directions of maximum continuity of grade, and, therefore, the best parameters to interpolate the grades of each of the five zones.

Micon obtained good variogram models for all the five zones. They were sufficiently reliable to support the use of the Ordinary Kriging interpolation method. Major variogram ranges between 60 m and 125 m were modelled. Most ranges were in the range of 100 to 125 m for both copper and zinc. The variography results were used to support the search ranges and anisotropy directions.

1.8.2.4 Continuity and Trends

The McIlvenna Bay mineralized zones exhibit fairly stable strike and dip directions, with very mild variations. For the most part, both of the CS and the MS zones are contiguous, with the remaining zones, running as parallel structures, with well-defined geometries. Continuity of the zones is generally supported not only by geology but also by mineralization, with the regular drill hole intercepts giving sufficient confidence to the continuity of grade, both along strike and down dip. The general deposit bearings and dips are 315º strike direction and -68º dip, with a general plunge of -40º towards the northwest.

1.8.2.5 Capping

All outlier assay values for copper, zinc, lead, gold and silver were analyzed individually by zone, using log probability plots and histograms. It was decided to cap outlier assays based on the data grouped by zone. In order to identify true outliers, and reduce the effect of short sample bias, the data were reviewed after compositing to a constant length of 1.0 m.

1.8.2.6 Density

Foran has taken density measurements as it continued its exploration programs, and this has resulted in a large database of measurements that permitted the determination of density by means of interpolation.

Measurements of bulk density are considered the more robust, and these data points (1,072, in total) were given precedence in the population of density in the block model. The final block value was assigned using a rolling average (ID0) for each domain, thus generating a smoother continuity of density.

1.8.3 Mineral Resource Estimate

The commodities of economic interest at the McIlvenna Bay Project are primarily copper and zinc, with secondary recoveries of gold and silver. The estimation of the deposit tonnage and grade was performed using Leapfrog Geo/EDGE software.

1.8.3.1 Block Model

A block model was constructed to represent the grades and densities within the five zones. The drill hole intercepts used to model the wireframes were flagged into the mineral envelope to which they belonged. Each zone was interpolated using only the composites within that zone.

1.8.4 Economic Parameters and Classification

1.8.4.1 Prospects for Economic Extraction

The CIM Standards require that a mineral resource must have reasonable prospects for eventual economic extraction. The mineral resource discussed herein has been constrained by reasonable mining shapes, using economic assumptions appropriate for an underground mining scenario. The potential mining shapes are conceptual in nature, not stope designs, and are based on a US$60.0/t net smelter return (NSR) cut-off value.

The metal prices and operating costs provided by Foran and accepted by Micon are considered appropriate to be used as the economic parameters for the mineral resource estimate.

Table 1.2 summarizes the economic assumptions upon which the resource estimate for the McIlvenna Bay Project is based.

Table 1.2
Summary of Economic Assumptions for the Mineral Resource Estimate

Description	Units	Value Used	Notes/Details
Metal Prices			
Copper Price	US$/lb	$4.25	
Zinc Price	US$/lb	$1.35	
Gold Price	US$/oz	$1,800	
Silver Price	US$/oz	$25.00	
Operating Costs			
Mining	US$/t	$41.00	From PFS
Processing	US$/t	$20.00	From PFS
G&A	US$/t	$8.40	From PFS
Royalty			
BHP Royalty (million)	CA$	$1.0	From PFS
Copper Reef	CA$/t	$0.75	From PFS
Marketing and Smelting Charges for Cu Concentrate			
Concentrate Moisture	%	8.0	
Payables:			
Cu	%	96.5	
Minimum deduction (units)	%	0.0	No minimum deduction
Au in Cu Con	%	96.0	
Ag in Cu Con	%	90.0	
Toll Charge	US$/t	$65.00	
Refining Charges:			
Cu	US$/lb	$0.065	
Au	US$/oz	$5.00	
Ag	US$/oz	$0.45	
Penalty for Impurities		$0.00	No appreciable impurities - zero penalty
Transportation Cost	US$/t	$104.41	Assumes shipping to Sudbury
Marketing and Smelting Charges for Zn Concentrate			
Concentrate Moisture	%	9.0	
Zinc Payable	%	85.0	
Toll Charge	US$/t	$125.00	
Penalty for Impurities		$0.00	
Transportation Cost	US$/t	$100.94	Assumes shipping to Trail

The economic parameters in Table 1.2 provided the foundation from which to develop NSR values for each block in the model.

1.8.4.2 Mineral Resource Classification

Micon has classified the mineral resource estimate at the McIlvenna Bay Project in the Indicated and Inferred categories. No Measured resource is declared at this time. The FW, L3 and SZ zones are entirely classified as Indicated Resources.

Indicated resources were restricted to those blocks informed by at least 4 drill holes and within 100 to 120 m spacing, based on the ranges obtained in the variograms. The results were then smoothed out to remove isolated small blocks and produce coherent shapes of reasonable volume, eliminating the spotted dog effect. All other blocks were classified in the Inferred category.

1.8.5 Mineral Resource Estimate

1.8.5.1 Mineral Resource Estimate

Micon's updated mineral resource estimate is summarized in Table 1.3. The effective date of this mineral resource estimate is September 6, 2021 and the estimate is reported using an NSR cut-off grade of US $60/t.

Table 1.3
Mineral Resources for the McIlvenna Bay Deposit, Reported at an NSR of US$ 60/t

Category	Zone	Mass (Mt)	NSR (US$/t)	Average Grades						Contained Metal				
				Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Au (Moz)	Ag (Moz)
Indicated	MS	10.75	198.8	1.01	6.17	0.41	0.53	26.56	3.13	238	1,462	98	0.18	9.2
	CS	22.74	127.1	1.31	0.38	0.02	0.37	9.14	1.60	659	190	10	0.27	6.7
	SZ	1.19	119.3	1.26	0.52	0.07	0.31	12.97	1.53	33	14	2	0.01	0.5
	L3	2.57	113.1	0.82	3.07	0.14	0.25	14.51	1.80	47	174	8	0.02	1.2
	FW	1.80	140.7	1.42	0.59	0.04	0.45	8.84	1.79	56	23	2	0.03	0.5
	Total	39.06	146.3	1.20	2.16	0.14	0.41	14.39	2.04	1,033	1,863	119	0.51	18.1
Inferred	MS	1.56	162.6	0.65	6.51	0.46	0.29	27.77	2.66	22	224	16	0.01	1.4
	CS	3.48	105.6	1.08	0.79	0.03	0.25	10.50	1.37	83	60	3	0.03	1.2
	Total	5.04	123.3	0.94	2.56	0.17	0.27	15.85	1.77	105	284	19	0.04	2.6

Notes:

1. Effective date September 6, 2021; CIM definitions were followed for Mineral Resources; CuEq = copper equivalent; NSR = Net Smelter Return.
2. The mineral resource is estimated based on 240 diamond drill holes and a NSR cut-off grade of US$60/t. NSR grades values derived, and high-grade caps were applied as per the discussion in Estimation Methodology and Parameters and include provisions for metallurgical recovery and estimates of current shipping terms and smelter rates for similar concentrates. Metal prices used are US$4.25/lb. Cu, US$1.35/lb. Zn, US$1,800/oz. Au, and US$25.00/oz. Ag. Lead contributes no value.
3. Rock density was interpolated for each block based on measurements taken from core specimens, with an average value of 3.59 g/cm^3 for the main MS lens and 2.87 g/cm^3 for the CS.
4. Mineral resources which are not mineral reserves do not have demonstrated economic viability.

5. CuEq values were calculated from the NSR values for each zone, using both concentrate and recovery curves that were developed during Pre-Feasibility level metallurgical studies.
6. The block model grades were estimated using the Ordinary Kriging interpolation method, with search parameters derived from geostatistical analysis performed within the mineralization wireframes. Variogram ranges are from 65 m to 85 m for Au and Ag in the major axis and up to 100 to 120 m for Cu and Zn.
7. Micon has not identified any legal, political, environmental, or other factors that could materially affect the potential development of the mineral resource estimate.
8. The mineral resource estimates are classified according to the CIM Standards which 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 characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge including sampling."
9. The mineral resource was categorized based on geological confidence into inferred and indicated categories. An inferred mineral resource has the lowest level of confidence. An indicated mineral resource has a higher level of confidence than an inferred mineral resource. It is reasonably expected that the majority of the inferred mineral resources could be upgraded to indicated mineral resources with additional infill drilling.

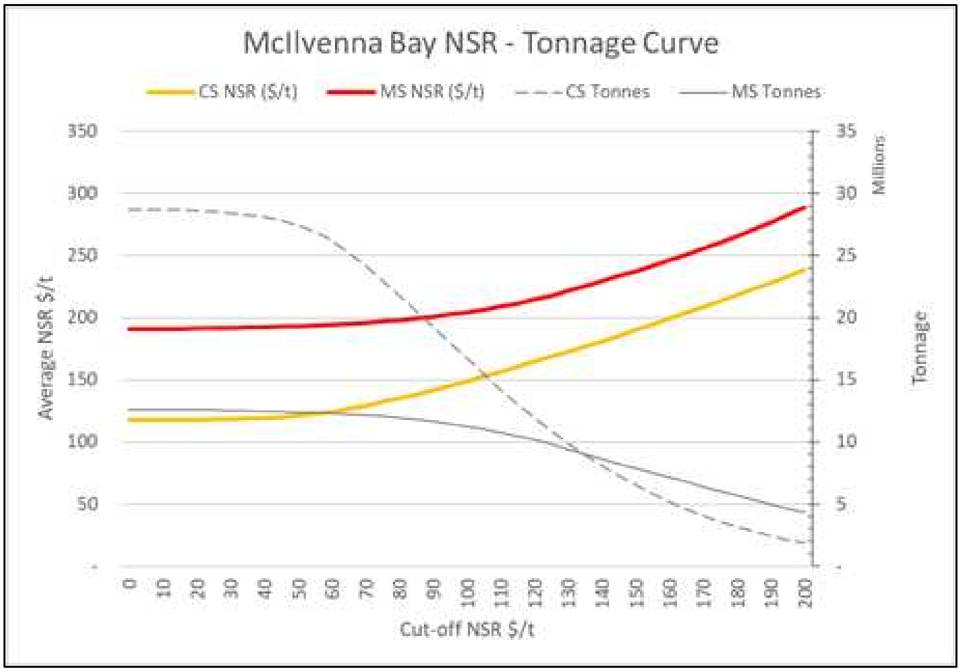
1.8.5.2 Sensitivity Analysis

As part of its update of Foran's 2021 mineral resource estimate, Micon examined the sensitivity of the mineral resource to a higher and lower NSR cut-off. Table 1.4 summarizes the NSR sensitivity at US$90/t, US$75/t and US$45/t, with the base case at US$60/t. Figure 1.1 is a sensitivity graph which demonstrates the variation in tonnage and grade for the resource at different NSR cut-offs for the MS and CS major zones. The QP has reviewed the NSR cut-offs used in the sensitivity analysis and it is the QP's opinion that they meet the test of reasonable prospects of economic extraction.

Table 1.4
Summary of the NSR Sensitivities at US$90/t, US$75/t,
US$45/t with Base Case at US$60/t

Category	NSR Cut-off	Mass	NSR	Average Grades						Contained Metal				
				Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Au (Moz)	Ag (Moz)
Indicated	90	31.59	162.92	1.29	2.49	0.16	0.47	15.86	2.27	901.68	1,735.19	110.15	0.47	16.11
	75	35.68	153.71	1.24	2.31	0.15	0.43	15.02	2.14	977.97	1,813.87	115.24	0.50	17.23
	60	39.06	146.31	1.20	2.16	0.14	0.41	14.39	2.04	1,033.35	1,863.09	118.69	0.51	18.07
	45	40.92	142.07	1.17	2.09	0.13	0.40	14.08	1.98	1,058.43	1,886.50	120.69	0.52	18.52
Inferred	90	3.58	142.77	1.01	3.23	0.21	0.32	18.29	2.07	79.79	255.46	16.31	0.04	2.11
	75	4.32	132.54	0.98	2.86	0.18	0.29	16.92	1.91	93.23	272.68	17.55	0.04	2.35
	60	5.04	123.29	0.94	2.56	0.17	0.27	15.85	1.77	104.87	284.14	18.51	0.04	2.57
	45	5.35	119.22	0.93	2.44	0.16	0.26	15.41	1.71	109.18	287.99	18.89	0.04	2.65

Figure 1.1
MS and CS Zones Resource Sensitivity by NSR Value



1.8.6 Conclusions

Foran's exploration activities have been successful in increasing the confidence in the geological interpretation of the deposit, as well as expanding upon the previous mineral resource estimates. Micon and its QPs consider that the current mineral resource estimate is robust and that the data upon which the estimate is based are suitable for use as the basis of the Feasibility Study which Foran is currently undertaking.

1.9 Exploration Budget and Other Expenditures

Since acquiring the McIlvenna Bay Property, Foran has completed a number of economic studies, as well as exploration and drilling programs on both the McIlvenna Bay deposit and a number of secondary targets or zones. Foran has outlined potentially economic mineralization at the McIlvenna Bay deposit, which continues to remain open down dip and plunge at depth.

There has been sufficient drilling to classify a large portion of the mineralization as indicated, according to the current (2014) CIM guidelines. The mineralization encountered at depth within the deposit continues to be classified as inferred, at this time. It is believed that future underground drilling programs will be able to upgrade at least a portion of the inferred material to indicated and to define further mineralization, both down dip and down plunge of the current mineral resource estimate. While Foran conducted the 2021 drilling from surface, it is believed that all further drilling of the deposit will be conducted from underground, as it would be more cost effective to drill the deeper parts of the deposit in this manner. Micon concurs with this approach.

During the remaining portion of 2021 and into 2022, Foran is planning to conduct the studies and engineering necessary to complete a Feasibility Study of its McIlvenna Bay Project. Foran's proposed budget expenditures to complete the Feasibility Study, and other studies, are summarized in Table 1.5.

Table 1.5
Foran Budget Expenditures 2021-2022

Activity	Estimated Cost
Mining	$1,675,000
Project Management & Associated Services	$195,000
Portal Review & Mine Design	$450,000
Hydrogeology	$100,000
Ore & Waste Handling	$350,000
Estimating/Scheduling	$220,000
Reporting	$100,000
Geomechanical (design, site visit, testwork)	$120,000
Other Disbursements	$140,000
Surface Works	$1,145,000
Design: Instrumentation/Controls	$50,000
Design: Process Plant	$420,000
Design: Infrastructure	$150,000
Paste Plant Cost Estimates	$40,000
Paste Plant Testwork and Design	$100,000
Site Water Balance	$45,000
Site Geotech (plant)	$20,000
Tailings: Site Investigations	$100,000
Tailings: Design	$170,000
Geochemistry Studies	$50,000
Misc Studies	$450,000
Geochemical/Metallurgical testwork	$50,000
Flotation Testing	$200,000
Carbon Footprint/Sustainable Project Work	$200,000
Other	$50,000
Financial Model & Marketing Study	$50,000
Admin/Management	$212,500
QP Services / Review / NI 43-101 Reporting	$212,500
Other	$402,200
Contingency	402,200
GRAND TOTAL	3,934,700

Table supplied by Foran, November, 2021.

Micon and its QPs agree with the direction of Foran's further studies and regard the expenditures and studies as appropriate. Micon and its QPs appreciate that the nature of the programs and expenditures may change as the Feasibility Study advances, and that the final expenditures and results may not be the same as originally proposed.

1.10 FURTHER RECOMMENDATIONS

Micon's QPs understand that Foran is in the process of completing a Feasibility Study on the McIlvenna Bay deposit which occupies only a small portion of Foran's land position. In that context, Micon's QPs make the following additional recommendations:

1. Micon recommends that Foran completes its ongoing Feasibility Study.
2. Micon recommends that any future exploration drilling on the McIlvenna Bay deposit should be conducted from underground.
3. Micon recommends that Foran continue to conduct exploration on the secondary deposits on the McIlvenna Bay property, since these may contribute to mining production in the future.

2.0 INTRODUCTION

2.1 TERMS AND REFERENCE

At the request of Foran Mining Corporation (Foran), Micon International Limited (Micon) has been retained to update the mineral resource estimate for the McIlvenna Bay Project (McIlvenna Bay Project) in Saskatchewan, Canada and to compile a Canadian National Instrument (NI) 43-101 Technical Report disclosing the results of that estimate.

This report discloses technical information, the presentation of which requires the Qualified Persons (QPs) to derive sub-totals, totals and weighted averages that inherently involve a degree of rounding and, consequently, introduce a margin of error. Where these occur, the QPs do not consider them to be material.

The conclusions and recommendations in this report reflect the QPs best independent judgment in light of the information available to them at the time of writing. Micon and the QPs reserve the right, but will not be obliged, to revise this report and conclusions if additional information becomes known to them subsequent to the date of this report. Use of this report acknowledges acceptance of the foregoing conditions.

This report is intended to be used by Foran subject to the terms and conditions of its agreement with Micon. That agreement permits Foran to file this report as a Technical Report on SEDAR (www.sedar.com) pursuant to provincial securities legislation or with the SEC in the United States. Except for the purposes legislated under provincial securities laws, any other use of this report, by any third party, is at that party's sole risk.

Neither Micon nor the QPs have, nor have they previously had, any material interest in Foran or related entities. The relationship with Foran is solely a professional association between the client and the independent consultants. This report is prepared in return for fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report.

Micon and the QPs are pleased to acknowledge the helpful cooperation of Foran management and consulting field staff, all of whom made any and all data requested available and responded openly and helpfully to all questions, queries and requests for material.

2.2 DISCUSSIONS, MEETINGS, SITE VISITS AND QUALIFIED PERSONS

A site visit was conducted from November 17 to November 19, 2021. The site visit was undertaken to independently verify the geology and the Quality Assurance and Quality Control (QA/QC) programs. No samples were taken during the 2021 site visit since verification of the mineralization occurred during the 2018 site visit.

A previous site visit was conducted between August 16 and August 18, 2018, during which the McIlvenna Bay property was inspected, and various aspects of the Project were discussed. The exploration programs for the Project were also discussed in detail, and the onsite exploration QA/QC procedures were reviewed.

The QPs responsible for the preparation of this report and their areas of responsibility and site visits are noted in Table 2.1.

Table 2.1
Qualified Persons, Areas of Responsibility and Site Visits

Qualified Person	Title and Company	Area of Responsibility	Site Visit
William J. Lewis, B.Sc. P.Geo.	Senior Geologist, Micon	1 through 12 (except 1.7 and 12.3 to 12.5), 14 (except 14.4 to 14.7, 14.8.1, 14.9.2 and 14.10) and 23 through 28	2018/08/16 to 2018/08/18 and 2021/11/17 to 2021/11/19
Ing. Alan San Martin, MAusIMM(CP)	Mineral Resource Specialist, Micon	12.3, 12.4, 14.4 to 14.7, 14.8.1, 14.9.2 and14.10,	None
Lyn Jones, P.Eng.	Manager, Process Engineering, Blue Coast	1.7, 12.5 and 13	None
NI 43-101 Sections not applicable to this report		15,16,17,18,19,20,21 and 22	

Messrs. Lewis and San Martin are employees of Micon. Lyn Jones is a Manager, Process Engineering for Blue Coast Research Ltd. (Blue Coast).

2.3 SOURCES OF INFORMATION

Micon's review of the McIlvenna Bay Project was based on published material researched by the QPs, as well as data, professional opinions and unpublished material submitted by the professional staff of Foran or its consultants. Much of these data came from reports prepared and provided by Foran. The information and reference sources for this report are noted in Section 28.0.

The descriptions of geology, mineralization and exploration used in this report are taken from reports prepared by various organizations and companies or their contracted consultants, as well as from various government and academic publications. The conclusions of this report use, in part, data available in published and unpublished reports supplied by the companies which have conducted exploration on the property, and information supplied by Foran. The information provided to Foran was supplied by reputable companies and the QPs have no reason to doubt its validity. Micon has used the information where it has been verified through its own review and discussions.

Some of the figures and tables for this report were reproduced or derived from reports on the property written by various individuals and/or supplied to the QPs by Foran. Most of the photographs were taken by Mr. Lewis during his August, 2018 site visit. In cases where photographs, figures or tables were supplied by other individuals or Foran, the source is referenced below that item.

2.4 UNITS OF MEASUREMENT AND ABBREVIATIONS

All currency amounts are stated in Canadian dollars (CAD) unless otherwise stated. US dollars (US$ or $) are generally used for commodity prices. Quantities are generally stated in metric units, the standard Canadian and international practice, including metric tonnes (t) and kilograms (kg) for mass, kilometres (km) or metres (m) for distance, hectares (ha) for area, grams (g) and grams per metric tonne (g/t) for gold and silver grades (g/t Au, g/t Ag). Wherever applicable, Imperial units have been converted to Système International d'Unités (SI) units for reporting consistency. Precious and Base metal grades may be expressed in parts per million (ppm) or parts per billion (ppb) and their quantities may also be reported in troy ounces (ounces, oz) for precious metals and in pounds (lbs) for base metals, a common practice in the mining industry. A list of abbreviations is provided in Table 2.2. Appendix 1 contains a glossary of mining and other related terms.

Table 2.2
List of Abbreviations

Name	Abbreviation
Adsorption/desorption/reactivation	ADR
AGP Mining Consultants Inc.	AGP
Annum	a
Aquatic study area	ASA
ASKI Resource Management and Environmental Services	ASKI
Atomic Absorption	AA
Base Metallurgical Laboratories Ltd.,	Base Metallurgical
Billiton Metals Canada Inc.	BHP Billiton
Bondar-Clegg & Company Ltd.	Bondar-Clegg
Borehole electromagnetic surveys	BHEM
Cameco Corporation	Cameco
Canadian Association for Laboratory Accreditation	CALA
Canadian dollars	CAD
Canadian Institute of Mining, Metallurgy and Petroleum	CIM
Canadian National Instrument 43-101	NI 43-101
Canadian National Topographic System	NTS
Canadian Securities Administrators	CSA
Centimetre(s)	cm
Copper Reef Mines Ltd./Copper Reef Mining Corporation	Copper Reef
Copper Stringer Zone or Copper Stockwork Zone	CS or CSZ
Crown Reserve	CR
Degree(s), Degrees Celsius	°, °C

Name	Abbreviation
Digital elevation model	DEM
Eco-Tech Laboratories	Eco-Tech
Electromagnetic	EM
Environmental Assessment	EA
Esso Minerals Canada	Esso
Fire Assay	FA
Fire Assay-Atomic Absorption	FA-AA
Flin Flon Greenstone Belt	FFGB
Foran Mining Corporation	Foran
Geosight Consulting Canada	Geosight
Geospark Consulting Inc.	Geospark
Grams per metric tonne	g/t
Hectare(s)	ha
Horizontal Loop Electromagnetic	HLEM
Hour	h
Hudbay Minerals Inc.	Hudbay
Inductively Coupled Plasma – Emission Spectrometry	ICP-ES
Internal diameter	ID
JDS Energy & Mining Inc.	JDS
Kilogram(s)	kg
Kilometre(s)	km
KWM Consulting Inc.	KWM
Life of mine	LOM
Litre(s)	L
Local study area	LSA
Massive Sulphide Zone	L2MS or MS
Metre(s)	m
Micon International Limited	Micon
Mid-Ocean Ridge Belts	MORBs
Million (e.g. million tonnes, million ounces, million years)	M (Mt, Moz, Ma)
Milligram(s)	mg
Millimetre(s)	mm
Mineral Administration Registry Saskatchewan	MARS
Miscellaneous Use Permit	MUP
M'Ore Exploration Services Ltd	M'Ore
Net Smelter Return	NSR
Not available/applicable	n.a.
Ounces (troy)/ounces per year	oz, oz/y
Parrex Mining Syndicate	Parrex
Parts per billion, part per million	ppb, ppm
Percent(age)	%

Name	Abbreviation
Peter Ballantyne Cree Nation	PBCN
Preferred Sands of Canada	Preferred Sands
Quality Assurance/Quality Control	QA/QC
Regional study area	RSA
Rock Quality Designation	RQD
Roscoe Postle Associates Inc.	RPA
Saskatchewan Mining Development Corporation	SMDC
Saskatchewan Ministry of Environment	MOE
Saskatchewan Research Council's Geoanalytical Services Laboratory	SRC
Specific gravity	SG
Square kilometre(s)	km^2
Standards Council of Canada	SCC
System for Electronic Document Analysis and Retrieval	SEDAR (www.sedar.com)
Terra Mineralogical Services Inc.	Terra
TerraMin Research Labs Ltd.	TerraMin
Three-dimensional	3D
Time-Domain Electromagnetic	TEM
Tonne (metric)/tonnes per day, tonnes per hour	t, t/d, t/h
Tonne-kilometre	t-km
Tonnes per cubic metre	t/m^3
TSL Laboratories Inc.	TSL
United States of America	US
United States Bureau of Mines	USBM
United States Dollar(s)	US$, $
United States Geological Survey	USGS
United States Securities and Exchange Commission	SEC
Universal Transverse Mercator	UTM
Upper West Massive Sulphide Zone	UW-MS or UW
Value Added Tax (or IVA)	VAT or IVA
Volcanogenic massive sulphide	VMS
Voyageur Mineral Explorers Corp.	Voyageur
Western Nuclear Mines Ltd	Western Nuclear
XRAL Laboratories Ltd.	XRAL
Year	y

2.5 PREVIOUS TECHNICAL REPORTS

The following Technical Reports have been published by Foran on the McIlvenna Bay Project:

1. A 2011 report by Roscoe Postle Associates Inc. (RPA) entitled "Technical Report on the McIlvenna Bay Project, Saskatchewan, Canada" dated December 9, 2011.

2. A 2013 internal letter report by RPA entitled "McIlvenna Bay Project – Mineral Resource Estimate Update dated April 16, 2013.
3. A 2015 Preliminary Economic Estimate (PEA) report by JDS Energy and Mining Inc. (JDS) entitled "Preliminary Economic Assessment Technical Report, McIlvenna Bay Project, Saskatchewan Canada" with an effective date of November 12, 2014 and a revised report date of January 21, 2015.
4. A 2019 mineral resource estimate report by Micon entitled "Technical Report for the 2019 Resource Estimate on the McIlvenna Bay Project, Saskatchewan, Canada", with an effective date of May 07, 2019.
5. A 2020 Pre-feasibility Study report by APG Mining Consultants Inc. (APG) entitled "NI 43-101 Technical Report, Pre-feasibility Study for the McIlvenna Bay Project, Saskatchewan Canada", with an effective date of March 12, 2020 and an amended date of July 14, 2021.

This Technical Report supersedes and replaces all prior Technical Reports written for the McIlvenna Bay Project.

3.0 RELIANCE ON OTHER EXPERTS

In this Technical Report, discussions in Sections 1 and 4 regarding royalties, permitting, taxation, and environmental matters are based on material provided by Foran. The QPs and Micon are not qualified to comment on such matters and have relied on the representations and documentation provided by Foran for such discussions.

All data used in this report were originally provided by Foran. The QPs have reviewed and analyzed these data and have drawn their own conclusions therefrom.

The QPs and Micon offer no legal opinion as to the validity of the title to the mineral concessions claimed by Foran in Sections 1 and 4 and, in that regard, have relied on information provided by Foran.

Information related to royalties, permitting, taxation, environmental matters and the validity of the title to the mineral concessions claimed by Foran were extracted from previous NI 43-101 Technical Reports and updated by Foran through personal communication with the QPs. Previous NI 43-101 Technical Reports, as well as other references, which were used in the compilation of this report are contained in Section 28.

4.0 PROPERTY DESCRIPTION AND LOCATION

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

4.1 General Description and Location

The McIlvenna Bay property is located approximately 1 km south of Hanson Lake, Saskatchewan. The property is also approximately 375 km northeast of Saskatoon and 65 km west-southwest of Flin Flon, Manitoba (Figure 4.1). McIlvenna Bay is located within Canadian National Topographic System (NTS) sheet 63L10 and the plan projection of the deposit is centred on UTM coordinates 640,600 E and 6,056,200 N (NAD 83, Zone 13). The corresponding geographic coordinates are 102°50' W and 54°38' N. The McIlvenna Bay deposit is located within the property boundaries.

4.2 Ownership, Land Tenure and Property Agreements

4.2.1 Ownership and Land Tenure

Foran owns 100% of the McIlvenna Bay property.

The entire McIlvenna Bay property comprises 38 claims totalling 20,954 ha (Figure 4.2). The relevant claim information is summarized in Table 4.1. The claims are listed in the name of Foran. Foran has engaged an independent firm to track and maintain the claims in good standing. The information contained within this report was provided by Foran and/or its designates.

4.2.2 Property Agreements

On January 25, 2005, Foran announced that it had entered into a definitive agreement with Cameco Corporation (Cameco) and Billiton Metals Canada Inc. (BHP Billiton), collectively the Hanson Lake Joint Venture, which allowed Foran to acquire a 100% interest in the McIlvenna Bay property (including the McIlvenna Bay copper-zinc deposit). Foran would acquire 100% of the McIlvenna Bay property by:

- Paying $1,500,000 to the Hanson Lake Joint Venture.
- Paying a further $2,000,000 to the Hanson Lake Joint Venture before May 31, 2006.
- Providing the Hanson Lake Joint Venture with a 1% Net Smelter Return (NSR), with a buy-out provision in favour of Foran for the purchase of the whole NSR for $1,000,000 at any time.

Foran agreed to assign its interest in the Property Option Agreement between Foran, Cameco, and BHP Billiton to Copper Reef Mines Ltd., newly named Copper Reef Mining Corporation (Copper Reef), a company organized under the laws of Manitoba. Copper Reef had funded the initial $1.5 million payment and agreed to issue to Foran 5,500,000 common shares of Copper Reef. Subject to regulatory approval, Foran also agreed to subscribe for 2,500,000 units of Copper Reef at a price of $0.20 per unit, which gave Foran a 48.41% equity interest in Copper Reef. Copper Reef is a public company organized under the laws of the Province of Manitoba that trades on the Canadian Stock Exchange.

Figure 4.1
McIlvenna Bay Project Location Map

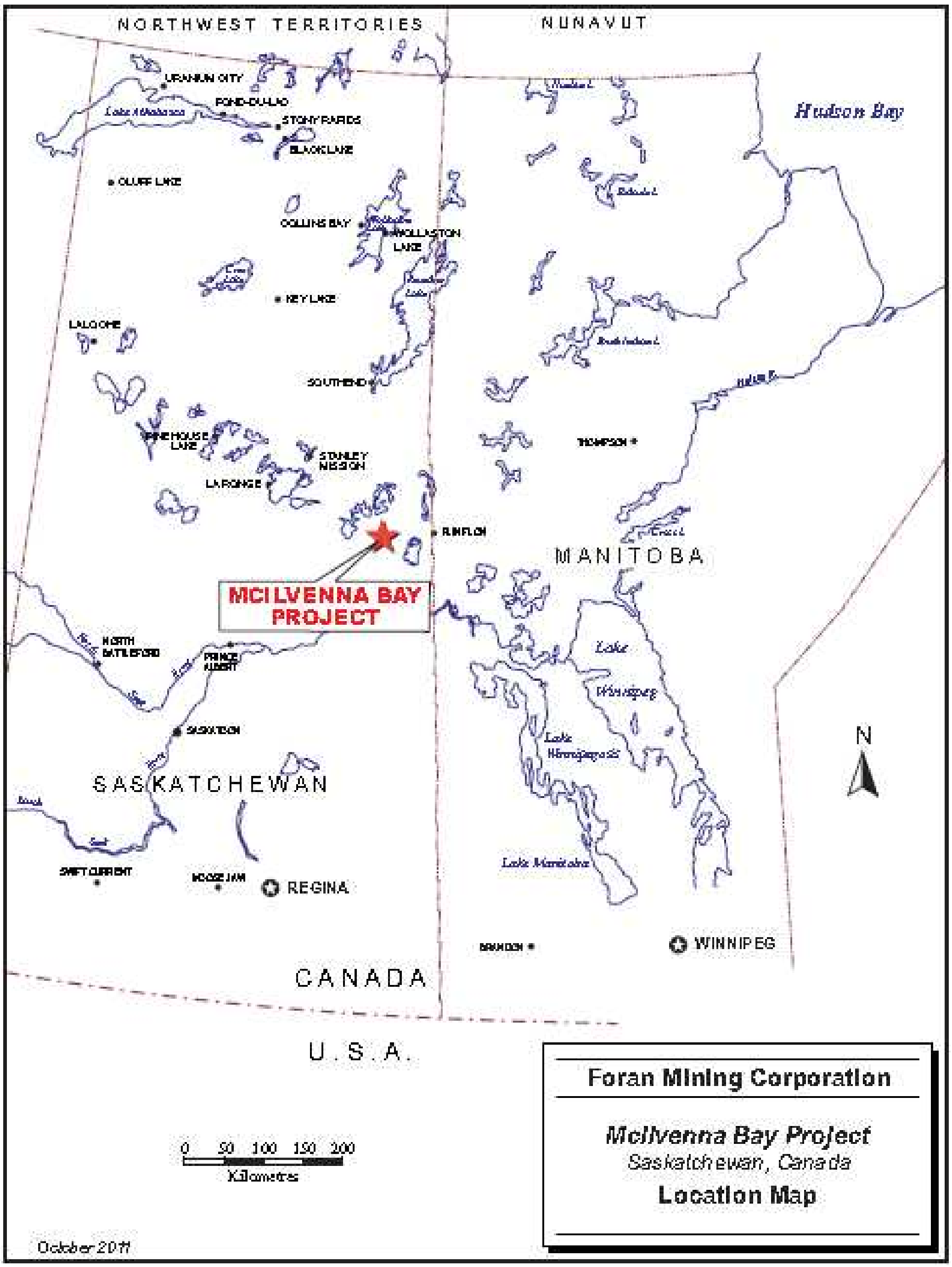


Figure extracted from the 2015 Technical Report, figure originally Foran, 2011.

Figure 4.2
McIlvenna Bay Project Property Map

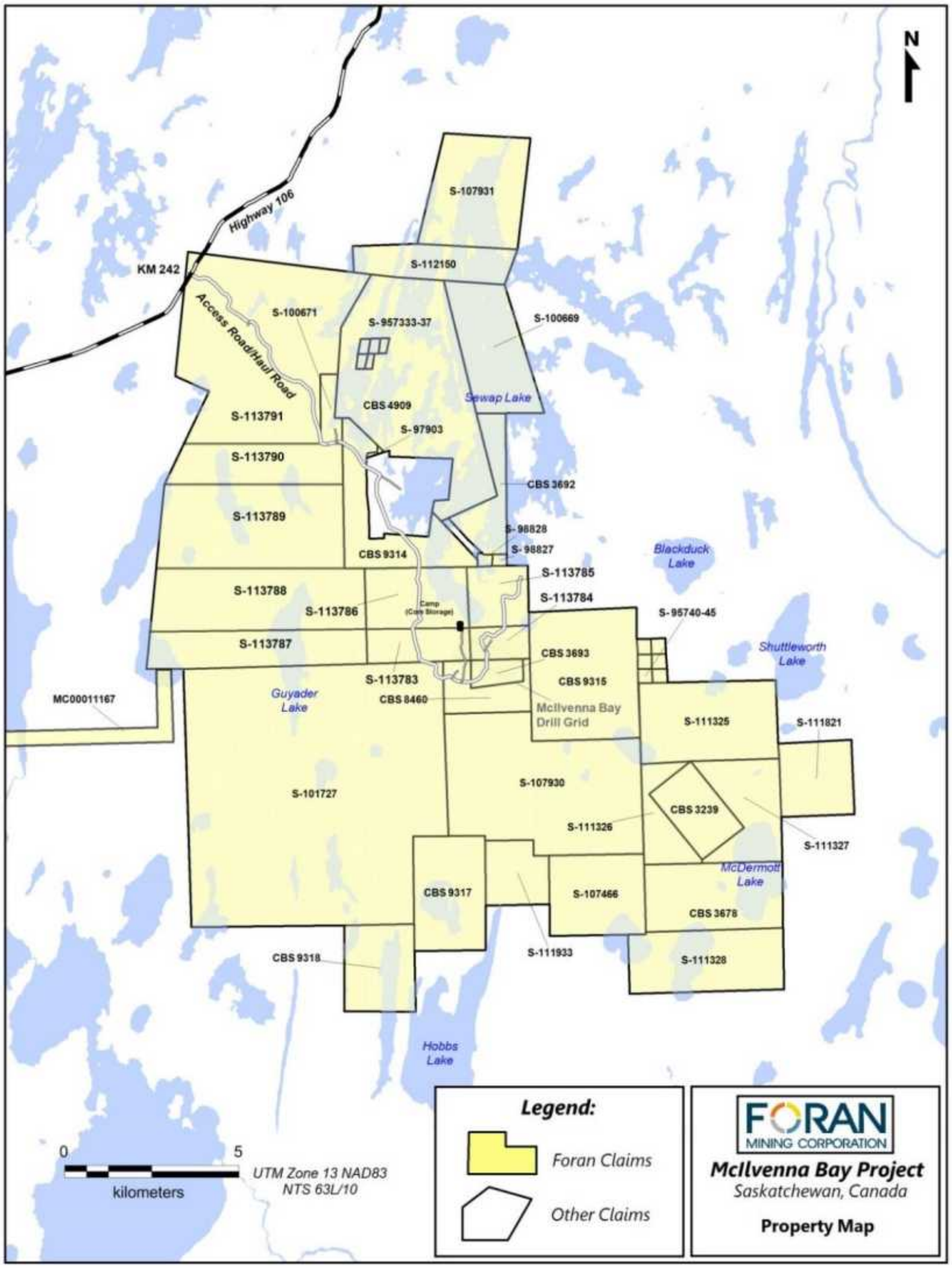


Figure supplied by Foran, June, 2019.

Table 4.1
Claim Status for the McIlvenna Bay Property

Property	Disposition No	Owners[1]	Claim Staking Date	Claim Expiry Date	Hectares
McIlvenna Bay	S-113791	Foran Mining Corporation	2011/03/21	2030/06/18	2,255.55
McIlvenna Bay	S-113790	Foran Mining Corporation	2011/03/21	2030/06/18	571.124
McIlvenna Bay	S-113789	Foran Mining Corporation	2011/03/21	2030/06/18	1,261.65
McIlvenna Bay	S-113788	Foran Mining Corporation	2011/03/21	2033/06/18	1,107.29
McIlvenna Bay	S-113787	Foran Mining Corporation	2011/03/21	2042/06/18	624.66
McIlvenna Bay	S-113786	Foran Mining Corporation	1976/12/01	2042/02/28	518.836
McIlvenna Bay	S-113785	Foran Mining Corporation	1976/12/01	2042/02/28	305.373
McIlvenna Bay	S-113784	Foran Mining Corporation	1976/12/01	2042/02/28	157.614
McIlvenna Bay	S-113783	Foran Mining Corporation	1976/12/01	2042/02/28	278.443
McIlvenna Bay	S-101727	Foran Mining Corporation	1991/01/08	2031/04/07	5,283.66
McIlvenna Bay	CBS 8460	Foran Mining Corporation	1988/03/14	2042/06/11	270.35
McIlvenna Bay	S-95733	Foran Mining Corporation	1978/05/01	2032/07/29	12.63
McIlvenna Bay	S-95734	Foran Mining Corporation	1978/05/01	2032/07/29	12.57
McIlvenna Bay	S-95735	Foran Mining Corporation	1978/05/01	2032/07/29	10.58
McIlvenna Bay	S-95736	Foran Mining Corporation	1978/05/01	2032/07/29	8.71
McIlvenna Bay	S-95737	Foran Mining Corporation	1978/05/01	2032/07/29	11.42
McIlvenna Bay	S-97903	Foran Mining Corporation	1990/06/12	2032/09/09	5.51
McIlvenna Bay	CBS 3693	Foran Mining Corporation	1988/02/22	2042/05/22	107.65
McIlvenna Bay	S-111933	Foran Mining Corporation	2011/03/21	2030/06/18	318.68
McIlvenna Bay	S-100671	Foran Mining Corporation	1989/10/19	2031/01/16	102.71
McIlvenna Bay	S-112150	Foran Mining Corporation	2011/03/21	2035/06/18	434.06
McIlvenna Bay	S-107931	Foran Mining Corporation	2006/06/12	2033/09/09	859.02
McIlvenna Bay	S-95741	Foran Mining Corporation	1978/05/01	2032/07/29	17.15
McIlvenna Bay	S-95742	Foran Mining Corporation	1978/05/01	2032/07/29	17.88
McIlvenna Bay	S-95745	Foran Mining Corporation	1978/05/01	2032/07/29	18.79
McIlvenna Bay	CBS 3692	Foran Mining Corporation	1989/06/20	2041/09/17	315.53
McIlvenna Bay	S-100669	Foran Mining Corporation	1989/04/24	2031/07/22	683.88
McIlvenna Bay	CBS 4909	Foran Mining Corporation	1977/04/14	2034/07/12	1,845.78
McIlvenna Bay	CBS 9314	Foran Mining Corporation	1976/12/01	2033/02/28	587.28
McIlvenna Bay	CBS 9315	Foran Mining Corporation	1976/12/01	2042/02/28	1,147.90
McIlvenna Bay	CBS 9317	Foran Mining Corporation	1976/12/01	2035/02/28	675.21
McIlvenna Bay	CBS 9318	Foran Mining Corporation	1976/12/01	2031/02/28	504.09
McIlvenna Bay	S-95740	Foran Mining Corporation	1978/05/01	2032/07/29	16.29
McIlvenna Bay	S-95743	Foran Mining Corporation	1978/05/01	2032/07/29	16.54
McIlvenna Bay	S-95744	Foran Mining Corporation	1978/05/01	2032/07/29	17.84
McIlvenna Bay	S-98827	Foran Mining Corporation	1986/04/07	2032/07/05	13.63
McIlvenna Bay	S-98828	Foran Mining Corporation	1986/04/07	2041/07/05	15.21

Property	Disposition No	Owners[1]	Claim Staking Date	Claim Expiry Date	Hectares
McIlvenna Bay	MC00011167	Foran Mining Corporation	2018/05/28	2041/08/26	543.25
Total					20,954.34

Claim data supplied by Foran, 2021.
Notes: [1]Foran owns 100% of the claims.

In a subsequent event, Foran and Copper Reef were in dispute regarding the assignment agreement concerning the Property Option Agreement for McIlvenna Bay. This matter was resolved on May 24, 2006, and under that settlement, Foran made a payment of $2,000,000 for McIlvenna Bay. Foran's $1,500,000 payment to the Hanson Lake Joint Venture on behalf of Copper Reef (Foran contributed $500,000 to Copper Reef for that payment on January 25, 2005) stayed in the Project. Foran gave Copper Reef a 25% interest in the claims, retained 75% for itself, and entered into a joint venture agreement with Copper Reef in which Foran was the operator. Foran retained approximately 25% of shares of Copper Reef and could maintain that percentage through participation in future Copper Reef fund raising. The original 1% NSR in favour of the original Hanson Lake Joint Venture remained the responsibility of the current Foran-Copper Reef joint venture.

On November 3, 2010, Foran announced the closure of an agreement for acquisition of Copper Reef's 25% interest in the McIlvenna Bay property. The deal included transfer to Foran of 3,000,000 Copper Reef shares, and the nearby North Hanson property. In exchange, Copper Reef received 4,000,000 Foran shares (to hold 8% on a non-diluted basis), $1,000,000 cash, a Net Tonnage Royalty of CAD 0.75/t on future ore produced from the property, and five Manitoba properties selected by Copper Reef from Foran's portfolio.

4.3 MINING RIGHTS IN SASKATCHEWAN

Overall regulation of tenure over Mineral Resources in Saskatchewan is conducted under the Crown Minerals Act. The disposition of mineral tenures in Saskatchewan is administered by the Mineral, Lands, and Policy Division of the Ministry of the Economy. Claims on open Crown land, not otherwise reserved from staking, can be applied for via an online facility called the Mineral Administration Registry Saskatchewan (MARS). Mineral tenures comprise claims, permits, and leases. Dispositions acquired before the implementation of MARS are termed "legacy" dispositions, and these are allowed to be held as is until they have been cancelled, surrendered, or otherwise terminated.

Mineral Permits are conveyed for a two-year non-renewable term and may range from 10,000 ha to 50,000 ha in size. The boundary of the area claimed must be configured such that the length is no more than six times the width. They require the posting of a $30,000 performance bond and expenditures of at least $5.25 per ha over the two-year term of the permit. The bond is refunded when the holder of the permit has complied with the expenditure requirements. All or part of a permit may be converted to a Mineral Claim.

Mineral Claims are smaller but may be maintained for a longer time period than a Mineral Permit. Claims may range from 16 ha to 6,000 ha in size, again, with dimensions such that the length must not exceed six times the width. The term of the tenure is one year, which is renewable upon exploration expenditures according to the following schedule:

- Year two to year ten: $15/ha.
- Thereafter: $25/ha.

The majority of the mineral claims that comprise the McIlvenna Bay Property have been in existence for more than 10 years, therefore most claims require $25/ha of exploration expenditures to keep them in good standing. Significant exploration work has been completed in the McIlvenna Bay area over the years by Foran and the company has built up a significant pool of exploration credits which can be used to maintain the claims in good standing when exploration is not occurring.

Both Permits and Claims grant the exclusive right to explore Crown lands, but not the right to remove minerals from the tenure, except for the following activities:

- Assaying and testing.
- Metallurgical, mineralogical, or other scientific studies.

Bulk sampling may be conducted, although any minerals recovered in the program remain the property of the Crown.

4.4 PERMITTING, ENVIRONMENTAL AND SURFACE RIGHTS

4.4.1 Permitting and Surface Rights

Foran has acquired one Industrial Lease for the current exploration camp (#303228), established in 2011, and a second lease for the old campsite located near the deposit (#303458), along with one Miscellaneous Use Permit (MUP #603298) for the camp wastewater lagoon from the Ministry of Environment. These leases/permits are in addition to the pre-existing MUP #602369 for maintenance of the last 8.6 km of private road from the gate at the old Hanson Lake Mine site (public road) to McIlvenna Bay.

There is an old silica sand quarrying operation near McIlvenna Bay which ceased operations in 2014. The site has subsequently been re-claimed and Foran has purchased five quarry dispositions that overlap the McIlvenna Bay deposit. Some additional quarry staking took place west and northwest of McIlvenna Bay in January and February, 2012. On December 8, 2012, the Saskatchewan Ministry of Energy and Resources placed a Crown Reserve (CR #965) over McIlvenna Bay that restricts additional quarry staking in the deposit area and subsequently the quarry disposition regulations were amended by the Saskatchewan Government to remove areas of existing mineral tenure from availability for the granting of new dispositions.

Foran reports that, with the purchase of the over-lapping quarry dispositions, the establishment of the Crown Reserve and changes to the quarry disposition staking regulations by the Saskatchewan Government, the potential land-use conflict between the development of the McIlvenna Bay deposit and quarrying operations has been effectively addressed. The overlapping quarry dispositions were purchased from Preferred Sands on December 22, 2014. Micon's QP is not aware of any other constraints on access rights to the property.

Surface rights for the McIlvenna Bay property are retained by the Saskatchewan government and are subject to potential further Industrial Licences and permits, should Foran need to expand its footprint on the property.

4.4.2 Social, Community and Land Claims

McIlvenna Bay is located near Hanson Lake in east-central Saskatchewan, approximately 375 km northeast of Saskatoon, Saskatchewan. The closest large communities include Creighton, Saskatchewan and Flin Flon, Manitoba, which are located approximately 65 km west-southwest of the Project. Creighton and Flin Flon have a combined population of approximately 7,100 residents, with 5,600 living in Flin Flon and the remainder in Creighton (Statistics Canada 2012a, 2012b). The economy of the area is primarily based on copper and zinc mining, while tourism and forestry are also of some importance.

HudBay Minerals Inc. (HudBay) operates several mines in the Flin Flon/Snow Lake areas, as well as a mill and zinc processing plant in Flin Flon. The 777 Mine located in Flin Flon is nearing the end of its operating life. HudBay recently announced that the mine will reach the end of its reserve life in Q2, 2022 (HudBay news release May 6, 2019). At this time, it is unclear what the future plans are for the company or the operations in the area. This is potentially an unfortunate occurrence for the community but, should Foran proceed with developing the Project once its current Feasibility Study is completed, it will mean that, potentially, there will be a trained workforce available for the Project.

McIlvenna Bay lies within the area traditionally occupied by the Peter Ballantyne Cree Nation (PBCN), which is made up of approximately 9,000 members living on more than 36 reserves and/or settlements. The PBCN's traditional territory encompasses roughly 52,000 km^2, from the Saskatchewan/Manitoba border west to the west end of Trade Lake, north to Reindeer Lake, and south to Sturgeon Landing. The Project is located approximately 55 km southeast of the settlement of Deschambault Lake and approximately 100 km west of the community of Denare Beach. Approximately 1,500 PBCN members reside in these communities.

The isolated nature of these communities creates special circumstances for PBCN members working to strengthen their local economies and personal economic well-being. Although rich in natural resources, this sparsely populated region is challenged by lack of infrastructure, education levels, and average income when compared to the rest of the province.

Foran has conducted consultation sessions for the Project in the communities of Deschambault Lake and Denare Beach. Foran also initiated a Traditional Land Use/Knowledge Inventory Study which was completed by ASKI Resource Management and Environmental Services in 2012 (ASKI, 2012). During the study, members of the PBCN communities surveyed clearly articulated their continuing reliance on large game, fish and waterfowl, as well as innumerable plant species, to provide for the physical, social and spiritual needs of the boreal forest inhabitants.

While most acknowledged that the mining sector does provide the potential for employment and the creation of spin-off opportunities such as service business in catering, janitorial, trucking, security, grocery and retail supplies, such development must be tempered against the continued reliance of PBCN members on the waters, lands and forests for sustenance, livelihood and spiritual support. As the Project proceeds, Foran will continue to engage the traditional users of the Project area, in order to receive input on potential ways and means to minimize, to the extent possible, negative impacts on the traditional use of the lands in the vicinity of McIlvenna Bay site.

4.4.3 Environmental

The Project area lies in the Boreal Plain Ecozone on the boundary of two Ecoregions: the Namew Lake Upland landscape area of the Mid-Boreal Lowland Ecoregion, and the Flin Flon Plain landscape area of the Churchill River Upland Ecoregion. The boundary between these two ecoregions passes through McIlvenna Bay on Hanson Lake, such that the northern part of the study area lies in the Churchill River upland, and the southern part lies in the Mid-Boreal Lowland.

The Namew Lake Upland landscape area of the Mid-Boreal Lowland Ecoregion is characterized by a gently undulating to nearly level landscape, featuring deciduous and coniferous forests with numerous wetlands. Vegetation is generally influenced by landscape and soil types. Peatlands, which comprise approximately one third of the ecoregion, typically consist of tamarack and black spruce interspersed with wet meadows. The Flin Flon Plain landscape area of the Churchill River Upland Ecoregion lies in eastern Saskatchewan's southernmost stretch of Precambrian Shield. Bedrock predominates in this area, with thin deposits of sandy glacial till or glaciolacustrine silt and clay. Vegetation of the Flin Flon Plain landscape is characterised by mixed wood forests. Black spruce is the most common tree species and is largely found in poorly drained peaty areas along with tamarack; however, black spruce is not as abundant as it is in other landscape areas of the boreal shield.

Extensive mining and exploration activities associated with other metal and silica sand mining projects have occurred in the Project area; therefore, the area does not represent undisturbed baseline conditions. Exploration of McIlvenna Bay began in 1988, when it was discovered by Cameco and Esso Minerals Canada (Esso). Cameco suspended exploration in 1991. The Project was optioned by Foran in 1998. Several drill programs were completed between 1998 and 2000, and again between 2011 and 2013. Drilling programs have also been conducted by Foran from 2014 to the present during both the winter and summer months.

The site of the past-producing Hanson Lake Mine, operated by Western Nuclear Mines Ltd., (Western Nuclear) lies approximately 5 km north of McIlvenna Bay on the western shore of Bertrum Bay. The mine operated between 1966 and 1969 and mined a high-grade copper/zinc/lead VMS deposit. A natural basin north of the mine site was dammed for tailings containment, and runoff from the tailings area originally reported to Bertrum Bay; however, surface flows from the former site currently enter both Bertrum Bay and Mine Bay.

A number of remediation efforts have been completed for the Saskatchewan Ministry of Environment (MOE) regarding this abandoned mine.

A silica sand mine operated by Preferred Sands was located in the immediate vicinity of the Project, approximately 3.6 km from McIlvenna Bay. Production from the site ceased in 2014 and the development area has been re-claimed. This mine was formerly operated by Winn Bay Sand Limited Partnership. Another silica sands project in the area operated by Strong Pine Energy Services (formerly Hanson Lake Sands Company Ltd.) is in the exploration phase.

4.4.3.1 Aquatic Resources

The aquatic study area (ASA) includes a number of lakes and streams, all of which ultimately flow into Hanson Lake, which drains into the Sturgeon-Weir River. The Sturgeon-Weir River then flows through several large lakes (Amisk Lake, Namew Lake, and Cumberland Lake) to join the Saskatchewan River near Cumberland House. The Saskatchewan River forms part of the Nelson River system, which ultimately discharges into Hudson Bay.

At least 15 species of fish are known to be present in McIlvenna Bay ASA, including lake whitefish, northern pike, walleye, white sucker, and yellow perch; however, none of these species is considered to be of conservation concern. Unnamed Pond is the only waterbody in the Project ASA which does not contain fish. Aquatic habitat mapping indicated that a variety of habitat types are present in McIlvenna Bay ASA, with suitable habitat for fish spawning, rearing, feeding and overwintering provided by most waterbodies. Evidence of spawning (i.e., eggs) by northern pike and yellow perch was abundant throughout most of the ASA, and the Bad Carrot River was found to be an important spawning migration route/area for white sucker, walleye, northern pike and yellow perch.

4.4.3.2 Terrestrial Resources

A number of vegetation species considered rare in the province of Saskatchewan were identified in the Project local study area (LSA) and regional study area (RSA), with conservation rankings ranging from S1 to S3 S4 (rare to uncommon). It is noted that the provincial Activity Restriction Guidelines for Sensitive Species apply to vegetation species with conservation rankings between S1 and S3, thus, mitigation for these species may be required (MOE 2014).

Additionally, 63 of the plant species observed within the Project LSA and RSA have documented traditional uses by the Cree and/or Dene people of northern Saskatchewan (Marles 1984; Marles et al 2008, Moerman 2010), although it should be noted that many of these plants are common and widely distributed in the Mid-boreal Lowland and/or Churchill River Upland ecoregions.

A total of 15 species of provincial and federal conservation priority were observed during wildlife field surveys and incidentally in the Project LSA and RSA. Seven of these species are listed federally as species at risk, including common nighthawk (threatened), olive-sided flycatcher (threatened), rusty blackbird (special concern), barn swallow (special concern), horned grebe (special concern), northern leopard frog (special concern) and boreal woodland caribou (threatened). Other observed species that are not federally listed but are considered sensitive in Saskatchewan include bald eagle, Franklin's gull, osprey, American white pelican, double-crested cormorant, common tern and Canadian toad. McIlvenna Bay LSA and RSA are considered to provide a moderate to high amount of suitable habitat for the species listed above based on field data and supervised satellite image habitat classification.

4.4.3.3 Heritage Resources

One previously unrecorded heritage resource, GdMq-1, was discovered during the HRIA conducted in the Project LSA during the baseline program. GdMq-1 was found to be of significance due to the discovery of a quartz biface, which is a stone cutting tool or knife that has been flaked on both sides and may have been hafted to a handle (Kooyman, 2000). Additionally, upon further investigation of GdMq-1, three deeply incised dolomite rock crevices were observed in a shelter bay that were large enough to conceal a person, suggesting that this area may have been used as a hunting blind or temporary shelter during the winter.

4.4.3.4 Environmental Permitting

McIlvenna Bay will most likely require a number of approvals, permits and authorizations during all stages of the Project, following release from the potential provincial and federal EA processes in accordance with various standards outlined in legislation, regulations and guidelines. Foran will also be required to comply with any other terms and conditions issued by regulatory agencies associated with release from the EA process. Permits and authorizations may also be required from other jurisdictions, such as municipalities, if any are affected.

4.5 QP COMMENTS

Micon and the QPs are not aware of any significant factors or risks, other than those discussed in this section of the report, that may affect access, title or right or ability to perform work on the property by Foran. It is Micon's and the QP's understanding that further permitting and environmental studies will be required, if further economic studies demonstrate that the mineralization is sufficient to host a mining operation.

The McIlvenna Bay property is large enough to be able to locate and accommodate the infrastructure necessary to host any future mining operations, if Foran advances the Project towards a production decision.

5.0 ACCESSIBILITY, CLIMATE. LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

5.1 ACCESSIBILITY

McIlvenna Bay is located 1 km south of Hanson Lake, Saskatchewan, and approximately 95 km by road west of Flin Flon, Manitoba. The deposit is located 5 km southeast of the Western Nuclear (or Hanson Lake) Mine, a former producer located on the western shore of Hanson Lake. The McIlvenna site is accessible via an 18 km long all-weather gravel road which connects to Saskatchewan Provincial Highway #106.

The regional mining towns of Flin Flon, Manitoba/Creighton, Saskatchewan (population 7,100), represents the largest commercial/residential centre in the area. Flin Flon provides a railhead that connects the area to the North American railway system. Electrical power would be available from SaskPower at Creighton and/or Island Falls, Saskatchewan.

In addition to the various highways that connect the towns of Flin Flon, Manitoba/Creighton, Saskatchewan to various other parts of Manitoba and Saskatchewan, Flin Flon has daily commercial flights to and from Winnipeg, Manitoba.

5.2 CLIMATE

The climate in the Hanson Lake area is continental, with cold winters and moderate to warm summers. The area is classified as having a sub-humid high boreal eco-climate. The mean temperatures for January and July are -21°C and 18°C, respectively. Temperature ranges from -40°C in the winter to 30°C in the summer can be expected. Annual precipitation averages about 350 mm of rain and 1,450 mm of snow. There are on average 119 frost-free days per year. Lake ice thaws in April and returns in November.

In general, exploration can be conducted on a year-round basis, except for the fall freeze up and spring break-up periods. Due to the nature of the swampy and muskeg ground conditions, the majority of the drilling on the property is confined to winter conditions when the ground is frozen, and access is available.

5.3 PHYSIOGRAPHY

The property is located within the Boreal Shield Ecozone and is covered with shield-type boreal forest. Topography is flat lying with occasional sharp dolomite cliffs and ridges up to 20 m high. Soil thickness on the limestone ridges is minimal, with occasional rock exposure, and the vegetation is dominated by larger conifer and poplar trees. Below the cliffs are poorly drained muskeg swamps with scattered tamarack and black spruce. Throughout the surrounding area, there are numerous lakes and ponds of various sizes.

McIlvenna Bay of Hanson Lake is at an elevation of approximately 318 m. The base station on the survey grid over the deposit is at an elevation of 325.13 m.

5.4 Local Resources

The Flin Flon-Creighton area has a mining history dating back to the 1920s. Road and rail access is good. General labour, experienced mining professionals and a variety of contractors are available in the area. Local communities are generally supportive of mining.

5.5 Infrastructure

In 2011, Foran permitted and built a new exploration and development camp on the property. The camp includes a 35-bed trailer camp with office, core shack, shop and core storage facility. During the 2021 program, an additional 35-bed trailer camp and a second core shack were added to the camp to increase the capacity of the facilities. (Figure 5.1 and Figure 5.2)

A gravel road has been built through the property to support Foran's exploration programs, as well as an adjacent quarrying operation (subsequently re-claimed).

Foran's mineral concessions contain enough area for the construction of all necessary tailings facilities, processing plant, waste disposal, etc. The local region, primarily the community of Flin Flon, has enough capacity to house mining personnel. Power would be provided from SaskPower via a new or existing transmission line from Island Falls, SK. Water for a mining/milling operation could be drawn from one of the local lakes.

Figure 5.1
New 2021 Trailer Camp to Right of the Original Camp

Photograph taken during November, 2021 Micon Site Visit.

Figure 5.2
New 2021 Core Shack in Foreground on the Left, Exploration Office on the Right

Photograph taken during November, 2021 Micon Site Visit.

6.0 HISTORY

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

6.1 GENERAL EXPLORATION HISTORY PRIOR TO 1998

In 1957, the Parrex Mining Syndicate (Parrex) tested an electromagnetic (EM) conductor delineated under a small bay on the western side of Hanson Lake and intersected impressive zinc-lead massive sulphide mineralization which led to the development of the Hanson Lake (Western Nuclear) mine. The mine operated between 1967 and 1969 and produced 162,200 tons of material averaging 9.99% Zn, 5.83% Pb, 0.51% Cu, and 4.0 oz/t Ag, prior to being shut down. An undisclosed tonnage of unmined resource exists below the workings of the mine. Figure 6.1 is a historical view of the Hanson Lake mine.

Figure 6.1
Historical View of the Hanson Lake Mine

Photograph from Copper Reef Mining Corporation Website, 2019.

In 1976, the Saskatchewan Mineral Development Corporation (SMDC), the provincial government exploration vehicle that eventually became Cameco, acquired a large exploration lease centred on Hanson Lake. The permit area covered much of the exposed portion of the Hanson Lake Block and extended several kilometres south of the present McIlvenna Bay Property. In 1977, SMDC flew an Aerodat helicopter-borne EM survey across much of the permit area with lines-oriented east-west.

From 1978 to 1988, Cameco tested selected Aerodat EM anomalies with ground follow-up exploration programs consisting of grid establishment, geological mapping (in the exposed portions of the belt), and ground geophysical surveys which included Horizontal Loop EM (HLEM), Time-Domain EM (TEM), and Surface Pulse EM surveys. Diamond drilling led to the discovery of three new showings, the Miskat Zone (Cu), the Grid B occurrence (Zn), and the Zinc Zone (Zn).

In 1985, the Granges-Troymin joint venture discovered the Balsam Zone, a volcanogenic massive sulphide deposit located under the Paleozoic cover, approximately 8 km southeast of Hanson Lake. This prompted Cameco to re-evaluate its existing airborne EM data between the new discovery and Hanson Lake and resulted in a decision to conduct a Mark VI helicopter INPUT survey over the area south of Hanson Lake, with flight lines oriented northeast-southwest. The survey delineated a 1,200 m long INPUT anomaly, striking east-southeast, 1 km south of McIlvenna Bay.

In January, 1988, a ground magnetometer and HLEM survey defined the anomaly and six holes were subsequently drilled into what is now McIlvenna Bay. From 1989 to 1991, an additional 61 drill holes were completed. Fifty-six of the holes were drilled to test the deposit, of which only five failed to intersect economically significant mineralization.

Cameco suspended exploration activities at the McIlvenna Bay property after a corporate decision was made not to explore for base metals. Cameco stopped work on the property in 1991 and the property remained idle until optioned in 1998 by Foran.

6.2 Historical Resource and Reserve Estimations

Prior to the McIlvenna Bay Project being originally optioned by Foran in 1998 there were no mineral resource or reserve estimations conducted on the property. Prior to this Technical Report, Foran has issued NI 43-101 Technical Reports containing mineral resource estimates for the McIlvenna Bay Project.

The previous estimates will not be discussed further in this Technical Report, since the Micon QPs for this report have not reviewed any of the previous mineral resource estimates or assessed them for compliance with current CIM mineral resource standards and definitions, as published on May 10, 2014. Foran is not relying on the previous resource estimates which are superseded by the current estimate contained in Section 14 of this Technical Report.

6.3 Production from the McIlvenna Bay Project

There has been no mineral production on the McIlvenna Bay Project as it relates to the base and precious metal mineralization which Foran has been exploring and drilling.

There was a silica (fracking) sand quarrying operation near McIlvenna Bay and there are quarry dispositions that overlap Foran mineral claims. The quarry dispositions that were overlapping part of the McIlvenna Bay deposit were acquired by Foran from the owner, when the sand quarry ceased operation in 2104. At the current time, the quarrying operations have been shutdown and the site re-claimed.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

7.1 Regional Geology

The McIlvenna Bay Project is located on the western edge of the Paleoproterozoic Flin Flon Greenstone Belt (FFGB), which extends from north central Manitoba into northeastern Saskatchewan. The FFGB forms part of the Reindeer Zone, a subdivision of the Trans-Hudson Orogen, a continental-scale tectonic event which occurred approximately between 1.84 Ga and 1.80 Ga (Syme et al., 1999), as a result of the collision between the Superior and Hearne Archean Cratons.

The FFGB is composed of structurally juxtaposed volcanic and sedimentary assemblages that were emplaced in a variety of tectonic environments. The major 1.92-1.88 Ga components include locally significant juvenile arc and juvenile ocean-floor rocks, and minor ocean plateau/ocean island basalt. The juvenile arc assemblage comprises tholeiitic, calc-alkaline, and lesser shoshonitic and boninitic rocks similar in major and trace element geochemistry to modern intra-oceanic arcs. Ocean-floor basalt sequences are exclusively tholeiitic and are geochemically similar to modern N- and E-type Mid-Ocean Ridge Belts (MORBs) erupted in back-arc basins. Evolved arc assemblages and Archean crustal slices are present within the FFGB as minor components.

Collectively, these tectonostratigraphic assemblages were juxtaposed in an accretionary complex ca. 1.88-1.87 Ga, presumably as a result of arc-arc collisions. The collage was basement to 1.87-1.83 Ga, post-accretion arc magmatism, expressed as voluminous calc-alkaline plutons and rarely preserved calc-alkaline to alkaline volcanic rocks. Unroofing of the accretionary collage and deposition of continental alluvial-fluvial sedimentary rocks (Missi Group) and marine turbidites (Burntwood Group) occurred ca. 1.85-1.84 Ga, coeval with the waning stages of post-accretion arc magmatism. The sedimentary suites were imbricated with volcanic assemblages in the eastern FFGB during 1.85-1.82 Ga juxtaposition of the supracrustal rocks along pre-peak metamorphic structures.

As currently viewed, the FFGB contains eight geographically separate juvenile island arc volcanic assemblages (blocks), each being 20 km to 50 km across (Figure 7.1). From east to west, they are known as the Snow Lake, Four Mile Island, Sheridon, Flin Flon, Birch Lake, West Amisk, Hanson Lake, and Northern Lights assemblages (Zwanzig et al., 1997 and Maxeiner et al., 1999). These assemblages are separated by major structural features and/or areas of differing tectonostratigraphic origin. It is unclear whether the eight juvenile arc sequences represent different island arcs, or segments of a larger continuous arc (Syme et al., 1999). Within the belt, each tectonostratigraphic block has been broken into several sub-blocks, usually bounded by local to regional fault systems. Correlation of stratigraphy between sub-blocks is difficult to impossible to determine.

Figure 7.1
Regional Geology Map

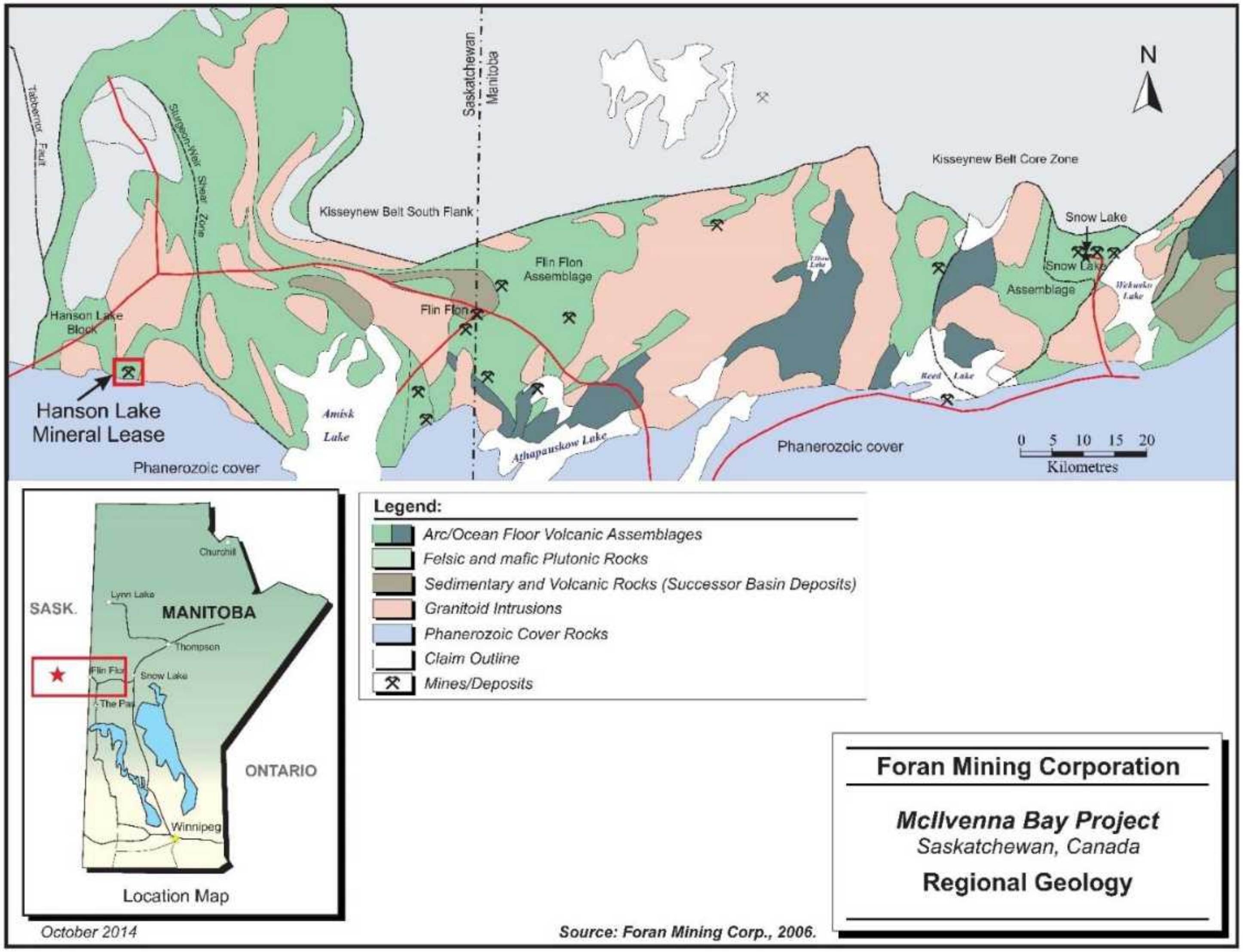


Figure taken from the 2015 Technical Report.

The exposed portion of the FFGB is approximately 250 km in an east-west direction by 75 km north-south. Although it has an apparent easterly trend, this is an artefact of the belt's tectonic contact with gneissic metasedimentary, metavolcanic and plutonic rocks to the north (Kisseynew Domain) and the east-trending trace of Phanerozoic platformal cover rocks to the south. In reality, the FFGB extends hundreds of kilometres to the south-southwest beneath a thin cover of essentially flat-lying, Phanerozoic sedimentary rocks.

By Early Ordovician time, the area of northern Saskatchewan and Manitoba had been effectively peneplaned and a regolith was developed on exposed rocks. Inundation by the Ordovician ocean initiated the deposition of the Phanerozoic cover sequence which, in the McIlvenna Bay area, is now represented by the basal Winnipeg Formation sandstone overlain by the Red River Formation dolomite.

In the general Flin Flon area, the predominant direction for the Late Wisconsinan ice-flow indicators is south-southwest indicating that the ice was flowing from a Keewatin dispersal centre. The resulting tills are thin and generally reflect local bedrock lithologies (McMartin et al., 1999).

7.2 Local Geology

The Hanson Lake Block, the host terrain of McIlvenna Bay, is bound to the east by the Sturgeon-Weir Shear Zone and to the west by the Tabbernor Fault Zone. The block extends an unknown distance to the south, beneath a nearly flat lying cover of Ordovician sandstones of the Winnipeg Formation and dolomites of the Red River Formation. To the north, the block is bound by the Kisseynew Domain, a gneissic metasedimentary belt and the Attitti Complex. The east end of the block hosts the Hanson Lake Pluton, a large compositionally variable granodiorite to pyroxenite intrusion.

In the Hanson Lake area, north of the Paleozoic margin, the exposed Proterozoic rocks of the Hanson Lake Block are dominated by juvenile island arc, felsic to intermediate metavolcanic rocks, with subordinate amounts of mafic volcanics, minor intermediate volcanics, and greywackes. Oxide facies iron formations are not commonly exposed, but their presence has been confirmed by diamond drilling. Long continuous magnetic trends suggest that the distribution of iron formations is very widespread in the area south of Hanson Lake. The sequence has been intruded by various felsic intrusions, some of which are believed to be subvolcanic intrusions. Abundant diorite and gabbro plugs and dykes cut the sequence, as well as minor ultramafic intrusions (Koziol et al., 1991). The supracrustal rocks generally dip moderately to steeply east to northeast. South of Hanson Lake, the Proterozoic sequence is poorly understood because of the unconformably overlying Paleozoic sedimentary rocks. McIlvenna Bay projects to subsurface under the sedimentary cover (Lemaitre, 2000).

At least two distinct folding events, both having northerly trending fold axes, have influenced the stratigraphy in the Hanson Lake Area. The Hanson Block structural fabric is dominated by a north to northwest-southeast trending, upright regional transposition foliation. A protracted D2 structural event resulted in tight to isoclinal, southwest plunging F2 folds and local southwest verging mylonite zones. D3 deformation resulted in tight north trending folds followed by a brittle D4 event characterized by north-south trending faults.

Peak regional metamorphism in the areas west and north of Hanson Lake reached upper amphibolite facies, as observed by the partial melting of the granodiorite-tonalite assemblage in the Jackpine and Tulabi Lake areas. At McIlvenna Bay, the Proterozoic sequence exhibits a greenschist metamorphic facies, as the deposit alteration assemblages are dominated by sericite and chlorite. The greenschist facies is probably a retrograde event after a previous amphibolite grade, since relict cordierite, anthophyllite, garnet and andalusite are commonly observed in the VMS alteration package (Lemaitre, 2000). U-Pb ages of supracrustal rocks in the block constrain the metamorphic event between 1,808 and 1,804 Ma (Maxeiner et al., 1999). U-Pb age dating of a quartz-feldspar porphyry (a possible subvolcanic intrusion) which intruded the supracrustal sequence yielded a date of 1888 +/- 12 Ma.

7.3 Property Geology

The property geology map is shown in Figure 7.2. Lacking any outcrop in the area of the deposit, the property geology has been interpreted from the drill core record, with help from geophysical surveys. The discussion below is extracted from Lemaitre (2000).

The stratigraphy of the deposit area, which was divided into six formations (Figure 7.3), has been defined over a 2 km strike length by a total of 285 drill holes. The lowest formation intersected by drilling both structurally and stratigraphically is the McIlvenna Bay Formation (Figure 7.4), the host of McIlvenna Bay. The McIlvenna Bay Formation is overlain to the north by the Cap Tuffite Formation. The McIlvenna Bay Formation and the Cap Tuffite Formation may be genetically related but have been separated as they are temporally distinct, as demonstrated by the positioning of the McIlvenna Bay deposit between these two units, an obvious exhalative horizon (and hence a period of clastic and volcano-sedimentary quiescence). Overlying the Cap Tuffite Formation is the Koziol Iron Formation, a long and distinctive marker formation traceable for several kilometres along strike by mapping and geophysics. Topping the Koziol Iron Formation is the Rusk Formation, a thick package of mafic volcanics. The Rusk Formation, in turn, is overlain by the thin HW-A Formation, an exhalative massive sulphide horizon which grades laterally into iron formation. Capping the HW-A Formation is a thick unsorted bimodal package of mafic and felsic volcanics and mafic intrusions and minor iron formations tentatively called the Upper Sequence, which may be thickened due to folding and faulting. The stratigraphic package has been cut by several different intrusions, the largest of which is the Davies Gabbro, represented by one or more sill-like plugs found within the Cap Tuffite Formation. The Proterozoic basement geology is unconformably overlain by the relatively flat lying to shallowly south-dipping Ordovician dolomites and sandstones of the Red River and Winnipeg Formations which have an average total thickness between 20 m and 30 m.

The McIlvenna Bay Formation, the host formation of the sulphide deposit, is known only to the extent that it has been drilled below the footwall of the deposit. The formation is at least 200 m thick (true thickness) and comprises massive and semi-massive sulphides and copper-rich stringer zones that make up the McIlvenna Bay deposit, and a succession of variably altered felsic volcanics, volcaniclastics, and/or volcanic-derived sediments of rhyolitic composition.

Figure 7.2
Project Geology Map

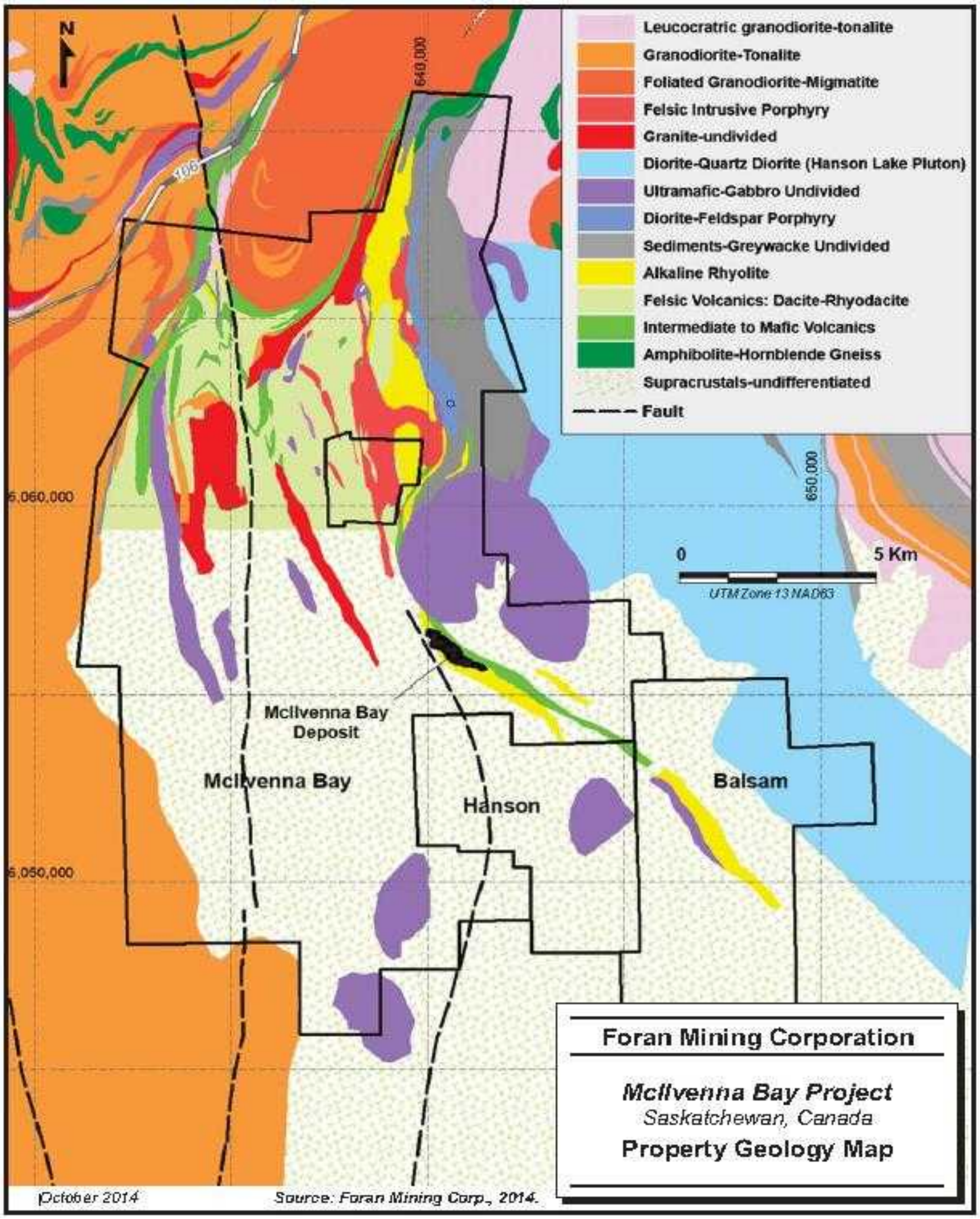


Figure taken from the 2015 Technical Report.

Figure 7.3
Stratigraphic Column for the McIlvenna Bay Deposit Area

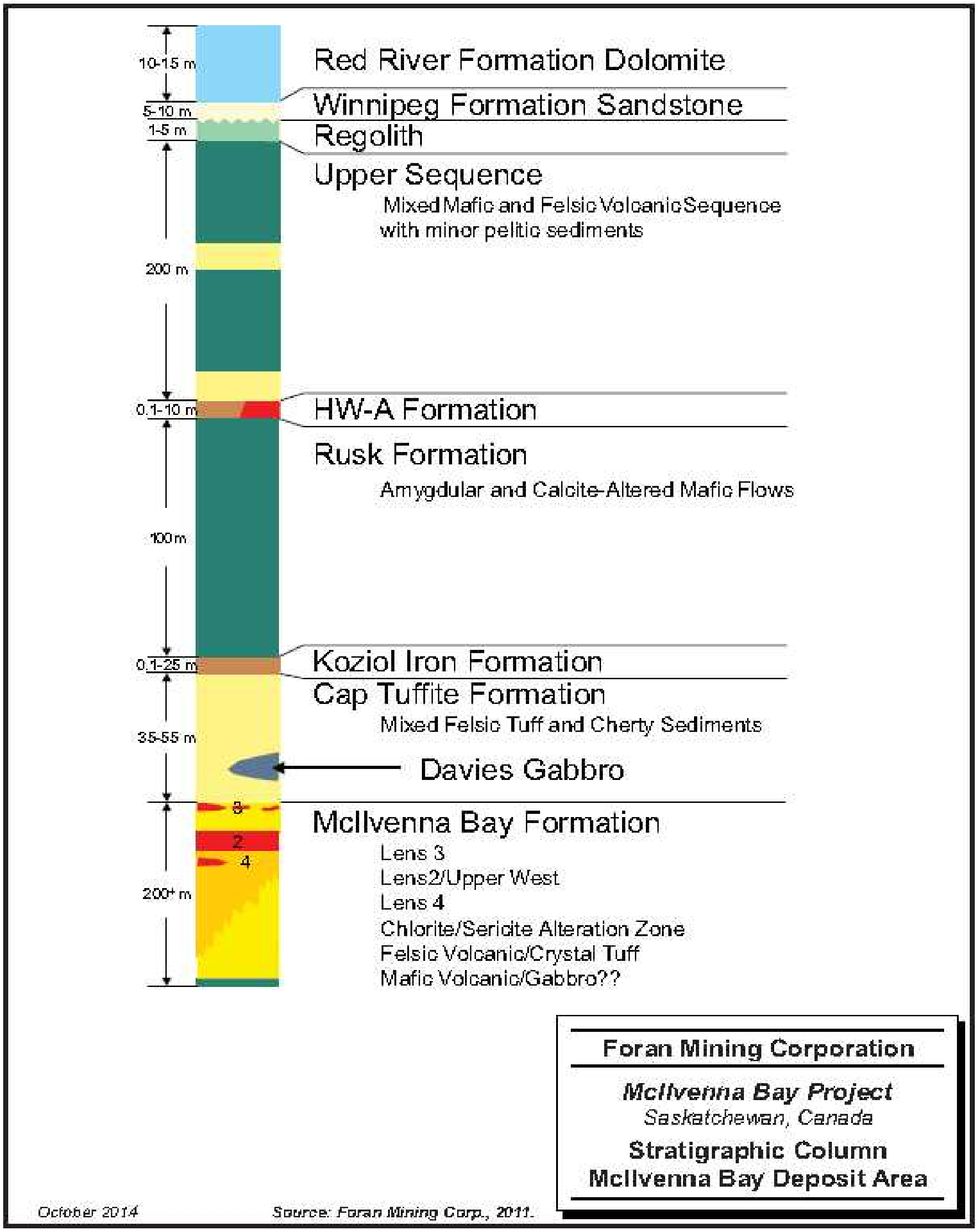


Figure taken from the 2015 Technical Report.

Figure 7.4
Cross-Section 9650E (Looking WNW)

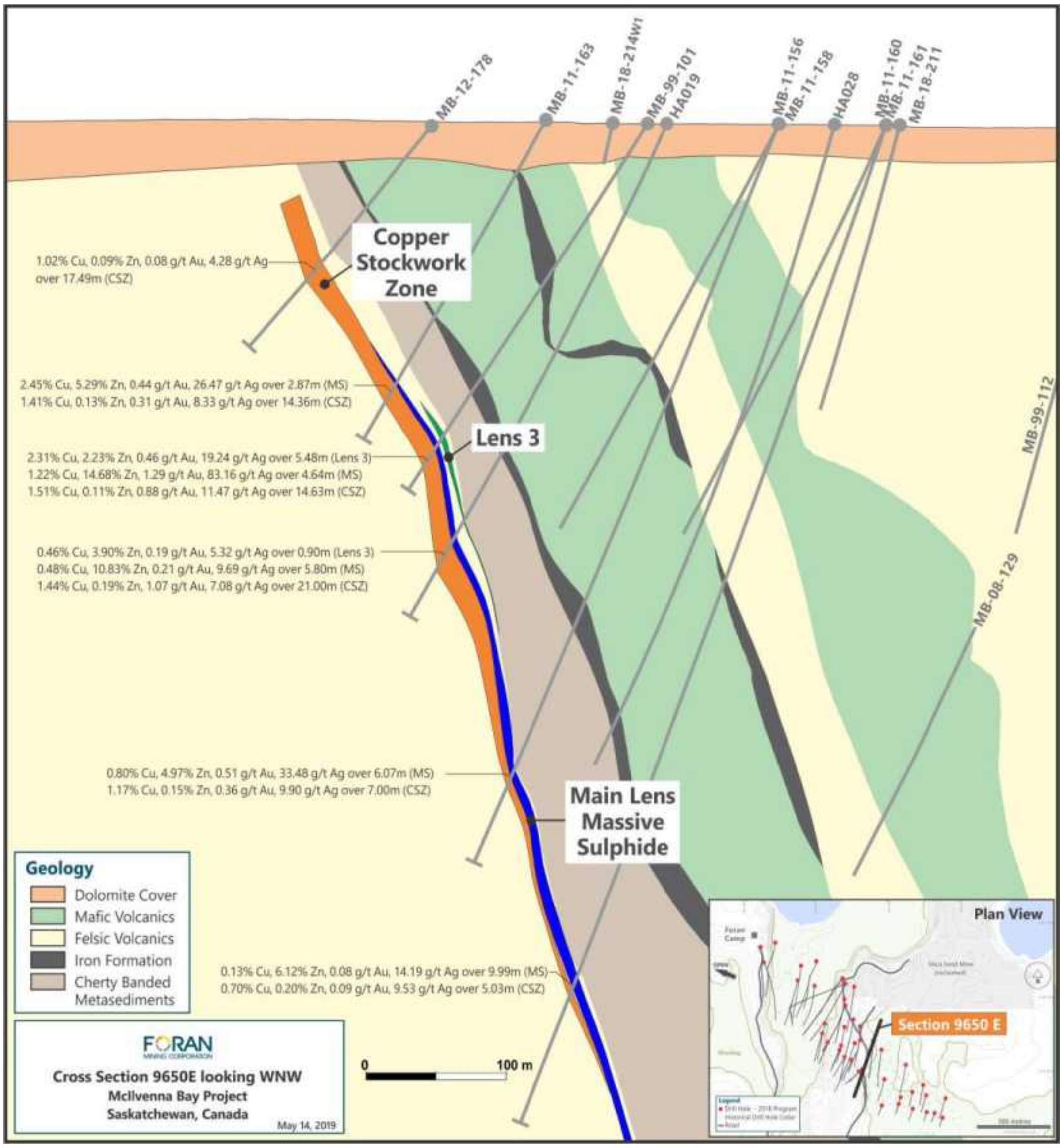


Figure supplied by Foran in June, 2019.

Overlying the mineralized horizons of the McIlvenna Bay Formation is the Cap Tuffite Formation, a sequence of intercalated felsic volcanic and cherty metasediments which have been intruded by sills and dykes of the Davies Gabbro (described below). The unit ranges from 35 m to 55 m thick, is finely banded to finely laminated, and ranges from white to cream to grey-green in colour. Sections of the formation range from very finely laminated, bleached chert to 1 to 10 cm thick banded, fine grained, aphanitic rhyolitic tuff. Discrete contacts between the units are nebulous. Instead, wide transitions are observed from one end member to the other. It is believed that the formation represents a sequence of re-deposited, water-lain, distal volcaniclastics and chert. An east to west zonation is observed in the Cap Tuffite from cherty-dominated in the east to rhyolitic-dominated in the west.

Stratigraphically overlying the Cap Tuffite is the Koziol Iron Formation, a long, continuous exhalative horizon traceable in drill core and by geophysics over several kilometres and, as such, provides an excellent stratigraphic marker horizon. The unit is a true oxide-facies iron formation that ranges from 0.1 m to 25 m true thickness and is composed of 1 to 5 cm thick bands of fine-grained chert, interbedded with 1 mm to 50 mm massive magnetite bands and 1 cm to 1 m thick massive grunerite ±garnet ±magnetite ±chlorite bands. Occasional pyrite and/or pyrrhotite are observed in selected bands. Near the base of the iron formation is a ±1 m thick graphitic shear/fault zone which is oriented sub-parallel to the stratigraphy and/or the S1 transposition foliation.

Overlying the Koziol Formation is the Rusk Formation, a thick package of massive and calcite altered mafic volcanic rocks that are approximately 100 m thick. The mafic rocks are likely massive flows, although the thickness of individual flow units cannot be determined from drill core. No distinct flow tops or pillow structures have been observed, however, patchy, 1 to 2 mm diameter white to pink rounded feldspar amygdules have been noted locally.

Topping the Rusk Formation is another exhalative horizon, the HW-A Formation which ranges from 1 cm to 5 m thick and shows a transition from west to east from oxide-facies iron formation to massive pyrite ±sphalerite.

Overlying the HW-A Formation is the +400 m thick Upper Sequence, a bimodal package of volcanic units that have been difficult to correlate from hole to hole. Approximately 45% of the unit is composed of aphanitic, grey, felsic volcanic, and 50% fine-grained mafic volcanic rocks. Some of the mafic units may be gabbroic intrusions. Approximately 5% of the unit is composed of greywackes and at least two additional oxide-facies iron formation horizons. Individual members of the formation are difficult to trace between drill holes, as the existing drill holes that are collared far enough to the north to intersect the Upper Sequence are sparse and generally widely spaced. The Upper Sequence is not yet defined to the extent that it could be broken down into formational units. The down plunge drilling program has discovered that the Upper Sequence may be the core of a regional synclinal structure and that the bimodal sequence may be structurally repeated by both folding and faulting (Lemaitre, 2000).

The Davies Gabbro, a plug up to 100 m thick east of McIlvenna Bay, extends westward toward the centre of the sulphide body, where it narrows into a series of thin dykes. The gabbro appears to be a series of sills that have intruded along the bedding planes of the Cap Tuffite Formation. The unit ranges from fine-grained to very coarse grained; the grain size appears to be directly related to the unit thickness. Chilled margins have been observed on the thicker dykes. It appears that the gabbro intruded along the bedding planes of the wet, cherty banded sediments of the Cap Tuffite.

7.4 STRUCTURE

Stratigraphy in the deposit area strikes between 275° and 295° and dips to the north at 65° to 70°, although in selected areas it dips vertically. The deposit has the same orientation as the stratigraphy and also plunges at approximately 45° to the northwest. Rocks in the host stratigraphy are massive to strongly foliated, the intensity of which depends on the competency of each individual unit and the degree of alteration.

The McIlvenna Bay stratigraphy appears to have been subjected to at least two main phases of deformation. The first phase of deformation is believed to have been an isoclinal folding event which may have been related to the regional F2 event (Lemaitre, 2000). This isoclinal folding was responsible for the development of the dominant foliation (S1) in the deposit area, oriented at approximately 280°/65°, and resulted in the transposition of the original bedding into the plane of the S1 fabric, so that the stratigraphy is now sub-parallel to this foliation. The foliation is well developed in the least competent stratigraphic units, particularly the footwall altered rocks.

Isoclinal folding of the iron formation has been observed locally in several drill holes with a plunge that is estimated to be approximately 45° to the west or west-north-west, which is roughly parallel to the plunge of the deposit (Lemaitre, 2000). This may suggest that the plunge of the deposit and the orientation of higher grade/thicker shoots in the deposit may be related to re-orientation during this deformational event.

A strong crenulation (F3?) of the foliation is locally developed in the stratigraphy, but it is most common in portions of the footwall alteration zone. The plunge of the crenulation is much flatter, usually less than 25°, and trends either northwest or northeast. This trend and plunge of the crenulation appears to be parallel to the fold axis of gentle to open folds observed in banded felsic volcano-sedimentary units, both above and below the deposit, and may be responsible for the broad warping of the stratigraphy observed in the magnetic maps between the Hanson Lake and the south end of McIlvenna Bay (Lemaitre, 2000).

There is some evidence of faulting documented in drill core in the deposit area. However, it is difficult to determine the orientation, scale or continuity of any faults at the present time. Often, faulting, when present, appears to be oriented sub-parallel to the stratigraphy and may represent discontinuities that helped to facilitate the transposition during deformation.

7.5 Mineralization

McIlvenna Bay is a Volcanogenic Massive Sulphide Deposit (VMS) which consists of structurally modified, stratiform, volcanogenic, polymetallic massive sulphide mineralization and associated stringer style mineralization. The massive to semi-massive sulphides contain copper and/or zinc, with lower concentrations of silver, gold and lead while, the stringer style mineralization generally contains elevated copper and gold. The deposit has undergone moderate to strong deformation and upper greenschist to possibly lower amphibolite facies metamorphism. The sulphide lenses are now attenuated down the plunge to the northwest.

The McIlvenna Bay deposit includes five separate zones and two styles of mineralization that are mineralogically and texturally distinct and typical of VMS deposits, including:

- Massive to semi-massive sulphide mineralization in the Main Lens and Lens 3.
- Stockwork-style sulphide mineralization in CS that directly underlies the Main Lens.
- Two other small lenses of stockwork-style mineralization:
    - the Stringer Zone, which is located between the Main Lens and Lens 3.
    - the Copper Stockwork Footwall Zone (FW), which occurs as a separate lens underneath the CS for approximately 150 m of strike length and could represent a fault offset and repetition of the Main Lens and CS.

The Main Lens at McIlvenna Bay is a large-massive to semi-massive sulphide horizon containing a metal zonation consisting of Cu-Au-rich material near the upper plunge line of the deposit which, transitions down dip into a more Zn-Ag-dominant massive sulphide. In the 2013 resource estimate, the Main Lens was sub-divided into the copper-rich Upper West Zone (UWZ) and the more zinc-rich Zone 2, based on these differences in mineralogy. However, statistical analysis of the assay grades within the lens suggests that there is a gradual transition between the two zones and that a hard boundary is not appropriate. Therefore, in the previous 2019 resource estimate, the Main Lens massive sulphide was reported as a single zone and this relationship continues in the current resource. The Main Lens massive sulphide is a continuous mineralized horizon which varies from 0.1 to 18.0 m in thickness and averages 3.5 m overall (Figure 7.5).

The CS is a zone of stockwork style copper-rich mineralization that directly underlies and is in contact with the massive sulphide. The zone is wedge-shaped, running parallel to the plunge line Main Lens massive sulphide. Based on the limit of current drilling, the zone extends up-dip beyond the upper edge of the massive sulphide for approximately 100-200 m and terminates downdip where it pinches out against the massive sulphide approximately 100-200 m before the Main Lens ends. This unit is interpreted to represent the feeder zone to the massive sulphide system that was transposed into its current geometry during deformation. The CS varies from 0.3 to 26.0 m in thickness with an average thickness of 12.0 m.

The Main Lens massive sulphide and the underlying CS are generally in contact with one another throughout the deposit, giving the bulk of the deposit an average thickness of 15.5 m overall. The mineralization in the deposit plunges at approximately -35° northwest from near surface, for a down plunge length of approximately 2,000 m (Figure 7.6).

Lens 3 is a massive sulphide that sits approximately 10 to 30 m in the hangingwall above the Main Lens and could represent a stacked massive sulphide lens within the deposit (Figure 7.4). This lens has been traced intermittently along a strike length of 1,600 m and plunges parallel to the underlying Main Lens and CS. The lens ranges in thickness from 0.1 to 8.0 m and averages 2.0 m.

The Stringer Zone (SZ) comprises a narrow, intermittent lens of stringer-style sulphide mineralization that occurs sporadically between the massive sulphides of the Main Lens and Lens 3. The zone has a strike length of 850 m and averages 4.5 m in true thickness through the deposit.

The FW is a separate lens that underlies the SZ and has been intersected in nine drill holes over approximately 150 m of strike length in the shallow, central part of the deposit. The lens varies in thickness from 0.3 to 38 m, with an average thickness of 30 m. The FW dominantly consists of stockwork style copper-rich mineralization similar to the CS, although, in several holes, narrow massive sulphide was also intersected at the top of the interval. It is possible that the CSFWZ represents a fault offset and repetition of the Main Lens and CS, but further drilling is required to prove the relationship of this lens to the rest of the deposit.

Figure 7.5
Longitudinal Section through the Main Lens Massive Sulphide

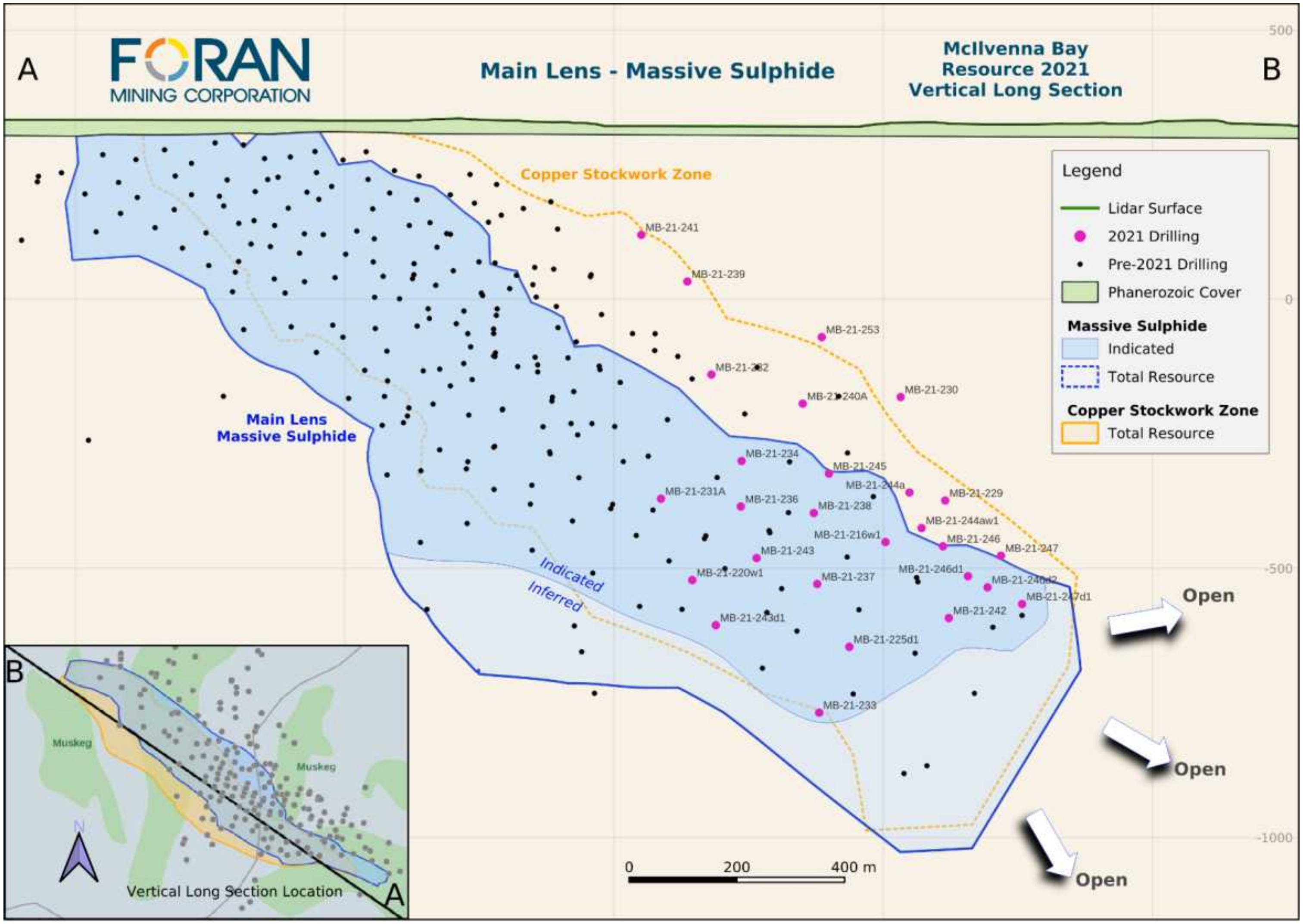


Figure provided by Foran and dated as of November, 2021.

Figure 7.6
Longitudinal Section through the Copper Stockwork Zone

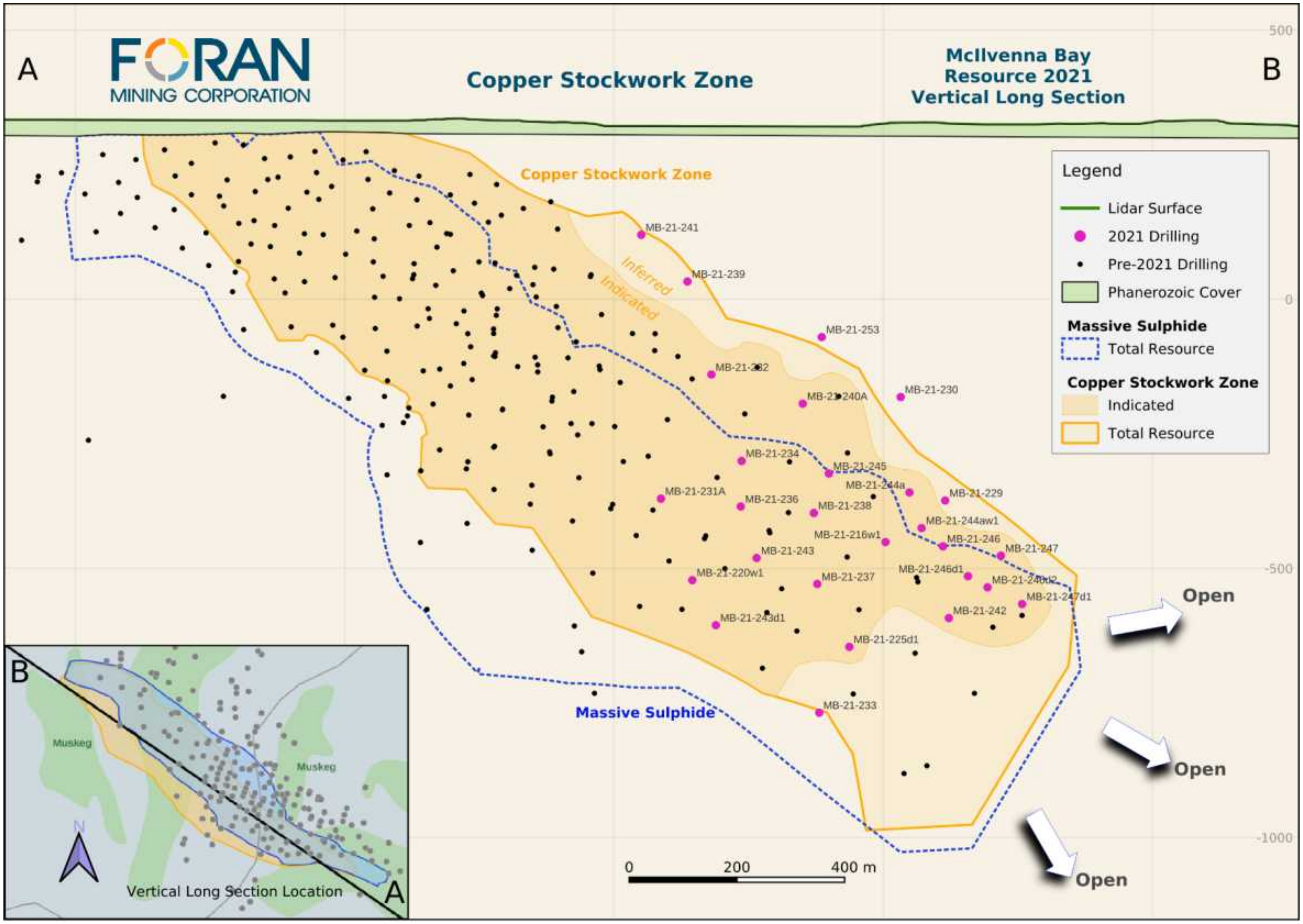


Figure provided by Foran and dated as of November, 2021.

Massive to locally semi-massive sulphides are typical of the Main Lens and Lens 3 horizons in the deposit. The massive sulphide mineralization tends to be composed of 70% to 80% medium-sized and subrounded pyrite grains resembling 'buckshot' in a fine-grained sphalerite-rich matrix. Sphalerite occurs as fine-grained and sometimes feathery minerals located in the interstices of the pyrite grains, ranging from 5% to 25% of the total unit. The sphalerite is generally dark to medium brown in colour. Faint banding of the massive sulphides is occasionally apparent. Up to 10% fine-grained grey quartz, and occasionally fine calcite, are also observed in the interstices. Subangular to subrounded inclusions or fragments of massive black chlorite ranging from 2 to 50 mm in diameter comprise 10% of the unit. Patchy but commonly rounded chert fragments ranging from 1 to 3 cm in diameter can constitute up to 20% of the unit locally. Such chert, when present, is often surrounded by one to three-centimetre-thick zones enriched in pale brown sphalerite.

The semi-massive sulphides range from 20% to 60% sulphides which are found as veinlets, veins and pods within strongly chlorite-altered rock. The sulphide portion tends to be either sphalerite or chalcopyrite dominant, with less than 20% fine-grained pyrite. Sphalerite-dominant portions are generally comprised of reddish or pale brown to blonde sphalerite, indicative of zinc-rich and iron-poor sphalerite. Individual veins or pods have been documented to contain up to 56% zinc. Less common are the chalcopyrite-dominant intervals which are composed of 80% chalcopyrite over narrow widths. Veining and replacement textures are common in the semi-massive sulphides.

The CS mineralization is confined to the area below the Main Lens massive sulphide, but locally a similar stringer style of mineralization has also been observed between the Main Lens and Lens 3. In these instances, stringer-style mineralization can occur directly above the Main Lens massive sulphide, directly below Lens 3 or in the intervening stratigraphy between the two lenses, where it has been broken out as the "Stringer Zone" in the 2021 resource estimate. The nature of the stockwork zone mineralization varies according to the host rock alteration, but, dominantly, this style of mineralization is associated with moderate to strong chlorite alteration. Chlorite alteration-hosted copper stockwork mineralization comprises chalcopyrite and pyrrhotite, with occasional pyrite, and is found in veinlets and pods cutting the chlorite. Sericite-quartz altered copper stockwork zones tend to be less prevalent and comprise exclusively chalcopyrite which lines fine, hairline fractures within the strongly silicified host, and as 5 to 10 cm long semi-massive pods containing angular to rounded host rock fragments. These pods and fractures appear to be late brittle features and may suggest that the chalcopyrite was remobilized into fractured rock, possibly during deformational events.

The sulphide mineralogy and the size of the alteration footprint suggest the presence of a proximal vent environment along the entire top plunge line of McIlvenna Bay, which is represented by the copper-rich portion of the massive sulphide. The location of the Lens 3 and possible the CSFWZ zones, respectively overlying and underlying the Main Lens, is interpreted by Foran geologists to indicate the occurrences of smaller hydrothermal pulses at intervals along the timeline.

In the 2015 report, it was noted that "the UW-MS, L2MS, and CS all remain open down plunge and, likely, both the zones and the plumbing system underlying them will continue at depth". This point has been demonstrated by Foran exploration programs subsequent to publication of the 2015 Technical Report, and the zones are currently still open down plunge.

8.0 DEPOSIT TYPES

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

The McIlvenna Bay Project hosts a VHMS deposit of a type commonly found in Canada in Precambrian through Mesozoic volcano-sedimentary greenstone belts occupying extensional arc environments such as a rifts or calderas. They are typified by synvolcanic accumulations of sulphide minerals in geological environments characterized by submarine volcanic rocks. The associated volcanic rocks are commonly relatively primitive (tholeiitic to transitional), bimodal and submarine in origin (Galley et al., 2006). The spatial relationship of VHMS deposits to synvolcanic faults, rhyolite domes or paleotopographic depressions, caldera rims or subvolcanic intrusions suggests that the deposits were closely related to particular and coincident hydrologic, topographic, and geothermal features on the ocean floor (Lydon, 1990).

VHMS deposits are exhalative deposits, formed through the focused discharge of hot, metal-rich hydrothermal fluids. These deposits commonly occur in clusters which form a VHMS camp. In many cases, it can be demonstrated that the sub-seafloor fluid convection system was apparently driven by large, 15 to 25 km long, mafic to composite, high level subvolcanic intrusions. The distribution of synvolcanic faults relative to the underlying intrusion determines the size and areal morphology of the camp alteration system and ultimately the size and distribution of the VHMS deposit cluster. These fault systems, which act as conduits for volcanic feeder systems and hydrothermal fluids, may remain active through several cycles of volcanic and hydrothermal activity. This can result in several periods of VHMS formation at different stratigraphic levels (Galley et al., 2005).

The idealized, undeformed and unmetamorphosed Archean VHMS deposit, as exemplified by the Matagami deposits, typically consists of a concordant lens of massive sulphides, composed of 60% or more sulphide minerals (pyrite-pyrrhotite-sphalerite-chalcopyrite with associated magnetite), that is stratigraphically underlain by a discordant stockwork or stringer zone of vein-type sulphide mineralization (pyrite-pyrrhotite-chalcopyrite and magnetite) contained in a pipe of hydrothermally altered rock (Sangster and Scott, 1976). The upper contact of the massive sulphide lens with hanging wall rocks is usually extremely sharp, while the lower contact is gradational into the stringer zone. A single deposit or mine may consist of several individual massive sulphide lenses and their underlying stockwork zones.

It is thought that the stockwork zone represents the near-surface channel ways of a submarine hydrothermal system and the massive sulphide lens represents the accumulation of sulphides precipitated from the hydrothermal solutions, on the sea floor, above and around the discharge vent (Lydon, 1990). VHMS deposits are commonly divided into Cu-Zn, Zn-Cu, and Zn-Pb-Cu groups according to their contained ratios of these three metals (Galley et al., 2005).

Most Canadian VHMS deposits are characterized by discordant stockwork vein systems or pipes that, unless transposed by structure, commonly underlie the massive sulphide lenses, but may also be present in the immediate hanging wall strata. These pipes, comprised of inner chloritized cores surrounded by an outer zone of sericitization, occur at the centre of more extensive, discordant alteration zones.

The alteration zones and pipe systems often host stringer chalcopyrite-pyrite/pyrrhotite ± Au and may extend vertically below a deposit for several hundred metres or may continue above the deposit for tens to hundreds of metres as a discordant alteration zone (Ansil and Noranda deposits). In some cases, the proximal alteration zone and attendant stockwork/pipe vein mineralization connects a series of stacked massive sulphide lenses (Amulet, Noranda, LaRonde, and Bousquet deposits), representing synchronous and/or sequential phases of mineralization formation during successive breaks in volcanic activity (Galley et al., 2005).

The McIlvenna Bay deposit consists of structurally modified, stratiform, volcanogenic, polymetallic massive sulphide mineralization and associated stringer zone mineralization. The structural deformation and related transposition of the stratigraphy in the deposit area appears to be responsible for the current geometry of the CS. This zone of stringer-style mineralization occurs as a compact, continuous zone directly underlying the massive sulphide. The sulphides contain copper and zinc, with low lead, silver and gold values.

The McIlvenna Bay deposit has undergone strong deformation and upper greenschist to amphibolite facies metamorphism. The massive sulphide lenses are now attenuated down the plunge to the northwest. Typical aspect ratios of length down-plunge to width exceed 10:1. The extent of remobilization of sulphides within the deposit is uncertain.

9.0 EXPLORATION

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

9.1 FORAN EXPLORATION 1998 TO 2012

9.1.1 Exploration on the McIlvenna Bay Deposit or in the Immediate Area

On acquisition of the property in 1998, Foran embarked on a diamond drilling program to test new targets, as well as to in-fill the existing drill pattern on the McIlvenna Bay Deposit. Phase I of this program commenced in December, 1998 and carried on through the winter of 1998-1999. A total of 55 holes were drilled during this program, totalling 27,958 m. Geosight Consulting Canada (Geosight) was retained to prepare a resource estimate using the drill holes completed by previous operators. In 1999, Foran initiated environmental baseline studies and commenced engineering work for construction of a road to access the property.

Drilling continued during the winter of 1999-2000 but was temporarily halted pending financing. Three holes totalling 2,938 m were completed in 2000, and an access road was constructed. M'Ore Exploration Services Ltd (M'Ore) prepared a resource estimate which was released on June 14, 2000. This block model estimate was based on a total of 63,344 m of diamond drilling from 124 holes, of which 33,350 m of drilling was completed by Foran between December, 1998 and May, 2000. The mineralization had been delineated to a maximum vertical depth of 1,230 m up to this period.

As of May 31, 2000, Foran had drilled an additional 59 holes totalling 33,350 m, with 57 holes directly testing the deposit. The first 44 holes were drilled with the objective of upgrading the quality of the resource, down to a depth of 580 m, from the inferred resource category to the indicated resource category. The last 15 holes were drilled below the plunge line and down plunge of the deposit, with this drilling being successful in extending the deposit an additional 300 m vertically below the plunge of the previous resource base.

After 2000, exploration work on the property ceased, and the option agreement with the Hanson Lake Joint Venture was allowed to lapse. Foran acquired a new option agreement in 2005 and resumed work. Scott Wilson RPA (a predecessor to RPA Inc.) was retained in 2006 to audit the mineral resource estimate and prepare a NI 43-101 Technical Report (Cook and Moore, 2006). The mineral resources dropped significantly owing to an increase in the cut-off grade used, which resulted in removal of much of the Copper Stockwork Zone (CS) as it was then termed.

In early 2007, Foran completed an airborne deep-penetrating Versatile Time-Domain Electromagnetic (VTEM) survey over portions of the Bigstone, Balsam and McIlvenna Bay properties. The program comprised 404.6 line-km on 150 m line spacing over the McIlvenna Bay/Balsam properties and 321 line-km over the Bigstone property.

In the winter of 2007-2008, Foran conducted a diamond drill hole program based on recommendations from the Technical Report on the McIlvenna Bay Project prepared by RPA dated November 27, 2006 (Cook and Moore, 2006). Seven diamond drill holes were completed for a total of 6,455 m. Drill holes were between 691.5 m and 1298.4 m in length on sections 9400E through 9700E, with the objective of the drilling being to tighten drill hole spacing and upgrade the mineral resources down plunge on L2MS. A number of drill holes failed to intersect the deposit at depth. Subsequently, Foran determined that the holes which missed their targets were drilled at orientations that made it impossible to intersect the deposit at the targeted depths.

Exploration work underwent a hiatus until 2011, when the company was re-financed and a new management team was brought in to run the company. That winter, Foran conducted a diamond drilling program consisting of 10 holes totalling 5,056.0 m. This program targeted a portion of the CS and was designed to in-fill and prove up the continuity over a portion of the zone in the central part of the deposit, at that time, some of the drill core from the earlier 2007 to 2008 program was also relogged and sampled.

The winter 2011 drilling was successful, and RPA was retained to update the mineral resource estimate (Rennie, 2011) for the CS. The zone was re-interpreted, using a nominal 0.5% Cu cut-off grade and a minimum apparent thickness of 3 m. The other zones were largely unchanged, with the exception of Lens 4, which was incorporated into the FW. The re-inclusion of the CS resulted in a large increase in the total 2011 mineral resources when compared to the prior 2006 estimate.

Drilling resumed in August, 2011 and ran through to November, 2011, with a total of 8,158 m completed in 18 holes. The purpose of the drill program was to in-fill the deposit to further increase the confidence in the resource, collect sample material for metallurgical testwork, and to test the up-dip extension of the CS. Detailed geotechnical logging was also conducted, and a suite of samples were collected to initiate geochemical characterization studies of the mineralized zones. Metallurgical sampling was conducted from core collected in a series of HQ-size diamond drill holes. A re-survey program was completed for all of the drill hole collars that could still be identified on the property. In addition, downhole gyroscopic surveys were carried out in 39 of the historic holes along with the 2011 drill holes.

Foran also completed a helicopter-borne geophysical survey in 2011 that comprised 1,587.4 line-km of versatile time domain electromagnetic (VTEMplus) and horizontal magnetic gradiometer (mag) over those areas of the McIlvenna Bay property not covered in 2007 (Figure 9.1).

In 2012, Foran completed 3,825 m of diamond drilling in 15 holes. The drilling was completed during a winter program, which allowed access to areas covered by muskeg that were not accessible during the previous summer. The drilling was directed at near-surface projections of the deposit, in order to upgrade the classification and extend the known mineralization. Drilling was dominantly completed utilizing HQ-sized core to provide additional material for future metallurgical testwork. Geotechnical and hydrogeological studies were also conducted during the program.

Metallurgical testwork on the samples collected from the 2011 drilling was completed in June 2012. The work was carried out by G&T Metallurgical Services Ltd. (G&T), of Kamloops, BC. Three composite samples, consisting of 516 kg of drill core, were created for each of three different mineralogical domains: the CS, L2MS, and UW-MS. The samples were then used in batch and locked cycle flotation testing, as well as determination of Bond Work Indices.

Figure 9.1
Geophysical Surveys 2007 to 2014

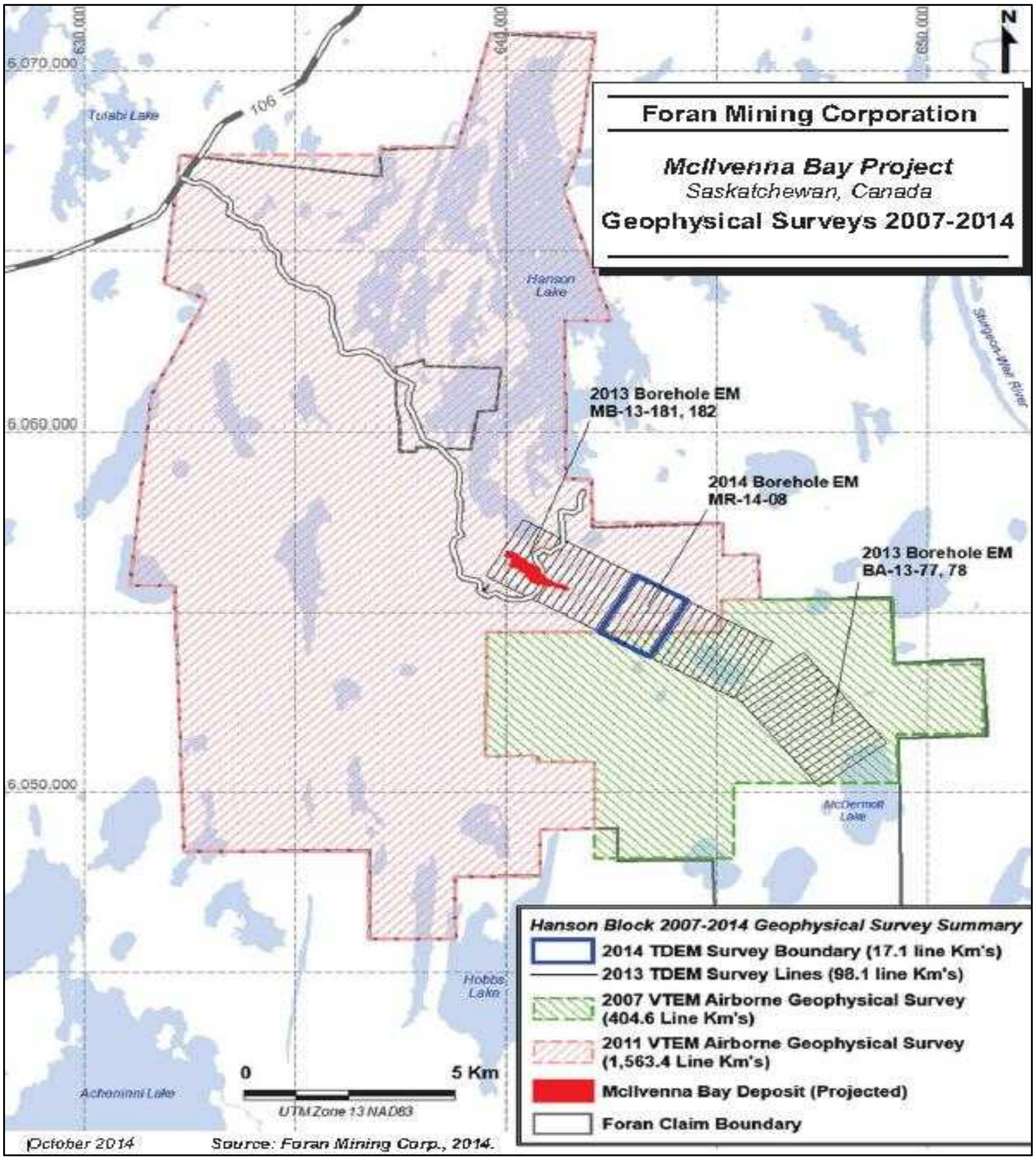


Figure taken from the 2015 Technical Report.

There is no information currently available to know if G&T was ISO certified at the time of the work in 2012. However, the Steward Holdings Group Limited (Steward Group) purchased G&T in February, 2011. On June 29, 2012, Campbell Brothers Limited (ALS Group (ALS)) announced its purchase of the Steward Group. While metallurgical processes are not usually covered by ISO certification, the assaying conducted by the laboratories usually is. ALS laboratories are ISO/IEC 17025 accredited.

In late 2012, RPA was engaged to prepare an updated mineral resource estimate for the Project, using drill results completed up to that time. The estimate update was completed in March, 2013 (Rennie, 2013) and resulted in an increase of 15% in the Indicated tonnage and 18% in the Inferred tonnage. As this increase was not deemed to be material, a new NI 43-101 Technical Report was not triggered. However, the 2013 estimate was used as the basis of the PEA completed by JDS and disclosed in the preliminary economic assessment (PEA) Technical Report dated January, 2015.

Coincident with the update of the mineral resource estimate, Foran drilled four diamond drill holes totalling 2,243 m on the deposit in 2013. These holes were not incorporated into the 2015 estimate and a review by RPA concluded that the impact of these holes on the mineral resource estimate used in the 2015 Technical Report would be negligible. However, these drill holes along with all of the subsequent drilling, have been included in the current estimate discussed in Section 14.0 of this report.

9.1.2 Exploration Conducted Outside the Immediate Area of the McIlvenna Bay Deposit 2013 to 2014

In addition to the work done on McIlvenna Bay deposit, Foran has conducted exploration activities on the surrounding property area to look for additional deposits. Exploration work carried out in 2013 included 98.1 line-km of ground-based time-domain electromagnetic surveying (TDEM) which covered the McIlvenna Bay deposit and the trend of the geology to the southeast into the Balsam area. The survey grid covered portions of the McIlvenna Bay property, the southeast corner of the Hanson Block claims and a portion of the Balsam property (Figure 9.1). Borehole electromagnetic surveys (BHEM) were carried out in two holes in the Thunder Zone/Balsam areas, as well as two others at McIlvenna Bay deposit.

Foran has also drilled a number of holes on regional targets within the property boundary but outside of the immediate McIlvenna Bay area. Figure 9.2 shows the location of these targets and summarizes the amount of drilling done. In 2012 and 2013, Foran drilled six holes, totalling 2,163 m on five separate regional targets in the southern portion of the property.

In 2013, nine holes, totalling 3,211 m were drilled in the Balsam/Thunder Zone area, located 5 to 7 km southeast of the McIlvenna Bay deposit. Initial drilling during this program targeted areas of known mineralization in the Balsam area, to infill them in an attempt to expand the mineralized zones and better understand the stratigraphy of the immediate area. The program was successful in intersecting new mineralization and appeared to indicate that there are several mineralized zones at different stratigraphic levels at Balsam, but that the zones tend to poddy in nature. Near the end of the program, a new electromagnetic (EM) conductor was identified as part of the concurrent ground geophysical program. One of the last drill holes of the program tested this anomaly and was successful in intersecting a new zone of mineralization, termed the Thunder Zone, along the same geological trend that hosts the McIlvenna Bay deposit. Massive sulphide mineralization was intersected in BA-13-77 which included a 3.66 m intercept grading 4.08% Cu, 0.43 g/t Au and 27.0 g/t Ag at the Thunder Zone, which appeared to be open for expansion along strike to the northwest.

In 2014, a short geophysical program comprised 17.1 line-km of detailed TDEM was completed along strike to the southeast of the McIlvenna Bay deposit and northwest of the new Thunder zone discovery, to confirm the location and characteristics of a new large deep-seated EM conductor (Target A) also generated from the 2013 ground geophysical survey. The EM response at Target A had similar characteristics to those observed from the McIlvenna Bay deposit and the late time response of the anomaly suggested a sulphide conductor. Following the detailed geophysics, Foran drilled 1,864 m in two holes on Target A, located just east of the McIlvenna Bay deposit (Figure 9.2). The first drill hole was terminated early due to excessive flattening, but the second hole was completed to a depth of 1,683 m. No significant sulphide mineralization was intersected that would explain the anomaly. The drilling was followed by a BHEM survey, which. suggested that the conductor was still present below the hole and the geological logging indicated that the stratigraphy was cut by a dyke at that location of the conductor, so that the source of the conductor was not tested by the drill hole.

Lithogeochemical sampling has been carried out on drill core from McIlvenna Bay, as well as at the Thunder Zone/Balsam areas, and in surface exposures in a broad area surrounding Hanson Lake (Figure 9.3). The work was focused on building a chemo-stratigraphy for the rocks of the area. The surface sampling around Hanson Lake was conducted jointly with the Saskatchewan government as part of a company-sponsored master's thesis study. A total of 1,406 samples were collected as part of this program. Final synthesis of the results of this work will be included in a pending M.Sc. thesis report.

9.2 FORAN EXPLORATION 2015 TO 2018

9.2.1 Exploration on the McIlvenna Bay Deposit or in the Immediate Area

No further exploration/drilling was conducted on the McIlvenna Bay deposit until the winter of 2018. In December, 2017, Foran signed a Technical Services Agreement with Glencore Canada Corporation, under which Glencore will contribute its professional and technical services, assistance, guidance and advice in connection with the objective of completing a Feasibility Study on McIlvenna Bay, in exchange for an exclusive off-take contact to purchase or toll process all of the concentrates and/or other mineral products produced from the Project at prevailing market rates. With this agreement in place, Foran embarked on a large infill and expansion drill program designed to convert as much of the deposit resource as possible into the indicated category which could then potentially be converted into reserves for the upcoming Feasibility study.

In 2018, Foran conducted 26,827 m of drilling in 60 drill holes targeting the deposit. The program was completed in two phases, with 14,986.5 m in 32 drill holes (including several wedged holes) completed during the phase I winter program and 11,840.5 m in 28 holes (including wedges) completed during the phase II summer program. The focus of the winter program was to upgrade both the near surface and deep portions of the deposit which are covered by muskeg and not accessible during summer months, while the summer program focused on the middle part of the deposit which was accessible from higher ground. Both programs were completed using oriented coring techniques to provide a better understanding of the geological structures in the deposit area. A number of wedge holes were also drilled during the programs in order to provide additional material for metallurgical testwork. In addition to converting inferred resources to the indicated category, other program components included geotechnical, hydrogeological and metallurgical testwork.

Figure 9.2
Regional Drilling Summary 2011 to 2014

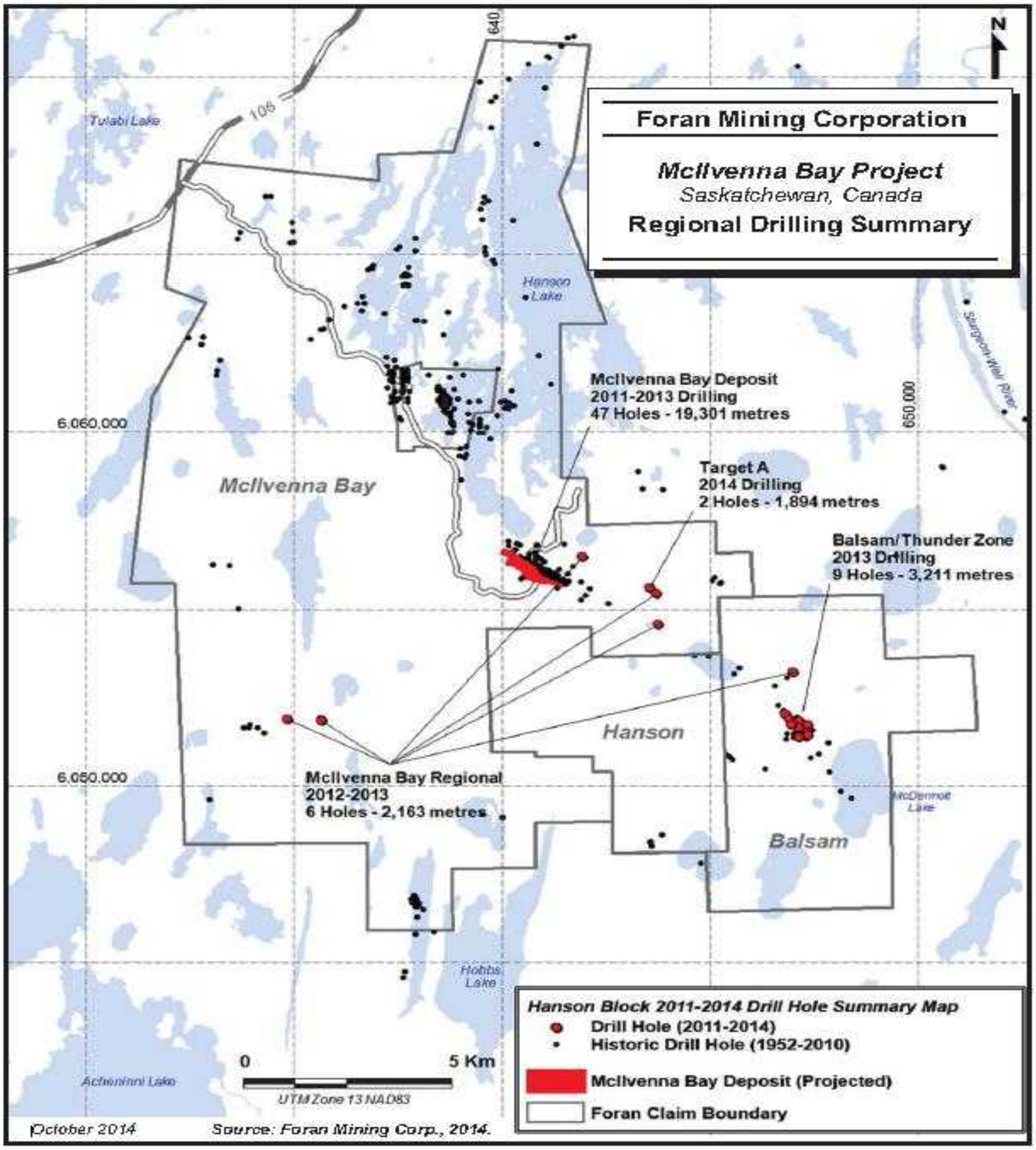


Figure taken from the 2015 Technical Report.

Figure 9.3
Lithogeochemical Sampling Surveys 2012 to 2014

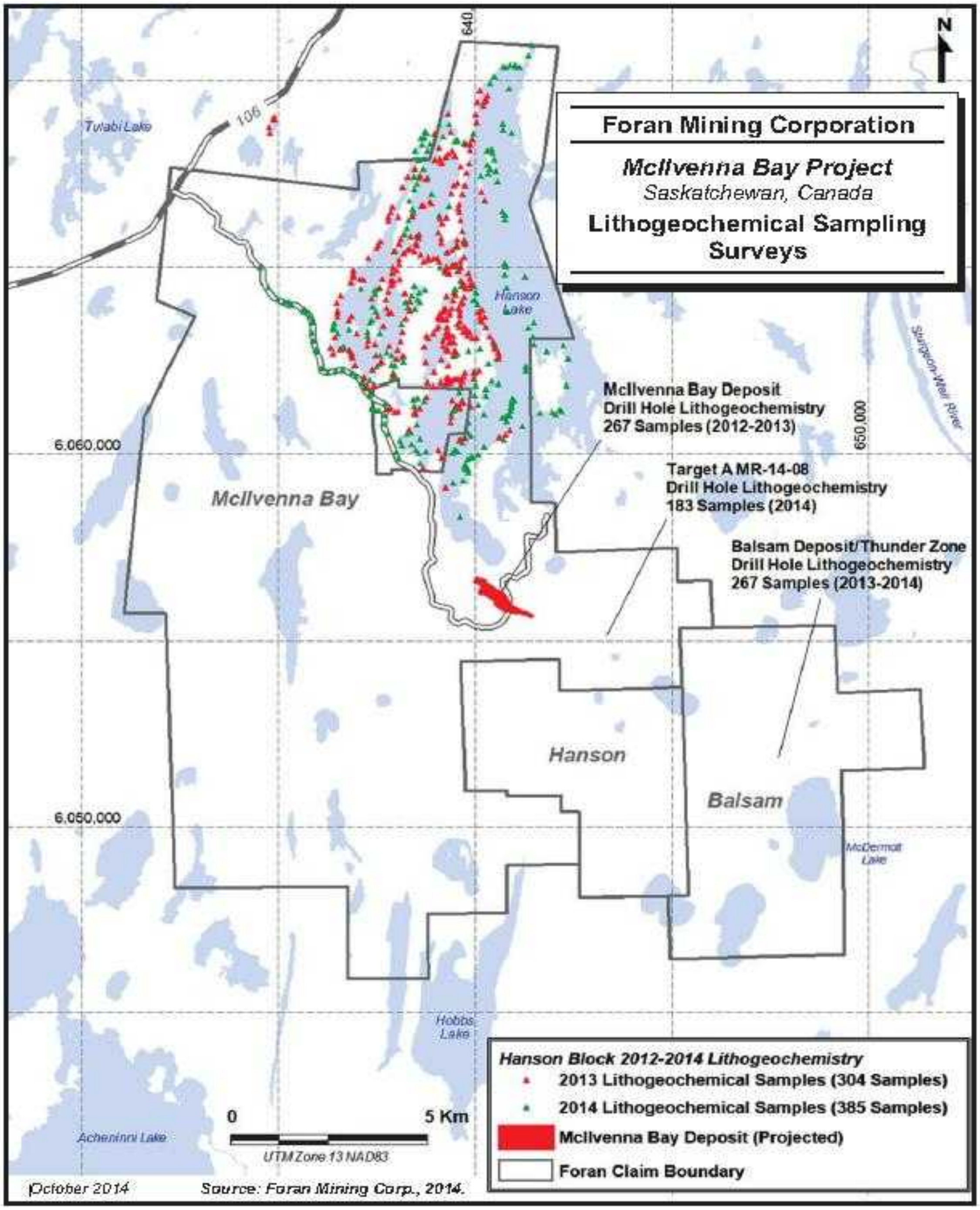


Figure taken from the 2015 Technical Report.

Geotechnical components of program included 3,733 m of detailed geotechnical logging on holes drilled at orientations amenable to both structural and resource studies. In addition, three short geotechnical holes (151.3 m) were drilled to characterize the proposed portal location and four short vertical holes (104 m) were drilled for piezometer installations, to help quantify near surface groundwater flow in the immediate deposit area.

Material for metallurgical testwork was collected from all Phase I and II drill holes, with either a quarter or half of each sampled interval submitted for testing. Metallurgical work is being carried out by Base Metallurgical Laboratories Ltd. (Base Metallurgical), of Kamloops, BC. A total of 1,440.96 kg of drill core was provided from the 2018 drilling, supplemented with 712.4 kg of coarse rejects from assayed material from the 2018 program. Another 38.34 kg of core material from 2011 drilling was collected for HLS testing. Testwork currently under way is comprised of grind and flotation circuit tests, as well as DMS upgrading to maximize value.

As a part of phase II summer drilling, a downhole resurveying program was also undertaken. A number of holes were identified that did not have a full-gyro-surveys completed during the 2011 downhole resurvey program, due to blockages in drill holes at surface or at depth. Those holes that displayed suspicious or non-existent historic downhole surveys beyond blockages were re-opened with a drill on the pad and re-surveyed with a True North Gyro.

To develop a larger library of rock density measurements across the deposit, Foran employees performed 1,932 bulk density measurements both from 2018 drill holes, and historic core (from 2011, 2012 and 2007), that was not significantly weathered. Bulk density measurements were matched to sampled intervals, with individual pieces labelled to ensure correct wet and dry weights. Samples were measured using a larger scale than the regular specific gravity measurements. The precision of the scale used was within 1 g (0.5 g for skilled operators), and the larger sample sizes (often between 2 and 4 kg) minimized the error introduced by the 1.0 g precision. These bulk density samples are considered more representative of the actual density of the mineralized material in the ground, compared to measurements taken from isolated, random small samples of core.

As a follow up to both programs, BHEM surveys were completed on a number of holes to look for additional lenses below the level of current drilling. The program was successful in its mandate and culminated with the 2019 resource estimate which was the subject of an NI 43-101 Technical Report.

The Glencore Agreement was subsequently allowed to lapse and no further exploration was conducted on the deposit until 2021. This work and results are the subject of this report.

9.3 Foran Exploration 2021

No further exploration/drilling was conducted on the McIlvenna Bay deposit until the winter of 2021. The 2021 drill program was focused on infill drilling, targeting the inferred portions of the resource to convert additional tonnes to the indicated category, as well as step-out drilling designed to expand the deeper parts of the deposit in the up-dip direction. The program was completed between January and July and consisted of 39 drill holes encompassing 27,298 m (including 11 wedges). The program included the use of oriented core technologies to better understand the structural settling of the deposit and all holes were surveyed with a gyro tool to provide accurate drill hole traces at depth.

The program was successful in significantly increasing the density of drill holes in the deeper part of the deposit and in expanding the mineralized horizons up-dip, along the upper plunge line of the deposit. The 2021 drilling continued to define a trend of thicker mineralization in the Copper Stockwork Zone in this area, which is often coupled with higher copper grades in the adjacent massive sulphide horizon. Ultimately, the drill program culminated in significant increases in the Indicated portion of the McIlvenna Bay resource.

During the 2021 program, Foran continued to collect bulk density measurements for all sample intervals within the deposit, to bolster the density database for the deposit. The measurements were made using the weight in air / weight in water method on complete sample intervals, similar to the process employed in 2018.

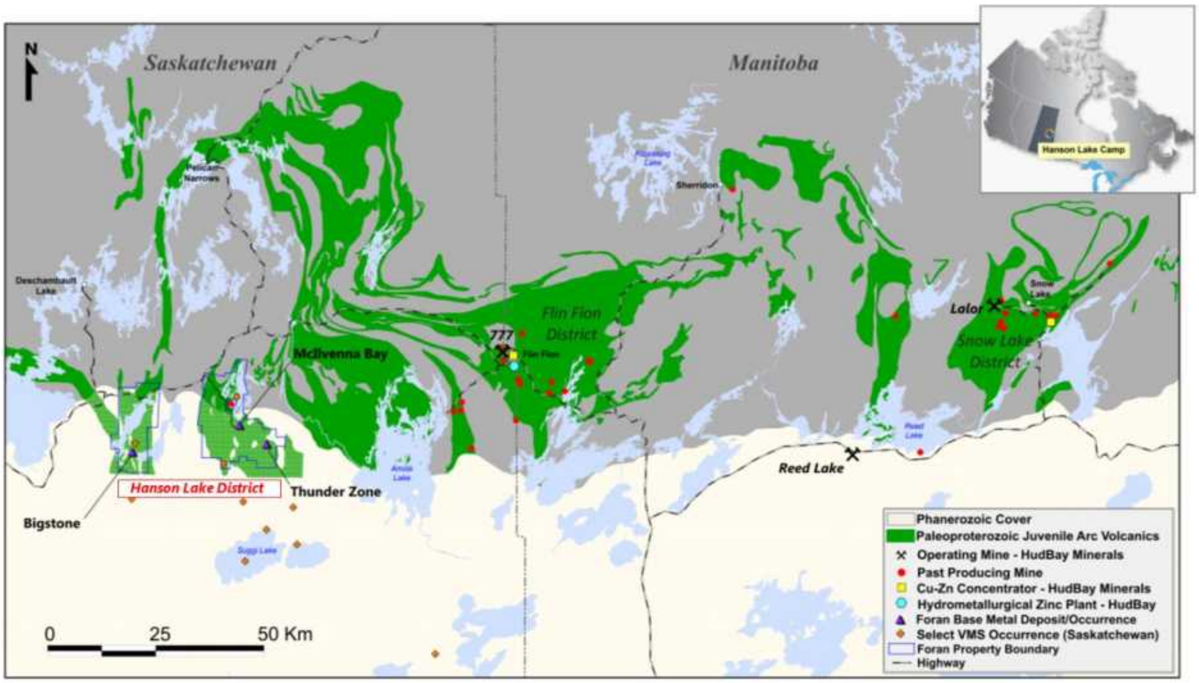
During the winter of 2021, the immediate deposit area and projected extensions to the north- east were covered by ground EM surveys, in an effort to determine the potential for additional lenses and/or extensions of know lenses. The results of the survey have been modelled and testing of potential conductors is being planned for future programs.

9.4 EXPLORATION POTENTIAL ON THE PROPERTY

The following information has been extracted from Section 24 of the April 27, 2020, APG Mining Consultants Inc. (APG) Technical Report and updated where necessary.

Exploration potential exists for the discovery and delineation of additional VHMS deposits on Foran's land holdings in the Hanson Lake District. The Hanson Lake District represents the two western most volcanic assemblages, which form part of the prolific Flin Flon Greenstone Belt that extends over 225 km from Snow Lake in Manitoba to the Bigstone Lake area in west-central Saskatchewan and is host to 29 past and present producing mines representing over 170 million tonnes (Mt) of production (Figure 9.4).

Figure 9.4
Flin Flon Greenstone Belt



Taken from the April 27, 2020, APG Technical Report.

There are numerous historic occurrences of VHMS style mineralization and a number of high priority geophysical exploration targets in the Hanson Lake area, several of which have been the focus of recent work by Foran. Foran also holds a large claim block in the Bigstone Lake area, located 25 km to the west of McIlvenna Bay, which is host to the historic Bigstone deposit and a number of other compelling exploration targets.

During 2021, Foran has undertaken a review of the regional geology and geophysical datasets in an effort to better understand the potential of the project area and to develop new target areas for future exploration. As part of this review, several prospective target areas were identified from regional geophysical datasets and a number of areas were covered by ground EM surveys to define drill targets for further exploration.

As the McIlvenna Bay deposit continues to advance towards production, the exploration focus in the area is transitioning to identifying additional regional target areas that could eventually develop into satellite mineralized zones that could be processed at a central processing facility adjacent to McIlvenna Bay. Foran is working on growing and advancing its pipeline of exploration targets and will continue to focus on regional targets in future programs.

Currently, the more advanced of these prospects that could potentially represent satellite mill feed for a central processing plant at McIlvenna Bay, subject to continued successful exploration, are the historic Bigstone Deposit located on the Bigstone property, 25 km to the west of McIlvenna Bay and the recently discovered Thunder Zone massive sulphide prospect, located seven kilometres to the southeast of the McIlvenna Bay deposit along the Balsam Trend (Figure 9.5).

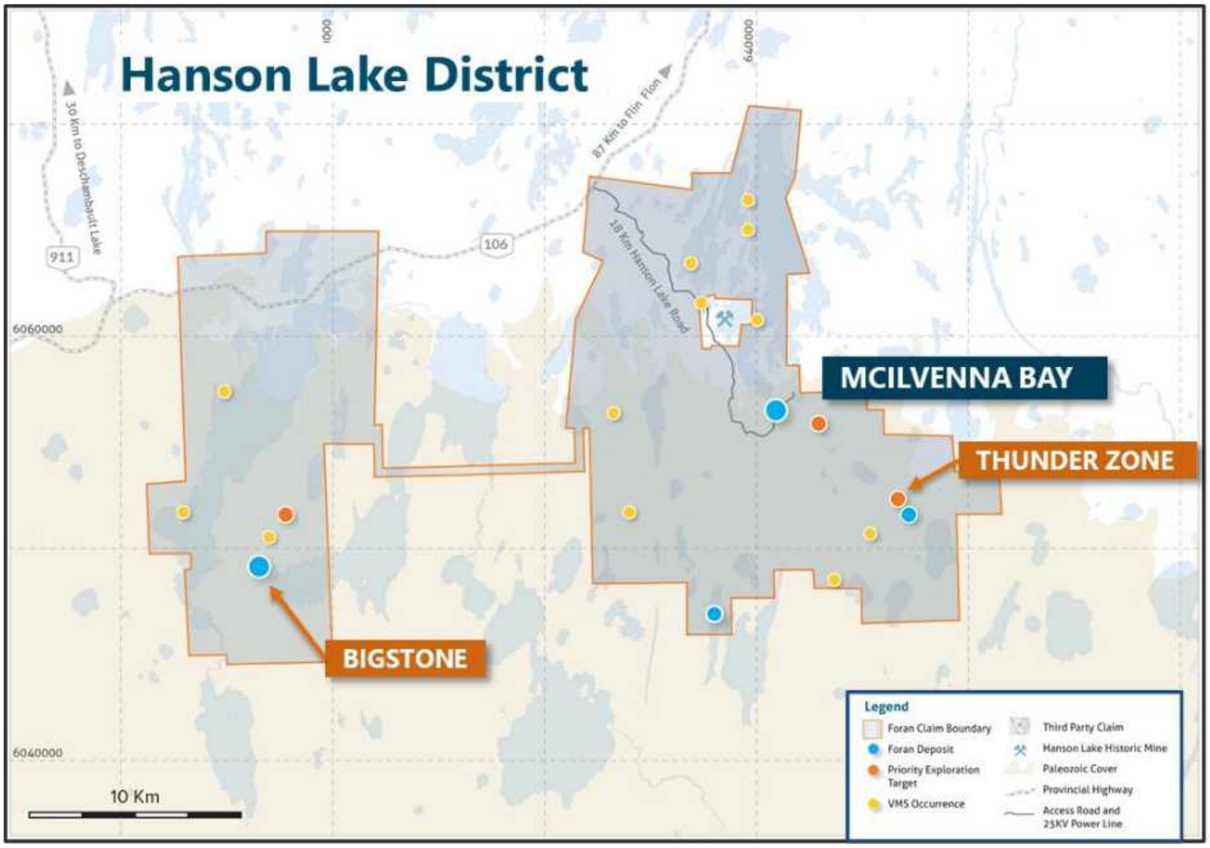
9.4.1 Thunder Zone

The Thunder Zone is located approximately seven kilometres from McIlvenna Bay along a trend of prospective stratigraphy that extends to the southeast from the deposit.

The Thunder Zone was initially discovered in 2013, when massive sulphide mineralization was intersected in a drill hole designed to test a new electromagnetic (EM) conductor which had been identified as part of a ground geophysical program conducted that year over the trend from McIlvenna Bay to the nearby Balsam area. One of the last drill holes of the program at the Balsam area tested this new anomaly and was successful in intersecting a new zone of mineralization. This new mineralized zone was termed the Thunder Zone and it sits along the same geological trend that hosts the McIlvenna Bay deposit. Massive sulphide mineralization was intersected in drill hole BA-13-77, which included a 3.66 m intercept grading 4.08% Cu, 0.43 g/t Au and 27.0 g/t Ag.

In 2015, Foran completed five drill holes encompassing 1,914 m at the Thunder zone, to follow up on the new discovery from 2013. The program was successful in intersecting massive and stringer sulphide mineralization in four of the five holes drilled which partially defined a moderately dipping mineralized zone, hosted by moderately to strongly altered felsic volcanic rocks. Drilling to date has defined the zone over approximately 300 m along strike. The zone remains open for expansion.

Figure 9.5
Hanson Lake District Properties



Taken from the April 27, 2020, APG Technical Report.

The best result from the 2015 program came from hole BA-15-83, drilled at the northwest edge of the known horizon, which intersected two zones, an upper zone containing 2.04% Cu, 3.47% Zn, 0.37 g/t Au and 11.6 g/t Ag over 3.46 m followed, down hole, by a second zone containing 0.62% Cu, 3.41% Zn, 0.36 g/t Au and 27.24 g/t Ag over 8.39 m (including an interval of 3.70 m grading 7.16% Zn). A map showing a gridded profile of the EM response over the Thunder Zone with the drill holes superimposed on it is provided in Error! Reference source not found.. Additional exploration is warranted at the Thunder zone to further define the extent of the mineralized zone and, if significant, to prepare a 43-101 compliant Mineral Resource estimate.

9.5 MICON QP COMMENTS

The exploration programs conducted by Foran to date on the Project have continued to delineate additional mineralization at the McIlvenna Bay deposit. Further work will be needed to determine the full extent of the mineralization, both in the down plunge direction and at depth. If the Project was put into production, though, the extent of the mineralization, either down plunge or at depth, would most likely be more economically defined by underground drilling.

Further exploration programs will be necessary to identify the extent and tenor of the mineralization in the satellite zones which have been identified either historically or more recently by Foran. Further exploration will also be able to determine if these satellite zones of mineralization are economically viable for the purposes of exploitation along with the main McIlvenna Bay deposit.

10.0 DRILLING

Portions of this section were extracted from previous McIlvenna Bay Project Technical Reports and updated or edited where necessary.

10.1 Drilling to 2014 (RPA Historical Discussion Taken from 2015 JDS Technical Report)

Diamond drilling has spanned a fairly broad period, starting with Cameco in 1988. Cameco (and partners) drilled 68 holes, of which 56 targeted the McIlvenna Bay deposit. All other drilling in and around the Project area has been completed by Foran. A summary of drilling within McIlvenna Bay deposit up to August, 2014 is provided in Table 10.1.

Table 10.1
McIlvenna Bay Deposit Diamond Drilling Summary to August, 2014

Company	Year	Number of Holes	Metres Drilled (m)
SMDC (with partners Esso, Tri-gold)	1988	26	7,702.00
Cameco (SMDC) (with partner Trimin)	1989	30	14,550.53
Cameco (with partner Billiton)	1990	13	7,693.70
Foran	1998	3	997
Foran	1999	62	28,992.70
Foran	2000	3	2,938.30
Foran	2007	3	3,214.20
Foran	2008	4	3,310.70
Foran	2011 Phase I	10	5,056.00
Foran	2011 Phase II	18	8,158.00
Foran	2012	15	3,825.00
Foran	2013	4	2,243.00
TOTAL		191	88,681.13

Table taken from the 2015 Technical Report.

RPA noted that the totals provided by Foran for the Cameco-era drilling do not match those contained in the database. The apparent discrepancies were due to holes that were lost and re-collared, and other holes that were drilled by Cameco and subsequently lengthened by Foran. Some holes that were collared and then abandoned appear in the database, and some do not, so it is not possible to reconcile the drilled totals. The metres from the lengthened holes are contained within the database as though they were drilled by Cameco, but they should have been recorded as drilled by Foran. For some of the abandoned and lengthened holes, the records are not complete. Consequently, it is not possible to fully reconcile what is in the database, which is supported by logs, and what is reported. In some instances, Foran has re-logged older drill core to update the records.

The apparent discrepancies have been investigated by Foran personnel and documented as follows:

- Hole 22, collared by SMDC/Esso in 1988, was deepened by Foran in 1999.
- Log for Hole 7 is missing.
- Holes 35 and 40, collared by Cameco/Trimin in 1989, were lost and re-collared as 35A and 40A, respectively; original drilled intervals not recorded.
- Log for Hole 42 is missing.
- Hole 43, also collared by Cameco/Trimin in 1989, was deepened by Foran in 1999.
- Holes 58, 66 and 67, collared by Cameco/Billiton in 1990, subsequently deepened by Foran.
- Holes 62 and 63 also appear to have been deepened, but it is not clear by whom.
- No logs were available for holes 62 or 58D.
- Holes 68, 120, and 121 were collared by Foran, lost, and re-drilled; now recorded as 68A, 120A, and 121A, respectively.
- Hole 122W1 was drilled as a wedge.
- Hole 123 was not drilled in the deposit area, and therefore is not included in McIlvenna Bay database.
- Holes 126, 130, and 131 were planned but not drilled, and so records with these hole numbers do not exist.

In RPA's opinion, these apparent discrepancies have been adequately explained and do not present a significant concern for the drill hole database, particularly as the only data used for resource estimation are recorded in logs and verifiable or have been re-acquired through logging of early core. In the opinion of the Micon QP these historical RPA concerns have been addressed during subsequent reviews of Foran's drill hole database by Micon QPs and no longer constitute any risk to the integrity of the database.

Cameco and Foran employed similar drilling procedures on McIlvenna Bay. The top of the holes from surface down through the Paleozoic cover sequence was drilled with HQ equipment. The drill string was reduced to NQ for drilling below the Proterozoic regolith. All but a handful of the Cameco holes, and all of the Foran holes, still have their HQ rod string in the hole allowing one to locate the holes on surface and to re-enter them if necessary.

Downhole surveying of Cameco holes HA-60 through HA-65 was completed using acid tests only. Holes HA-01 through HA-17, and HA-66 and HA-67 were completed using Tropari and acid test measurements. All other Cameco holes were surveyed using the Techdel International Light-Log system.

Initially, downhole surveying on the Foran holes was done using a combination of Tropari measurements and acid tests. Due to the presence of magnetic rocks in the stratigraphy, especially the iron formations, Tropari azimuths were sometimes inaccurate and were occasionally ignored in order to get reasonably accurate hole locations. Tropari measurements were taken at approximately 75 m intervals, and acid tests were taken every 50 m.

The use of Tropari measurements was considered acceptable for the shorter holes, as the influence of the one or two iron formation horizons intersected in such holes could be eliminated by careful analysis of the Tropari data, logging of the core, and magnetic susceptibility measurements of the core from area around the survey location. However, the Tropari instrument was found to be totally inadequate as a surveying tool for the deep, step-out holes 67, 111, 120A, 122, 122W1, 124, and 125. Foran concluded that the locations of the intersections of these holes had an estimated error of ±50 m in the east-west direction and ±25 m in the vertical direction (Lemaitre, 2000).

Starting with the winter program of 2011, the holes were surveyed initially with a Reflex EZ Shot instrument by the drillers during the drilling process, as a means of tracking the trend of the drill hole during drilling. The EZ Shot tool provides an accurate dip, but also uses a magnetic compass to determine the azimuth. At the completion of the program, holes MB-11-136 to -145, inclusive, were re-surveyed using a Gyro tool from Reflex Instruments, which is not affected by magnetics. There were significant differences found between the results for the two instruments. Based on this result, the gyro tool was deemed to provide the more accurate survey result and this tool was used for all subsequent downhole surveys. For all subsequent drill programs, a similar protocol was followed, with an EZ Shot tool employed by the drillers for routine tracking of the hole at 50 m intervals during drilling and a final gyro survey completed at the end of the hole to provide an accurate hole trace for the database.

In 2011, a program of re-surveying was also conducted to re-located as many of the older drill collars as possible, to validate the historic database. Where the casing could be found and the holes were still open, a downhole survey was redone using the Gyro instrument. This resulted in revisions to the locations and paths of some holes, which impacted the geological interpretations and grade interpolations. In RPA's opinion, this was a prudent and worthwhile exercise, as there were some significant changes made to the projected path of some holes.

A drill hole location map showing the drill holes up to August, 2014, is provided in Figure 10.1. In RPA's opinion, the drilling and surveying conducted on the property has been done to industry standards and there are no apparent issues that would have a significant deleterious impact on the estimation of mineral resources.

10.2 Foran Diamond Drilling 2014 to 2018

No further drilling was conducted on the McIlvenna Bay deposit until the winter of 2018, when Foran embarked on a large infill and expansion drill program at the deposit, designed to convert as much of the deposit resource as possible into the indicated category which could potentially be converted into reserves for the upcoming Prefeasibility Study.

The 2018 program consisted of 26,827 m of drilling in 60 drill holes which were completed in two phases, with 14,986.5 m in 32 drill holes (including several wedged holes) completed during the phase I winter program and 11,840.5 m in 28 holes (including wedges) completed during the phase II summer program. Table 10.2 and Table 10.3 provide detailed information on the drill holes from the 2018 program. A plan map showing the collar locations and hole traces is provided in Figure 10.2.

Drill hole collars were located in the field by a surveyor/geologist with a survey transit or differential GPS and two foresight pickets were placed in front of the drill to allow the drill to be aligned at the proper azimuth. The drill holes were started with HQ sized core and drilled until they passed through the dolomite cap rock and sand layer and/or through the regolith. Once into solid bedrock, the rod string was reduced to NQ size and the holes were drilled to depth, leaving the HQ rod string as casing. Once the drill hole was reduced to NQ, the surveyor completed a 'heads and tails' survey of the rod string to obtain an accurate azimuth and a final collar location for the hole.

Figure 10.1
Drill Collar Locations to August, 2014

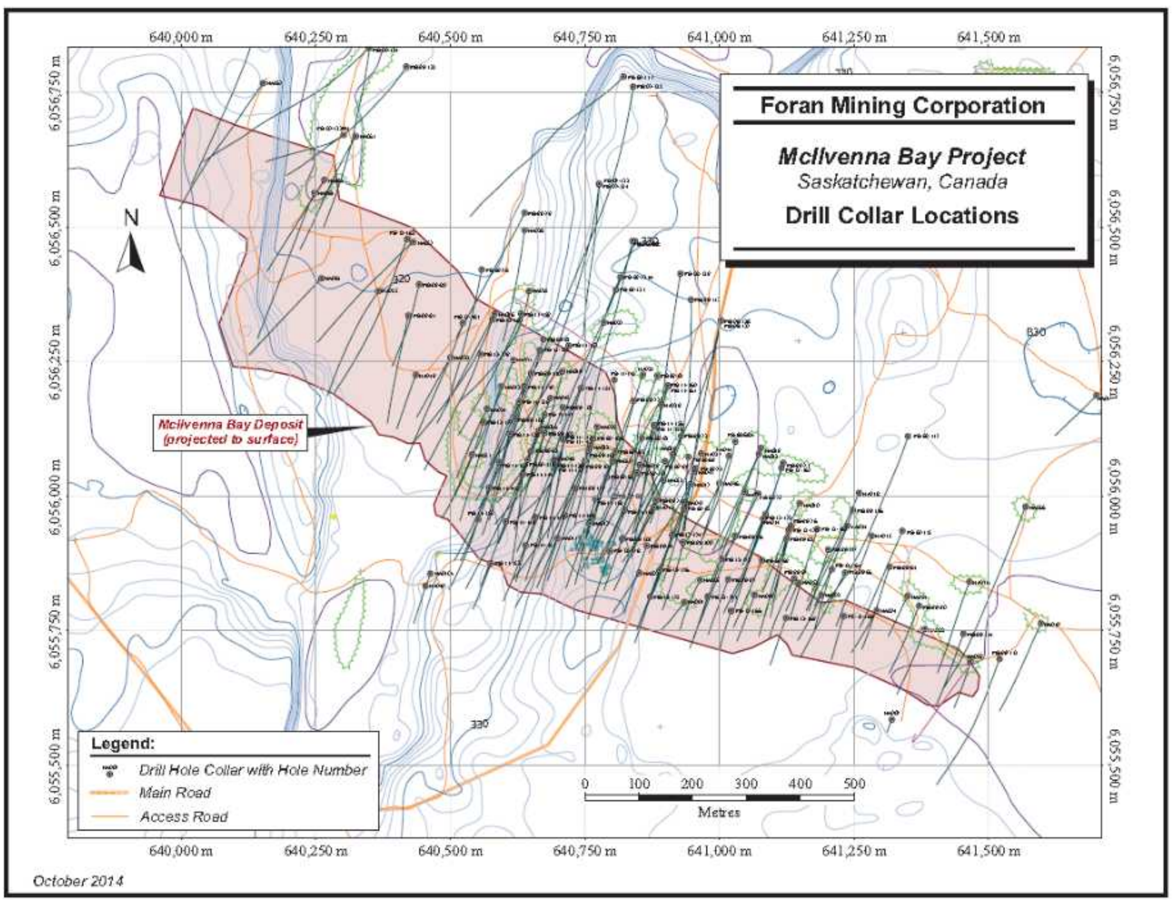


Figure taken from the 2015 Technical Report.

Table 10.2
Summary of the 2018 Phase I Diamond Drilling Program, McIlvenna Bay Deposit

Drill Hole	UTM NAD 83 Zone13 Easting	UTM NAD83 Zone13 Northing	Elevation	Azimuth from Total Station	Dip	Length (m)
MB-18-183	640961.55	6056152.38	330.46	189.25	-73.82	701.00
MB-18-184	641386.19	6055696.85	332.07	199.52	-55.52	113.00
MB-18-185	641330.43	6055727.59	331.93	198.80	-56.72	110.50
MB-18-186	641273.78	6055733.70	331.92	198.46	-56.02	100.50
MB-18-187	641177.32	6055756.53	331.91	197.89	-55.79	137.50
MB-18-188	641269.95	6055847.54	331.97	197.00	-57.21	215.00
MB-18-189	641406.73	6055826.48	332.30	198.94	-57.81	248.00
MB-18-190	641249.16	6055915.98	331.97	189.86	-66.86	320.00
MB-18-191	640983.05	6055954.84	330.94	193.44	-62.89	317.00
MB-18-192	641095.20	6055834.00	331.88	197.64	-56.61	176.00
MB-18-193	641130.52	6056051.29	332.40	190.16	-65.72	447.00
MB-18-194	640229.57	6056875.69	319.32	183.27	-79.81	1160.00
MB-18-195	640964.92	6055778.35	331.40	199.61	-55.19	119.00
MB-18-196	641080.70	6055787.40	331.73	198.17	-56.34	122.00
MB-18-197	641174.58	6055869.36	332.00	191.63	-68.25	251.00
MB-18-198	640503.65	6056584.79	319.71	184.74	-76.98	918.00
MB-18-199	640574.40	6056328.22	320.40	193.51	-71.15	655.00
MB-18-200	640409.75	6056719.88	319.27	183.02	-75.68	496.00
MB-18-201	640555.88	6056262.74	320.76	196.51	-72.11	565.00
MB-18-202	640409.792	6056719.76	319.26	186.02	-71.84	1007.00
MB-18-203	640384.69	6056622.34	319.40	192.57	-71.79	861.00
MB-18-203-W1	640384.69	6056622.34	319.40	192.57	-71.79	201.00
MB-18-203-W2	640384.69	6056622.34	319.40	192.57	-71.79	169.00
MB-18-204	640515.00	6056752.00	319.39	184.00	-75.00	27.00
MB-18-205	640708.67	6056497.43	327.53	187.13	-73.89	932.00
MB-18-206	640515.03	6056750.93	319.38	186.48	-75.14	1032.00
MB-18-206-W1	640515.03	6056750.93	319.38	186.48	-75.14	579.00
MB-18-207	640130.36	6056846.12	329.76	171.41	-72.81	1068.00
MB-18-207-W1	640130.36	6056846.12	329.76	171.41	-72.81	198.00
MB-18-208	640713.94	6056454.73	329.54	200.63	-68.72	841.00
MB-18-209	640815.50	6056310.08	330.45	181.57	-71.29	429.00
MB-18-210	640772.07	6056358.76	329.83	186.86	-72.15	471.00
Total Metres						14,986.50

Table supplied by Foran in June, 2019.

Table 10.3
Summary of the 2018 Phase II Diamond Drilling Program, McIlvenna Bay Deposit

Drill Hole	UTM NAD 83 Zone13 Easting	UTM NAD83 Zone13 Northing	Elevation	Azimuth from True North Gyro	Dip	Length Drilled (m)
HA067	640152.50	6056767.00	329.60	234.59	-78.46	201
HA18-043w1	640594.60	6056204.00	326.61	197.47	-74.99	172.5
HA18-045w1	640686.20	6056182.00	328.64	197.96	-75.91	153.5
MB-18-109w1	640757.00	6056085.00	332.07	199.07	-62.47	111.5
MB-18-134w1	640776.40	6056580.00	327.85	185.25	-78.04	122
MB-18-141w1	640675.10	6056151.00	328.73	190.22	-72.32	265.5
MB-18-142w1	640710.20	6056106.00	331.76	185.89	-69.17	100.5
MB-18-143w1	640710.20	6056106.00	331.73	184.83	-72.02	90.5
MB-18-208w1	640713.90	6056455.00	329.54	202.15	-68.97	240
MB-18-209	640815.50	6056310.00	330.45	182.68	-71.46	357
MB-18-210	640772.10	6056359.00	329.83	183.60	-72.24	348
MB-18-211	640905.90	6056215.00	331.78	182.09	-74.18	755
MB-18-212	640816.60	6056219.00	332.30	199.27	-74.67	696
MB-18-212w1	640816.60	6056219.00	332.30	199.27	-74.67	136
MB-18-213	640780.60	6056198.00	332.16	199.35	-70.87	648
MB-18-213w1	640780.60	6056198.00	332.16	199.35	-70.87	422.5
MB-18-214	640831.70	6056022.00	333.38	231.26	-75.10	555
MB-18-214w1	640831.70	6056022.00	333.38	231.26	-75.10	147
MB-18-215	640694.80	6056635.00	323.75	221.10	-62.32	606
MB-18-216	640150.40	6056744.00	329.10	153.29	-71.01	1,050
MB-18-217	640807.00	6056008.00	335.31	155.90	-71.93	528
MB-18-217w1	640807.00	6056008.00	335.31	155.90	-71.93	145.5
MB-18-218	640708.70	6056306.00	327.48	187.76	-74.18	708
MB-18-218w1	640708.70	6056306.00	327.48	187.76	-74.18	115
MB-18-219	640693.90	6056633.00	323.72	213.83	-63.52	942
MB-18-219w1	640693.90	6056633.00	323.72	213.83	-63.52	130.5
MB-18-220	640716.50	6056601.00	325.66	205.55	-68.09	1,002
MB-18-225	640715.90	6056601.00	325.58	245.91	-72.29	1,092
Total Metres						11,840.5

Table supplied by Foran in June, 2019.

Figure 10.2
Drill Collar Locations to September, 2018

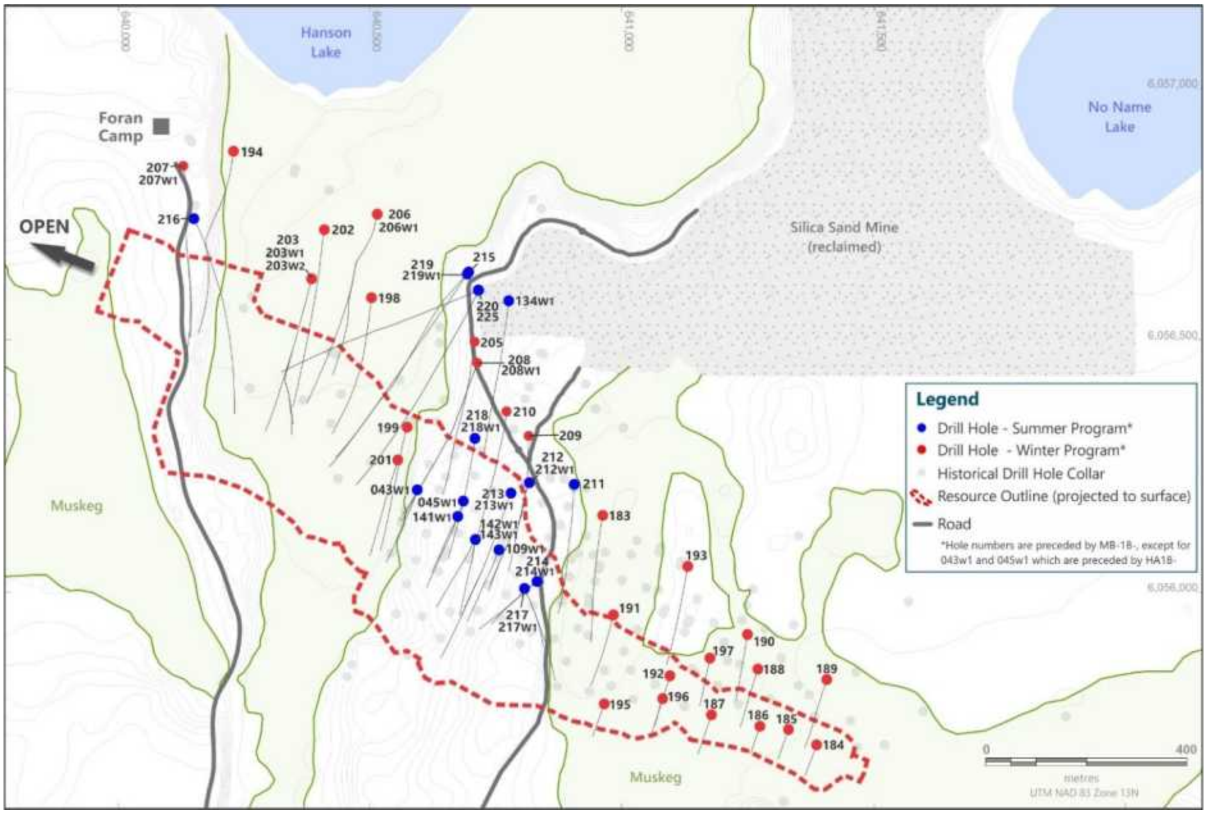


Figure supplied by Foran in June, 2019.

During drilling, downhole survey readings were routinely collected by the drill crew at 50 m intervals as the holes progressed, utilizing an EZshot survey tool. The EZshot tool provides an accurate reading for the dip of the hole, however, the tool uses a magnetic compass to determine the azimuth. Due to the occurrence of some magnetic units in the stratigraphy at McIlvenna Bay, the azimuth data for some readings from the EZshot tool may be dubious, but they provide a back up of survey data for the hole in the event that it is lost and not available for surveying at the end of drilling. Due to the magnetic parts of the stratigraphy, all drill holes had a separate downhole survey conducted once drilling was complete, as described below, to ensure that accurate survey data were available for each hole.

At the completion of each drill hole, a downhole survey was completed using a MEMS Gyro Tool, provided by Reflex Instruments, which provides an accurate trace of the drill hole at depth. The gyro tool is a downhole survey instrument that is magnetically independent and is not affected by magnetic rock units in the stratigraphy. Surveys were generally conducted from the bottom of the hole up, with measurements collected at five or ten metre intervals throughout the hole. The survey data collected by the gyro tool are taken as the most accurate source and these results are used in the drill hole database. Part way through the winter 2018 drill program, North Seeking Gyro tools were obtained from Reflex Instruments, and Stockholm Precision tools. North seeking gyro instruments are unaffected by magnetic terrain similar to MEMS instruments but have the added benefit of not requiring a collar survey to calculate the holes azimuth, instead the tool calculates the station azimuths independently.

Once the core was received at the McIlvenna Bay core shack, geological and geotechnical core logging was completed. Geospark Consulting Inc. (Geospark) core logging software, under license from Geospark, was used to collect all the pertinent geological data from the drill core, along with a detailed description of the rock units and sample information. All drill core was logged by Foran employees at the McIlvenna Bay core shack.

For the 2018 drill program, all drill holes were completed using the ACT III digital core orientation system from Reflex Instruments, to provide oriented drill core. The system allows the bottom of each run to be marked by the driller's helper before the core is retrieved from the core tube and placed in the core boxes. Prior to logging, the core was aligned on a section of angle iron relative to that mark and a 'bottom' reference line was marked on the core. This provides a reference line which can be used to take structural measurements of fabrics in the rock which are aligned as they would have been in the ground prior to drilling. This process provides valuable information on the true orientation of structures in the ground and will greatly assist in the interpretation of the geology of the deposit.

10.3 Foran Diamond Drilling 2018 to Present

After 2018, no further drilling was conducted on the McIlvenna Bay deposit until the winter of 2021, when Foran embarked on another large infill and expansion drill program at the deposit. The program was designed to convert as much of the existing deeper inferred deposit resources as possible into the indicated category, as well as to complete a series of closely spaced drill holes targeting an up-dip area in the deeper parts of the deposit where there appeared to be room to expand the deposit and grow the indicated category resource. This increase in the indicated category resource for the deposit was completed to support potential reserve growth for the upcoming Feasibility Study.

The 2021 program consisted of 24,893 m of drilling in 33 drill holes (including 10 wedged holes) completed between January 16th and July 15th. Table 10.4 provides detailed information on the drill holes from the 2021 program and a plan map showing the collar locations and hole traces is provided in Figure 10.3.

Table 10.4
Summary of the 2021 Diamond Drilling Program, McIlvenna Bay Deposit

Drill Hole	UTM NAD 83 Zone13 Easting	UTM NAD83 Zone13 Northing	Elevation	Azimuth from True North Gyro	Dip	Length Drilled (m)
MB-21-216w1	640150.44	6056743.87	329.10	155.73	-70.85	891.00
MB-21-220w1	640716.53	6056600.97	325.66	209.00	-68.00	993.00
MB-21-225d1	640715.85	6056600.97	325.58	246.63	-72.47	1130.60

Drill Hole	UTM NAD 83 Zone13 Easting	UTM NAD83 Zone13 Northing	Elevation	Azimuth from True North Gyro	Dip	Length Drilled (m)
MB-21-229	640082.04	6056730.19	327.72	194.53	-71.90	1016.00
MB-21-230	640047.79	6056646.22	327.58	190.83	-72.30	855.00
MB-21-231	640525.88	6056462.42	319.78	190.30	-72.90	183.50
MB-21-231A	640525.88	6056462.43	319.78	190.93	-72.90	798.00
MB-21-232	640383.74	6056360.74	320.16	190.03	-72.90	585.00
MB-21-233	640483.87	6056882.32	319.04	189.03	-73.10	1204.00
MB-21-233w1	640483.87	6056882.32	319.04	189.03	-73.10	689.00
MB-21-234	640399.64	6056470.57	320.15	191.03	-73.90	735.00
MB-21-235	640384.53	6056729.28	319.36	190.83	-73.90	272.00
MB-21-236	640435.55	6056542.17	319.62	190.83	-74.00	801.00
MB-21-237	640384.5	6056729.07	319.33	190.93	-72.70	938.50
MB-21-238	640321.51	6056649.39	318.95	190.93	-73.20	825.00
MB-21-238w1	640321.51	6056649.39	318.95	190.93	-73.20	437.90
MB-21-239	640388.37	6056195.61	320.70	194.83	-74.00	399.00
MB-21-240	640251.22	6056499.49	319.68	182.13	-69.00	57.00
MB-21-240A	640251.10	6056498.95	319.60	181.73	-69.10	654.80
MB-21-241	640422.98	6056068.15	321.05	193.64	-80.10	275.00
MB-21-242	640147.84	6056895.90	329.67	182.93	-76.10	1008.00
MB-21-243	640770.11	6056694.32	328.66	217.43	-71.10	1014.00
MB-21-243d1	640770.11	6056694.32	328.66	217.43	-71.10	1092.00
MB-21-244	640149.15	6056703.08	328.99	183.03	-71.10	29.00
MB-21-244a	640149.20	6056703.22	329.08	183.00	-71.00	795.00
MB-21-244aw1	640149.15	6056703.08	328.99	183.00	-71.48	864.00
MB-21-245	640155.14	6056600.72	328.20	153.03	-72.00	777.00
MB-21-246	640152.40	6056767.30	329.54	215.93	-78.00	900.00
MB-21-246d1	640152.40	6056767.30	329.54	215.93	-78.00	954.00
MB-21-246d2	640152.40	6056767.30	329.54	215.93	-78.00	963.00
MB-21-247	640153.74	6056738.94	329.28	218.23	-78.00	906.00
MB-21-247d1	640153.74	6056738.94	329.28	218.23	-78.00	1005.00
MB-21-253	640142.00	6056415.00	325.00	171.03	-67.00	845.50
Total Metres						24,892.80

Table supplied by Foran in September, 2021.

It should be noted that the assay results from holes MB-21-230 and MB-21-253 were not available in time for the data cut-off for the 2021 resource estimate. Both of these holes are located outside the ore shells constructed for the 2021 resource estimate.

Figure 10.3
Drill Collar Locations for the 2021 Drilling Program

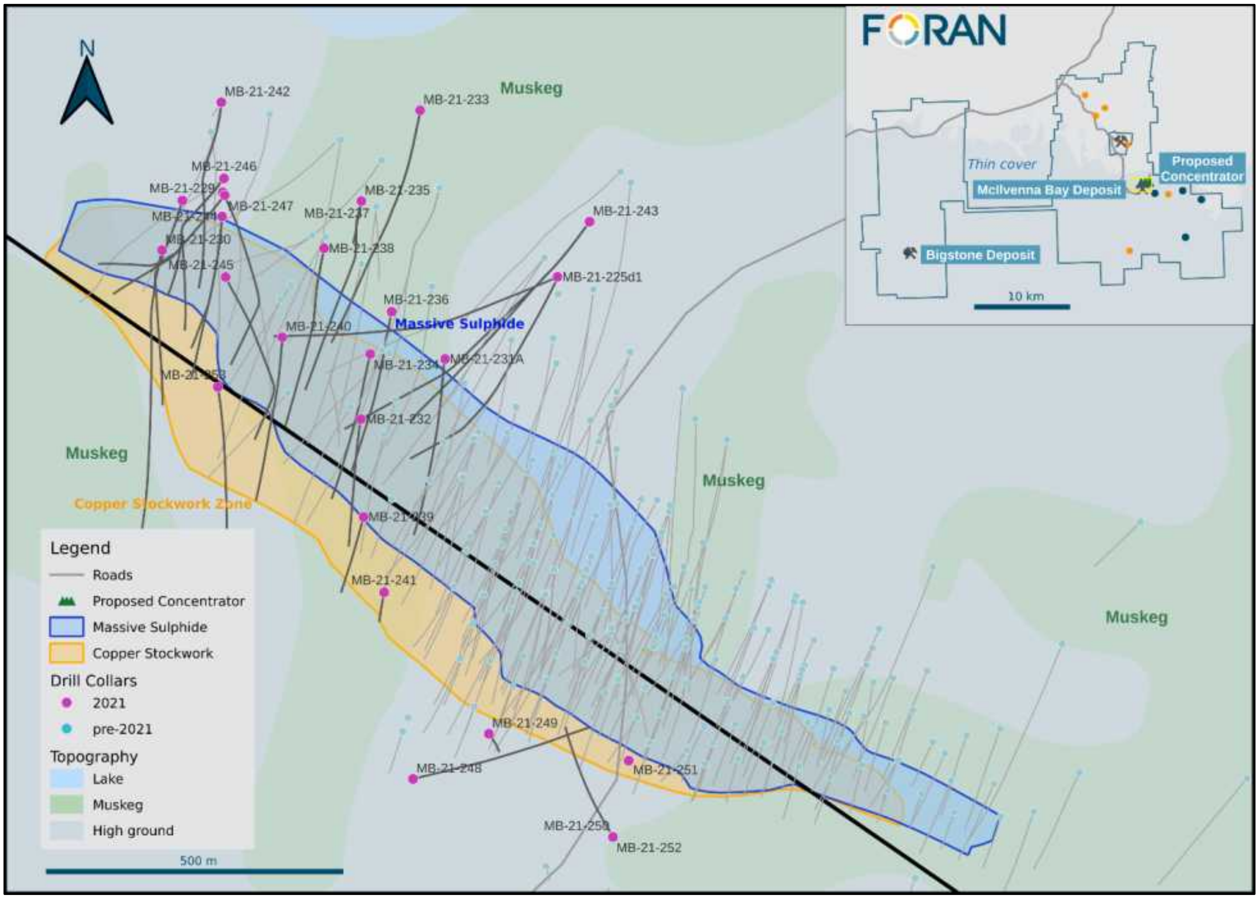


Figure supplied by Foran in November, 2021.

Drill hole collars were located in the field by a Foran geologist utilizing a differential GPS and then aligned along the correct azimuth using a TN41 Gyrocompass from Reflex Instruments. The drill holes were started with HQ sized core and drilled until they passed through the dolomite cap rock and sand layer and/or through the regolith. Once into solid bedrock, the rod string was reduced to NQ size and the holes were drilled to depth, leaving the HQ rod string as casing. At the completion of the drilling, the hole was surveyed with a north-seeking Gyro tool to provide an accurate trace of the hole at depth.

For the 2021 drill program, all drill holes were completed using the ACT III digital core orientation system from Reflex Instruments to provide oriented drill core. This process provides valuable information on the true orientation of structures in the ground and greatly assists in the interpretation of the geology of the deposit.

Once the core was received at the McIlvenna Bay core shack and oriented (as described above), geological and geotechnical core logging was completed. GeoSpark core logging software (used under license from Geospark Consulting Inc.) was used to collect the pertinent geological data from the drill core, along with a detailed description of the rock units and sample information. All drill core was logged by Foran employees at the McIlvenna Bay core shack.

10.4 MICON QP COMMENTS

Micon's QP has reviewed and discussed the drilling programs with Foran personnel, both during the 2018 site visit and at other times throughout its audit and review of the mineral resource estimate. Micon's QP believes that the programs have followed the best practice guidelines as outlined by the CIM for exploration.

In the opinion of Micon's QP for this section, Foran has achieved its objective of outlining the overall extent of the mineralization in the McIlvenna Bay deposit with its diamond drilling programs. The deposit is still open at depth, both down plunge and down dip. The drilling programs on the McIlvenna Bay deposit were sufficiently extensive to be used as the basis of a mineral resource estimate at the McIlvenna Bay Project.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

Section 11.1 was extracted from the previous 2014 JDS Technical Report for the McIlvenna Bay Project and updated or edited by the Micon QP where necessary.

11.1 SAMPLE PREPARATION ANALYSIS AND SECURITY (1988 TO 2013)

This section describes, to the best of RPA's knowledge, the historical procedures employed initially by Cameco and later by Foran.

11.1.1 Cameco (1988 to 1991)

For Cameco's exploration up to 1991, little information is available for the security measures employed, QA/QC procedures, and who actually prepared the samples. The samples of sawn core were initially sent to TSL Laboratories Inc., (TSL) in Saskatoon. Each sample was crushed to a minimum of 60% passing -10 mesh and was split, with the rejects being stored at TSL's laboratory. A split portion, approximately 250 g, was pulverized to 90% passing -150 mesh. The split halves were assayed by standard Atomic Absorption (AA) techniques for zinc, copper, silver and lead and by fire assay-atomic absorption (FA-AA) for gold. When the initial assay samples exceeded 1% Zn, 1% Cu, or 1 g/t Au, the sample was re-analysed. Samples from HA-01 to HA-06 were assayed at TSL. The remainder of the samples from HA-07 through HA-67 were assayed at Eco-Tech Laboratories (Eco-Tech) in Creighton, Saskatchewan. A total of 152 check assays were performed at TSL, Bondar-Clegg & Company Ltd. (Bondar-Clegg) in Ottawa, and TerraMin Research Labs Ltd. (TerraMin) (Calgary). Cameco was pleased with the Eco-Tech results and believed that TSL returned somewhat lower values for zinc and, to a lesser extent, copper during check assays (MRDI, 1998).

Eco-Tech, Bondar-Clegg and TerraMin were independent laboratories which historically serviced the mining industry. TSL is still currently operating in Saskatoon. Discussions related to the independence and certification of these laboratories is covered in Section 11.2.

11.1.2 Foran (1998 to 2000)

The bulk of the assaying from the early Foran drilling programs was done at TSL. Once sawn, individual samples were packaged in individual plastic sample bags, which were sealed with packing tape, boxed, and taken directly by a Foran representative from the field to Creighton, Saskatchewan. The boxes were shipped via bus to Saskatoon, where a representative from TSL collected the boxes and brought them to the laboratory.

At TSL, each sample was crushed to a minimum of 60% passing -10 mesh and then split, with the rejects being stored at TSL. A split portion, approximately 250 g, was pulverized to 90% passing -150 mesh. All samples were analysed for copper, zinc, lead, gold and silver, while samples from holes MB-99-78 through 125 were also analysed for iron and sulphur. All samples were also analysed by a 31-element

ICAP scan that was completed at the TSL laboratory. Copper, lead, zinc and silver analyses were done by Atomic Absorption Spectrophotometry, while the gold was determined by standard FA procedures.

One in ten samples assayed by TSL was shipped to the Saskatchewan Research Council's Geoanalytical Services Laboratory (SRC) in Saskatoon for check assaying. In the case of a discrepancy between the original and check assay results, the sample was rechecked by XRAL Laboratories Ltd. (XRAL) in Toronto to determine the most accurate result. In its signed assay reports, TSL included the analytical results of all internal repeat samples (duplicates) and TSL in-house or Certified Reference Material standard samples inserted into the assaying sequence. Foran's experience was that for most elements, TSL assayed very slightly lower (<10% difference) than the corresponding assay done at the SRC. Generally, zinc, lead and silver assays were less than 10% lower at TSL than at SRC, copper assays were less than 5% lower, and gold results were comparable (Lemaitre, 2000).

During the time periods noted, it is not known what the certifications were for the various laboratories mentioned.

The QA/QC procedures used by Foran were not as rigorous as one might expect in a current program. Nonetheless, RPA believed that the work was done in accordance with the best practices of the time and that the results should be reliable.

11.1.2.1 Specific Gravity Determinations

From holes MB-99-87 to MB-99-125, Foran had specific gravity determinations of each sample done by TSL using the weight in water – weight in air method on the intact core sample. Holes MB-99-78 to MB-99-86 did not have any specific gravity determinations but did have iron and sulphur analytical data. Holes prior to MB-99-78 do not have any specific gravity determinations or any sulphur analytical data.

11.1.3 Foran (2007 to 2008)

For the Foran drilling in 2007 and 2008, core was split using a diamond saw. Sampling was done on a range of intervals up to a maximum of 1.24 m, often with breaks at lithological and mineralogical contacts. Assay tags were stapled into the boxes.

Samples were analysed at TSL for gold, silver, copper, lead and zinc by AA with a four-acid digestion. Samples were analysed for gold, silver, copper, lead and zinc in all holes except MB 07 135. Over limit gold and silver were rerun using fire assay of a 30 g aliquot with a gravimetric finish. All samples were crushed to 70% -10 mesh, riffle split to a 250 g sub sample, which was then pulverized to 95% -150 mesh.

Samples were in the custody of Foran personnel or their designates until delivered to the laboratory. The site is fairly remote and, while not fenced, was continually supervised and relatively immune to incursions from unauthorized personnel.

There is no record in the database of any independent assay QA/QC protocols applied for these programs. In RPA's opinion, this was a significant deviation from industry best practices, which impacts on the overall perceived reliability of the assay database. It is noted that assay QA/QC protocols have since been adopted by Foran, and this is viewed as a positive step. It is also noted that, in 2011, Foran checked the sampling, re-logged the core, and did some re-sampling of the 2007-2008 holes. There was good agreement with the sample and logging records and therefore, there is no reason to suspect that the assay work done in 2007-2008 is sub-standard. Based on subsequent reviews of Foran's database it is the opinion Micon's QP that the issues noted by RPA regarding the historical database have been addressed through subsequent relogging, sampling and QA/QC programs. It is the Micon QP's opinion that Foran's subsequent QA/QC programs follow industry best practices.

11.1.4 Foran (2011 to 2013)

The initial winter 2011 program was managed under contract to Equity Exploration Consultants Ltd. Subsequent to that, all exploration work was managed by Foran personnel.

Up until the latter part of the 2011 program, holes were logged in a dedicated facility established in an old office building. At the time of the last RPA site visit, Foran was in the process of moving to a new building, constructed specially for core handling. This facility has been fully configured and is presently in use.

Core was logged for lithology, mineralization and alteration. Geotechnical measurements included recovery, Rock Quality Designation (RQD), and magnetic susceptibility. All core was photographed prior to sampling. The sampling was done using a diamond saw. The maximum sample length was standardized to one metre, with breaks at lithological and mineralogical contacts. Routine bulk density measurements were taken from intact core specimens.

RPA inspected several sampled intervals and considered the sampling to have been done properly, in a manner appropriate for the deposit type and mineralization style. In RPA's opinion, the orientation and distribution of the samples are such that they will be representative of the deposit. Micon's QP has conducted extensive reviews of Foran's sampling practices both during the site visits and subsequent discussions with Foran personnel and have found that the sampling practices are appropriate for both the deposit type and the mineralized intervals encountered.

Drill core from early programs was either stored in racks or cross-stacked boxes on site. Foran has collected the cross-stacked core, re-boxed it, and placed it in racks. The older Cameco core, although in racks, is exposed to the elements and has suffered some degradation as a result. Foran personnel have reportedly begun re-boxing and storing this core as well.

Assay QA/QC protocols were introduced, in the winter of 2011, which comprised inclusion of a blank, standard and duplicate into the sample stream at a nominal rate of one for every 20 samples. Duplicates comprised both quarter-cores (field duplicates), as well as splits from pulps (preparation duplicates) which were inserted on a rotating basis. The duplicates were taken at a rate of one in 20 samples; however, they alternated between field and preparation duplicates. Following the winter 2011 program, the protocol was revised slightly so that the laboratory duplicates were completed by taking a second pulp from the sample reject material, rather than a second split from the pulp.

Material for the blanks consisted of locally obtained barren carbonate rock. The standards comprised eight different commercially prepared reference standards, listed below in Table 11.1.

The samples were analysed at TSL for Cu, Zn, Pb and Ag by AA following four-acid digestion, as described above. Samples were analysed for Au using fire assay with AA finish and over-limits for Au were re-assayed by fire assay with gravimetric finish. All samples were also routinely analysed separately by a 30 element ICP package, following Aqua Regia digestion, for trace metal concentrations. A 30 g aliquot was used for the FA-AA analyses, and a 58.32 g aliquot was used for FA-gravimetric assays. As with the 2007-2008 programs, all samples were crushed to 70% -10 mesh, riffle split to a 205 g subsample, which was then pulverized to 95% -150 mesh.

Table 11.1
Reference Standards – 2011 to 2013 Program

Standard	Au (ppb)		Ag (ppm)		Cu (%)		Pb (%)		Zn (%)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GBM909-11			25.5	1.7	0.5344	0.0195	0.2074	0.0103	1.9486	0.0591
GBM909-12			51.7	3	1.083	0.0339	0.4191	0.0141	4.0073	0.1348
GBM909-13			127.3	6.8	3.2093	0.1295	0.8513	0.0327	6.8362	0.2363
G310-4	430	30								
CDN-ME-11	1,380	100	79.3	6	2.44	0.11	0.86	0.1	0.96	0.06
CDN-ME-17			38.2	3.1	1.36	0.1	0.676	0.054	7.34	0.37
GLG307-1	2.86	1.7								
CDN-GS-P7B	710	70	13.4	1.6						
CDN-FCM-7	896	84	64.7	4.1	0.526	0.026	0.629	0.042	3.85	0.19
CDN-ME-18	512	70	58.2	5.1	1.931	0.086	0.098	0.012	4.6	0.22

Source: RPA, Rennie, 2011

Notes: Standard deviations (SD) are provided by the manufacturer and are derived from umpire assays of the standards. They provide a basis for derivation of error limits. In this table SD refers to +/-2 SD, which is the error limits provided by the manufacturer for the standard based on the results of round-robin testing.

The above table and notes were extracted from the 2015 Technical Report and modified as required.

The QA/QC results were gathered and collated to check for failures. Duplicates were plotted on diagrams, comparing the absolute relative difference between duplicate pairs with the mean of the pair. Reasonable agreement was obtained for both the field and prep duplicates.

Blanks and standards were plotted in chronological order and compared with the nominated values and acceptable error limits. For blanks, all values returned were very low and there were no failures. A number of standards failures were reportedly obtained during the 2011 winter program, which resulted in re-assay of partial batches (batch of 20 samples in the sample stream surrounding failure).

In three cases, the failure was determined to have resulted from improper labelling of the standards packets. In all other cases, the batches of samples passed on re-assay and those results were used in the database.

There were two standard failures during the summer 2011 program. In both cases, batches of 20 samples surrounding the failure were re-assayed. The batches passed on re-run and the results of these re-runs were used in the database.

Three standards and one blank failure were obtained in 2012, which resulted in the re-run of the affected batches. The results passed for all samples on re-run and the revised data was incorporated into the database. One batch from the 2013 winter program was re-run owing to a standard failure.

RPA reviewed the assay QA/QC results for the 2011, 2012, and 2013 programs and concluded that there were no concerns evident.

Equity personnel re-logged five of the seven 2007-2008 drill holes in 2011 and updated the geology, geotechnical data and verified the sample intervals. The core was reported to be completely intact and sample intervals were easily checked with no discrepancies noted. Samples were focused on the mineral zones, with one or two shoulder samples from the adjacent rocks. All analytical certificates were available from TSL and corresponded to the sample numbers in the core boxes.

Foran has continued with re-logging of portions of holes in order to help resolve complications in the geological interpretations.

11.1.4.1 Specific Gravity Determinations

At the time of the resource update, Foran had collected 1,085 density measurements from core specimens. RPA plotted scatter diagrams of the measured density against the sample metal grades and found a reasonably robust linear relationship between density and zinc grade. A regression formula was derived in order to estimate block density from the interpolated zinc grades. This formula is as follows:

$$SG = (0.075 \times Zn) + 2.8124$$

The density for each block was calculated from the interpolated zinc grade.

Foran subsequently made many more density measurements, and by the end of 2013, there were 2,501 determinations in the database. RPA recommended that the regression formula be updated with this more recent data.

In RPA's opinion, Foran's logging, sampling, and assaying protocols were consistent with good industry practice. The QA/QC program, as designed and implemented by Foran was adequate and the assay results within the database are suitable for use in a mineral resource estimate. In the opinion of the Micon QP, who further reviewed Foran's historical and current logging, sampling, and assaying protocols are that they remain consistent with good industry practice. The QA/QC program, as designed and implemented by Foran prior to 2013 was adequate and the assay results within the database are suitable for use in a mineral resource estimate.

11.2 Micon QP Comments on Sample Preparation Analysis and Security (1988 to 2013)

Where possible Micon's QP was able to review the work conducted by RPA that was commented on in the 2015 JDS Technical Report and agrees with RPA's opinion that it was suitable as the basis upon which to conduct a mineral resource estimates. Micon's QP notes and is of the opinion that while RPA is not a qualified person as NI 43-101 defines the term it was historically common practice by QPs of consulting firms to use the name of the firm when opining on items in NI 43-101 reports.

11.2.1 Notes Regarding Assay Laboratories

TSL's quality control system conforms to the requirements of ISO/IEC Standard 17025 guidelines and, in April, 2004, it received its certificate stating accreditation for specific tests from the Standards Councils of Canada, Laboratory Number 538. TSL participates in the proficiency testing program sponsored by the Canadian Certified Reference Materials Project. TSL has qualified for Certificates of Laboratory Proficiency since the program's inception in 1997, and this program is a requirement of its ISO/IEC 17025 accreditation. TSL is independent of both Micon and Foran.

Bondar-Clegg & Company Ltd. (Bondar-Clegg) was an independent commercial assay laboratory company which was taken over by ALS Chemex Labs Ltd. in December, 2001. There is no information available regarding Bondar-Clegg certifications.

Eco-Tech Laboratories in Creighton, Saskatchewan was an independent commercial assay laboratory company which appears to have been struck off the public company registry in Saskatchewan as noted in Part 1 of the December 27, 2002 Sask Gazette. There is no information available regarding Eco-Tech certifications.

No information was obtained regarding TerraMin Research Labs Ltd. of Calgary, Alberta. and it appears this laboratory is no longer operating. There is no information available regarding TerraMin certifications.

XRAL Laboratories Ltd. (XRAL) was purchased by the SGS Group in 1988. XRAL was an anacronym that stood for X-Ray Assay Laboratories Ltd. There is no information available regarding XRAL certifications.

All of the above laboratories are or were independent laboratories which charged a fee to process a sample. These laboratories are or were independent of Foran or the other companies which conducted work on the McIlvenna Bay Project. Micon's QP believes that the laboratories applied best practices in undertaking their assaying techniques and obtained any certifications necessary to operate as independent laboratories serving the mineral industry. However, historically the independent mining laboratories were not certified and maintained round robin studies[2] with other laboratories, as well as internal standards.

11.3 Sample Preparation Analysis and Security (2018 to Present)

For the 2018 through 2021 programs, drilling was completed using NQ size diamond drill core for all holes. During the logging process, mineralized intersections were marked for sampling by the geologist and given a unique sample number. The samples were sawn in half with a diamond saw blade and the sample interval and sample number were marked on a metal tag that was stapled into the core box at the start of the sample interval as a permanent record. Half NQ core was placed in plastic bags with the sample tag, sealed and submitted for assay, while the second half was returned to the core box for storage on site. The sealed plastic sample bags were placed in labelled rice sacks for hand delivery to TSL by Foran employees. Samples generally averaged one metre in length in homogeneous material, with a maximum of 1.5 m or a minimum of 0.20 m taken in select circumstances, if required, to conform with geological contacts and/or mineralized zones. Under no circumstances were samples taken across geological boundaries.

QA/QC measures employed by Foran included the insertion of one certified standard, one blank (barren dolomite) and one laboratory duplicate within every sequence of 20 samples, similar to previous programs completed since 2011. Part-way through the winter 2018 program, however, it was decided to increase the number of duplicate analyses completed by the assay laboratory. This resulted in a revised protocol which consisted of the use of seven standards of varying grades (high, medium, low), two blanks and two field duplicates inserted in the sample stream for every 100 samples. A list of the certified standards used for the program is provided in Table 11.2.

At the laboratory, a second split was taken from the initial pulp for every tenth sample processed, to represent a pulp duplicate, and a second pulp was created from the original reject for every 11th sample as a prep duplicate. These samples were analysed in sequence with the original sample stream. All QA/QC reference material was checked for compliance, prior to compiling the assay data and any batches with failures of QA/QC material were re-run by the laboratory.

The 2018 samples were analysed at TSL for Cu, Zn, Pb and Ag by AA following four-acid digestion. Samples were analysed for Au using fire assay with AA finish and over-limits for Au (>1 g/t) were re-

[2] A round robin study, or interlaboratory study (ILS), is an experimental methodology to determine reproducibility of a "process" where tests are performed independently multiple times and the results are analyzed statistically to assess their variability.

assayed by fire assay with gravimetric finish. All samples were also routinely analysed separately by a 30 element ICP package following Aqua Regia digestion for trace metal concentrations. A 30 g aliquot was used for the FA-AA analyses, and a 58.32 g aliquot was used for FA-gravimetric assays. As with the 2007-2013 programs, all samples were crushed to 70% -10 mesh, riffle split to a 205 g subsample, which was then pulverized to 95% -150 mesh.

Table 11.2
Reference Standards – 2018 Program

Standard	Au (ppb)		Ag (ppm)		Cu (%)		Pb (%)		Zn (%)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CDN-ME-11	1,380	100	79.3	6	2.44	0.110	0.86	0.1	0.96	0.06
CDN-ME-17	452*	58	38.2	3.1	1.36	0.100	0.676	0.054	7.34	0.37
CDN-FCM-7	896	84	64.7	4.1	0.526	0.026	0.629	0.042	3.85	0.19
CDN-ME-18	512	70	58.2	5.1	1.931	0.086	0.098	0.012	4.60	0.22
CDN-ME-1410	542	48	69	3.8	3.80	0.170	0.248	0.012	3.682	0.084
CDN-ME-14	100*	20	42.3	4.2	1.22	0.078	0.495	0.030	3.10	0.28
CDN-ME-1705	3,660	210	78.3	6.4	1.35	0.050	0.058	0.004	0.71	0.04
CDN-ME-1406	678	54	57.1	3.7	0.32	0.012	0.485	0.026	2.27	0.08
OREAS 622	1,850	132	102	6.6	0.486	0.016	2.210	0.134	10.24	0.36
CDN-ME-1707	2,020	214	27.9	2.9	2.72	0.11	0.097	0.006	0.539	0.016

Notes: Standard deviations (SD) are provided by the manufacturer and are derived from umpire assays of the standards. They provide a basis for derivation of error limits. In this table SD refers to +/-2 SD, which is the error limits provided by the manufacturer for the standard based on the results of round-robin testing.

A total of 1,562 samples (including all QA/QC materials) were analysed during the 2018 Phase I program and there were seven standard failures reported from the assaying. The first failure occurred while the historic QA/QC protocols were still in effect, so a batch of 20 samples surrounding the failed standard was re-run. All other instances occurred once the new QA/QC protocols had been established and, in these cases, a group of seven samples was re-run (three samples either side of the failure in the sample stream). In all cases, the standard material passed on re-run and the revised assay results for these samples were incorporated into the database.

A total of 1,550 samples (including all QA/QC materials) were analysed during the 2018 Phase II program and there were ten standards and three blanks that failed QA/QC protocols during the program. These failed samples and their surrounding groups of samples (generally three samples either side) were re-assayed by the laboratory. In all cases the batches of samples passed on re-run and the revised assay results for these samples were incorporated into the database.

For the 2021 program, sampling followed the revised QA/QC protocols established during the latter part of the 2018 program. For the 2021, program five certified standards were employed, as described in Table 11.3. Samples were analysed at TSL for Cu, Zn, Pb, and Ag by AA following four-acid digestion.

Samples were analysed for Au using fire assay with AA finish and over-limits for Au (>1 g/t) were re-assayed by fire assay with gravimetric finish. All samples were also routinely analysed separately by a 30 element ICP package following Aqua Regia digestion, for trace metal concentrations. A 30 g aliquot was used for the FA-AA analyses, and a 58.32 g aliquot was used for FA-gravimetric assays. As with the 2007-2018 programs, all samples were crushed to 70% -10 mesh, riffle split to a 205 g subsample, which was then pulverized to 95% -150 mesh.

Table 11.3
Reference Standards – 2021 Program

Standard	Au (ppb)		Ag (ppm)		Cu (%)		Pb (%)		Zn (%)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CDN-ME-1410	542	48	69	3.8	3.80	0.170	0.248	0.012	3.682	0.084
CDN-ME-1705	3,660	210	78.3	6.4	1.35	0.050	0.058	0.004	0.71	0.04
CDN-ME-1406	678	54	57.1	3.7	0.32	0.012	0.485	0.026	2.27	0.08
OREAS 622	1,850	132	102	6.6	0.486	0.016	2.210	0.134	10.24	0.36
CDN-ME-1707	2,020	214	27.9	2.9	2.72	0.11	0.097	0.006	0.539	0.016

Notes: Standard deviations (SD) are provided by the manufacturer and are derived from umpire assays of the standards. They provide a basis for derivation of error limits. In this table SD refers to +/-2 SD, which is the error limits provided by the manufacturer for the standard based on the results of round-robin testing.

A total of 3,338 samples (including all QA/QC materials) were analysed during the 2021 program and there were five standards, four blanks and one duplicate failure reported from the assaying. In all instances, a group of seven samples was re-run (three samples either side of the failure in the sample stream). In all cases, the standard material passed on re-run and the revised assay results for the re-run samples were incorporated into the database.

11.3.1 Specific Gravity Determinations

A number of additional specific gravity measurements were completed on intact core during the 2018 program, both through the continued routine measurement of individual core pieces for the different rock units during the logging process, as well as the collection of 'bulk' specific gravity measurements for complete samples. Specific gravity data were collected on intact core using the weight in water – weight in air method. For the 'bulk density' measurements, an apparatus was set up for the weight scale in the core shack utilizing a large basket, which allowed entire sample intervals to be weighed at once and, therefore, provide a much more representative value.

The database for the deposit consists of 4,435 specific gravity measurements from individual core samples taken from all lithologies in the deposit area, measured either on site or at the assay laboratory. The database also includes 1,932 bulk specific gravity measurements collected for complete sample intervals from the mineralized zones of 61 drill holes spread spatially through the deposit. As discussed above, the bulk density measurements were taken on complete sample intervals and are much more representative of the density of the mineralized material in the ground than small randomly selected core pieces.

During the 2021 program, Foran continued the protocol of collecting 'bulk density' measurements for all assay samples collected during the program, using the same weight in water - weight in air method. Overall, a total of 1,861 samples were measured during the 2021 program and added to the project database.

11.4 MICON QP COMMENTS ON SAMPLE PREPARATION ANALYSIS AND SECURITY (2018 TO PRESENT)

Micon's QP was able to review the work conducted by Foran on its 2021 drilling programs and is of the opinion that the QA/QC programs have been conducted in line with CIM best practices. Also, Micon's QP reviewed the work that had been conducted during the prior exploration programs and, as noted in the prior 2019 Technical Report, those programs had been undertaken in line with CIM best practices. Therefore, Micon's QP believes that the work undertaken by Foran is suitable for use in as the basis of a mineral resource estimate on the McIlvenna Bay Project.

12.0 DATA VERIFICATION

12.1 GENERAL

This is Micon's second Technical Report disclosing a mineral resource estimate for Foran, with the first being the 2019 Technical Report.

The QPs responsible for the preparation of this report and their areas of responsibility and site visits are noted in Table 12.1.

Table 12.1
Qualified Persons, Areas of Responsibility and Site Visits

Qualified Person	Title and Company	Area of Responsibility	Site Visit
William J. Lewis, B.Sc. P.Geo.	Senior Geologist, Micon	1 through 12 (except 1.7 and 12.3 to 12.5), 14 (except 14.4 to 14.7, 14.8.1, 14.9.2 and 14.10) and 23 through 28	2018/08/16 to 2018/08/18 and 2021/11/17 to 2021/11/19
Ing. Alan San Martin, MAusIMM(CP)	Mineral Resource Specialist, Micon	12.3, 12.4, 14.4 to 14.7, 14.8.1, 14.9.2 and14.10,	None
Lyn Jones, P.Eng.	Manager, Process Engineering, Blue Coast	1.7, 12.5 and 13	None
NI 43-101 Sections not applicable to this report		15,16,17,18,19,20,21 and 22	

Messrs. Lewis and San Martin are employees of Micon. Mr. Lyn Jones is an employee of Blue Coast.

12.2 SITE VISITS

12.2.1 2021 Site Visit

Micon's QP conducted a site visit from November 17 to November 19, 2021. The site visit was undertaken to independently verify the geology and QA/QC programs. No samples were taken during the 2021 site visit since verification of the mineralization occurred during the 2018 site visit.

The QP notes that Foran's 2021 drilling program consisted of the following:

1. The majority of the drilling was infill drilling to upgrade inferred resources into indicated resources at depth. This involved both drilling new holes from surface between existing holes and wedging off from existing drill holes at various depths and orientations.
2. A smaller number of new drill holes were conducted to extend the deposit in the existing down dip and down plunge direction of the mineralized trend. These holes hit the targeted mineralization as predicted, demonstrating the continuation of the mineralization at depth along the down dip and down plunge direction.

3. The 2021 drilling program was focussed on the main McIlvenna Bay deposit and other known mineralized zones on the property were not drilled.

Foran and Micon jointly reviewed the best locations for the 2021 drilling infill and extensional drill holes, to maximize the potential coverage of the drilling program. Micon's assistance to Foran involved taking the current drilling database and deposit model and using that information to conduct the potential placement of either new drill holes or wedge holes collared at various depths off previous drill holes. Once the initial work was completed, this information was delivered to Foran so that it could make the final determination as to which drill holes they were going to complete.

During the site visit mineralized intervals for the following drill hole s were reviewed:

- MS-21-231 A
- MS-21-243 D1
- MS-21-246 D2
- MD-21-251

Th drill logs were found to be consistent with the mineralization observed in the drill core while. No drilling was being conducted on site during the 2021 site visit.

The 2021 site visit was conduced with the assistance of Brian Janser and Mike Schamborzki of Foran, who were in the camp at the time of the site visit.

Drill site drone footage of the drill sites was reviewed but the drill platforms have been reclaimed using the trees that were knocked down during drill pad construction. The trees have been redistributed over that area of the drill pads (Figure 12.1 and Figure 12.2). The first snowfall of the season occurred prior the QP arriving at the exploration camp, and it was deemed unsafe to visit the reclaimed drill pads due to the potential tripping hazards obscured by the masses of dead trees located on the pads.

Figure 12.1
Drone View of the Reclaimed Drill Hole Site for MB-21-230

Foran drone photograph, November 2021.

Figure 12.2
Drone View of the Reclaimed Drill Hole Site for MB-21-253

Foran drone photograph, November 2021.

12.2.2 2018 Site Visit

A previous site visit was conducted between August 16 and August 18, 2018, during which the McIlvenna Bay property was inspected, and various aspects of the Project were discussed. The exploration programs for the Project were also discussed in detail. The onsite exploration QA/QC procedures were reviewed and discussed during a review of the core logging and sampling procedures at the core logging facility.

Mr. Lewis conducted the site visit with the assistance of Roger March, P.Geo., Vice President of Exploration for Foran.

Figure 12.3 shows the core storage area at Foran's McIlvenna Bay camp during the 2018 site visit. This storage area holds both the historical core, as well as the core from Foran's previous drilling programs.

Figure 12.4 shows the buildings used to log core and prepare samples at Foran's McIlvenna Bay camp.

Figure 12.5 shows one of the drills set up and drilling during the Micon site visit in August, 2018.

Figure 12.3
The 2018 Core Storage Area at Foran's McIlvenna Bay Camp

Figure 12.4

Buildings Related to Logging and Sample Preparation at Foran's McIlvenna Bay Camp in 2018

Figure 12.5

Drill Set-up and Drilling During the 2018 Micon Site Visit

After the 2018 site visit, Micon's QP, Mr. Lewis, selected 13 random reject core samples from Foran's McIlvenna Bay drilling samples located at TSL in Saskatoon. Micon requested that TSL re-assay the selected samples and send the results to Micon's Toronto office. The TSL sample preparation procedures and standard assaying procedures are summarized in Table 12.2.

Table 12.2
TSL Sample Preparation and Standard Assaying Procedures

Procedure	Sample Type	Number of Samples	Size Fraction		Sample Preparation
Preparation	Reject	13	Reject approx. 70% - 10 mesh (1.70 mm)		Riffle Split, Pulverize
			Pulp approx. 95% - 150 mesh (106 µm)		
Assay	Element Name	Unit	Extraction Technique	Lower Detection Limit	Upper Detection Limit
	Au	ppb	Fire Assay/AA	5	3,000
	Au	g/t	Fire Assay/Gravimetric	0.03	100 %
	Ag	g/t	HNO_3-HF-$NClO_4$-HCl/AA	1	1,000
	Cu	%	HNO_3-HF-$NClO_4$-HCl/AA	0.01	80
	Pb	%	HNO_3-HF-$NClO_4$-HCl/AA	0.01	80
	Zn	%	HNO_3-HF-$NClO_4$-HCl/AA	0.01	80
Samples for Au Fire Assay/AA (ppb) are weighed at 30 grams.					
Samples for Au Fire Assay/Gravimetric (g/t) are weighed at 1 AT (29.16 g).					
Samples for Ag (g/t), Base Metals (%) are weighed at 0.5 g.					

Table 12.3 summarizes the 13 random reject core samples and descriptions chosen by Micon for re-assaying. All samples were taken from one drill hole, but the samples represent the different mineralized zones encountered by the drill hole and also represent various grade ranges.

Table 12.3
Random Reject Core Samples Re-Assayed at Micon's Request

Drill Hole	Mineralized Zone	Sample Number	From (m)	To (m)	Interval (m)
HA-18-045w1	Upper Sx Zone	780581	514.70	515.70	1.00
		780583	516.30	516.80	0.50
		780584	516.80	517.80	1.00
	UWZ	780588	519.34	519.55	0.21
		780593	521.38	521.96	0.58
		780597	523.53	524.30	0.77
	CS	780600	526.25	526.72	0.47
		780604	528.50	528.82	0.32

Drill Hole	Mineralized Zone	Sample Number	From (m)	To (m)	Interval (m)
		780607	530.22	530.90	0.68
		780608	530.90	531.27	0.37
		780609	531.27	532.30	1.03
		780614	535.10	536.10	1.00
		780618	538.10	539.10	1.00

Table 12.4 summarizes the results of Micon's re-assaying of the 13 samples chosen from Foran's samples originally submitted for assaying by TSL. Three samples were also chosen for specific gravity measurement.

Micon also requested that TSL perform a Multi-Element ICP analysis of the samples using Aqua Regia digestion of the samples.

The ICP-AES, Aqua Regia Leach digestion ($HCl-HNO_3$) liberates most of the metals noted in, Table 12.5 except those marked with an asterisk where the digestion will not be complete.

Table 12.6 summarizes the assays for the elements using the Multi-Element ICP analysis of the samples using Aqua Regia digestion.

The TSL internal quality control system conforms to the requirements of ISO/IEC Standard 17025 guidelines and, in April, 2004, TSL received its certificate stating accreditation for specific tests from the Standards Councils of Canada, Laboratory Number 538. TSL participates in the proficiency testing program sponsored by the Canadian Certified Reference Materials Project. TSL has qualified for Certificates of Laboratory Proficiency since the program's inception in 1997, and this program is a requirement of its ISO/IEC 17025 accreditation. TSL is independent of both Micon and Foran.

12.3 2019 Database Review

Micon received the earlier database on January 7, 2019, in which the data were organized in multiple Excel files. Micon proceeded to compile and review the data. No errors were found, however, drill hole MB-99-108 was ignored because of the suspicious collar and down the hole survey location. During the construction of the wireframes, a few records were changed in the mineralized zones table to improve the 3D interpretation of the envelopes.

Micon had previously undertaken an extensive review of Foran's database, as part of an independent internal review of its McIlvenna Bay Project. Micon was, therefore, familiar with the database prior to undertaking the independent review and audit of the current mineral resource estimate.

12.4 2021 Database Review

Micon's QPs received a number of updates to the Foran database in 2021, as information related to the drilling became available. The QPs verified that the information in the databases agreed with the original records a number of times as a result. No errors were found in the update to the Foran database. As a result, Micon's QP considers that the Foran database can be relied upon as the basis upon which to conduct an updated mineral resource estimate that, in turn, can be used as the basis for a Feasibility Study on the McIlvenna Bay Project.

12.5 2021 Metallurgical Review

Historical metallurgical testwork was carried out by ALS Metallurgy (ALS) of Kamloops, BC in 2012 and at Base Metallurgical Laboratories (BML), also of Kamloops, BC in 2016. The most recent testwork program was completed in 2019 at BML, and this work provides the basis for the metal recovery estimates included in Section 13.0.

Lyn Jones, P.Eng, is the QP for Section 13.0 and has reviewed the testwork reports from ALS and BML. Mr. Jones is of the opinion that the work performed is in accordance with the CIM Best Practice Guidelines for Mineral Processing.

12.6 Micon QP Comments

The Micon and its QPs responsible for reviewing both the exploration work and the mineral resource estimate have reviewed the material and database provided by Foran and found that the data were adequate for use in undertaking the updated mineral resource estimate on the McIlvenna Bay Project. The data provided by Foran are suitable to be used as the basis of a mineral resource estimate that can then be used as the foundation of Foran's ongoing work towards completion of a Feasibility Study for the McIlvenna Bay Project.

Table 12.4
TSL Results for the Thirteen Random Samples Chosen by Micon for Re-assaying

Sample Number	Micon Assay Results								Foran Original Assay Results				
	Au (ppb)1	Au1 (ppb)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Specific Gravity	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
780581	110			10.8	0.85	0.02	0.7	2.68	0.1	11.7	0.76	0.02	0.6
780583	140			20.5	2.29	0.02	2.23		0.11	19.6	1.92	0.01	1.83
780584	130			16.9	0.62	0.12	1.08		0.095	17.6	0.51	0.1	0.95
780588	620			45.7	0.77	0.88	10.3		0.56	45.5	0.73	0.75	9.98
780593	420			16.4	1.87	0.04	4.33		0.33	16.2	1.71	0.03	3.93
780597	>1,000	>1,000	1.37	34.2	3.25	0.27	2.57	3.08	1.23	34.2	3.06	0.23	2.63
780600	>1,000		7.27	44.8	5.36	0.05	0.38		6.86	39.9	5.02	0.04	0.4
780604	10			0.4	<0.01	<0.01	<0.01		0.005	0.9	0.005	0.005	0.005
780607	180			7.4	1.49	<0.01	0.06		0.14	3.3	1.38	0.005	0.05
780608	880			35.9	9.05	0.02	0.63		0.75	33.4	9.22	0.02	0.68
780609	320			6.5	1.5	<0.01	0.15	2.68	0.25	6.7	1.46	0.005	0.16
780614	150			3.6	0.66	<0.01	0.04		0.11	5.1	0.72	0.005	0.05
780618	35			2.2	0.65	<0.01	0.03		0.035	3.2	0.64	0.005	0.03
GS-1P5P	1,450												
GS-7E			7.34										
ME-8				61	0.1	1.94	2						
ME-1411				44.1	1.54	0.26	0.47						

Note 1: 1 ppm = 1 g/t = 1,000 ppb = 0.0001%

Table 12.5
Lower Detection Limits for Aqua Regia Leach Digestion

Element Name	Lower Detection Limit	Element Name*	Lower Detection Limit
Ag	0.3 ppm	Mo	1 ppm
Al*	0.01 %	Na*	0.01 %
As	2 ppm	Ni	1 ppm
Ba*	1 ppm	P*	0.001 %
Be*	1 ppm	Pb	3 ppm
Bi	3 ppm	S	0.05 %
Ca*	0.01 %	Sb	3 ppm
Cd	0.5 ppm	Sn*	5 ppm
Co	1 ppm	Sr*	1 ppm
Cr*	1 ppm	Ti*	0.01 %
Cu	1 ppm	V*	1 ppm
Fe*	0.01 %	W*	2 ppm
K*	0.01 %	Y	1 ppm

Element Name	Lower Detection Limit	Element Name*	Lower Detection Limit
Mg*	0.01 %	Zn	1 ppm
Mn*	2 ppm	Zr*	1 ppm

Note: * The elements marked with an asterisk indicate that the digestion will not be complete.

Table 12.6
Summary of Assay Values for the Multi-Element ICP Analysis, Aquia Regia Leach Digestion Method

Element	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu
Units	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
780581	10.1	4.00	10	28	16	24	0.57	22.9	27	35	8,172
780583	20.1	2.96	26	<20	63	6	0.30	80.3	48	62	>10,000
780584	14.8	3.30	30	<20	139	79	0.84	31.0	25	59	5,829
780588	42.0	0.84	202	24	10	64	5.98	302.6	51	34	6,831
780593	15.4	0.90	119	27	3	7	7.97	146.2	24	15	>10,000
780597	35.2	0.96	272	26	3	31	9.78	98.0	24	17	>10,000
780600	39.2	1.34	81	<20	30	72	0.05	18.2	87	59	>10,000
780604	<0.3	1.17	18	47	118	<3	0.33	<0.5	6	67	51
780607	6.1	2.15	27	35	49	28	0.07	3.4	27	61	>10,000
780608	33.0	1.40	140	27	22	42	0.03	33.5	77	77	>10,000
780609	5.9	2.14	73	39	40	32	0.06	5.4	53	61	>10,000
780614	2.2	2.74	29	<20	28	5	0.11	1.7	8	78	6,210
780618	2.0	2.15	5	23	9	4	0.04	1.3	13	70	6,216
Element	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P
Units	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	%
780581	10.53	25	<1	0.08	32	3.16	727	2	<0.01	2	0.003
780583	11.18	15	2	0.22	25	2.43	511	1	0.01	4	0.021
780584	8.57	16	<1	0.42	31	3.00	579	1	0.03	12	0.068
780588	18.64	34	27	0.02	14	4.24	1,097	2	<0.01	3	0.002
780593	16.53	21	7	0.01	16	6.42	1,443	2	0.01	2	0.002
780597	16.97	25	6	<0.01	20	6.33	1,353	<1	0.01	2	0.003
780600	14.76	13	2	0.21	12	1.06	101	1	<0.01	2	0.001
780604	1.98	6	<1	0.70	6	0.81	284	<1	0.07	7	0.042
780607	5.10	9	<1	0.40	14	1.79	171	1	0.01	1	<0.001
780608	14.80	15	1	0.14	9	1.14	118	1	<0.01	2	<0.001
780609	8.38	9	<1	0.23	16	1.66	247	<1	0.01	1	0.001
780614	4.84	14	<1	0.19	19	2.23	306	2	0.01	3	0.008
780618	3.79	10	<1	0.09	18	1.76	212	1	<0.01	2	0.001

Element	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	V	W	Zn
Units	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
780581	266	3.77	<3	<5	6	3	0.015	<5	<1	<2	6,393
780583	217	6.81	<3	<5	14	<2	0.022	<5	4	<2	>10,000
780584	1,230	4.09	<3	<5	41	<2	0.046	<5	23	<2	8,909
780588	8,864	>10.00	22	<5	50	<2	0.005	<5	1	<2	>10,000
780593	413	>10.00	17	<5	38	<2	0.006	<5	<1	<2	>10,000
780597	2,901	9.13	36	<5	52	<2	0.007	<5	<1	<2	>10,000
780600	453	>10.00	<3	<5	2	<2	0.013	<5	<1	<2	3,453
780604	28	0.14	<3	<5	8	<2	0.075	<5	26	<2	92
780607	84	2.18	<3	<5	3	<2	0.023	<5	<1	<2	604
780608	224	6.23	<3	<5	1	<2	0.009	<5	<1	<2	5,576
780609	67	4.59	<3	<5	3	<2	0.017	<5	<1	<2	1,451
780614	15	1.14	<3	<5	5	<2	0.011	<5	6	<2	518
780618	7	0.86	<3	<5	2	<2	0.007	<5	<1	<2	378

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The reader should note that this section retains the abbreviation CSZ rather than the current CS to denote the Copper Stringer Zone/Copper Stockwork Zone. This is due to the names of some of the metallurgical samples denoted using the previous CSZ abbreviation nomenclature.

13.1 INTRODUCTION

Metallurgical testing of McIlvenna Bay samples began in 2012 with a series of characterization tests completed by ALS Metallurgy (ALS) in Kamloops. The work was followed by additional metallurgical testing at Base Metallurgical Labs (BML) in 2016 and again in 2019. Several mineralogical assessments by Terra Mineralogical Services were completed in parallel. As of March, 2021, additional testwork is underway at BML to support the ongoing feasibility-level plant design.

The scope of work for the 2019 testwork program, "Feasibility Level Study of McIlvenna Bay", Base Met Labs Report #BL0351, July 28, 2019, (BL0351) was developed on the basis that mineralization from McIlvenna Bay would by processed either by HudBay's 777 mill (via a toll milling arrangement) or by a new purpose-built processing facility at the McIlvenna Bay mine site. The program focused initially on the performance benchmarking of three representative of mineralization types using the current 777 mill flowsheet, but also considered several flowsheet options. This allowed development of adequate design parameter definitions for the off-site milling option, as well as an optimized on-site processing facility. Key program objectives were to identify:

- Grade-recovery performance estimates for each major type of mineralization;
- If the massive sulphides could be co-processed with the copper stockwork, or whether separate circuits would be required;
- If the 777-concentrator flowsheet was appropriately configured for processing the McIlvenna Bay types of mineralization;
- Flowsheet requirements with mass and water balances and indicative reagent consumptions;
- Estimates of grindability requirements for each type of mineralization; and,
- Final concentrate and tailings characterizations.

The general approach to testing was to prepare representative master composites for each typeof mineralization, then proceed through open circuit rougher and cleaner flotation tests to identify and optimize flowsheet conditions and reagent schemes. Locked cycle tests were then conducted on the master composites to demonstrate the anticipated overall metallurgical performance within a continuous circuit. Sub-samples of individual drill hole material used to create the master composites were subsequently tested to provide variability data for feed grade and feed grade metal ratios, allowing assessment of flowsheet robustness and required reagent dosage ranges.

Tests were completed on blends of massive sulphide and copper stockwork mineralization to allow comparison with individual composite results and to assess the viability of co-processing the the different types.

Mineralogical assessments were undertaken to provide information to refine the grinding/flotation process during optimization, and to provide reasonable expectations for metallurgical performance versus mineral liberation and association, within each type. Samples from various open and locked cycle test products were used to provide characterization of final concentrates and tailings.

In March, 2021, a follow up test program was initiated at BML to support the upcoming feasibility study and advance the metallurgy in four key areas:

- Development and evaluation of the MBS depressant scheme to replace $ZnSO_4$/NaCN in the copper circuit;
- Development of the pyrite flotation circuit to generate a low sulphide tailings;
- Further evaluation of blended composites, including locked cycle testing; and,
- Additional downstream settling, filtration and paste testwork to support the feasibility level plant design.

This section highlights the most significant findings from the various studies, while the individual study documents referred to should be consulted for further details.

13.2 HISTORICAL METALLURGICAL TEST PROGRAMS

Two earlier studies were undertaken with respect to McIlvenna Bay samples, namely:

- "Scoping Level Metallurgical Assessment of the McIlvenna Bay Project", Foran Mining Corporation, KM3125 ALS Metallurgy – G&T Metallurgical Services, May 28, 2012 (KM3125).
- "Phase II Metallurgical Assessment McIlvenna Bay Deposit", BL0103, Base Met Labs, December 23, 2016.

Terra Mineralogical Services Inc. (Terra) also completed two mineralogical assessments:

- "Initial Ore Characterization and Predictive Metallurgy Evaluation of Drill core Samples from the McIlvenna Bay VMS Deposit"; Saskatchewan, Giovanni Di Prisco, February, 2012.
- "Mineral Characterization of Mineralization Types and Predictive Metallurgy Evaluation of Core Samples used for Metallurgical Testing the McIlvenna Bay VMS Deposit"; Saskatchewan, Giovanni Di Prisco, January, 2019.

13.2.1 Mineralogical Studies (Terra)

The McIlvenna Bay samples were mainly coarse to medium-grained and formed mostly intergrowths of non-opaque gangue and sulphide minerals. Non-opaque gangue was largely composed of carbonate and micaceous minerals in the massive sulphide lenses, and prevalently quartz and minor micas in the copper stockwork stringers. Platy micaceous minerals (sericite, muscovite, talc/anthophyllite), chlorite and biotite occurred pervasively and in abundant quantities sporadically. Iron oxides occurred locally in moderate amounts. Minor amounts of gahnite ($ZnAl_2O_4$) were also encountered. Gangue sulphides were chiefly pyrite and, to a lesser degree, pyrrhotite. Trace amounts of arsenopyrite were found in a few samples. Minor amounts of chalcopyrite were noted and determined to contain high concentrations of silver (up to ~1%). Trace to minor amounts of stannite, cassiterite, tetrahedrite, Bi-tellurides, and Bi-selenides were observed.

In the copper stockwork zone (CSZ) samples, chalcopyrite was the main economic sulphide, with minor amounts of sphalerite. Other sulphides in low amounts included iron sulphides and trace amounts of magnetite, arsenopyrite, stannite and gahnite. Non-opaque gangue accounted for ~80% of the volume comprised chiefly of quartz, with minor amounts of micas and carbonate. In the massive sulphides, non-opaque gangue generally constituted 40-50% of the ore by volume.

Silver was carried in discrete grains of electrum and silver sulfosalts, as well as substantial concentrations (~0.03 %) in chalcopyrite. The bulk of the overall silver content was expected to follow the chalcopyrite. Separation of chalcopyrite from sphalerite was expected to be the major metallurgical challenge for the McIlvenna Bay mineralization. Fine and complex mineral textures of chalcopyrite and sphalerite, together with one another and with iron sulphide gangues, were widespread in the massive sulphides. Fine to very fine regrinding was anticipated to ensure adequate liberation of the economic sulphides (target grinds were estimated from the samples to have a P_{80} (80% passing size) of 60-65 µm for copper stringers, a P_{80} of 50 µm for massive sulphide primary grind and a P_{80} of 10-15 µm for concentrate regrinds). Table 13.1 summarizes the key middlings ratings for the various types of mineralization.

Table 13.1
Middlings Ratings for the Main Mineralization Types (Terra, 2012)

Composite Name	Cu Min				Galena (Pb)				Sphalerite (Zn)			
	nop	py/po	ga	sph	nop	py/po	ga	sph	nop	py/po	ga	sph
	%	%	%	%	%	%	%	%	%	%	%	%
Lenses 2/3	3.0	3.1	1.1	3.6	2.9	2.9	1.8	3.3	3.1	3.2	1.3	2.3
Upper West	3.5	3.3	0.3	3.4	1.0	3.3	3.4	5.5	3.3	3.4	0.3	3.5
Cu Stringer	3.2	2.8	0.0	1.8	0.0	0.0	0.0	0.0	3.0	2.8	0.0	3.3

Notes: nop = non opague, py = pyrite, po = pyrrhotite, ga = galena and sph = sphalerite.

The middlings ratings were scaled to denote the liberation complexity, where:

- 0 to 2.7 indicated that liberation would be good to very good requiring little to no regrind.
- 2.8 to 3.5 indicated that liberation would be fair, with moderate regrinding required.
- 3.6 and higher indicated poor mineral liberation, with significant regrinding (80% -30 µm and finer) required.

In Table 13.1, chalcopyrite grains as middlings with sphalerite in Lenses 2/3, and Upper West massive sulphides and sphalerite grains as middlings with chalcopyrite and pyrite are expected to dictate the regrind liberation requirements.

Table 13.2 through Table 13.4 summarize the minor elements measured within the sulphide minerals chalcopyrite, galena and sphalerite, respectively. The average copper grade of chalcopyrite was 34.1% Cu, containing 118 ppm Bi and 36 ppm As. Galena contained 186 ppm Bi and 63 ppm Sb. Silver content in chalcopyrite was 29 ppm Ag, with 27 ppm Ag in galena. Sphalerite zinc content in the grains analysed averaged 61.0% Zn, with an average iron content of 5.3% Fe. Sphalerite averaged 0.19% Cu, 2,100 ppm Cd and 20 ppm Hg.

Table 13.2
Terra Microprobe Minor Element Contents in Chalcopyrite

	% Cu	% Fe	% Co	% As	% Bi	% Ag	% S	Total wt %
Average	34.1	30.6	0.0	0.0	0.0	0.0	35.0	99.8
std. dev	0.36	0.24	0.00	0.00	0.00	0.03	0.16	0.51
max	34.6	31.1	0.0	0.0	0.0	0.0	35.4	100.6
min	33.3	30.0	0.0	0.0	0.0	0.0	34.7	98.4
# of points	39.0							

Table 13.3
Terra Microprobe Minor Element Contents in Galena

	% Pb	% Cu	% Bi	% Sb	% Ag	% S	Total wt %
Average	86.9	0.2	0.0	0.0	0.0	13.3	100.4
std. dev	0.385	0.330	0.000	0.140	0.000	0.115	0.516
max	87.6	1.3	0.0	0.1	0.0	13.5	101.1
Min	85.9	0.0	0.0	0.0	0.0	13.0	98.9
# of points	20.0						

Table 13.4
Terra Microprobe Minor Element Contents in Sphalerite

	Zn	Fe	Cu	Cd	Ag	Hg	In	S	Total wt %
Average	61.0	5.3	0.2	0.2	0.0	0.0	0.0	33.1	99.7
std. dev	1.68	1.63	0.23	0.07	0.01	0.03	0.02	0.26	0.42
Max	65.1	7.2	0.8	0.4	0.0	0.1	0.1	33.6	100.5
Min	59.1	1.7	0.0	0.1	0.0	0.0	0.0	32.5	98.7
# of points	47.0								

13.2.2 Historical Metallurgical Programs (ALS Metallurgy and Base Met)

In 2012, ALS Metallurgical in Kamloops, BC conducted an initial scoping study (KM3125) to characterize the metallurgical performance of samples of massive sulphide zone (Zone 2 and Upper West Zone) and copper stockwork lithologies, with focus on ore hardness, mineralogical and chemical composition, and flotation response. The study included limited optimizations, using batch rougher and open cleaner flotation tests and completed locked cycle tests for each mineralization type, with measurement of final concentrate minor element concentrations.

The average chemical composition of the three mineralization zone composites used for the KM3125 study is summarized in Table 13.5. Zinc total assays were determined using a peroxide fusion method, whereas all other assays in the study were determined using standard aqua regia digestion.

Table 13.5
Chemical Compositions for the Mineralization Zone Composites for KM3125

Element	Symbol	Units	CSZ	MS (Z2)	UW-MS
Copper	Cu	%	1.45	0.30	1.61
Weak Acid Soluble Copper	$Cu_{(ox)}$	%	0.004	<0.001	0.008
Cyanide Soluble Copper	$Cu_{(CN)}$	%	0.02	0.02	0.06
Lead	Pb	%	0.02	0.43	0.16
Zinc (Aqua Regia)	Zn	%	0.16	7.05	3.71
Zinc Total	$Zn_{(t)}$	%	0.17	7.25	3.97
Zinc Oxide	$Zn_{(ox)}$	%	<0.001	0.03	0.01
Iron	Fe	%	7.40	28.30	17.80
Gold	Au	g/t	0.34	0.19	0.55
Silver	Ag	g/t	8	16	25
Magnesium	Mg	%	2.06	3.71	5.83
Sulphur	S	%	4.60	31.7	18.2

Mineral contents for the three massive sulphide and stockwork zone composites used in KM3125 are presented in Table 13.6. Chalcopyrite included trace amounts of chalcocite, covellite and tennanite. UWZ was noted to contain elevated amounts of talc.

Table 13.6
Mineral Compositions for the Mineralization Zone Composites for KM3125

Mineral	Mineral Content, %		
	CSZ	MS (Z2)	UW-MS
Chalcopyrite	4.2	0.9	5.3
Galena	<0.1	0.5	0.1
Sphalerite	0.2	10.7	5.8
Gahnite	0.1	<0.1	1.2
Pyrite	4.4	50	25.8
Pyrrhotite	0.1	2.7	3.8
Quartz	62.6	3.3	7.3
Chlorite	13.3	5.5	20.1
Dolomite	0.3	13.5	5.7
Muscovite	8.6	0.8	2.2
Feldspars	2.4	1.0	4.7
Amphibole	1.1	1.3	4.7
Calcite	0.1	2.2	2.8
Iron Oxides	0.05	2.3	2.5
Talc	0.6	1.2	2.6
Serpentine	0.05	1.4	1.6
Others	1.9	2.7	3.8
Total	100	100	100

Table 13.7 summarizes the mineral associations for the three mineralization zone composites (measured in 2D). CSZ showed about 63% liberation of chalcopyrite at a grind size of P_{80} of 95 µm, adequate for roughing. At similar grind size distributions, the massive sulphide composites indicated finer primary grinding requirements. Sphalerite liberations in all three composites were low (33-38% liberated), indicating finer primary grinding requirements.

Table 13.7
Mineral Associations for the Mineralization Zone Composites for KM3125

Mineral Class	CSZ, 950181µm K_{80}					CSZ, 95µm K_{80}					CSZ, 95µm K_{80}				
	Cp	Ga	Sph	Py	Gn	Cp	Ga	Sph	Py	Gn	Cp	Ga	Sph	Py	Gn
Liberated	63	39	35	62	93	25	18	38	59	77	42	22	33	43	73
Binary - Cp		-	21	7	3		1	5	1	1		3	18	6	9
Binary - Ga	-		-	-	<1	<1		1	<1	<1	<1		1	<1	<1

Mineral Class	CSZ, 950181µm K_{80}					CSZ, 95µm K_{80}					CSZ, 95µm K_{80}				
	Cp	Ga	Sph	Py	Gn	Cp	Ga	Sph	Py	Gn	Cp	Ga	Sph	Py	Gn
Binary - Sph	1	-		1	<1	30	18		13	9	10	23		7	2
Binary - Py	2	-	2		2	4	2	18		5	4	1	13		8
Binary - Gn	27	27	15	20		6	12	7	6		23	14	6	17	
Multiphase	7	33	26	10	1	34	50	30	20	7	21	37	29	27	8

Notes: Cp = chalcopyrite, Ga = galena, Sph = sphalerite, Py = pyrite and Gn = gangue.

Table 13.8 summarizes the Bond Rod/Ball Mill hardness test results for the three main composites from KM3125.

Table 13.8
KM3125 Bond Rod and Ball Mill Grindability Test Results

Product	Bond Ball Mill Test		Bond Rod Mill Test	
	BBWI kWh/t	P_{80}, micron	BRWI kWh/t	P_{80}, micron
CSZ	16.1	80	17.0	882
MS (Z2)	11.6	83	12.7	869
UW-MS	14.0	81	15.6	852

Flotation work for KM3125 culminated in locked cycle testing of the three zone composites (see Table 13.9 for CSZ, Table 13.10 for MS (Z2) and Table 13.11 for UW-MS composites, respectively). The CSZ locked cycle test was conducted at a primary grind P_{80} of 95 µm and a regrind P_{80} of 35 µm, using lime, $ZnSO_4$, NaCN and 3418A as the main reagents.

The locked cycle tests for the MS (Z2) composite were conducted at primary grind P_{80} of 73 µm, copper/lead bulk regrind P_{80} of 12-21 µm and zinc regrind P_{80} of 14-16 µm, using lime, $ZnSO_4$, NaCN and 3418A as the main copper (bulk) reagents, with lime, copper sulphate and SIPX used as the main zinc reagents.

Table 13.9
CS Locked Cycle Test Results KM3125

Product	Mass %	Assay - % or g/t					Distribution, %				
		Cu	Zn	S	Ag	Au	Cu	Zn	S	Ag	Au
Feed	100.0	1.6	0.16	4.5	8.0	0.38	100	100	100	100	100
Copper Conc.	5.1	29.2	1.05	33.5	126	6.38	94.4	33.8	38.0	76.9	84.6
Copper 1st Clnr Tail	3.9	0.79	0.57	19.3	14.0	0.81	2.0	14.1	16.8	6.8	8.3
Copper Ro Tail	91.0	0.06	0.09	2.2	2.0	0.03	3.7	52.1	45.2	16.4	7.1

Table 13.10
MS (Z2) Locked Cycle Test Results KM3125

Product	Mass %	Assay - % or g/t						Distribution, %					
		Cu	Pb	Zn	S	Ag	Au	Cu	Pb	Zn	S	Ag	Au
Test 17													
Bulk Feed	100.0	0.31	0.37	7.08	30.0	18	0.16	100.0	100.0	100.0	100.0	100.0	100.0
Prefloat	3.5	0.21	0.36	5.81	13.1	12	0.06	2.3	3.4	2.8	1.5	2.4	1.3
Bulk Conc.	1.6	11.2	13.8	9.78	32.0	359	4.94	55.3	57.9	2.1	1.7	31.9	47.9
Zn Conc.	10.3	0.77	0.51	53.8	33.0	45	0.23	25.2	14.1	78.4	11.3	26.4	15.0
Zn 1st Clnr Tail	9.7	0.24	0.24	3.23	28.0	17	0.13	7.5	6.4	4.4	9.0	9.4	7.8
Zn Rougher Tail	75.0	0.04	0.09	1.16	30.6	7	0.06	9.7	18.2	12.2	76.5	30.0	28.0
Test 20													
Bulk Feed	100.0	0.33	0.41	6.96	28.4	15	0.21	100.0	100.0	100.0	100.0	100.0	100.0
Prefloat	3.5	0.20	0.32	5.89	12.8	11	0.11	2.1	2.8	3.0	1.6	2.6	1.9
Bulk Conc.	1.6	11.9	15.4	9.18	28.5	332	5.27	56.0	59.1	2.1	1.6	34.4	38.5
Zn Conc.	10.8	0.63	0.46	55.0	32.1	38	0.29	20.5	12.2	85.4	12.2	27.3	14.6
Zn 1st Clnr Tail	17.8	0.16	0.15	0.96	38.6	10	0.15	8.4	6.5	2.5	24.1	11.6	12.7
Zn Rougher Tail	66.3	0.07	0.12	0.74	25.9	5	0.10	13.1	19.5	7.0	60.5	24.1	32.3

The locked cycle tests for the UWZ composite were conducted at primary grind P_{80} of 95 µm, copper/lead bulk regrind P_{80} of 10-17 µm and zinc regrind P_{80} of 13-22 µm, using lime, $ZnSO_4$, NaCN and 3418A as the main copper (bulk) reagents, with lime, copper sulphate and SIPX used as the main zinc reagents.

Table 13.11
UW Locked Cycle Test Results KM3125

Product	Mass %	Assay - % or g/t						Distribution, %					
		Cu	Pb	Zn	S	Ag	Au	Cu	Pb	Zn	S	Ag	Au
Bulk Feed	100.0	1.75	0.18	4.02	17.3	26	0.66	100.0	100.0	100.0	100.0	100.0	100.0
Prefloat	2.8	0.86	0.13	1.44	4.0	23	1.16	1.4	2.1	1.0	0.6	2.5	4.9
Copper Conc	6.0	24.2	1.3	6.40	34.4	216	6.50	83.4	43.4	9.6	12.0	50.3	59.7
Zn Conc	5.6	1.87	0.24	54.3	32.5	63	0.81	6.0	7.5	76.3	10.6	13.6	6.9
Zn 1st Clnr Tail	7.7	0.69	0.14	2.39	21.4	22	0.53	3.0	6.0	4.6	9.5	6.6	6.2
Zn Rougher Tail	77.8	0.14	0.10	0.44	15.0	9	0.19	6.2	41.0	8.5	67.2	27.0	22.2

In 2016, Base Met Laboratories in Kamloops, BC conducted what was described as a Phase II assessment (BL0103) and continued the metallurgical development program. Individual geological lithology composites were tested first, followed by two zone composites, with a mix of copper stockwork and massive sulphide material (UWZ-Main, Z2-Main). Table 13.12 indicates the make-up of the composites used for the BL0103 study. Table 13.13 summarizes the head assays.

Table 13.12
BL0103 Composite Assemblies

Composite		Mass, kg
UWZ - Main	Total	75.0
HW-UWZ	Hanging wall dilution - Upper West Zone	6.2
MS-UWZ	Massive Sulphide - Upper West Zone	32.0
CSZ-UWZ	Copper Stockwork - Upper West Zone	30.5
FW-UWZ	Footwall dilution - Upper West Zone	6.2
Z2 - Main	Total	123.6
HW-Z2	Hanging wall dilution - Zone 2	10.3
MS-Z2	Massive Sulphide - Zone 2	60
CS-Z2	Copper Stringer - Zone 2	43
FW-Z2	Footwall dilution - Zone 2	10.3

Table 13.13
Chemical Compositions for the Various Zones used to Build the Two Composites for BL0103

Composite	Analyte and Unit Symbol									
	Cu %	Pb %	Zn %	Fe %	As %	Sb %	Ag g/t	Au g/t	S %	C %
HW-WZ	0.72	<0.01	0.22	7.6	<0.01	<0.01	22	0.28	2.48	0.08
HW-Z2	0.11	0.05	0.25	4.3	<0.01	<0.01	3	0.03	1.68	0.08
FW-UWZ	0.55	<0.01	0.04	5.3	<0.01	<0.01	4	0.10	0.93	0.05
FW-Z2	0.38	<0.01	0.12	3.6	<0.01	<0.01	<3	0.05	1.22	0.10
CSW-UWZ	1.74	0.02	0.36	6.6	<0.01	<0.01	15	0.46	2.56	0.12

Composite	Analyte and Unit Symbol									
	Cu %	Pb %	Zn %	Fe %	As %	Sb %	Ag g/t	Au g/t	S %	C %
CSW-Z2	1.64	0.02	0.26	6.5	<0.01	<0.01	11	0.27	3.62	0.10
MS-UWZ	2.76	0.91	9.51	17.80	0.02	<0.01	78	1.91	22.5	0.84
MS-Z2	0.33	0.30	7.80	26.6	0.04	<0.01	20	0.20	32.0	2.36
UWZ-Main	1.73	0.41	4.21	11.2	<0.01	<0.01	39	1.23	10.9	0.40
Z2-Main	0.71	0.17	4.06	16.0	0.03	<0.01	14	0.20	17.3	1.26

Sulphur and iron levels were higher in the massive sulphide composites than the stockwork, and this is taken to mean more significant pyrite/pyrrhotite concentration in the MS. The lower levels of sulphide gangue in the copper stockwork composites would suggest superior performance, as compared to the MS.

Table 13.14 summarizes the ore Bond Ball Mill hardness test results for the BL0103 massive sulphide and copper stockwork composites.

Table 13.14
BL0103 Bond Ball Mill Grindability Test Results

Sample ID	BWI Parameters				
	Grind, mesh	F_{80}, µm	P_{80}, µm	Gram/rev	Work Index, kWh/t
MS-Zone 2	150	2,351	80	1.82	11.3
MS UWZ	150	2,289	80	1.70	11.9
CSZ Zone 2	150	2,149	78	1.03	17.9
CSZ UWZ	150	2,400	78	0.98	18.4

A total of six locked cycle tests were conducted on the Z2-Main and UWZ-Main composites under varying conditions. Improved results were obtained for Z2 with a primary grind of P_{80} of 75 µm versus P_{80} of 100 µm. Copper and zinc regrind sizing's were 80% passing 24 and 21 µm, respectively. The UWZ composite responded better with the finer primary grind at 80% passing 75 µm, and with finer copper regrind at 80% passing 15 µm. Zinc regrind was 80% passing 21-22 µm.

Table 13.15 summarizes the best results achieved during locked cycle testing in BL0103. For the Z2-Main composite, a final copper concentrate grade of 23.4% copper was achieved, but copper losses to the zinc circuit were high. The UWZ-Main composite performed better, recovering 83.8% of the copper to the copper concentrate, and 71.9% of the contained zinc to the zinc concentrate.

Table 13.15
BL0103 Locked Cycle Test Results for Z2-Main and UWZ-Main Composites

Product	Mass %	Assay - % or g/t						Distribution, %					
		Cu	Pb	Zn	S	Ag	Au	Cu	Pb	Zn	S	Ag	Au
BL103 Test 54, Z2-Main (75um grind, 24 um Cu regrind, 21 um Zn regrind)													
Feed	100.0	0.68	0.15	4.08	16.0	14	0.25	100.0	100.0	100.0	100.0	100.0	100.0
Copper Con	2.0	23.4	3.18	5.84	25.8	301	5.67	58.7	35.9	2.5	2.8	36.8	39.0
Zinc Conc	6.0	1.9	0.5	51.5	31.0	41	0.29	17.8	22.4	79.7	12.2	18.4	7.4
Zinc 1st Clnr Tail	13.0	0.83	0.24	4.0	25.6	18	0.17	16.0	20.7	13.0	21.0	16.9	9.5
Zn Rougher Tail	79.0	0.07	0.04	0.25	13.0	5	0.14	7.5	21.0	4.8	64.0	28.0	44.1
BL103 Test 55, UWZ Main (75um grind, 15 um Cu regrind, 22 um Zn regrind)													
Feed	100.0	1.93	0.40	4.00	8.7	45	1.17	100.0	100.0	100.0	100.0	100.0	100.0
Copper Con	7.0	22.10	3.98	9.90	28.4	361	13.0	83.8	73.1	18.2	23.9	59.1	81.7
Zinc Conc	5.0	2.3	0.9	54.50	30.2	122	1.23	6.3	12.3	71.9	18.3	14.3	5.6
Zinc 1st Clnr Tail	8.0	1.50	0.35	2.97	12.7	62	0.50	6.5	7.3	6.2	12.1	11.6	3.6
Zn Rougher Tail	79.0	0.08	0.04	0.19	5.0	9	0.14	3.4	7.3	3.8	45.7	15.0	9.2

Elemental ICP-MS scans for minor elements indicated fluorine and selenium concentrations in the KM3125 MS bulk concentrate of 506 ppm, and 430 ppm, respectively, levels that could attract penalties in certain smelters. Mercury levels in the KM3125 massive sulphide bulk and zinc concentrates varied from 80-155 g/t and these are also in a range that can attract penalties in certain smelters. Concentrates in BL0103 were generally lower with respect to mercury versus the KM3125 results, but fluorine and selenium were again elevated in the copper concentrate for the BL0103 concentrates.

13.3 2019 Base Metallurgical Laboratories (BL0351)

The BL0351 metallurgical testwork program was initiated in late 2018 and was designed to support engineering and economic assumptions used in the preliminary feasibility study. A scope of work was defined to focus on optimization of the three main mineralization types (Copper Stockwork, Zone 2, and Upper West Zone), while considering two main processing options (toll processing in Flin Flon vs new on-site facilities).

The final flowsheet developed at the locked cycle test level was a conventional sequential flotation process, with grinding to a target 80% passing 75 µm, in which a bulk final copper-lead concentrate was produced, while depressing sphalerite with $ZnSO_4$/NaCN prior to floating zinc into a final concentrate. A secondary flowsheet was subsequently developed using sulphur dioxide gas (SO_2) or sodium metabisulphite (SMBS) for depression of galena and zinc, as a useful and effective alternative to cyanide use.

13.3.1 Sample Preparation

Metallurgical composites created for the BL0351 program were prepared using a combination of fresh drill core from 2018 drilling and coarse rejects from the previous drilling campaign. Although the older coarse rejects were seen to be well packaged in oxygen-deficient conditions, a quality assurance step was introduced to confirm that this older material had not succumbed to surficial oxidation. The QA program subjected reject and drill core material from similar DDH intervals to comparative baseline flotation tests, the results of which showed similar metallurgical response.

The study assessed metallurgical performance by optimizing open circuit flotation conditions for the three main mineralization types, or "master composites", then verifying the new flowsheet with blended ratios of each master composite and 15 variability composites.

Samples were received in two shipments, August 31 and December 4, 2018. The first shipment was approximately 426 kg of half NQ core, with the second shipment consisting of approximately 460 kg of crushed and bagged coarse rejects. Each sub-composite and variability sample was submitted in duplicate for Cu, Pb, Zn, Fe and Ag by aqua regia; S and C by LECO, Au by fire assay and ICP for multi-elemental analyses. A summary of head assay measurements is given in Table 13.16 (mineralization type composites) and Table 13.17 (variability composites).

Table 13.16
BL0351 Composite Head Assay Summary

Composite	Assays							
	Cu, %	Pb, %	Zn, %	Fe, %	Ag, g/t	Au, g/t	S, %	C, %
Z2 Core Comp	0.30	0.51	7.50	21.0	19	0.22	25.7	2.09
Z2 Rej. Comp	0.30	0.50	7.90	21.0	20	0.19	26.3	2.10
UWZ Core Comp	1.95	0.20	4.55	23.6	24	1.20	25.8	1.49
UWZ Rej. Comp	1.75	0.20	4.50	24.1	22	1.21	27.2	1.40
Z2: Sub-Comp	0.33	0.44	6.65	20.1	16	0.20	25.2	1.93
UWZ: Sub-Comp	1.93	0.18	4.25	22.3	22	0.97	24.8	1.27
CSW: Sub-Comp	1.24	0.04	0.29	6.37	8	0.64	4.48	0.09
Blend 1	1.09	0.19	2.54	13.4	12	0.63	13.3	0.76
Blend 2	1.40	0.17	2.70	15.6	16	0.40	15.8	0.79
Blend 3	1.08	0.28	4.00	17.4	18	0.63	19.0	1.19
Blend 4	1.15	0.14	1.55	10.3	11	0.31	9.71	0.47

Table 13.17
BL0351 Variability Sample Head Assay Summary

Composite	Assays							
	Cu %	Pb %	Zn %	Fe %	Ag g/t	Au g/t	S %	C %
Z2-1	0.33	0.30	4.36	19.3	21	0.19	19.2	1.93
Z2-2	0.79	0.28	6.56	26.5	25	0.28	29.3	2.37
Z2-3	0.22	0.49	9.12	30.4	17	0.18	40.1	1.56
Z2-4	0.28	0.83	11.4	26.9	31	0.15	30.0	3.08
UWZ-1	0.47	0.36	4.20	16.1	23	0.64	16.1	3.48
UWZ-2	2.53	0.07	2.33	22.2	19	2.04	23.1	0.32
UWZ-3	0.40	0.30	6.25	25.7	21	0.55	26.0	1.16
UWZ-4	1.06	0.13	6.95	23.3	17	0.25	29.6	2.95
UWZ-5	5.76	0.82	4.25	17.6	104	3.17	18.8	0.24
CSZ-1	1.06	0.03	0.22	14.2	12	0.40	15.1	0.03
CSZ-2	2.07	0.05	0.56	20.5	17	0.43	21.3	0.03
CSZ-3	0.76	0.01	0.02	3.65	2	<0.01	1.42	<0.01
CSZ-4	1.53	0.01	0.06	5.15	10	1.06	3.21	0.02
CSZ-5	0.98	0.05	2.38	14.1	12	0.26	16.1	<0.01
Lens 3	0.34	0.18	4.84	21.0	12	0.15	25.7	0.81

13.3.2 Mineralogy

Representative samples of the master composites were submitted for detailed feed mineralogy, to determine the major mineral species and occurrences. Samples were ground to the target grind size of 80% passing 75 µm, sized to fractions of +75, -75/+38 and -38 µm, and polished sections were created for each fraction and analysed by QEMSCAN to yield mineral abundance, liberation and associations of key sulphide minerals using Particle Mineralogical Analyses (PMA). Mineral abundances are summarized in Table 13.18, and liberation and exposure values are summarized in Table 13.19 and Table Table 13.20.

The mineralization contained chalcopyrite, galena, sphalerite, pyrite and pyrrhotite almost exclusively, with only very minor occurrences of other sulphide minerals observed. Pyrite predominated over pyrrhotite in all mineralization types. For non-sulphide gangue, the copper stockwork contained mostly quartz, mica and chlorite, while the massive sulphides contained more carbonates, iron oxides and talc and less quartz. Clay contents were generally low in all three composites.

Of note, zinc deportment in the UWZ sample included 5% in gahnite, an unrecoverable zinc aluminium oxide mineral. The gahnite content in the CSZ sample was higher at 16% of the total zinc but, in this case, the total zinc grades were generally too low in total to represent any significant zinc production in the overall deposit.

Table 13.18
Mineral Distributions for the Three Main Mineralization Types

Normalized by Fraction (wt. %)	Composite		
	CSZ	UWZ	Z2
Pyrite	5.23	33.6	36.8
Pyrrhotite	0.49	2.34	1.00
Chalcopyrite	4.74	6.61	1.09
Sphalerite	0.70	7.28	12.6
Galena	0.02	0.13	0.48
Other Sulphides	0.01	0.11	0.04
Quartz	55.2	8.88	11.5
Feldspar	1.79	1.58	2.22
Amphibole/Pyroxene	0.74	2.93	1.28
Mica	10.5	2.04	4.34
Chlorite	17.3	18.4	11.7
Talc	0.60	3.18	2.06
Clays	0.96	0.33	0.22
Other Silicates	0.14	0.24	0.22
Fe Oxides	0.57	2.53	1.34
Zn-Al Oxide	0.22	0.63	0.07
Other Oxides	0.31	0.26	0.20
Carbonates	0.40	8.79	12.8
Apatite	0.08	0.09	0.08
Other	0.02	0.02	0.03

The mineral associations with the main economic minerals (chalcopyrite and sphalerite) are summarized in Table 13.19 and Table 13.20. Chalcopyrite liberation was highest in the CSZ composite at 86% and lowest in the Z2 composite at 62%. Sphalerite liberation was relatively consistent across all composite types at 72-74%. Liberations of both chalcopyrite and sphalerite increased with decreasing particle size.

Table 13.19
Normalized Mineral Associations: Chalcopyrite

Mass (% Chalcopyrite)	Composite		
	CSZ	UWZ	Z2
Pure Chalcopyrite	71.3	62.0	49.9
Free Chalcopyrite	8.61	7.24	6.35
Lib Chalcopyrite	5.99	8.61	5.83
Chalcopyrite:Pyrite	0.72	3.53	4.59
Chalcopyrite:Pyrrhotite	0.44	0.60	0.54

Mass (% Chalcopyrite)	Composite		
	CSZ	UWZ	Z2
Chalcopyrite:Sphalerite	1.11	2.04	9.79
Chalcopyrite:Sphalerite:Pyrite	0.12	0.67	3.91
Chalcopyrite:Galena	0.00	0.01	0.14
Chalcopyrite:Qtz/Feld	3.51	0.57	1.50
Chalcopyrite:Mica/Chlor/Clays/Talc	2.62	3.86	1.87
Chalcopyrite:Other Silicates	0.00	0.37	0.29
Chalcopyrite:Carbonates	0.03	0.80	4.13
Chalcopyrite:Oxides	0.11	0.18	0.16
Complex	5.44	9.50	11.0
Total	100	100	100
Free and liberated	85.9	77.9	62.1

Table 13.20
Normalized Mineral Associations: Sphalerite

Mass (% Chalcopyrite)	Composite		
	CSZ	UWZ	Z2
Pure Sphalerite	59.2	55.3	55.8
Free Sphalerite	6.32	9.07	7.70
Lib Sphalerite	8.73	9.74	8.39
Sphalerite:Pyrite	2.52	8.26	11.6
Sphalerite:Pyrrhotite	0.15	0.39	0.51
Sphalerite:Chalcopyrite	5.25	2.16	0.82
Sphalerite:Chalcopyrite:Pyrite	0.35	1.13	0.72
Sphalerite:Galena	0.00	0.00	0.16
Sphalerite:Qtz/Feld	4.79	0.12	0.29
Sphalerite:Mica/Chlor/Clays/Talc	3.02	2.25	1.08
Sphalerite:Other Silicates	0.09	0.12	0.04
Sphalerite:Carbonates	0.23	1.42	2.76
Sphalerite:Oxides	0.01	0.14	0.08
Complex	9.34	9.90	10.1
Total	100	100	100
Free and liberated	74.3	74.1	71.9

Table 13.21 and Table 13.22 summarize mineral exposures and these yielded an approximation for anticipated recoveries into final concentrates.

Table 13.21
Mineral Exposures vs Flotation Results: Chalcopyrite

Mass (% Chalcopyrite)	Composite		
	CSZ	UWZ	Z2
Exposed	83.0	75.1	60.0
>50-80% Exposed	8.07	11.2	13.4
>20-50% Exposed	4.67	8.32	12.8
<20% Exposed	3.88	5.01	12.9
Locked	0.40	0.30	0.93
Total	100	100	100
>20% Exposed	95.7	94.7	86.2
LCT Cu Ro Recovery (est.)	96.7	89.4	80.9
	LCT42	LCT44	LCT80
	Zn/CN	Zn/CN	MBS

Table 13.22
Mineral Exposures vs Flotation Results: Sphalerite

Mass (% Chalcopyrite)	Composite		
	CSZ	UWZ	Z2
Exposed	45.5	51.6	42.1
>50-80% Exposed	13.3	20.4	22.1
>20-50% Exposed	20.0	18.6	25.2
<20% Exposed	19.6	8.76	10.2
Locked	1.75	0.59	0.36
Total	100	100	100
>20% Exposed	78.7	90.7	89.4
LCT Zn Ro Recovery	-	80.4	91.2
	LCT42	LCT44	LCT80
	Zn/CN	Zn/CN	MBS

13.3.3 Grindability

Bond ball mill work indices (BWI) determined for the three composites in BL0351 are summarized in Table 13.23. The composite hardness ranged from 13.8 to 14.4 kWh/t for the massive sulphide composites and 18.0 kWh/t for the copper stockwork composite, which spanned the medium to hard competency range.

Table 13.23
BL0351 Bond Ball Mill Grindability Test Results

Sample ID	BWI parameters				
	Grind, mesh	F_{80}, µm	P_{80}, µm	Gram/rev	Work Index, kWh/t
Zone 2 Master	150	1,684	80	1.50	13.8
UWZ Master	150	1,823	86	1.48	14.4
CSZ Master	150	2,013	79	1.04	18.0

Results from the two programs are quite consistent and show that the effective hardness of a blended feed to the mill will depend on the blend of CSZ:MS, with higher mill throughputs likely achievable when Massive Sulphide rich blends are processed.

13.3.4 Flotation Testing

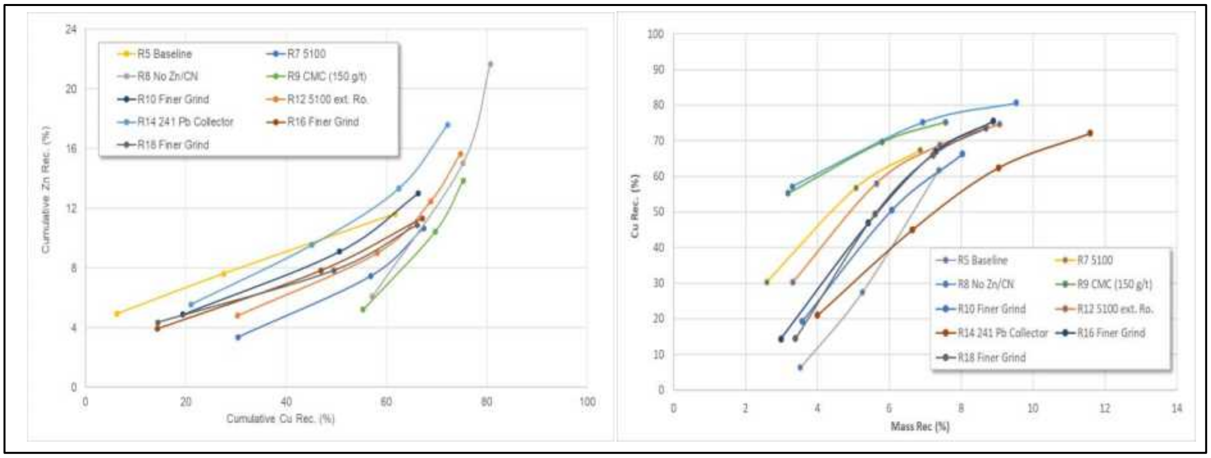
The BL0351 flotation program consisted of open circuit rougher and cleaner tests, with locked cycle tests used towards the end of the program to generate recovery predictions. Flowsheet development was carried out on composites of CSW, Zone 2 Massive Sulphide, and UWZ Massive Sulphide. Variability tests were completed on a variety of high- and low-grade samples, and a program of blended composite testing (blends of CSZ and MS) was carried out. The laboratory program BL0351 consisted of a total of 82 laboratory scale flotation tests, including 5 locked cycle tests.

13.3.4.1 Rougher Flotation Testing

Previous test programs on samples of McIlvenna Bay mineralization supported the use of a conventional grinding + sequential flotation flowsheet. As a starting point for this latest program of optimization, BL0351 rougher testing began with similar conditions from the previous BL0103 program locked cycle tests.

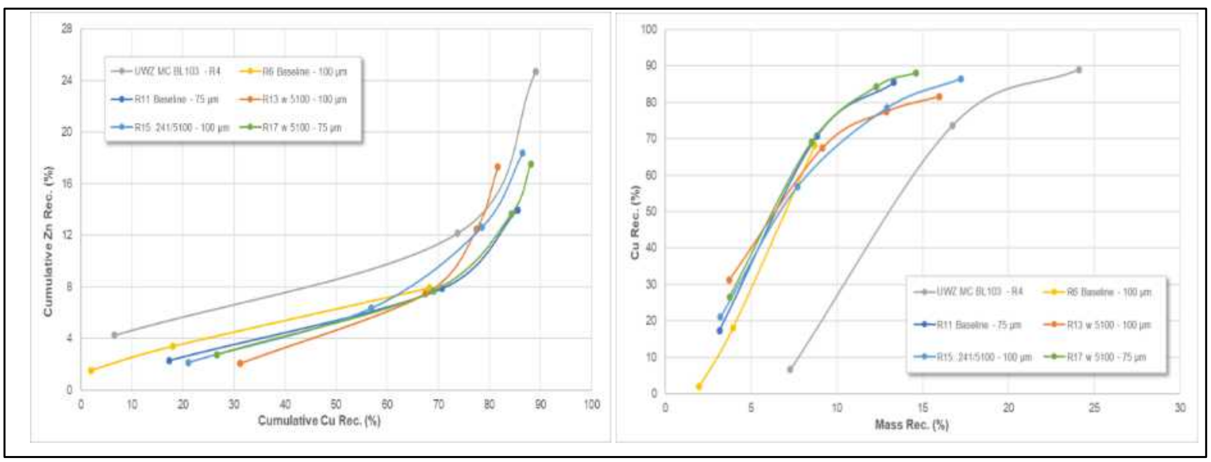
These initial (baseline) rougher performance profiles are shown for each of the three mineralization types, via a performance comparison with the new various other BL0351 rougher results in the following figures – CSZ in Figure 13.1, UWZ in Figure 13.2 and CSZ in Figure 13.3.

Figure 13.1
Rougher Kinetic Test Results for Zone 2 Comp – BL0351



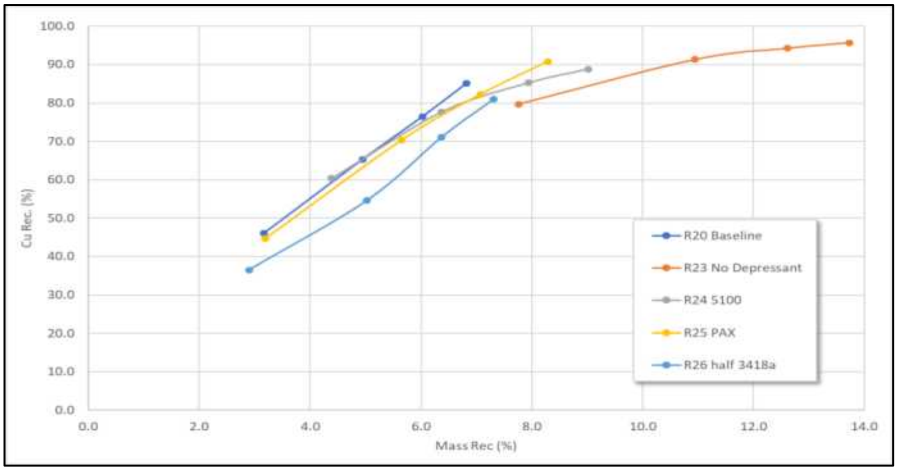
The majority of Z2 composite test results in the BL0351 program show an improvement over the baseline test using BL0103 conditions.

Figure 13.2
Rougher Kinetic Test Results for UWZ Comp – BL0351



Once more, the majority of BL0351 tests show improvement over the BL0103 conditions.

Figure 13.3
Rougher Kinetic Test Results for CSZ Comp – BL0351



Again, results for three of the CSZ composite tests show an improvement over the baseline conditions.

13.3.4.2 Effect of Grind

The impact of primary grind was evaluated for the Zone 2 massive sulphide composite, over a range of 80% passing 50 to 100 µm. Optimal grind was identified to be in the range of 75-100 µm. The mass recovery relationship showed moderate diminishing performance of copper when grinding finer than 75 µm.

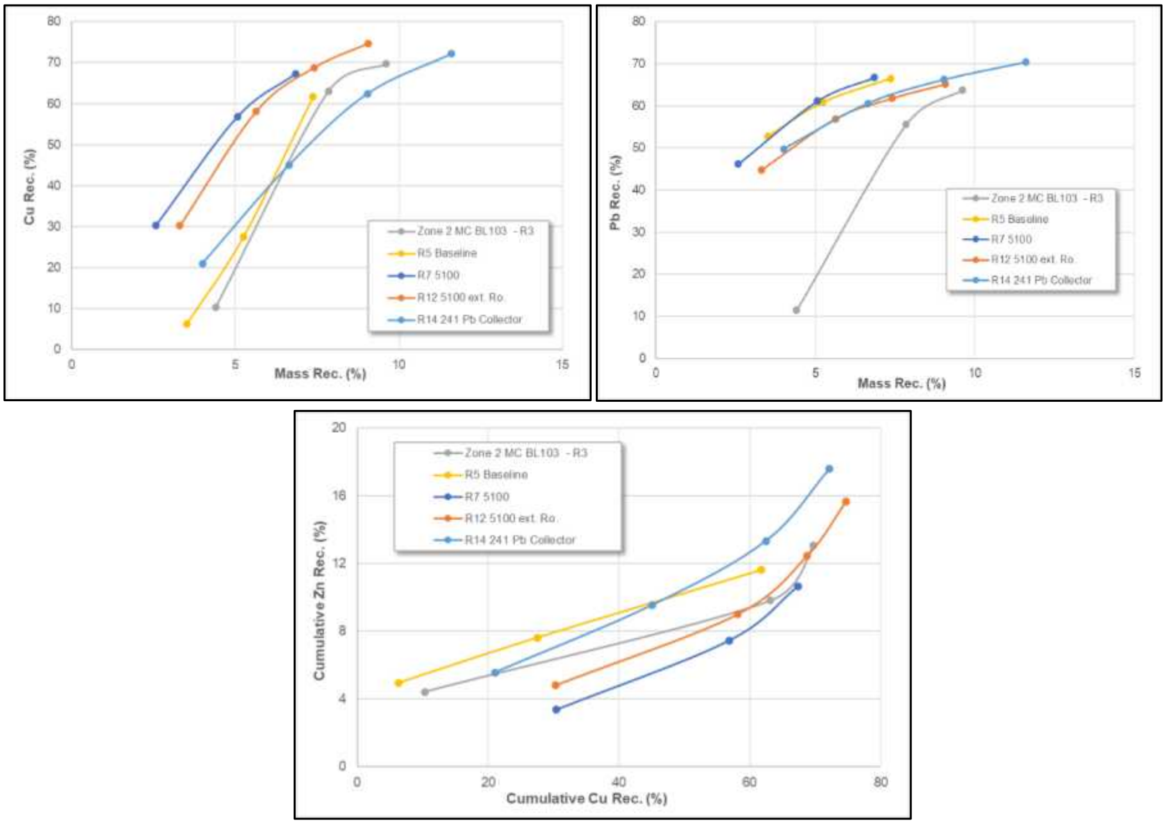
The primary grind size was similarly evaluated for UWZ for 80% passing 50 to 100 µm. Finer grind increased copper recovery and decreased zinc content in the copper-lead rougher concentrate at 75 µm, but no further gains were made at 50 µm. As with Z2, minor zinc recovery into the zinc rougher concentrate occurred at 50 µm versus 75 µm.

The CSZ composite primary grind size was evaluated for 80% passing 75 to 155 µm. A grind size of 125 µm was superior to 155 µm, and also 75 µm (at the finer grind, it is possible that additional collector may have been required).

13.3.4.3 Effect of Reagents

A series of rougher tests compared alternate collectors, versus the baseline 3418A product. 3418A is an expensive dithiophosphinate collector, and it is always desirable to find cheaper alternatives. Fortunately, the use of Aero 5100 demonstrated good copper and lead recovery while being selective against sphalerite compared to the baseline test, as shown in Figure 13.4. Collector selection had little impact on performance of UWZ mineralization in the copper/lead rougher.

Figure 13.4
Effect of Collector in the Zone 2 Copper-Lead Roughers (3 charts)



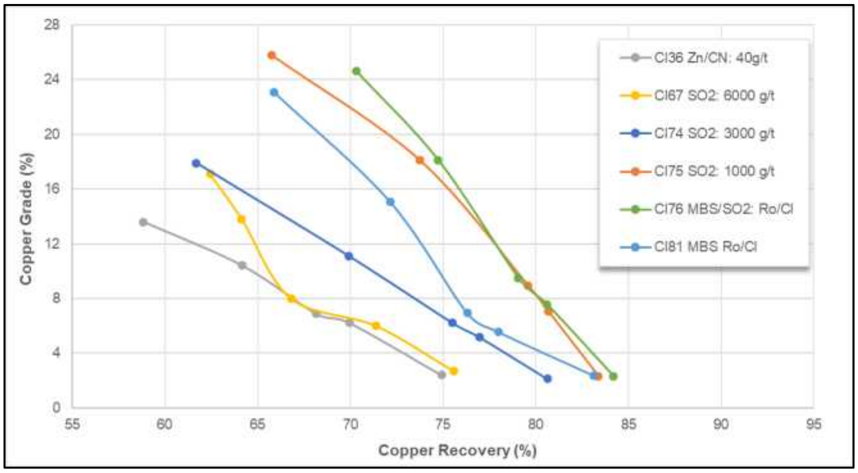
CMC (carboxymethyl cellulose) was also evaluated positively in the Z2 rougher for depression of non-sulphide gangue and was subsequently evaluated with addition moved to the cleaner circuit.

13.3.5 Cleaner Flotation Testing

Open circuit cleaner tests were conducted following the rougher tests. Open cleaner testing of Z2 composite focused on optimization of cleaner collectors and dosages, depressant dosages and regrind size targets. Cleaner testing of the UWZ composite focused on the optimization of depressant dosages and finer zinc regrind targets, as well as the separation of lead from copper following the initial bulk copper-lead flotation step. Cleaner testing of CS attempted to optimize depressant dosages and the copper concentrate regrind size target.

A series of tests were run using gaseous sulphur dioxide and sodium metabisulphite, as an alternative reagent scheme to zinc sulphate/cyanide in the event cyanide usage at site was not permissible. The selectivity of copper against pyrite, sphalerite and particularly galena was improved significantly when using either chemical in the rougher and cleaner circuits, as shown in Figure 13.5.

Figure 13.5
Open Cleaner Test Results for Z2 Composite- Cyanide Alternative



The presence of galena in the feed, particularly as measured with respect to the Cu/Pb feed ratio, influenced the copper performance in the initial separations. To improve the chalcopyrite-galena selectivity and reduce the unwanted galena flotation, various alternate reagent schemes were tested. Of these, SO_2 and SMBS achieved the best copper-lead selectivity. Although SO_2 performed slightly better than SMBS, given the relative ease of implementing an addition system in a concentrator, powdered SMBS would be much simpler and more cost effective to dose, versus a gaseous SO_2 system.

Key findings of the cleaner flotation testwork on the three zone composites are summarized as follows:

- Z2 Composite – 13 cleaner circuit tests were conducted, with open circuit copper recovery to concentrate achieving 70%, with stage recovery of zinc to the zinc concentrate of 87%.
- UWZ Composite – 7 cleaner circuit tests were conducted, with open circuit copper recovery to concentrate achieving 84%, with stage recovery of zinc to the zinc concentrate of 79%.
- CSZ Composite – 4 cleaner circuit tests were conducted, with open circuit copper recovery to concentrate achieving 92%.

13.3.6 Locked Cycle Testing

One locked cycle test was completed on the UWZ composite (LCT44), two on the Z2 composite (LCT43 and LCT80) and two on the CSZ composite (LCT40 and LCT42). The results of these tests are summarized in Table 13.24, Table 13.25, and Table 13.26.

The locked cycle test flowsheet is illustrated in Figure 13.6. Note that the zinc circuit was not utilized for testing the CSZ composite, due to low zinc head grades.

Figure 13.6
Locked Cycle Flowsheet

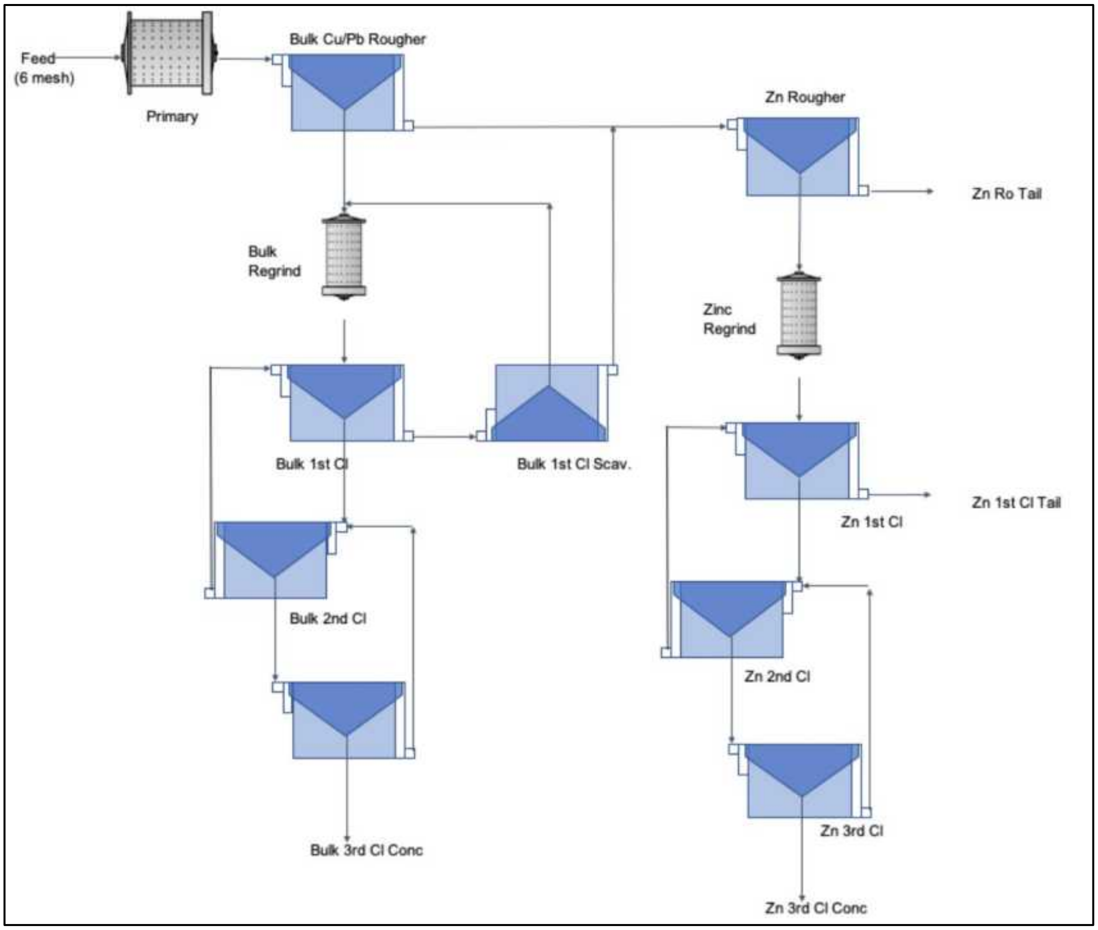


Table 13.24
Locked Cycle Test Results for UWZ Composite

Test	Product	Wt	Assay - percent or g/t						Distribution - percent					
		%	Cu	Pb	Zn	Fe	Ag	Au	Cu	Pb	Zn	Fe	Ag	Au
LCT44	Cu/Pb Cl Conc	7.9	20.5	1.06	6.84	24.7	206	10.0	88.4	51.0	13.6	9.3	60.2	73.9
	Cu/Pb Ro Conc	10.7	15.3	0.84	6.17	24.1	158	7.57	89.4	54.6	16.6	12.2	62.4	75.6
	Zn Cl Conc	6.7	0.97	0.24	45.1	12.5	38	0.66	3.6	9.9	77.1	4.0	9.6	4.2
	Zn 1st Cl Tail	16.1	0.30	0.12	0.82	31.6	13	0.32	2.6	12.1	3.3	24.2	7.6	4.9
	Zn Ro Conc	22.8	0.50	0.16	13.9	25.9	20	0.42	6.2	22.0	80.4	28.3	17.2	9.0
	Zn Ro Tail	69.3	0.14	0.06	0.34	18.9	9	0.26	5.4	27.0	6.0	62.4	22.7	17.1
	Feed (calc.)	111	1.88	0.17	4.01	21.4	28	1.14	100	100	100	100	100	100

Table 13.25
Locked Cycle Test Results for Z2 Composite

Test	Product	Wt	Assay - percent or g/t						Distribution - percent					
		%	Cu	Pb	Zn	Fe	Ag	Au	Cu	Pb	Zn	Fe	Ag	Au
LCT43	Cu/Pb Cl Conc	2.0	9.77	12.8	7.81	14.5	334	5.21	60.5	56.7	2.3	1.4	34.2	31.1
	Zn Cl Conc	10.2	0.72	0.54	52.7	8.85	41	0.31	23.2	12.5	80.9	4.5	21.9	9.7
	Zn 1st Cl Tail	13.5	0.10	0.18	4.67	28.3	15	0.28	4.2	5.4	9.5	18.9	10.6	11.7
	Zn Ro Conc	23.7	0.36	0.33	25.3	19.9	26	0.30	27.4	17.9	90.4	23.3	32.5	21.4
	Zn Ro Tail	74.4	0.05	0.15	0.65	20.4	9	0.21	12.2	25.4	7.3	75.2	33.2	47.5
	Feed (calc.)	100	0.32	0.44	6.57	19.9	19	0.29	100	100	100	100	100	100
LCT80														
	Cu/Pb Cl Conc	2.0	12.5	6.17	6.03	17.6	265	5.13	79.6	30.6	1.9	1.8	31.8	45.1
	Cu/Pb Ro Conc	4.3	6.02	3.71	3.85	17.2	141	2.57	80.9	39.0	2.6	3.7	35.8	47.7
	Zn Cl Conc	10.7	0.23	1.42	49.7	8.61	46	0.28	7.8	37.4	84.2	4.6	29.2	12.8
	Zn 1st Cl Tail	12.0	0.07	0.34	3.69	26.8	15	0.16	2.7	10.0	7.0	16.3	10.9	8.5
	Zn Ro Conc	22.7	0.15	0.85	25.4	18.2	30	0.22	10.5	47.5	91.2	20.9	40.2	21.3
	Zn Ro Tail	75.2	0.04	0.12	0.58	20.3	6	0.10	9.9	22.0	6.9	77.3	28.0	33.6
	Feed (calc.)	100	0.32	0.40	6.09	20.0	17	0.22	100	100	100	100	100	100

Table 13.26
Locked Cycle Test Results for CSZ Composite

Test	Product	Wt	Assay - percent or g/t						Distribution - percent					
		%	Cu	Pb	Zn	Fe	Ag	Au	Cu	Pb	Zn	Fe	Ag	Au
LCT40														
	Cu 2nd Cl Conc	3.9	27.8	0.19	0.93	27.0	160	8.96	80.6	25.6	11.7	14.3	68.4	76.3
	Cu 1st Cl Tail	6.2	0.53	0.05	0.71	10.6	8.0	0.27	2.4	10.9	14.3	8.9	5.4	3.6
	Cu Ro Conc	10.1	11.1	0.10	0.80	17.0	67	3.63	83.1	36.5	26.0	23.3	73.8	79.9
	Cu Ro Tail	89.9	0.26	0.02	0.26	6.30	3	0.10	16.9	63.5	74.0	76.7	26.2	20.1
	Feed (calc.)	100	1.36	0.03	0.31	7.41	9.4	0.48	100	100	100	100	100	100
LCT42														
	Cu 2nd Cl Conc	4.6	26.7	0.18	1.26	26.9	129	8.31	93.8	23.5	18.7	17.1	71.0	82.6
	Cu 1st Cl Tail	7.1	0.54	0.06	0.86	11.1	9.0	0.24	2.9	11.5	19.6	10.9	7.7	3.7
	Cu Ro Conc	11.6	10.8	0.10	1.01	17.3	56	3.40	96.7	35.0	38.3	28.0	78.7	86.2
	Cu Ro Tail	88.4	0.05	0.03	0.22	5.85	2	0.07	3.3	65.0	61.7	72.0	21.3	13.8
	Feed (calc.)	100	1.32	0.03	0.31	7.21	8.4	0.47	100	100	100	100	100	100

For the Z2 composite, LCT80 was a repeat of LCT43 but with a variation on the zinc flowsheet whereby a small portion of the initial higher-grade rougher concentrate was bypassed to the first cleaner directly, without any regrinding. This was an effort to assess if the initial high-grade portion of the rougher concentrate could be cleaned effectively, thereby enabling coarse sphalerite to be cleaned to final concentrate grade without imposing unnecessary regrinding on already liberated material available from the primary grinding stage.

For the CSZ composite, LCT42 was a repeat of LCT40, but with a finer grind of P_{80} of 75 µm in LCT42 versus 125 µm in LCT40.

13.3.7 Variability Cleaner Tests

Following the development of the optimized grinding and flotation conditions for each of the composites, a series of open circuit cleaner tests were conducted on a set of smaller variability composites taken from each mineralization type sample set. Head Assays for the variability composites are given in Table 13.17.

Results of the flotation testwork on the variability composites were used to support the development of the grade/recovery projections discussed in the next section.

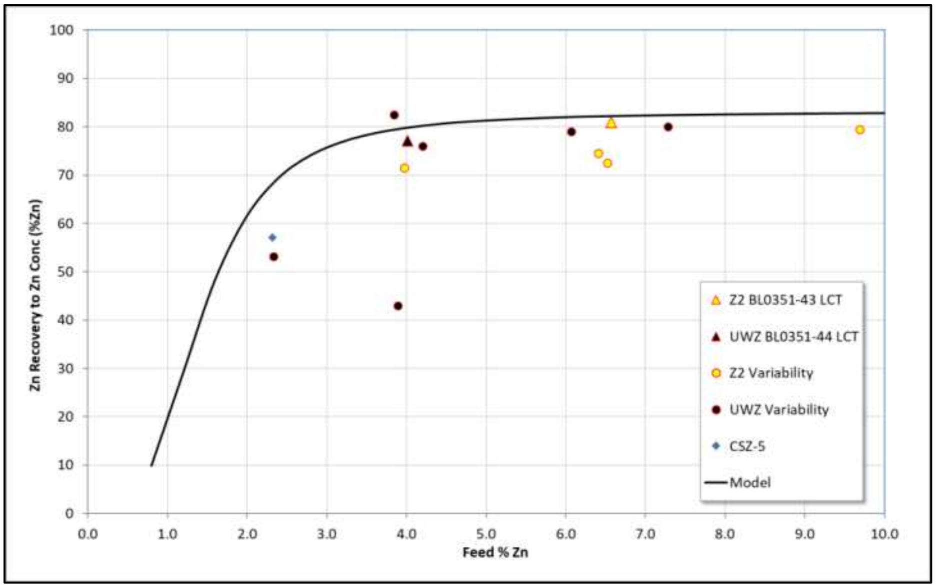
13.3.8 Recovery and Concentrate Grade Projections

Open circuit cleaner and locked cycle flotation test results from the three metallurgical studies described herein were used to develop feed grade-based models for copper, zinc, silver and gold concentrate grade and recovery.

In cases of stage recovery data for open cleaner tests, curves were parsed for recovery at a constant concentrate grade (in some instances the grade-recovery curve required extrapolation to derive values). The predictive values from the charts were then curve-fit to derive mathematical functions for use in preliminary feasibility study block models and/or financial models.

The following charts summarize the various performance projections. Figure 13.7 illustrates the zinc recovery vs zinc feed grade relationship.

Figure 13.7
Zinc Recovery for Massive Sulphides versus Zinc in Feed



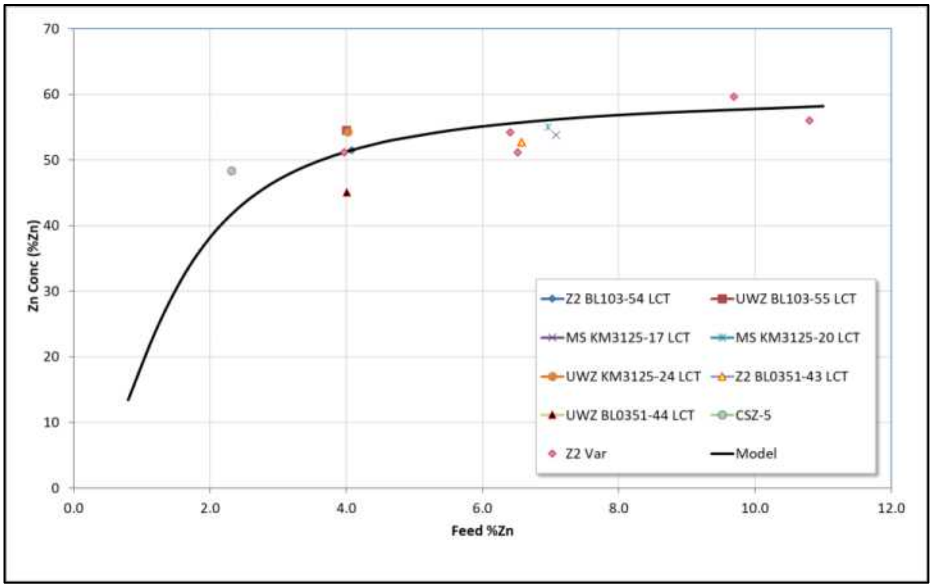
The zinc recovery versus head grade relationship is mathematically defined as:

$$\boldsymbol{Zn\ Recovery}(\%) = \frac{\mathbf{82.0} \times \boldsymbol{F}^{\mathbf{3.26}} - \mathbf{3.745}}{\boldsymbol{F}^{\mathbf{3.255}} + \mathbf{3.15}}$$

Where F is the zinc grade (%) in mill feed.

Figure 13.8 describes the zinc concentrate grade (%) as a function of the % zinc in mill feed.

Figure 13.8
Zinc Concentrate Grade for Massive Sulphides versus Zinc in Feed



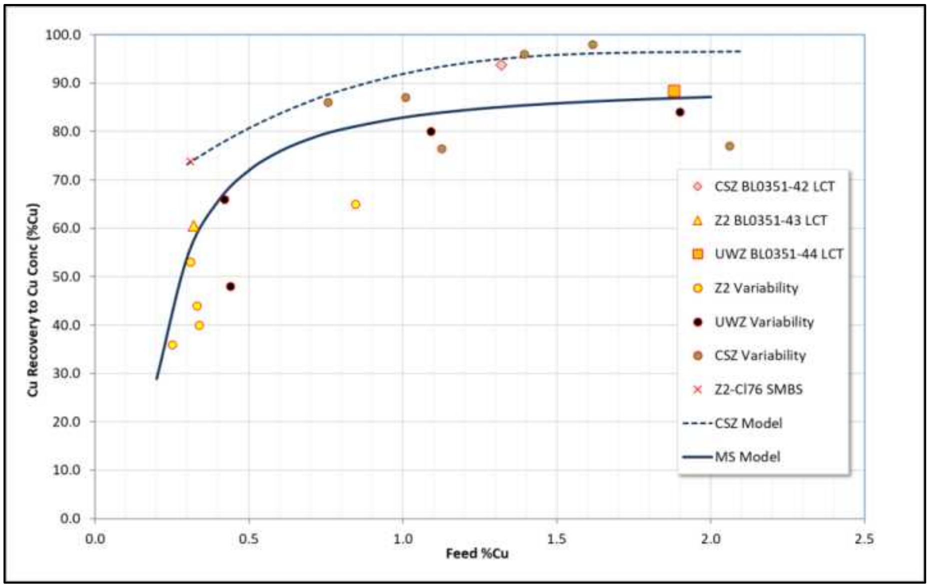
The zinc concentrate grade versus head grade relationship is mathematically defined as:

$$\boldsymbol{Zn\ Concentrate\ Grade}\ (\%) = \frac{\mathbf{55.0} \times \boldsymbol{F}^{\mathbf{1.97}} - \mathbf{2.65}}{\boldsymbol{F}^{\mathbf{1.97}} + \mathbf{1.78}}$$

Where F is the zinc grade (%) in mill feed.

Figure 13.9 models % copper recovery as a function of % copper in feed for the different mineralization types, with the solid curves indicating the function for the MS and the dashed curve indicating the function for the CSZ.

Figure 13.9
Copper Recoveries for Massive Sulphides and Copper Stockworks versus Copper in Feed



The CSZ Cu recovery versus head grade relationship is mathematically defined as:

$$\boldsymbol{CSZ\ Cu\ Recovery}(\%) = (\mathbf{5.3} \times \boldsymbol{F}^{\mathbf{3.0}}) - (\mathbf{30.5} \times \boldsymbol{F}^{\mathbf{2}}) + (\mathbf{59.0} \times \boldsymbol{F}) + \mathbf{58.1}$$

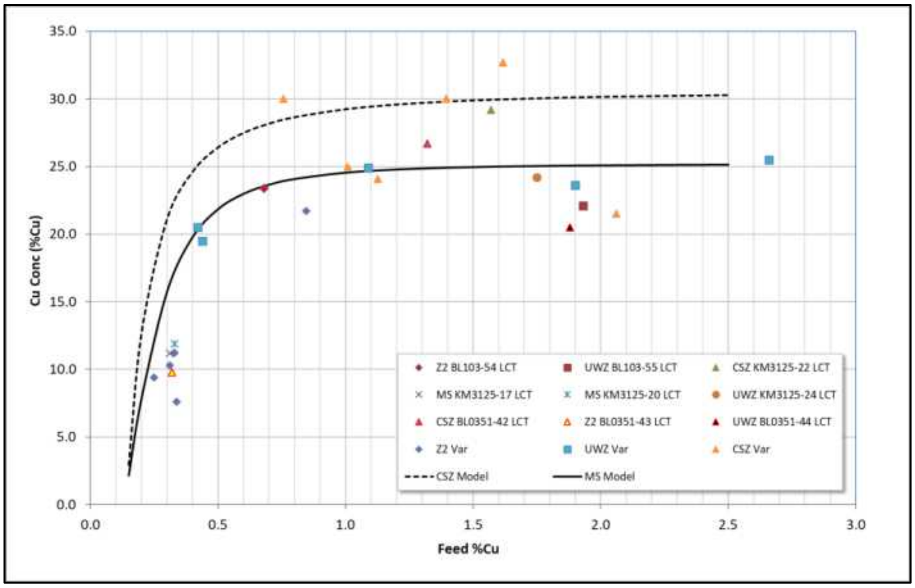
and for the massive sulphide:

$$\boldsymbol{MS\ Cu\ Recovery}(\%) = \frac{\mathbf{89.3} \times \boldsymbol{F}^{\mathbf{1.43}} - \mathbf{5.76}}{\mathbf{0.0085} + \boldsymbol{F}^{\mathbf{1.43}}}$$

Where F is the Cu grade (%) in mill feed.

Figure 13.10 models copper concentrate % grade as a function of % copper in feed, with the solid curve illustrating the function for the MS, and the dashed curve illustrating the function for the CSZ.

Figure 13.10
Copper Conc. Grades for Massive Sulphides and Copper Stockworks versus Copper in Feed



The copper concentrate grade versus head grade relationships are mathematically defined as:

$$\boldsymbol{CSZ\ Cu\ Concentrate\ Grade}\ (\%) = \frac{\mathbf{30.576} \times \boldsymbol{F}^{\mathbf{1.65}} - \mathbf{1.187}}{\boldsymbol{F}^{\mathbf{1.65}} + \mathbf{0.005}}$$

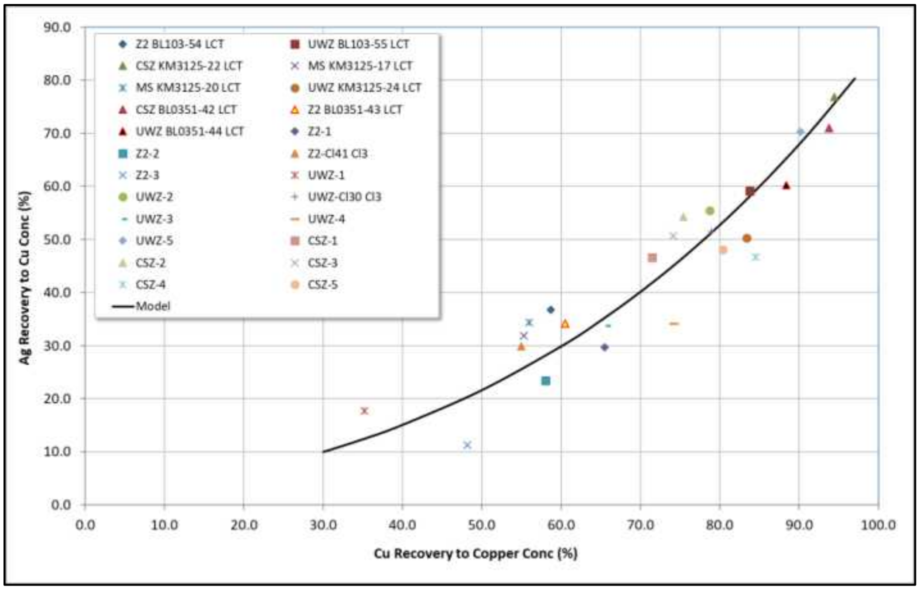
and for the massive sulphide:

$$\boldsymbol{MS\ Cu\ Concentrate\ Grade}\ (\%) = \frac{\mathbf{25.2} \times \boldsymbol{F}^{\mathbf{2.47}} - \mathbf{0.17}}{\boldsymbol{F}^{\mathbf{2.47}} + \mathbf{0.02}}$$

Where F is the copper grade (%) in mill feed.

Recoveries of silver and gold to the copper concentrate as functions of the copper recovery are summarized in Figure 13.11 and Figure 13.12.

Figure 13.11
Silver Recovery to Copper Concentrate as a Function of Copper Recovery

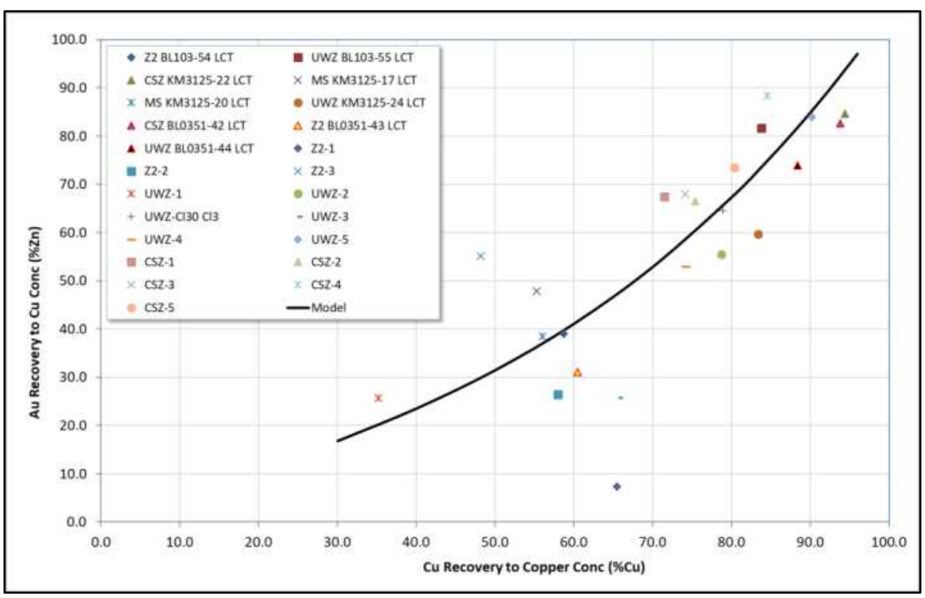


The silver recovery to copper concentrate versus copper recovery relationship is mathematically defined as:

$$\boldsymbol{Ag\ Recovery}\ (\%) = (\mathbf{0.00005} \times \boldsymbol{C}^3) + (\mathbf{0.0011} \times \boldsymbol{C}^2) + (\mathbf{0.25} \times \boldsymbol{C}) + \mathbf{0.16}$$

Where C is the copper recovery to copper concentrate.

Figure 13.12
Gold Recovery to Copper Concentrate as a Function of Copper Recovery



The gold recovery to copper concentrate versus copper recovery relationship is mathematically defined as:

$$\boldsymbol{Au\ Recovery}\ (\%) = (\mathbf{0.00008} \times \boldsymbol{C}^{\mathbf{3}}) + (\mathbf{0.0036} \times \boldsymbol{C}^{\mathbf{2}}) + (\mathbf{0.63} \times \boldsymbol{C}) - \mathbf{1.023}$$

Where C is the copper recovery to copper concentrate.

Note: Silver recovery to copper concentrate appeared to be very similar for both massive sulphides and copper stockwork materials.

13.3.9 Thickening and Filtration Tests

Settling tests were conducted on the BL0103 final tailings from locked cycle tests on the two main composites Z2 (test 54) and UWZ (test 55). A series of flocculants were tested, along with zero flocculant, with Magnafloc 10 deemed to be the most effective. Both composites tested comparatively, with settling rates between 0.23 and 0.39 m/min and an average compacting density of 49-50% solids.

A program of static and dynamic settling work was also completed on CSZ and MS concentrate and tailing samples, as part of the BL0351 program. Static testing showed that a number of flocculants were effective at dewatering the samples, with 52-68% solids being typical final densities. The addition of lime as a coagulant was seen to be helpful in certain instances.

Dynamic settling tests on CSZ and MS tailings samples gave positive results, with underflow densities in the 60-70% range, reasonable overflow clarities (50-100 mg/l TSS) and acceptable loading rates of 12 t/m^2/day. Flocculant (Magnafloc 10) addition rates of 20-30 g/t were required to achieve the stated underflow densities.

13.3.10 BL0351 CSZ and Massive Sulphide Blend Testing

A series of tests were conducted to ascertain if there would be any metallurgical complications arising from the combination or blending of massive sulphides with copper stockwork materials, prior to grinding and flotation. The fundamental premise of a blend performance was that if, for example, 60% of a massive sulphide composite was blended with 40% of CSZ, then the expectation of overall performance would be the mathematically weighted average of the two individual components (i.e., overall = 0.6 x MS + 0.4 x CSZ). The actual test results for the blend should be similar to the mathematically calculated results if no synergies or detrimental impacts occur. The blend ratios for the three ore types were shown in Table 13.27.

Table 13.27
BL0351 Blend Ratios for Blend Testing

Blends	Blend Ratios		
	UWZ	Z2	CSZ
Blend 1	15	30	55
Blend 2	30	15	55
Blend 3	30	45	25
Blend 4	10	15	75

In terms of copper recovery, the endpoints of the curves at final concentrate grade were all close with respect to actual versus calculated results for all four blends. Comparing copper-zinc selectivity, actual zinc recovery to the copper concentrate was generally lower than the calculated values, particularly at the final copper recovery stage. The exception was Blend 4, where the actual zinc recovery was higher than calculated.

In terms of zinc recovery, actual versus calculated values at 50% concentrate grade were quite comparable for Blends 1, 2 and 3, and superior for Blend 4. Overall, there appears to be no significant concern with blending the mineralization types, with respect to metallurgical performance. These results confirmed that the CSZ material would not have to be mined and processed separately from the MS material, as long as the copper and zinc flotation circuits are sized to accommodate peak copper and zinc feed grades, respectively.

13.3.11 BL0351 Tailing Desulphurization Testing

The zinc flotation circuit tailing contains traces of copper and zinc minerals but, in addition carries a significant volume of sulphide gangue (mostly pyrite). Typically, sulphur grades in the tailing slurry will run between 2% and 8%, depending on the blend of mineralization processed. Non-sulphide gangue consists mainly of dolomite, and this mitigates the acid-generating qualities of the flotation tailing.

To further improve the acid-generating characteristics, a simple bulk sulphide flotation process, utilizing PAX as a non-selective sulphide collector, was proposed to treat the zinc flotation tailing, leaving the process plant tailing slurry with only traces of sulphide mineralization. This is proposed to mitigate any acid-generation risks associated with the on-site storage of tailing.

Two tests were run on a blended composite (Blend 1: 55% CSZ, 45% MS) to remove sulphides from the zinc tailing, which graded 3.48% sulphur. Results are shown in Table 13.28. A good quality pyrite concentrate (38% S) was recovered within 1 minute of flotation and, after a second minute, the concentration of sulphur in the tailing slurry was reduced to <0.4%. This pyrite concentrate also contained residual copper/zinc sulphides, likely fine-grained material locked within larger pyrite particles.

Refinement of this process through further testing is certainly warranted, but the preliminary tests show that a simple flotation process can easily be added to the end of the copper/zinc flotation circuit to dramatically reduce the acid-generating potential of the tailing slurry. In practice, the pyrite concentrate will be cleaned, dewatered and mixed with the paste backfill material. After mixing the small sulphide mass with barren tailing cake and portland cement, then storing it underground as cemented backfill, any acid generating potential will be very effectively mitigated. Geochemical testing of the low-sulphur tailings products is recommended as part of the tailings facility design criteria development.

Table 13.28
Desulphurization Test – Blend 1

Product	Weight		Assay – percent or g/t					Distribution - percent				
	%	grams	Cu	Pb	Zn	Fe	S	Cu	Pb	Zn	Fe	S
Cu/Pb Ro Conc	9.1	183.1	10.2	1.25	6.2	20.1	26.8	90.5	60.4	19.3	13.9	17.7
Zn Ro Conc	20.6	413.9	0.26	0.15	10	33	43.4	5.2	16.4	70.4	51.6	64.7
Py Ro Conc 1	5.1	102.9	0.18	0.14	4.8	33.6	38.8	0.9	3.8	8.4	13	14.4
Py Ro Conc 1-2	8.3	166.9	0.25	0.16	3.17	25.6	26.6	2	6.8	9	16.1	16
Py Ro Tail	62	1246.1	0.04	0.05	0.06	3.92	0.38	2.3	16.4	1.3	18.4	1.7
Feed (calc.)	100	2010	1.03	0.19	2.92	13.2	13.8	100	100	100	100	100
Zn Ro Tail	70.3	1413	0.06	0.06	0.43	6.48	3.48	4.3	23.3	10.3	34.6	17.7

13.3.12 Concentrate Quality

13.3.12.1 Minor Elements

Minor element ICP-MS scans were completed on the final copper and zinc concentrates produced from the various locked cycle tests. Table 13.29 summarizes the various assays.

Similar to previous studies, mercury content in zinc concentrates was elevated and could incur penalties at certain smelters. In BL0351, mercury ranged from 80 ppm to 140 ppm in the zinc concentrates, and from 20 ppm to 46 ppm in the massive sulphide copper concentrates. Overall, mercury in the copper concentrate will be blended down significantly with CSZ copper concentrate which was low (~2 ppm) in mercury.

Table 13.29
Final Copper and Zinc Concentrate Minor Element Assays

Element	Unit	Zone2				UWZ		CSZ
		LCT43		LCT80		LCT44		LCT42
		Cu Conc	Zn Conc	Cu Conc	Zn Conc	Cu Conc	Zn Conc	Cu Conc
Hg	ppm	45.9	139	38.2	140	20.4	78.8	1.78
Al	%	0.22	0.08	0.21	0.09	0.32	0.28	0.54
As	ppm	147	125	87	105	237	306	85
B	ppm	20	30	20	20	20	20	30
Ba	ppm	7	7	7	4	7	6	25
Bi	ppm	163	10	55	20	530	56	290
Ca	%	0.55	0.6	0.3	0.73	0.25	0.73	0.16
Cd	ppm	226	1590	185	1550	246	1510	88
Ce	ppm	11.2	7.1	10.5	7.2	15.2	15	24.1
Co	ppm	9.9	9.8	16.3	10	35	22.5	25.8
Cr	ppm	100	140	300	120	160	220	230
Fe	%	15.4	9.31	20	9.16	27.6	13.3	27.2
Ga	ppm	4.6	2.9	4.2	2.9	4.4	6.2	4.7
In	ppm	12.6	54.7	14.5	52	71.2	70	91.2
La	ppm	5.4	3.5	5	3.6	6.7	7.5	10.5
Li	ppm	11	25	12	5	8	14	8
Mg	%	5.27	0.42	5.33	0.56	1.2	0.7	0.93
Mn	ppm	246	556	225	594	187	747	143
Mo	ppm	37	39	74	14	21	24	43
Ni	ppm	50	90	170	70	90	130	140
Pb	ppm	> 5000	> 5000	> 5000	> 5000	> 5000	1830	1510
Rb	ppm	2.1	1.7	1.9	1.8	1.9	2.3	3.8
S	%	21.3	> 25.0	24	> 25.0	> 25.0	> 25.0	> 25.0
Sb	ppm	385	31	301	41	91	26	19
Se	ppm	569	80.9	208	106	403	190	356
Si	%	8.82	0.45	9.03	0.57	2.24	0.73	4.54
Sn	ppm	126	57.4	129	55.5	144	104	764
Ta	ppm	0.3	0.3	0.3	0.3	0.4	0.4	0.5
Tb	ppm	0.2	< 0.1	0.1	< 0.1	0.1	0.1	0.3
Th	ppm	1.2	0.2	0.5	0.2	0.5	0.5	1.3
Tl	ppm	2.9	0.9	2.1	1	2.8	1.4	0.9
U	ppm	4.5	0.7	1.5	0.6	0.9	0.9	1
W	ppm	2.3	2	2.1	1.7	2.1	2.7	4.2
Y	ppm	3	1.3	2.9	1.2	3.5	3.2	7.3

Iron content in zinc concentrate may incur penalties at around 9-10%. Iron penalties can be minimized by maintaining zinc concentrate grades around 54% Zn.

Selenium was elevated in copper concentrates for all mineralization types (190 ppm to 570 ppm).

Magnesium and silica were both somewhat elevated in the massive sulphide copper concentrates (approximately 5% Mg and 9% Si) but, again, these will be lowered significantly with blending of copper concentrate from CSZ (0.7% Mg and 0.7% Si). The ratio of Si:Mg was quite similar to that found in talc and one could surmise that talc recovery is mainly responsible for the concentration of these elements.

13.3.12.2 Concentrate Self Heating

A material Self Heating Evaluation (MASH) evaluation was completed on two composite samples of final concentrate (Cu Conc and Zn Conc). The samples were created from locked cycle test products for the different ore types.

Composite assays are summarized in Table 13.30. A material Self Heating Evaluation (MASH) evaluation was completed on two composite samples of final concentrate (Cu Conc and Zn Conc). The samples were created from locked cycle test products for the different mineralization types.

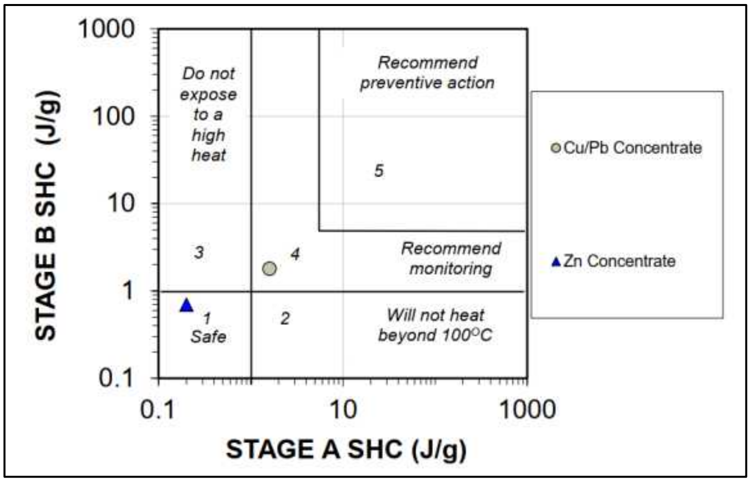
Table 13.30
MASH Test Head Assays

	Assay					
	% Cu	% Pb	%Zn	% Fe	g/t Ag	g/t Au
Cu 3rd Cleaner Conc	26.8	2.80	3.00	27.7	186	10
Zn 3rd Cleaner Conc	0.86	0.32	49.8	11.5	36.0	0.67

The samples were tested using standard protocol FR-2, which simulates self heating in stages, namely Stage A (70°C) and Stage B (140°C). Results, summarized in Figure 13.13, show that the copper concentrate is deemed moderately reactive (risk region 4) and the zinc concentrate is deemed to be safe (risk region 1), with no risk of self heating.

Further testwork is recommended as the project develops through the feasibility study level.

Figure 13.13
Self Heating Test Results – Copper and Zinc Concentrates



13.4 CURRENT TESTWORK

In March, 2021, a new testwork program was initiated at Base Metallurgical Laboratories to support a feasibility study level process design for the McIlvenna Bay Project. Samples selected for this work include the Z2, UWZ, and CSZ zone composites generated for the 2019 program, as well as new variability composites for hardness and flotation response characterisation. Key elements of the testwork program currently underway include:

- Additional hardness characterisation, including standardized Bond Ball Work Index, Bond Rod Work Index, SAG Mill Comminution, and Abrasion Index testing.
- Flotation optimization testwork, focusing in three main areas:
  - Flotation collectors and dosages.
  - Development of the SMBS depression scheme in the copper circuit.
  - Pyrite flotation from the zinc circuit tailings to produce a low-sulphide tailings.
- Additional variability testing for grindability and flotation.
- Additional blended composite testwork to evaluate the effect of changes in mill feed composition on metallurgical response.
- Settling and filtration for copper concentrate, zinc concentrate, non-sulphide tailings and sulphide tailings.
- Paste backfill testwork on blended sulphide tailings.

Final results for this testwork are currently pending. The testwork program is expected to be completed in December, 2021.

14.0 MINERAL RESOURCE ESTIMATES

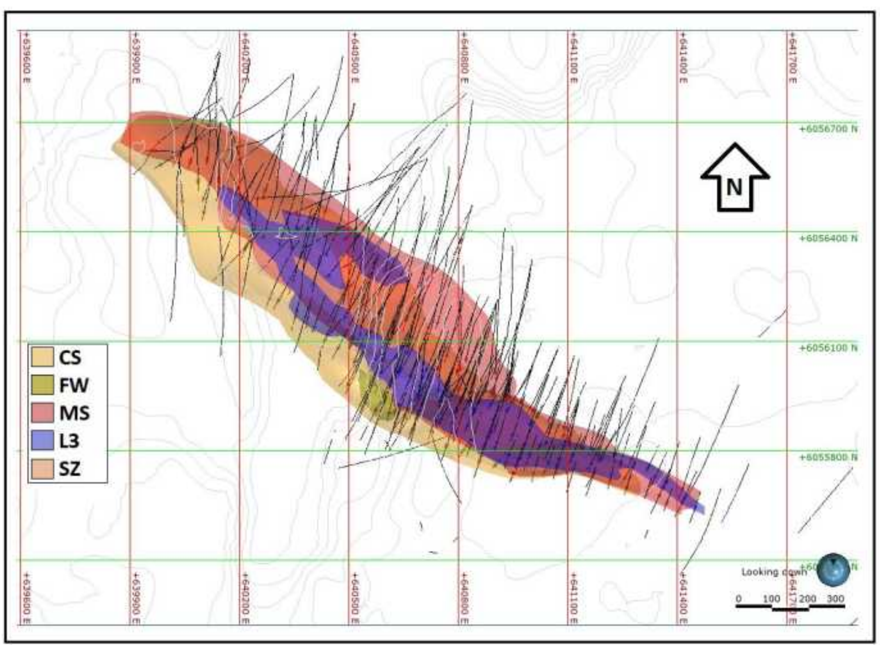
14.1 INTRODUCTION

This section discusses the updated mineral resource estimate for Foran's McIlvenna Bay Project in Saskatchewan. The updated mineral resource estimate is based upon Foran's drilling database, which includes both the historical drilling and Foran's drilling in results of 2021. Micon's QPs have conducted the mineral resource estimate for disclosure under NI 43-101 standards.

The 2021 drilling program was designed not only to improve the confidence of the known inferred mineralization, such that it could be upgraded to indicated, but also to potentially increase the mineral resources at depth. Previous iterations of the resource model have been completed and published since 2010, with all of these previous resource estimations now superseded by the current 2021 estimate discussed in this section.

The McIlvenna Bay mineral resources have been estimated using multiple tabular interpretations defined in five mineralization zones; Copper Stockwork (CS), Massive Sulphide (MS), Lens 3 (L3), Stringer Zone (SZ) and Copper Stockwork Footwall (FW). The five zones contain steep parallel, contiguous vein-type structures, disposed next to each other with similar bearings and dips. Figure 14.1 shows a plan view of the five interpreted zones defined by Foran and constructed by Micon. The mineral resources for the McIlvenna Bay zones have been estimated assuming an underground mining scenario.

Figure 14.1
Plan View Foran McIlvenna Bay Mineralized Zones and Drill Holes



Source: Micon, 2021.

14.2 CIM Mineral Resource Definitions and Classifications

If a company is a reporting Canadian entity, all resources and reserves presented in a Technical Report should follow the current CIM definitions and standards for mineral resources and reserves. The latest edition of the CIM definitions and standards was adopted by the CIM council on May 10, 2014, and includes the resource definitions reproduced below:

> *Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.*
>
> *A Mineral Resource is 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.*
>
> *Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.*
>
> *The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors.*
>
> *Inferred Mineral Resource*
>
> *An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.*
>
> *An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.*
>
> *An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility*

or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

Indicated Mineral Resource

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.

Measured Mineral Resource

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This *category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.*

14.3 CIM Estimation of Mineral Resources Best Practice Guidelines

Micon and its QPs have used the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines which were adopted by the CIM Council on November 29, 2019, in estimating the mineral resources contained within of the McIlvenna Bay Project. The November, 2019 guidelines supersede the 2003 CIM Best Practice Guidelines which were followed by Micon and its QPs when completing the previous resource estimations and audits for the Project.

14.4 Mineral Resource Database and Wireframes

14.4.1 Supporting Data

The basis for the mineral resource estimate was a drill hole database provided by Foran. The database and underlying QA/QC data were validated by Foran prior to being used in the modelling and estimation. After a further validation of the database, it was decided to exclude four drill holes[3] from the resource estimate due to: 1) an inaccurate collar survey for one hole; 2) one drill hole that was abandoned during the drilling program and 3) two drill holes because the assays had not been received by the time database was given to Micon. Table 14.1 summarizes the types and amount of data in the database and the portion of the data used for the mineral resource estimate.

Table 14.1
McIlvenna Bay Project Database

Data Type	In Database	Used For 2021 Resource Estimate*
Drill Collar	285	240
Assay Samples	11,737	5,652
Core Metreage	152,130	4,658**

*Excludes four drill holes from the resource estimate.
**Actual metres used within the resource wireframes.

[3] The excluded drill holes are MB-99-108, MB-21-230, MB-21-251 and MB-21-253. Drill hole 108 was removed due to an inaccurate collar location as confirmed by Foran. Drill hole 251 was excluded because it was abandoned during the drilling program. Drill holes 230 and 253 were excluded because the assays for these holes were still pending at the time of the mineral resource estimate.

14.4.1.1 Topography

The project topography was provided by Foran as a digital terrain model (DTM) in DXF format. The DTM was of sufficient quality, although, given the underground extraction assumption, it was not used for the mineral resource estimate.

14.4.2 Wireframes

Foran and Micon jointly defined, five mineralized domains, representing different areas and styles of VMS mineralization using Leapfrog Version 2021.1.3.

Massive Sulphide – Main mineralized lens with internal gradational boundaries. The lens was previously modelled as two separate zones (MS and Upper West), but contact plots show no justification for a hard boundary.

- CS – Copper stockwork zone sitting stratigraphically below the massive sulphide.
- Stringer Zone – Copper and zinc stringer zone in the hangingwall above the massive sulphides.
- Lens 3 – Massive sulphide lens sitting in the hangingwall to the Stringer zone.
- FW – Small massive to semi-massive zone ore zone below the CS.

Wireframes were generated based on a set of mineralized intercepts defined by Foran and validated by Micon. The wireframes for each of the five domains were validated against drill hole data and found to reasonably represent the mineralization and the host rock. All of the mineralization is hosted within the same lithological unit, the McIlvenna Bay Formation, with minor local exceptions where the Lens 3 and Stringer mineralization can cross the hanging wall contact into the cap tuffite unit. The host rock package is of variably mineralized felsic and mafic volcanics, capped by a unit of mixed felsic tuff and cherty sediments, locally mineralized and overlain by the Koziol Iron Formation.

All diamond drill holes are properly snapped to the 3D wireframes to ensure that the volume to be estimated matches both the drilling and logging data collected on the deposit.

14.5 Compositing and Variography

14.5.1 Compositing

The selected intercepts for the McIlvenna Bay Project were composited into 1.0 m equal length intervals, with the composite length selected based on the most common original sample length. Table 14.2 summarizes basic statistics for the composited data.

Table 14.2
Summary of the Basic Statistics for the 1.0 m Composites

Zone	Dataset	Element	Count	Length	Mean	SD	CoV	Var	Min	Q1	Median	Q3	Max
CS	Uncapped	Cu (%)	2,791	2,779	1.26	0.93	0.74	0.86	0.01	0.66	1.07	1.60	10.78
		Zn (%)	2,791	2,779	0.33	0.52	1.59	0.27	0.01	0.06	0.15	0.37	8.72
		Pb (%)	2,791	2,779	0.02	0.05	2.98	0.00	-	0.01	0.01	0.01	0.91
		Au (g/t)	2,791	2,779	0.38	0.68	1.82	0.47	0.00	0.08	0.17	0.41	11.05
		Ag (g/t)	2,791	2,779	8.55	8.21	0.96	67.45	0.10	3.65	6.19	10.60	110.00
	Capped	Cu (%)	2,791	2,779	1.26	0.89	0.71	0.79	0.01	0.66	1.07	1.60	6.00
		Zn (%)	2,791	2,779	0.32	0.50	1.54	0.25	0.01	0.06	0.15	0.37	4.50
		Pb (%)	2,791	2,779	0.02	0.05	2.62	0.00	-	0.01	0.01	0.01	0.45
		Au (g/t)	2,791	2,779	0.36	0.54	1.50	0.29	0.00	0.08	0.17	0.41	4.00
		Ag (g/t)	2,791	2,779	8.38	7.12	0.85	50.76	0.10	3.65	6.19	10.60	40.00
FW	Uncapped	Cu (%)	217	217	1.38	1.03	0.75	1.07	0.12	0.69	1.09	1.69	6.07
		Zn (%)	217	217	0.50	1.71	3.40	2.92	0.01	0.04	0.08	0.20	13.22
		Pb (%)	217	217	0.03	0.10	3.42	0.01	0.00	0.01	0.01	0.01	0.83
		Au (g/t)	217	217	0.45	0.61	1.35	0.37	0.02	0.13	0.25	0.54	4.65
		Ag (g/t)	217	217	9.10	8.77	0.96	76.99	1.34	3.30	5.81	11.96	54.56
	Capped	Cu (%)	217	217	1.38	1.03	0.75	1.06	0.12	0.69	1.09	1.69	6.00
		Zn (%)	217	217	0.36	0.92	2.59	0.85	0.01	0.04	0.08	0.20	4.50
		Pb (%)	217	217	0.03	0.08	3.16	0.01	0.00	0.01	0.01	0.01	0.45
		Au (g/t)	217	217	0.44	0.57	1.29	0.32	0.02	0.13	0.25	0.54	4.00
		Ag (g/t)	217	217	8.98	8.27	0.92	68.45	1.34	3.30	5.81	11.96	40.00
MS (L2)	Uncapped	Cu (%)	1,096	1,092	0.92	1.48	1.61	2.20	0.01	0.13	0.27	1.09	16.84
		Zn (%)	1,096	1,092	6.26	4.02	0.64	16.13	0.02	2.92	6.17	8.90	22.56
		Pb (%)	1,096	1,092	0.47	0.66	1.41	0.44	-	0.07	0.27	0.60	6.52
		Au (g/t)	1,096	1,092	0.55	1.03	1.88	1.07	-	0.12	0.24	0.55	14.30
		Ag (g/t)	1,096	1,092	28.08	32.76	1.17	1,073.00	1.84	12.61	18.73	29.32	342.51
	Capped	Cu (%)	1,096	1,092	0.90	1.36	1.51	1.85	0.01	0.13	0.27	1.09	7.00
		Zn (%)	1,096	1,092	6.26	4.01	0.64	16.07	0.02	2.92	6.17	8.90	21.00
		Pb (%)	1,096	1,092	0.47	0.64	1.38	0.41	-	0.07	0.27	0.60	5.00
		Au (g/t)	1,096	1,092	0.54	0.90	1.69	0.82	-	0.12	0.24	0.55	7.00
		Ag (g/t)	1,096	1,092	27.61	29.47	1.07	868.57	1.84	12.61	18.73	29.32	200.00
L3	Uncapped	Cu (%)	341	335	0.93	1.01	1.09	1.02	0.01	0.34	0.64	1.23	8.40
		Zn (%)	341	335	2.39	2.72	1.14	7.39	0.01	0.35	1.37	3.63	15.29
		Pb (%)	341	335	0.11	0.18	1.72	0.03	0.00	0.02	0.04	0.11	1.30
		Au (g/t)	341	335	0.27	0.36	1.37	0.13	0.00	0.11	0.19	0.32	5.34
		Ag (g/t)	341	335	13.43	10.02	0.75	100.31	1.01	6.90	11.17	17.25	88.70
	Capped	Cu (%)	341	335	0.91	0.91	0.99	0.82	0.01	0.34	0.64	1.23	5.00
		Zn (%)	341	335	2.31	2.45	1.06	6.00	0.01	0.35	1.37	3.63	9.00
		Pb (%)	341	335	0.10	0.14	1.42	0.02	0.00	0.02	0.04	0.11	0.60
		Au (g/t)	341	335	0.25	0.20	0.81	0.04	0.00	0.11	0.19	0.32	1.00
		Ag (g/t)	341	335	13.18	8.76	0.66	76.77	1.01	6.90	11.17	17.25	45.00

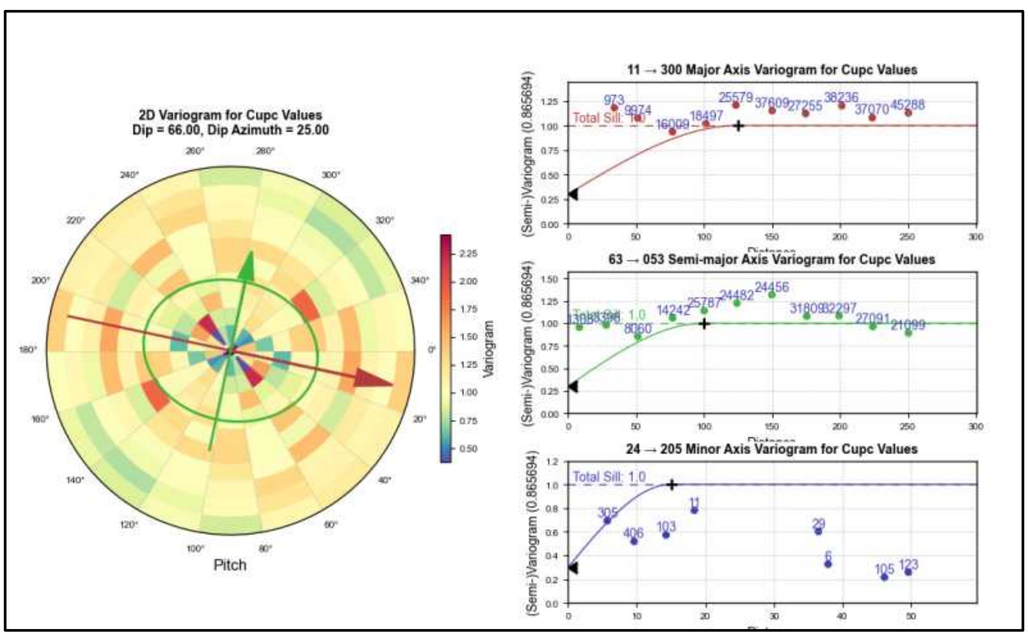
Zone	Dataset	Element	Count	Length	Mean	SD	CoV	Var	Min	Q1	Median	Q3	Max
SZ	Uncapped	Cu (%)	236	231	1.11	0.91	0.82	0.83	0.01	0.52	0.86	1.48	5.27
		Zn (%)	236	231	0.74	1.28	1.72	1.65	0.01	0.13	0.29	0.84	11.20
		Pb (%)	236	231	0.12	0.49	4.05	0.24	-	0.01	0.02	0.08	6.05
		Au (g/t)	236	231	0.30	0.34	1.13	0.12	0.00	0.11	0.21	0.36	3.16
		Ag (g/t)	236	231	15.46	21.73	1.40	472.08	0.40	6.90	11.27	17.10	259.22
	Capped	Cu (%)	236	231	1.10	0.87	0.79	0.75	0.01	0.52	0.86	1.48	4.00
		Zn (%)	236	231	0.58	0.62	1.07	0.38	0.01	0.13	0.29	0.84	2.00
		Pb (%)	236	231	0.09	0.24	2.59	0.06	-	0.01	0.02	0.08	1.50
		Au (g/t)	236	231	0.28	0.24	0.86	0.06	0.00	0.11	0.21	0.36	1.00
		Ag (g/t)	236	231	13.99	11.33	0.81	128.42	0.40	6.90	11.27	17.10	60.00

14.5.2 Variography

Variography is the analysis of the spatial continuity of grade for the commodity of interest. In the case of the McIlvenna Bay deposit, the analysis was done on each individual zone using down-the-hole variograms and 3D variographic analysis, in order to define the directions of maximum continuity of grade and, therefore, the best parameters to interpolate the grades of each of the five zones.

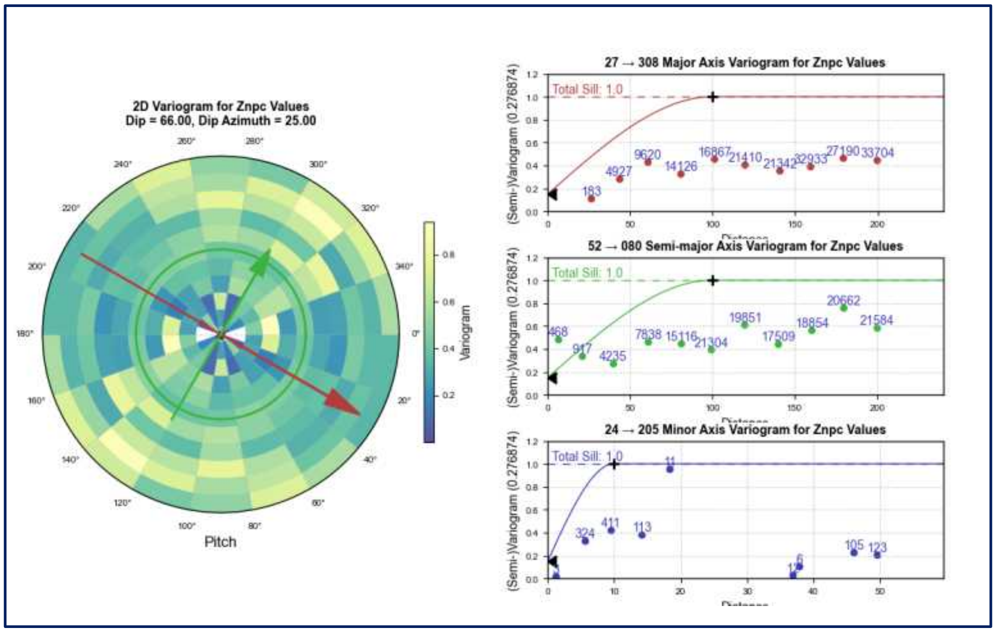
Variography must be performed on regular coherent shapes with geological continuity support. First, down-the-hole variograms were constructed for each vein, to establish the nugget effect to be used in the modelling of the 3D variograms. Figure 14.2 to Figure 14.7 show the variograms for the principal zones, CS and MS, for copper, zinc and gold.

Figure 14.2
CS Zone – 3D Variogram Summary for Copper



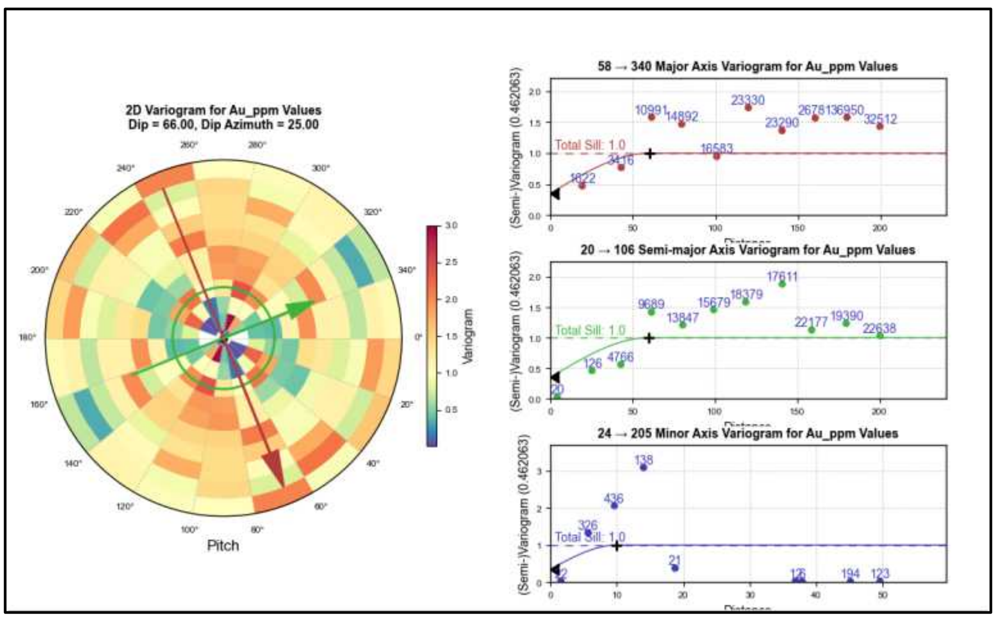
Source: Micon, 2021.

Figure 14.3
CS Zone – 3D Variogram Summary for Zinc



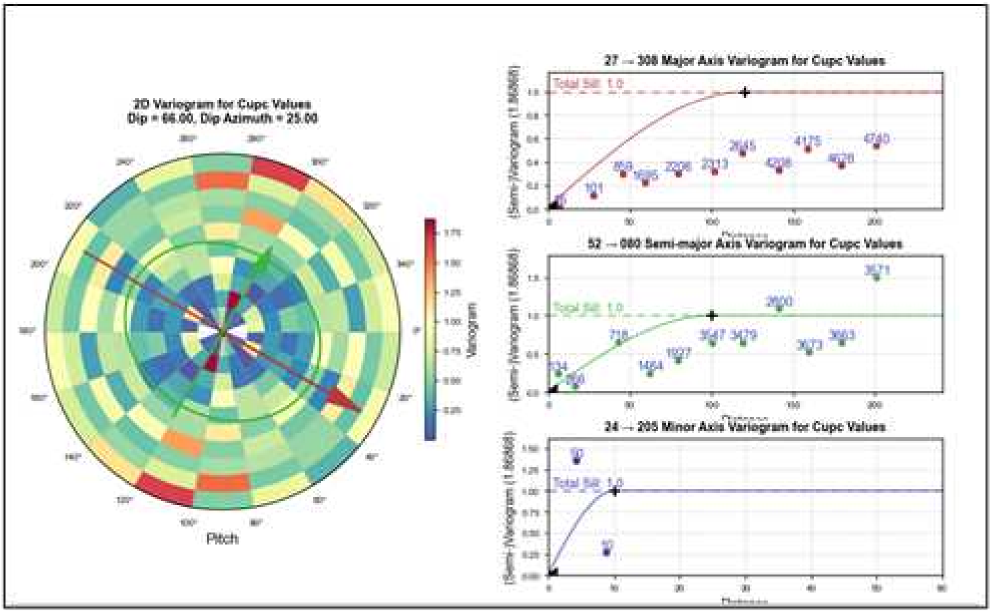
Source: Micon, 2021.

Figure 14.4
CS Zone – 3D Variogram Summary for Gold



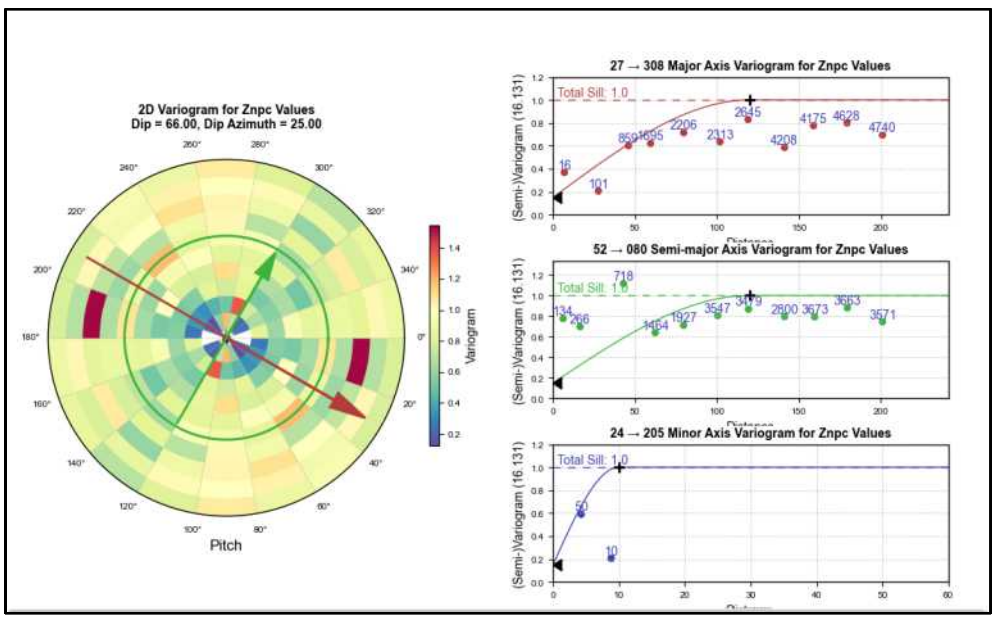
Source: Micon, 2021.

Figure 14.5
MS Zone – 3D Variogram Summary for Copper



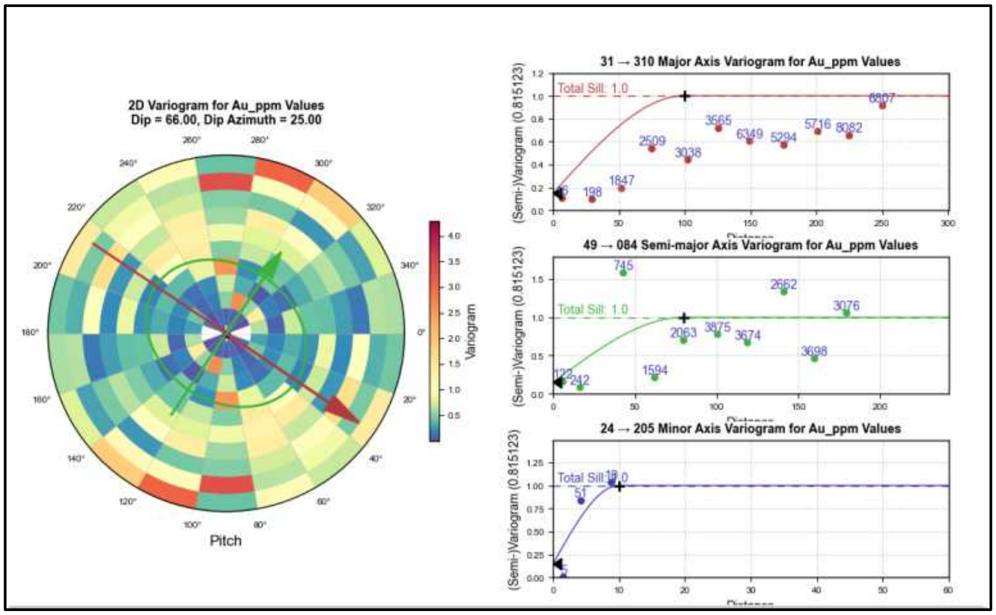
Source: Micon, 2021.

Figure 14.6
MS Zone – 3D Variogram Summary for Zinc



Source: Micon, 2021.

Figure 14.7
MS Zone – 3D Variogram Summary for Gold



Source: Micon, 2021.

Micon obtained good variogram models for all the five zones. They were sufficiently reliable to support the use of the Ordinary Kriging interpolation method. Major variogram ranges between 60 m and 125 m were modelled. Most ranges were in the range of 100 to 125 m for both copper and zinc. The variography results were used to support the search ranges and anisotropy directions.

14.5.2.1 Continuity and Trends

The McIlvenna Bay zones exhibit fairly stable strike and dip directions, with very mild variations. For the most part, both of the CS and the MS zones are contiguous with the remaining zones, running as parallel structures with well-defined geometries. Continuity of the zones is generally not only supported by geology but also by mineralization, with the regular drill hole intercepts giving sufficient confidence to the continuity of grade, both along strike and down dip. The general deposit bearings and dips are 315º strike direction and -68º dip, with a general plunge of -40º towards the northwest.

14.6 GRADE CAPPING

All outlier assay values for copper, zinc, lead, gold and silver were analyzed individually by zone, using log probability plots and histograms. It was decided to cap outlier assays based on the data grouped by zone.

In order to identify true outliers, and reduce the effect of short sample bias, the data were reviewed after compositing to a constant length of 1.0 m. Table 14.3 summarizes the capping grades used.

Table 14.3
Selected Capping Grades on 1 m Composites

Zone	Element	Max. Grade	Capping Grade	Capped Composites	Total Composites
CS	Cu (%)	10.78	6.00	9	2,791
	Zn (%)	8.72	4.50	4	2,791
	Pb (%)	0.91	0.45	13	2,791
	Au (g/t)	11.05	4.00	16	2,791
	Ag (g/t)	110	40.00	27	2,791
FW	Cu (%)	6.10	6.00	1	217
	Zn (%)	13.22	4.50	8	217
	Pb (%)	0.82	0.45	4	217
	Au (g/t)	4.65	4.00	2	217
	Ag (g/t)	54.56	40.00	4	217
MS	Cu (%)	16.84	7.00	8	1,096
	Zn (%)	22.55	21.00	3	1,096
	Pb (%)	6.52	5.00	3	1,096
	Au (g/t)	14.30	7.00	9	1,096
	Ag (g/t)	342.50	200.00	8	1,096
L3	Cu (%)	8.40	5.00	4	341
	Zn (%)	15.29	9.00	12	341
	Pb (%)	1.30	0.60	10	341
	Au (g/t)	5.34	1.00	6	341
	Ag (g/t)	88.70	45.00	5	341
SZ	Cu (%)	5.26	4.00	4	236
	Zn (%)	11.20	2.00	19	236
	Pb (%)	6.05	1.50	3	236
	Au (g/t)	3.16	1.00	9	236
	Ag (g/t)	259.22	60.00	5	236

14.7 Rock Density

A total of 8,558 density measurements were delivered to Micon, from which average densities were calculated for each zone at the McIlvenna Bay Project. The overall average density value for the entire deposit is 2.96 g/cm^3.

Table 14.4 summarizes the density measurement database for the McIlvenna Bay Project.

Table 14.4
Summary of the Density Measurements by Zone

Deposit Name	Count	Length (m)	Density Value (t/m^3)
Global (Entire Deposit)	8,558	3,315	2.96
CS	1,304	1,024	2.87
FW	74	57	2.97
MS	649	395	3.59
L3	174	109	3.28
SZ	140	99	3.00
Outside (Waste Rock)	6,209	1,632	2.83

14.8 Mineral Resource Estimate

The commodities of economic interest at the McIlvenna Bay Project are primarily copper and zinc, with secondary recoveries of gold and silver. The estimation of the deposit tonnage and grade was performed using Leapfrog Geo/EDGE software.

14.8.1 Block Model

A block model was constructed to represent the grades and densities within the five zones. A summary of the block model parameters is provided in Table 14.5.

Table 14.5
Block Model Information Summary

Description	Values Used
Model Dimension X (m)	2,000
Model Dimension Y (m)	550
Model Dimension Z (m)	1,450
Origin* X (Easting)	639,660
Origin* Y (Northing)	6,056,460
Origin* Z (Upper Elev.)	360
Clockwise Rotation (º)	35
Parent Block Size X (m) - Along Strike	10.0
Parent Block Size Y (m) - Across Strike	2.0
Parent Block Size Z (m) - Down Dip	10.0
Child Block Size X (m) - Along Strike	2.0
Child Block Size Y (m) - Across Strike	0.5
Child Block Size Z (m) - Down Dip	2.0

Note: *Origin is the centroid of the block

The drill hole intercepts used to model the wireframes were flagged into the mineral envelope to which they belonged. Each zone was interpolated using only the composites within that zone.

14.8.1.1 Search Strategy and Interpolation

A set of parameters were derived from variographic analysis to interpolate the composite grades into the blocks. A summary of the McIlvenna Bay Project Ordinary Kriging (OK) interpolation parameters is provided in Table 14.6.

Table 14.6
Ordinary Kriging Interpolation Parameter Summary

Element	Zone	Pass	Orientation			Search Parameters					
			Dip (°)	Dip Az (°)	Pitch (°)	Range Major Axis (m)	Range Semi-Major Axis (m)	Range Minor Axis (m)	Minimum Samples	Maximum Samples	Maximum Samples per Hole
Cu	CS	1	Dynamic Anisotropy			125	100	15	9	18	3
	MS	1	Dynamic Anisotropy			120	100	10	9	18	3
	L3	1	Dynamic Anisotropy			100	80	10	9	18	3
	FW	1	66	25	12	125	100	15	9	18	3
	SZ	1	Dynamic Anisotropy			100	80	10	9	18	3
Zn	CS		Dynamic Anisotropy			100	100	10	9	18	3
	MS		Dynamic Anisotropy			120	120	10	9	18	3
	L3		Dynamic Anisotropy			90	80	10	9	18	3
	FW		66	25	30	100	100	10	9	18	3
	SZ		Dynamic Anisotropy			80	60	10	9	18	3
Pb	CS		Dynamic Anisotropy			80	80	15	9	18	3
	MS		Dynamic Anisotropy			100	80	10	9	18	3
	L3		Dynamic Anisotropy			90	80	10	9	18	3
	FW		66	25	30	80	80	15	9	18	3
	SZ		Dynamic Anisotropy			80	80	10	9	18	3
Au	CS		Dynamic Anisotropy			60	60	10	9	18	3
	MS		Dynamic Anisotropy			100	80	10	9	18	3
	L3		Dynamic Anisotropy			100	100	10	9	18	3
	FW		66	25	68	60	60	10	9	18	3
	SZ		Dynamic Anisotropy			80	80	10	9	18	3
Ag	CS		Dynamic Anisotropy			80	60	15	9	18	3
	MS		Dynamic Anisotropy			80	80	10	9	18	3
	L3		Dynamic Anisotropy			80	60	10	9	18	3
	FW		66	25	61	80	60	15	9	18	3
	SZ		Dynamic Anisotropy			80	80	10	9	18	3
All	All	2	Same as Pass 1			x 2	x 2	x 2	1	12	3

14.8.2 Prospects for Economic Extraction

The CIM Standards require that a mineral resource must have reasonable prospects for eventual economic extraction. The mineral resource discussed herein has been constrained by reasonable mining shapes, using economic assumptions appropriate for an underground mining scenario. The potential mining shapes are conceptual in nature, not stope designs, and are based on a US$60.0/t net smelter return (NSR) cut-off value.

The metal prices and operating costs were provided by Foran and accepted by Micon's QP are considered appropriate to be used as the economic parameters for the mineral resource estimate.

Table 14.7 summarizes the underground economic assumptions upon which the resource estimate for the McIlvenna Bay Project is based.

Table 14.7
Summary of Economic Assumptions for the Mineral Resource Estimate

Description	Units	Value Used	Notes/Details
Metal Prices			
Copper Price	US$/lb	$4.25	
Zinc Price	US$/lb	$1.35	
Gold Price	US$/oz	$1,800	
Silver Price	US$/oz	$25.00	
Operating Costs			
Mining	US$/t	$41.00	From PFS
Processing	US$/t	$20.00	From PFS
G&A	US$/t	$8.40	From PFS
Royalty			
BHP Royalty (million)	CA$	$1.0	From PFS
Copper Reef	CA$/t	$0.75	From PFS
Marketing and Smelting Charges for Cu Concentrate			
Concentrate Moisture	%	8.0	
Payables:			
Cu	%	96.5	
Minimum deduction (units)	%	0.0	No minimum deduction
Au in Cu Con	%	96.0	
Ag in Cu Con	%	90.0	
Toll Charge	US$/t	$65.00	
Refining Charges:			
Cu	US$/lb	$0.065	
Au	US$/oz	$5.00	
Ag	US$/oz	$0.45	
Penalty for Impurities		$0.00	No appreciable impurities - zero penalty
Transportation Cost	US$/t	$104.41	Assumes shipping to Sudbury

Description	Units	Value Used	Notes/Details
Marketing and Smelting Charges for Zn Concentrate			
Concentrate Moisture	%	9.0	
Zinc Payable	%	85.0	
Toll Charge	US$/t	$125.00	
Penalty for Impurities		$0.00	
Transportation Cost	US$/t	$100.94	Assumes shipping to Trail

The economic parameters in Table 14.7 provided the foundation from which to develop NSR values for each block in the model.

14.8.2.1 NSR Calculation

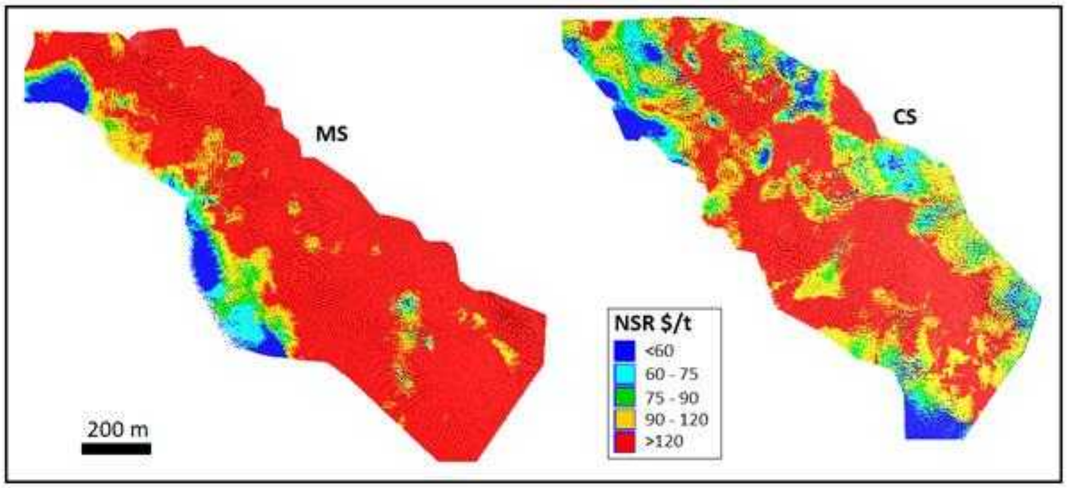
Using all the parameters shown in Table 14.8, Micon proceeded to calculate the NSR values for each block in the model. The theoretical NSR formula shown in Figure 14.8 was used for the current Resource Estimate. Figure 14.9 shows the blocks by NSR value for the MS and CS zones.

Figure 14.8
NSR Theoretical Formula Used at McIlvenna Bay

$$NSR(x_1, x_2, \ldots, x_n) = x_1 r_1 p_1 \left(V_1 - R_1\right) + x_2 r_2 p_2 \left(V_2 - R_2\right) + \ldots + x_n r_n p_n \left(V_n - R_n\right) - \frac{C_s}{K} - \frac{C_t}{K}$$

Variable	Definition
x	Grade of each metal in deposit
r	Process recovery of each metal
R	Refining cost of each metal
p	Smelting recovery of each metal
V	Market sale value of each metal
K	Tonnes of material required to produce one tonne of concentrate
C_s	Smelter cost per ton of concentrate
C_t	Transportation costs per ton of concentrate

Figure 14.9
MS and CS Zone Resource Blocks by NSR Value

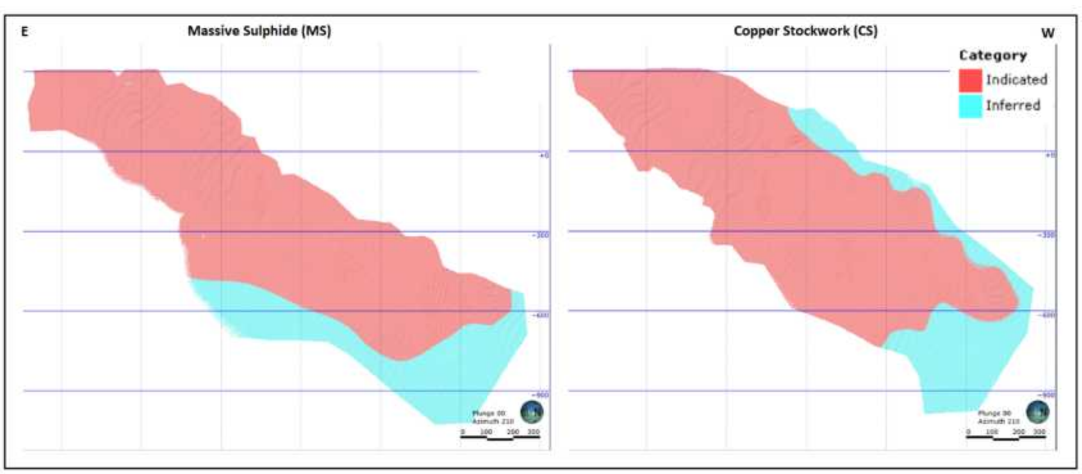


14.8.2.2 Mineral Resource Classification

Micon has classified the mineral resources at the McIlvenna Bay Project in the Indicated and Inferred categories. No Measured resource is declared at this time. The FW, L3 and SZ zones are entirely classified as Indicated Resources.

Micon categorized as Indicated resource those blocks informed by at least 4 drill holes and within 100 to 120 m spacing, based on the ranges obtained in the variograms. The results were then smoothed out to remove isolated small blocks and produce coherent shapes of reasonable volume, eliminating the spotted dog effect. All other blocks were classified in the Inferred category. Figure 14.10 shows the resource classification for the MS and CS zones.

Figure 14.10
Resource Classification for the MS and CS Zones, Looking in the SW Direction



14.9 MINERAL RESOURCE ESTIMATE

14.9.1 Mineral Resource Estimate

The updated mineral resource estimate discussed herein is summarized in Table 14.8. The effective date of this mineral resource is September 6, 2021 and the resource is reported using an NSR cut-off grade of US $60/t.

Table 14.8
Mineral Resources for the McIlvenna Bay Deposit, Reported at an NSR of US$ 60/t

Category	Zone	Mass (Mt)	NSR (US$/t)	Average Grades						Contained Metal				
				Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Au (Moz)	Ag (Moz)
Indicated	MS	10.75	198.8	1.01	6.17	0.41	0.53	26.56	3.13	238	1,462	98	0.18	9.2
	CS	22.74	127.1	1.31	0.38	0.02	0.37	9.14	1.60	659	190	10	0.27	6.7
	SZ	1.19	119.3	1.26	0.52	0.07	0.31	12.97	1.53	33	14	2	0.01	0.5
	L3	2.57	113.1	0.82	3.07	0.14	0.25	14.51	1.80	47	174	8	0.02	1.2
	FW	1.80	140.7	1.42	0.59	0.04	0.45	8.84	1.79	56	23	2	0.03	0.5
	Total	39.06	146.3	1.20	2.16	0.14	0.41	14.39	2.04	1,033	1,863	119	0.51	18.1
Inferred	MS	1.56	162.6	0.65	6.51	0.46	0.29	27.77	2.66	22	224	16	0.01	1.4
	CS	3.48	105.6	1.08	0.79	0.03	0.25	10.50	1.37	83	60	3	0.03	1.2
	Total	5.04	123.3	0.94	2.56	0.17	0.27	15.85	1.77	105	284	19	0.04	2.6

Notes:

1. Effective date September 6, 2021; CIM definitions were followed for Mineral Resources; CuEq = copper equivalent; NSR = Net Smelter Return.
2. The mineral resource is estimated based on 240 diamond drill holes and a NSR cut-off grade of US$60/t. NSR grades values derived, and high-grade caps were applied as per the discussion in Estimation Methodology and Parameters and include provisions for metallurgical recovery and estimates of current shipping terms and smelter rates for similar concentrates. Metal prices used are US$4.25/lb. Cu, US$1.35/lb. Zn, US$1,800/oz. Au, and US$25.00/oz. Ag. Lead contributes no value.
3. Rock density was interpolated for each block based on measurements taken from core specimens, with an average value of 3.59 g/cm^3 for the main MS lens and 2.87 g/cm^3 for the CS.
4. Mineral resources which are not mineral reserves do not have demonstrated economic viability.
5. CuEq values were calculated from the NSR values for each zone, using both concentrate and recovery curves that were developed during Pre-Feasibility level metallurgical studies.
6. The block model grades were estimated using the Ordinary Kriging interpolation method, with search parameters derived from geostatistical analysis performed within the mineralization wireframes. Variogram ranges are from 65 m to 85 m for Au and Ag in the major axis and up to 100 to 120 m for Cu and Zn.
7. Micon has not identified any legal, political, environmental, or other factors that could materially affect the potential development of the mineral resource estimate.
8. The mineral resource estimates are classified according to the CIM Standards which 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 characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge including sampling."

9. The mineral resource was categorized based on geological confidence into inferred and indicated categories. An inferred mineral resource has the lowest level of confidence. An indicated mineral resource has a higher level of confidence than an inferred mineral resource. It is reasonably expected that the majority of the inferred mineral resources could be upgraded to indicated mineral resources with additional infill drilling.

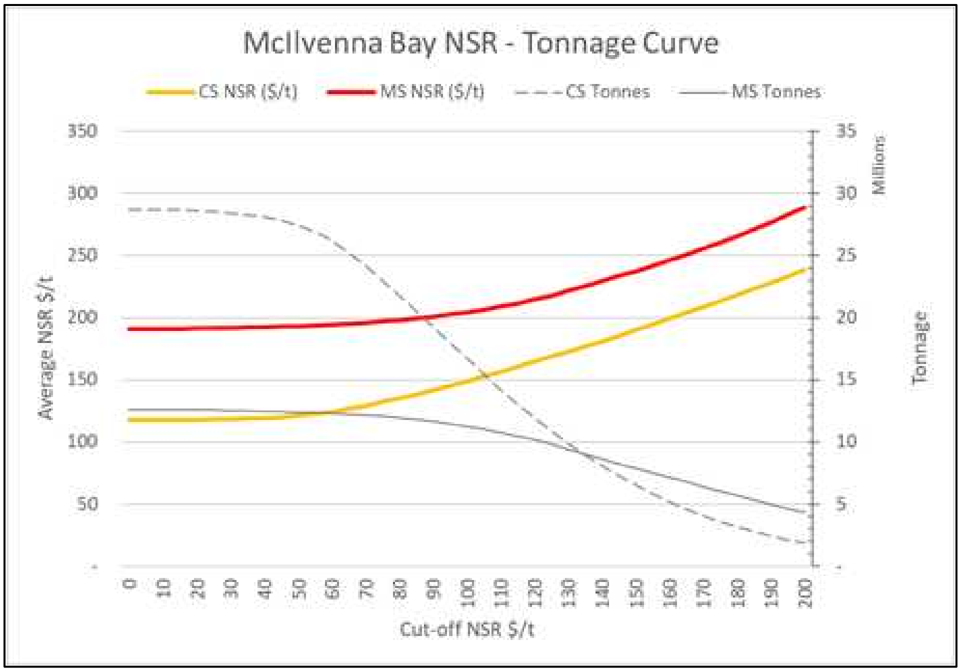
14.9.2 Sensitivity Analysis

As part of its update of Foran's 2021 mineral resource estimate, Micon examined the sensitivity of the mineral resource to a higher and lower NSR cut-offs. Table 14.9 summarizes the NSR sensitivity at US$90/t, US$75/t and US$45/t, with the base case at US$60/t. Figure 14.11 is a sensitivity graph which demonstrates the variation in tonnage and grade for the resource at different NSR cut-offs for the MS and CZ major zones. The QP has reviewed the NSR cut-offs used in the sensitivity analysis and it is the QP's opinion that they meet the test of reasonable prospects of economic extraction.

Table 14.9
Summary of the NSR Sensitivities at US$90/t, US$75/t, US$45/t with Base Case at US$60/t

Category	NSR Cut-off	Mass Mt	NSR US$/t	Average Grades						Contained Metal				
				Cu %	Zn %	Pb %	Au g/t	Ag g/t	CuEq %	Cu Mlb	Zn Mlb	Pb Mlb	Au Moz	Ag Moz
Indicated	90	31.59	162.92	1.29	2.49	0.16	0.47	15.86	2.27	901.68	1,735.19	110.15	0.47	16.11
	75	35.68	153.71	1.24	2.31	0.15	0.43	15.02	2.14	977.97	1,813.87	115.24	0.50	17.23
	60	39.06	146.31	1.20	2.16	0.14	0.41	14.39	2.04	1,033.35	1,863.09	118.69	0.51	18.07
	45	40.92	142.07	1.17	2.09	0.13	0.40	14.08	1.98	1,058.43	1,886.50	120.69	0.52	18.52
Inferred	90	3.58	142.77	1.01	3.23	0.21	0.32	18.29	2.07	79.79	255.46	16.31	0.04	2.11
	75	4.32	132.54	0.98	2.86	0.18	0.29	16.92	1.91	93.23	272.68	17.55	0.04	2.35
	60	5.04	123.29	0.94	2.56	0.17	0.27	15.85	1.77	104.87	284.14	18.51	0.04	2.57
	45	5.35	119.22	0.93	2.44	0.16	0.26	15.41	1.71	109.18	287.99	18.89	0.04	2.65

Figure 14.11
MS and CS Zones Resource Sensitivity by NSR Value



14.9.3 Responsibility for Estimation

The updated mineral resource estimated discussed in this Technical Report has been prepared under the supervision of William J. Lewis, P.Geo., of Micon. Mr. Lewis is independent of Foran and is a "Qualified Person" within the meaning of NI 43-101.

14.10 Block Model Validation

In validating the block model and the resource estimate, Micon conducted a statistical comparison of the input 1 m composites, against output interpolated data in the block model. Table 14.10 shows the comparison of global means, by element, and Figure 14.12 to Figure 14.15 show the swath plots of Cu and Zn for the two major zones, MS and CS. All comparisons show good agreement between the input data and the output estimates.

Table 14.10
McIlvenna Bay Statistical Comparison: Composites (Input) vs Blocks (Output)

Element	1 m Composites		Block Model	
	Count	Mean	Block Count	Mean
Cu	4,681	1.15	5,382,466	1.14
Zn	4,681	1.87	5,382,466	1.84

Element	1 m Composites		Block Model	
	Count	Mean	Block Count	Mean
Pb	4,681	0.13	5,382,466	0.12
Au	4,681	0.39	5,382,466	0.37
Ag	4,681	13.54	5,382,466	13.35

Figure 14.12
MS Zone – Cu Swath Plot

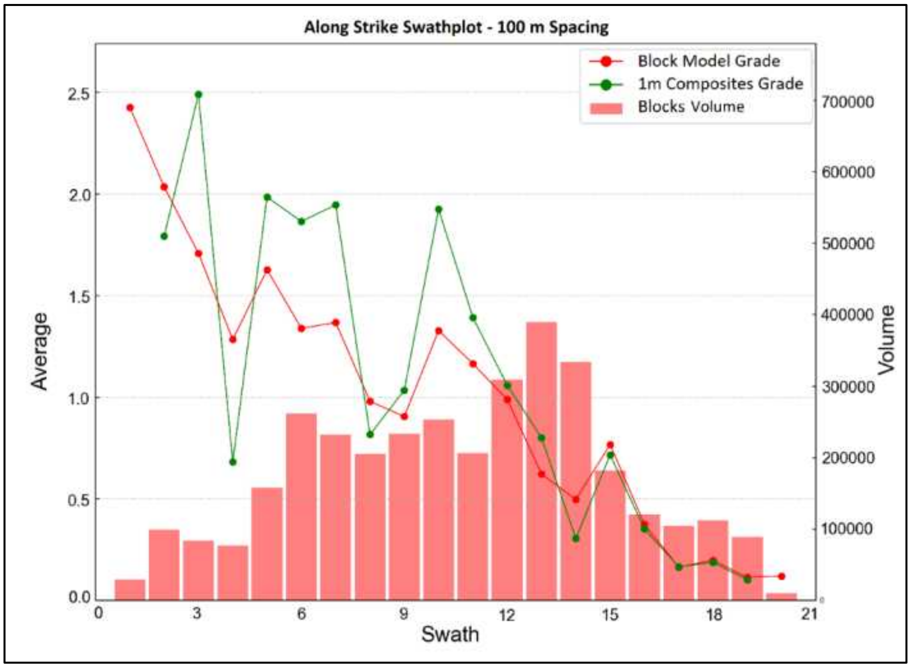


Figure 14.13
MS Zone – Zn Swath Plot

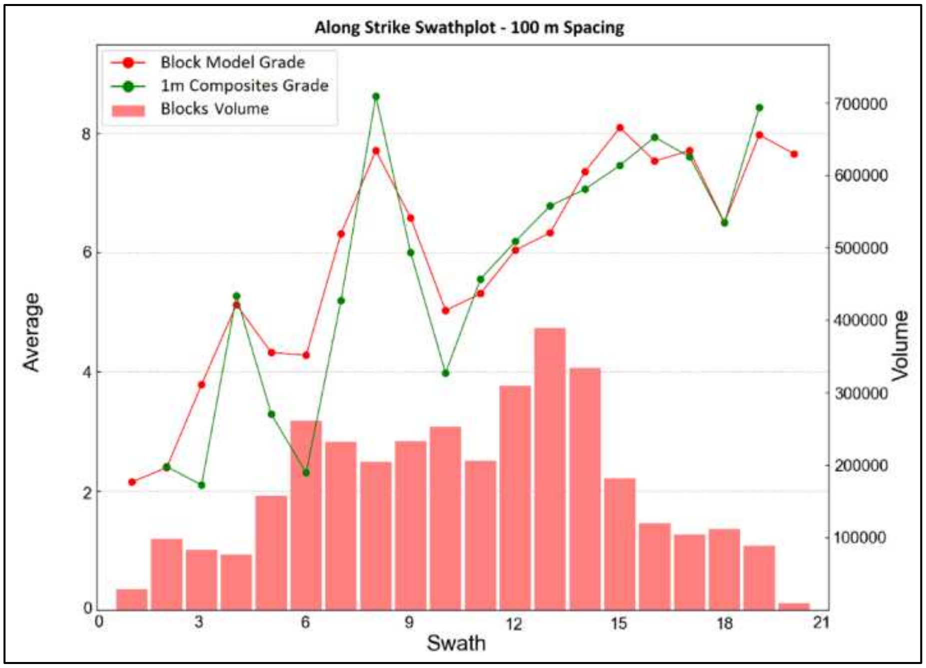


Figure 14.14
CS Zone – Cu Swath Plot

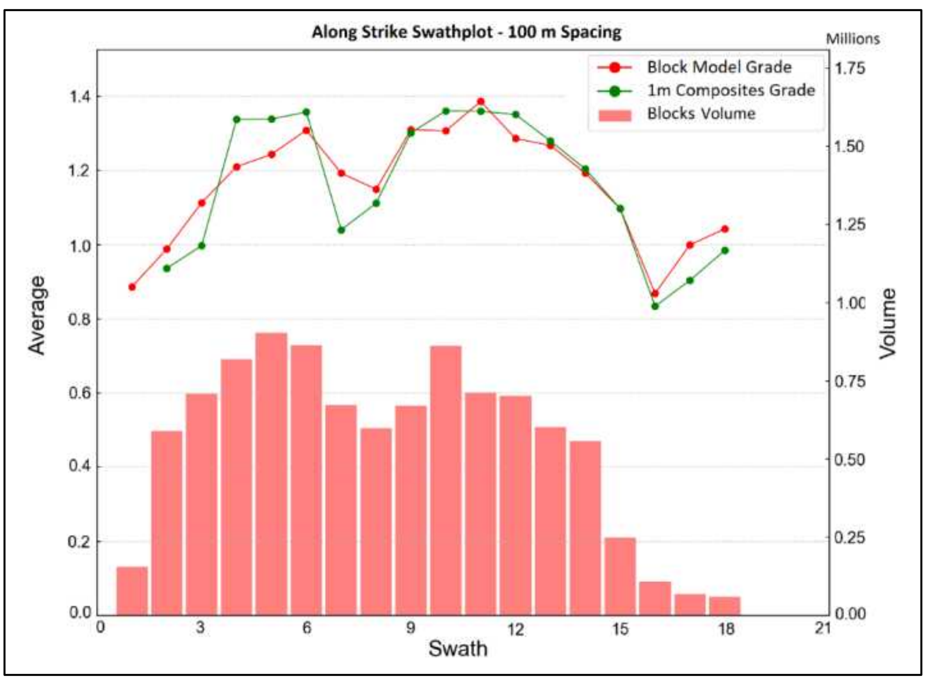
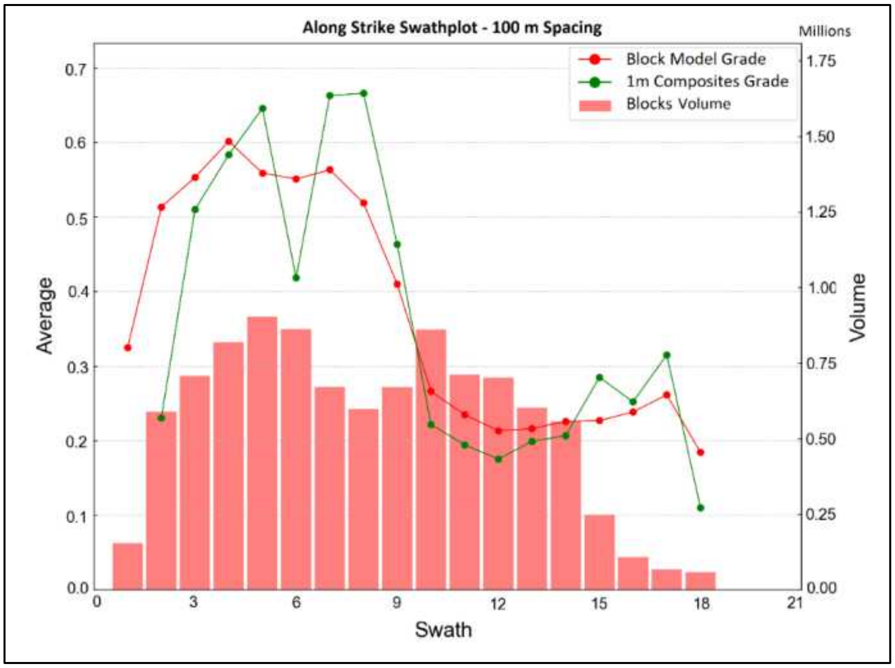


Figure 14.15
CS Zone – Zn Swath Plot



TECHNICAL REPORT SECTIONS NOT REQUIRED

The following sections which form part of the NI 43-101 reporting requirements for advanced projects or properties are not relevant to the current Technical Report for the McIlvenna Bay Project:

15.0 MINERAL RESERVE ESTIMATES

16.0 MINING METHODS

17.0 RECOVERY METHODS

18.0 PROJECT INFRASTRUCTURE

19.0 MARKET STUDIES AND CONTRACTS

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

21.0 CAPITAL AND OPERATING COSTS

22.0 ECONOMIC ANALYSIS

23.0 ADJACENT PROPERTIES

The following section has been extracted from the previous Foran Technical Reports for the McIlvenna Bay Project and updated or edited where necessary.

23.1 BASE METALS

There are no producing metal mines adjacent to the McIlvenna Bay property

Other VMS-style prospects are known to exist on Foran's claims and on adjacent ground (Figure 23.1). The more significant of these include the Balsam/Thunder Zone, located southeast of McIlvenna Bay, the Miskat Zone, located in the southernmost extremity of the property and the historic Bigstone deposit located on an adjacent property, 25 km to the west.

The past producing Hanson Lake Mine is located approximately 5 km to the northwest of McIlvenna Bay. The mine operated between 1967 and 1969 and produced 162,200 tons of ore averaging 9.99% Zn, 5.83% Pb, 0.51% Cu, and 4.0 oz/t Ag prior to being shut down. An undisclosed tonnage of unmined resource exists below the workings of the mine.

On January 23, 2020, Copper Reef Mining Corporation (Copper Reef) announced, in a press release, the commencement of a 4,300 m drilling program in the Flin Flon Camp of Manitoba and Saskatchewan. Copper Reef started with a 630 m program of 5 holes at its 100% owned Hanson Lake Property in Saskatchewan where Copper Reef has outlined two horizons each 2.5 km long.

Copper Reef's stated further in the press release that:

> *"The immediate drilling starting today will concentrate on the 2.5 km long Hanson Lake Mine horizon which was host to the former small but very rich Hanson Lake mine. The mine operated by Western Nuclear Mines between 1967 and 1969, produced 147,000 t containing 10% Zn, 5.8% Pb, 0.5% Cu and 137.0 g/t Ag. Although gold was noted, it appears to have not been recovered. Interesting is that there is no deep drilling below the mine where the existing workings did not extend below the 200 m level This leaves the horizon wide open for deep exploration. Copper Reef flew a deep penetrating VTEM airborne survey over the property, which showed that the Hanson Lake deposit extended significantly southward (700 m) beyond the mined area. In 1986, SMDC drilled a hole south of the mine that intersected 21.9% Zn, 1.6% Cu, 10.1% Pb and 28oz/ton Ag (960g/t Ag) and 0.89 oz/t Au (30.51 g/t Au) over 1.2 m just below the bottom of the lake. This high-grade intersection was not followed up with further drilling. Copper Reef intends to step back 20 metre and re-test this horizon at the 45 and 100 m levels and again from a separate set up 50 m south along strike of the first setup at similar depths. Copper Reef will then step back and drill the horizon with a fifth drill hole at the 200 m level."*

On August 14, 2020, Copper Reef announced that it has changed its name to Voyageur Mineral Explorers Corp. (Voyageur).

Figure 23.1
Adjacent Properties

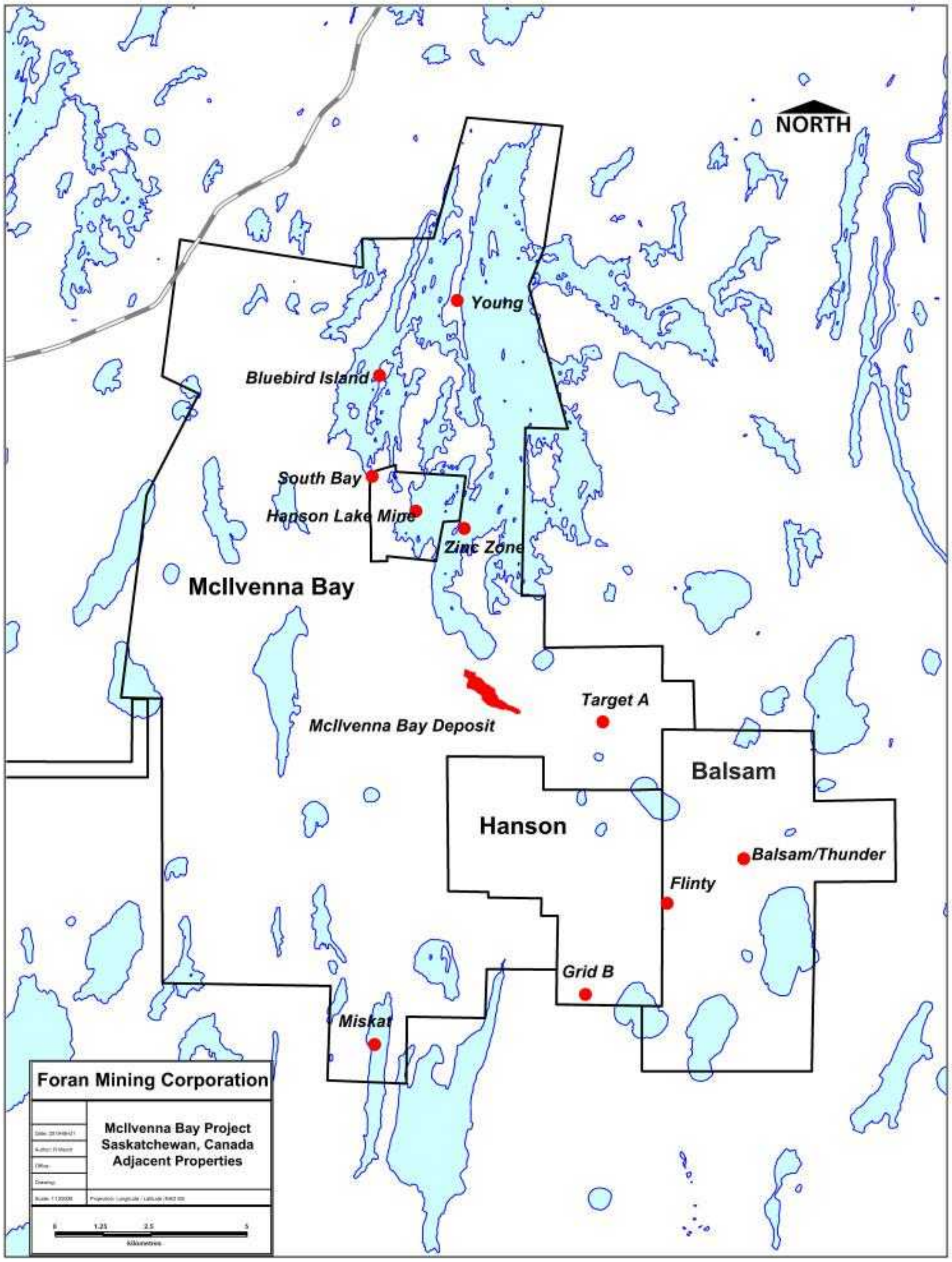


Figure provided by Foran dated June, 2019.

There were no further press releases by Copper Reef or Voyageur regarding the results of the drilling at its Hanson Lake Property in 2020 or 2021.

23.2 FRAC SAND

Preferred Sands was the operator of a past producing silica sand (frac sand) quarry located immediately east of McIlvenna Bay. The quarry was operated as an open pit mine, where up to 25 m of dolomite cap rock was blasted and removed, accessing three to five metres of silica sand. The sand was mined, washed and sorted into various size factions and marketed throughout western Canada and the US, where it was used as a proppant for hydraulic fracturing (fracking). In 2014, Preferred Sands shutdown operations and the site was subsequently re-claimed by pushing the waste rock and remaining sand back into the pits and re-contouring the landscape. Figure 23.2 is a view of the Preferred Sands quarry in July, 2011.

Figure 23.2
View of Preferred Sands Quarry, July 2011

Picture taken from the 2020 APG Prefeasibility Technical Report

The sand quarry leases overlie Foran's mineral tenure in the area (originally acquired in 1986) and were held by Preferred Sands and its predecessor companies since 1998, with additional leases in the area acquired in 2006. When the new management group took over operations for Foran in 2011, it was brought to the attention of the Saskatchewan Government that a potential conflict existed due to the granting of overlapping tenure. In order to protect the McIlvenna Bay deposit area from further conflict, a Crown Reserve was established by the Government over the deposit, to remove this area from further staking. Subsequently, the regulations around sand quarry staking in the province were amended to remove areas of existing mineral tenure from availability. When Preferred Sands shutdown operations in December, 2014, Foran acquired the five quarry leases from Preferred Sands that were in the vicinity of the McIlvenna Bay deposit to ensure that there was no further potential for conflict.

Hanson Lake Sand Corp. (now Strong Pine Energy Services (Strong Pine) also has sand quarry dispositions in the McIlvenna Bay area that were staked prior to the changes in the staking regulations discussed above. No production has taken place for these dispositions. In late 2019, Strong Pine presented an Environmental Impact Statement (EIS) and proposals to local communities regarding the operation of a new fracking sand mine in the vicinity of the McIlvenna Bay deposit (between the existing access road and Guyander Lake). However, the EIS and proposals do not disclose the economic parameters necessary to outline the financial viability of such an operation. Should Strong Pine bring this mine into operation, the main impact to the McIlvenna Bay project would be increased traffic on the mine access road. It is assumed at this point that an agreement would be reached between Strong Pine and Foran to safely manage this increase.

There has been no effort by Foran to attempt to establish a fracking sand resource estimate for the Project, although the same silica sand layer that was mined in the Preferred Sands pits does appear to extend over the McIlvenna Bay deposit. No value has been taken or is implied from frac sand in this study.

23.3 MICON QP COMMENTS

The Micon QP for this section does not consider that the information disclosed regarding the other base metal properties or deposits is indicative of mineralization within the McIlvenna Bay deposit.

The Micon QP offers no opinion regarding any economic potential of the Frac Sand deposit and its exploitation. The Frac Sand deposit is discussed in this section for information purposes only, as it is amongst other factors which Foran will need to consider as it moves forward towards any production decision regarding the McIlvenna Bay deposit.

24.0 OTHER RELEVANT DATA AND INFORNMATION

All relevant data and information regarding Foran's McIlvenna Bay Project are included in other sections of this Technical Report.

Neither Micon nor the QPs of this report are aware of any other data that would make a material difference to the quality of this Technical Report or make it more understandable, or without which the report would be incomplete or misleading.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 General

This NI 43-101 supersedes and replaces all prior Technical Reports written for the McIlvenna Bay Project.

Foran is in the process of conducting a Feasibility Study on its McIlvenna Bay Project. As part of this ongoing study, Foran requested that Micon prepare an updated mineral resource estimate which will form the basis of the Feasibility Study. The updated mineral resource estimate has utilized all of the available data from the prior drilling programs and includes the infill drilling and down dip and plunge extensional exploration drilling conducted in 2021.

25.2 McIlvenna Bay Project Mineral Resource Estimate

25.2.1 General Notes

The 2021 drilling program was designed not only to improve the confidence of the known inferred mineralization, such that it could be upgraded to indicated, but also to potentially increase the mineral resources at depth. Previous iterations of the resource model have been completed and published since 2010, with all of these previous resource estimations now superseded by the current 2021 estimate discussed herein.

The McIlvenna Bay mineral resources have been estimated using multiple tabular interpretations defined in five mineralization zones, Copper Stockwork (CS), Massive Sulphide (MS), Lens 3 (L3), Stringer Zone (SZ) and Copper Stockwork Footwall (FW). The five zones contain steep parallel, contiguous vein-type structures disposed next to each other, with similar bearings and dips. The mineral resources for the McIlvenna Bay zones have been estimated assuming an underground mining scenario.

25.2.2 Supporting Database

The basis for the mineral resource estimate was a drill hole database provided by Foran. The database and underlying QA/QC data were validated by Foran prior to being used in the modelling and estimation. After a further validation of the database, it was decided to exclude four drill holes[4] from the resource estimate due to: 1) an inaccurate collar survey for one hole; 2) one drill hole that was abandoned during the drilling program and 3) two drill holes because the assays had not been

[4] The excluded drill holes are MB-99-108, MB-21-230, MB-21-251 and MB-21-253. Drill hole 108 was removed due to an inaccurate collar location as confirmed by Foran. Drill hole 251 excluded because it was abandoned during the drilling program. Drill holes 230 and 253 were excluded because the assays for these holes were still pending at the time of the mineral resource estimate.

received by the time database was given to Micon. Table 25.1 summarizes the types and amount of data in the database and the portion of the data used for the mineral resource estimate.

Table 25.1
McIlvenna Bay Project Database

Data Type	In Database	Used For 2021 Resource Estimate*
Drill Collar	285	240
Assay Samples	11,737	5,652
Core Metreage	152,130	4,658**

*Excludes four drill holes from the resource estimate.
**Actual metres used within the resource wireframes.

The project topography was provided by Foran as a digital terrain model (DTM) in DXF format. The DTM was of sufficient quality, although, given the underground extraction assumption, it was not used for the mineral resource estimate.

25.2.3 Wireframes and Other Modelling Parameters

25.2.3.1 Wireframes

Foran and Micon jointly defined five mineralized domains, representing different areas and styles of VMS mineralization using Leapfrog Version 2021.1.3:

- Massive Sulphide – Main mineralized lens with internal gradational boundaries. The lens was previously modelled as two separate zones (MS and Upper West), but contact plots show no justification for a hard boundary.
- CS – Copper stockwork zone sitting stratigraphically below the massive sulphide.
- Stringer Zone – Copper and zinc stringer zone in the hangingwall above the massive sulphides.
- Lens 3 – Massive sulphide lens sitting in the hangingwall to the Stringer zone.
- FW – Small massive to semi-massive zone ore zone below the CS.

Wireframes were generated based on a set of mineralized intercepts defined by Foran and validated by Micon. The wireframes for each of the five domains were validated against drill hole data and found to reasonably represent the mineralization and the host rock. All of the mineralization is hosted within the same lithological unit, the McIlvenna Bay Formation, with minor local exceptions where the Lens 3 and Stringer mineralization can cross the hanging wall contact into the cap tuffite unit. The host rock package is of variably mineralized felsic and mafic volcanics, capped by a unit of mixed felsic tuff and cherty sediments, locally mineralized and overlain by the Koziol Iron Formation.

All diamond drill holes are properly snapped to the 3D wireframes to ensure that the volume to be estimated matches both the drilling and logging data collected on the deposit.

25.2.3.2 Compositing

The selected intercepts for the McIlvenna Bay Project were composited into 1.0 m equal length intervals, with the composite length selected based on the most common original sample length.

25.2.3.3 Variography

Variography is the analysis of the spatial continuity of grade for the commodity of interest. In the case of the McIlvenna Bay deposit, the analysis was done on each individual zone using down-the-hole variograms and 3D variographic analysis, in order to define the directions of maximum continuity of grade, and, therefore, the best parameters to interpolate the grades of each of the five zones.

Micon obtained good variogram models for all the five zones. They were sufficiently reliable to support the use of the Ordinary Kriging interpolation method. Major variogram ranges between 60 m and 125 m were modelled. Most ranges were in the range of 100 to 125 m for both copper and zinc. The variography results were used to support the search ranges and anisotropy directions.

25.2.3.4 Continuity and Trends

The McIlvenna Bay mineralized zones exhibit fairly stable strike and dip directions, with very mild variations. For the most part, both of the CS and the MS zones are contiguous, with the remaining zones running as parallel structures with well-defined geometries. Continuity of the zones is generally supported not only by geology but also by mineralization, with the regular drill hole intercepts giving sufficient confidence to the continuity of grade both along strike and down dip. The general deposit bearings and dips are 315º strike direction and -68º dip, with a general plunge of -40º towards northwest.

25.2.3.5 Capping

All outlier assay values for copper, zinc, lead, gold and silver were analyzed individually by zone, using log probability plots and histograms. It was decided to cap outlier assays based on the data grouped by zone. In order to identify true outliers, and reduce the effect of short sample bias, the data were reviewed after compositing to a constant interval length of 1.0 m.

25.2.3.6 Density

Foran taken density measurements as it continued its exploration programs, and this has resulted in a large database of measurements that permitted the determination of density by means of interpolation.

Measurements of bulk density are considered the more robust, and these data points (1,072, in total) were given precedence in the population of density in the block model. The final block value was assigned using a rolling average (ID0) for each domain, thus generating a smoother continuity of density.

25.2.4 Mineral Resource Estimate

The commodities of economic interest at the McIlvenna Bay Project are primarily copper and zinc, with secondary recoveries of gold and silver. The estimation of the deposit tonnage and grade was performed using Leapfrog Geo/EDGE software.

25.2.4.1 Block Model

A block model was constructed to represent the grade and densities within the five zones. The drill hole intercepts used to model the wireframes were flagged into the corresponding mineral envelope to which they belonged. Each zone was interpolated using only the composites within that zone.

25.2.5 Economic Parameters and Classification

25.2.5.1 Prospects for Economic Extraction

The CIM Standards require that a mineral resource must have reasonable prospects for eventual economic extraction.

The mineral resource discussed herein has been constrained by reasonable mining shapes, using economic assumptions appropriate for an underground mining scenario. The potential mining shapes are conceptual in nature, not stope designs, and are based on a US$60.0/t NSR cut-off value.

The metal prices and operating costs provided by Foran and accepted by Micon are considered appropriate to be used as the economic parameters for the mineral resource estimate.

Table 25.2 summarizes the underground economic assumptions upon which the resource estimate for the McIlvenna Bay Project is based.

Table 25.2
Summary of Economic Assumptions for the Mineral Resource Estimate

Description	Units	Value Used	Notes/Details
Metal Prices			
Copper Price	US$/lb	$4.25	
Zinc Price	US$/lb	$1.35	
Gold Price	US$/oz	$1,800	
Silver Price	US$/oz	$25.00	
Operating Costs			
Mining	US$/t	$41.00	From PFS
Processing	US$/t	$20.00	From PFS
G&A	US$/t	$8.40	From PFS
Royalty			
BHP Royalty (million)	CA$	$1.0	From PFS
Copper Reef	CA$/t	$0.75	From PFS
Marketing and Smelting Charges for Cu Concentrate			
Concentrate Moisture	%	8.0	
Payables:			
Cu	%	96.5	
Minimum deduction (units)	%	0.0	No minimum deduction
Au in Cu Con	%	96.0	
Ag in Cu Con	%	90.0	
Toll Charge	US$/t	$65.00	
Refining Charges:			
Cu	US$/lb	$0.065	
Au	US$/oz	$5.00	
Ag	US$/oz	$0.45	
Penalty for Impurities		$0.00	No appreciable impurities - zero penalty
Transportation Cost	US$/t	$104.41	Assumes shipping to Sudbury
Marketing and Smelting Charges for Zn Concentrate			
Concentrate Moisture	%	9.0	
Zinc Payable	%	85.0	
Toll Charge	US$/t	$125.00	
Penalty for Impurities		$0.00	
Transportation Cost	US$/t	$100.94	Assumes shipping to Trail

The economic parameters in Table 25.2 provided the foundation from which to develop NSR values for each block in the model.

25.2.5.2 Mineral Resource Classification

Micon has classified the mineral resource estimate at the McIlvenna Bay Project in the Indicated and Inferred categories. No Measured resource is declared at this time. The FW, L3 and SZ zones are entirely classified as Indicated Resources.

Indicated resource were restricted to those blocks informed by at least 4 drill holes and within 100 to 120 m, spacing based on the ranges obtained in the variograms. The results were then smoothed out to remove isolated small blocks and produce coherent shapes of reasonable volume, eliminating the spotted dog effect. All other blocks were classified in the Inferred category.

25.2.6 Mineral Resource Estimate

25.2.6.1 Mineral Resource Estimate

Micon's updated mineral resource estimate is summarized in Table 25.3. The effective date of this mineral resource estimate is September 6, 2021 and the estimate is reported using an NSR cut-off grade of US $60/t.

Table 25.3
Mineral Resources for the McIlvenna Bay Deposit, Reported at an NSR of US$ 60/t

Category	Zone	Mass (Mt)	NSR (US$/t)	Average Grades						Contained Metal				
				Cu (%)	Zn (%)	Pb (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Au (Moz)	Ag (Moz)
Indicated	MS	10.75	198.8	1.01	6.17	0.41	0.53	26.56	3.13	238	1,462	98	0.18	9.2
	CS	22.74	127.1	1.31	0.38	0.02	0.37	9.14	1.60	659	190	10	0.27	6.7
	SZ	1.19	119.3	1.26	0.52	0.07	0.31	12.97	1.53	33	14	2	0.01	0.5
	L3	2.57	113.1	0.82	3.07	0.14	0.25	14.51	1.80	47	174	8	0.02	1.2
	FW	1.80	140.7	1.42	0.59	0.04	0.45	8.84	1.79	56	23	2	0.03	0.5
	Total	39.06	146.3	1.20	2.16	0.14	0.41	14.39	2.04	1,033	1,863	119	0.51	18.1
Inferred	MS	1.56	162.6	0.65	6.51	0.46	0.29	27.77	2.66	22	224	16	0.01	1.4
	CS	3.48	105.6	1.08	0.79	0.03	0.25	10.50	1.37	83	60	3	0.03	1.2
	Total	5.04	123.3	0.94	2.56	0.17	0.27	15.85	1.77	105	284	19	0.04	2.6

Notes:

1. Effective date September 6, 2021; CIM definitions were followed for Mineral Resources; CuEq = copper equivalent; NSR = Net Smelter Return.
2. The mineral resource is estimated based on 240 diamond drill holes and a NSR cut-off grade of US$60/t. NSR grades values derived, and high-grade caps were applied as per the discussion in Estimation Methodology and Parameters and include provisions for metallurgical recovery and estimates of current shipping terms and smelter rates for similar concentrates. Metal prices used are US$4.25/lb. Cu, US$1.35/lb. Zn, US$1,800/oz. Au, and US$25.00/oz. Ag. Lead contributes no value.
3. Rock density was interpolated for each block based on measurements taken from core specimens, with an average value of 3.59 g/cm^3 for the main MS lens and 2.87 g/cm^3 for the CS.
4. Mineral resources which are not mineral reserves do not have demonstrated economic viability.

5. CuEq values were calculated from the NSR values for each zone, using both concentrate and recovery curves that were developed during Pre-Feasibility level metallurgical studies.
6. The block model grades were estimated using the Ordinary Kriging interpolation method, with search parameters derived from geostatistical analysis performed within the mineralization wireframes. Variogram ranges are from 65 m to 85 m for Au and Ag in the major axis and up to 100 to 120 m for Cu and Zn.
7. Micon has not identified any legal, political, environmental, or other factors that could materially affect the potential development of the mineral resource estimate.
8. The mineral resource estimates are classified according to the CIM Standards which 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 characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge including sampling."
9. The mineral resource was categorized based on geological confidence into inferred and indicated categories. An inferred mineral resource has the lowest level of confidence. An indicated mineral resource has a higher level of confidence than an inferred mineral resource. It is reasonably expected that the majority of the inferred mineral resources could be upgraded to indicated mineral resources with additional infill drilling.

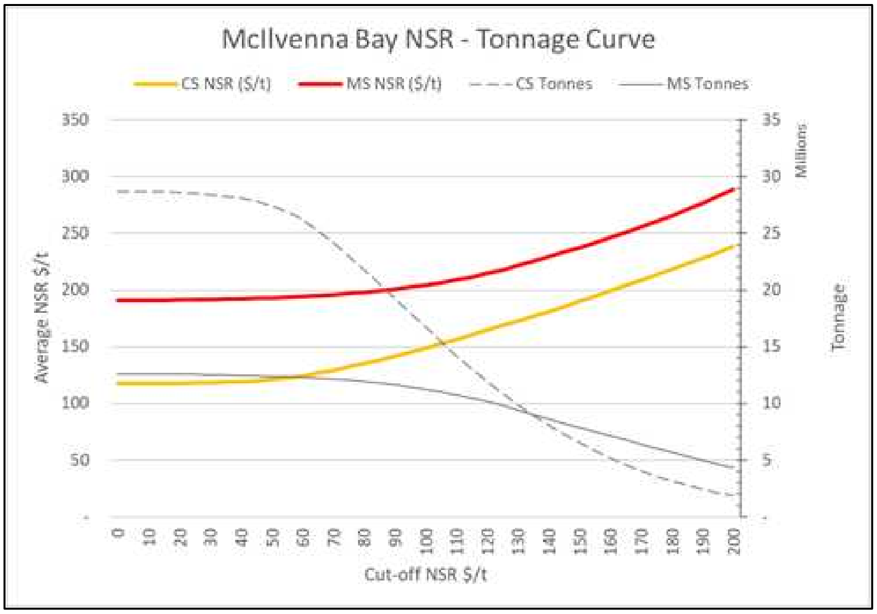
25.2.6.2 Sensitivity Analysis

As part of its update of Foran's 2021 mineral resource estimate, Micon examined various NSR cut-offs to illustrate the sensitivity of the mineral resource to a higher and lower NSR cut-off. Table 25.4 summarizes the NSR sensitivity at US$90/t, US$75/t and US$45/t, with the base case at US$60/t. Figure 25.1 is a sensitivity graph which demonstrates the variation in tonnage and grade for the resource at different NSR cut-offs for the MS and CZ major zones.

Table 25.4
Summary of the NSR Sensitivities at US$90/t, US$75/t, US$45/t with Base Case at US$60/t

Category	NSR Cut-off	Mass Mt	NSR US$/t	Average Grades						Contained Metal				
				Cu %	Zn %	Pb %	Au g/t	Ag g/t	CuEq %	Cu Mlb	Zn Mlb	Pb Mlb	Au Moz	Ag Moz
Indicated	90	31.59	162.92	1.29	2.49	0.16	0.47	15.86	2.27	901.68	1,735.19	110.15	0.47	16.11
	75	35.68	153.71	1.24	2.31	0.15	0.43	15.02	2.14	977.97	1,813.87	115.24	0.50	17.23
	60	39.06	146.31	1.20	2.16	0.14	0.41	14.39	2.04	1,033.35	1,863.09	118.69	0.51	18.07
	45	40.92	142.07	1.17	2.09	0.13	0.40	14.08	1.98	1,058.43	1,886.50	120.69	0.52	18.52
Inferred	90	3.58	142.77	1.01	3.23	0.21	0.32	18.29	2.07	79.79	255.46	16.31	0.04	2.11
	75	4.32	132.54	0.98	2.86	0.18	0.29	16.92	1.91	93.23	272.68	17.55	0.04	2.35
	60	5.04	123.29	0.94	2.56	0.17	0.27	15.85	1.77	104.87	284.14	18.51	0.04	2.57
	45	5.35	119.22	0.93	2.44	0.16	0.26	15.41	1.71	109.18	287.99	18.89	0.04	2.65

Figure 25.1
MS and CS Zones Resource Sensitivity by NSR Value



25.3 CONCLUSIONS

Foran's exploration activities have been successful in increasing the confidence in the geological interpretation of the deposit, as well as expanding upon the previous mineral resource estimates. Micon and its QPs consider that the current mineral resource estimate is robust and that the data upon which the estimate is based are suitable for use as the basis of the Feasibility Study which Foran is currently undertaking.

26.0 RECOMMENDATIONS

26.1 EXPLORATION BUDGET AND OTHER EXPENDITURES

Since acquiring the McIlvenna Bay Property, Foran has completed a number of economic studies, as well as exploration and drilling programs on both the McIlvenna Bay deposit and a number of secondary targets or zones. Foran has outlined potentially economic mineralization at the McIlvenna Bay deposit, which continues to remain open down dip and plunge at depth.

There has been sufficient drilling to classify a large portion of the mineralization as indicated, according to the current (2014) CIM guidelines. The mineralization encountered at depth within the deposit continues to be classified as inferred, at this time. It is believed that future underground drilling programs will be able to upgrade at least a portion of the inferred material to indicated and to define further mineralization, both down dip and down plunge of the current mineral resource estimate. While Foran conducted the 2021 drilling from surface, it is believed that all further drilling of the deposit will be conducted from underground, as it would be more cost effective to drill the deeper parts of the deposit in this manner. Micon concurs with this approach for future drilling.

During the remaining portion of 2021 and into 2022, Foran is planning to conduct the studies and engineering necessary to complete a Feasibility Study of its McIlvenna Bay Project. Foran's proposed budget expenditures to complete the Feasibility Study, and other studies, summarized in Table 26.1.

Table 26.1
Foran Budget Expenditures 2021-2022

Activity	Estimated Cost
Mining	$1,675,000
Project Management & Associated Services	$195,000
Portal Review & Mine Design	$450,000
Hydrogeology	$100,000
Ore & Waste Handling	$350,000
Estimating/Scheduling	$220,000
Reporting	$100,000
Geomechanical (design, site visit, testwork)	$120,000
Other Disbursements	$140,000
Surface Works	$1,145,000
Design: Instrumentation/Controls	$50,000
Design: Process plant	$420,000
Design: Infrastructure	$150,000
Paste Plant Cost Estimates	$40,000
Paste Plant Testwork and Design	$100,000

Activity	Estimated Cost
Site Water Balance	$45,000
Site Geotech (plant)	$20,000
Tailings: Site Investigations	$100,000
Tailings: Design	$170,000
Geochemistry Studies	$50,000
Misc Studies	$450,000
Geochemical/Metallurgical testwork	$50,000
Flotation Testing	$200,000
Carbon Footprint/Sustainable Project Work	$200,000
Other	$50,000
Financial Model & Marketing Study	$50,000
Admin/Management	$212,500
QP Services / Review / NI 43-101 Reporting	$212,500
Other	$402,200
Contingency	402,200
GRAND TOTAL	3,934,700

Table supplied by Foran, November, 2021.

Micon and its QPs agree with the direction of Foran's further studies and regard the expenditures and studies as appropriate. Micon and its QPs appreciate that the nature of the programs and expenditures may change as the Feasibility Study advances, and that the final expenditures and results may not be the same as originally proposed.

26.2 Further Recommendations

Micon's QPs understand that Foran is in the process of completing a Feasibility Study on the McIlvenna Bay deposit which occupies only a small portion of Foran's land position. In that context, Micon's QPs make the following additional recommendations:

1. Micon recommends that Foran completes its ongoing Feasibility Study.
2. Micon recommends that any future exploration drilling on the McIlvenna Bay deposit should be conducted from underground.
3. Micon recommends that Foran continue to conduct exploration on the secondary deposits on the McIlvenna Bay property, since these may contribute to mining production in the future.

27.0 DATE AND SIGNATURE PAGE

The independent Qualified Persons for this report are:

27.1 MICON INTERNATIONAL LIMITED

"William J. Lewis" {signed and sealed as of the report date}

William J. Lewis, P.Geo.	Report Date: November 25, 2021
Senior Geologist	Effective Date: September 6, 2021
	Amended Report Date: January 31, 2022

"Alan J. San Martin" {signed as of the report date}

Ing. Alan J. San Martin, MAusIMM (CP)	Report Date: November 25, 2021
Mineral Resource Specialist	Effective Date: September 6, 2021
	Amended Report Date: January 31, 2022

27.2 BLUE COAST RESEARCH LTD.

"Lyn Jones" {signed and sealed as of the report date}

Lyn Jones, M.A.Sc., P.Eng.	Report Date: November 25, 2021
Manager, Process Engineering	Effective Date: September 6, 2021
	Amended Report Date: January 31, 2022

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Kitco website, www.kitco.com

SEDAR website, www.sedar.com

Voyageur Mineral Explorers Corp., website www.voyageurexplorers.com, (2020 and 2021 Press Releases)

29.0 CERTIFICATES OF AUTHORS

CERTIFICATE OF AUTHOR

William J. Lewis

As the co-author of this report for Foran Mining Corporation entitled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project, Saskatchewan, Canada" dated November 25, 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022, I, William J. Lewis do hereby certify that:

1. I am employed as a Senior Geologist by, and carried out this assignment for, Micon International Limited, Suite 900, 390 Bay Street, Toronto, Ontario M5H 2Y2, tel. (416) 362-5135, e-mail wlewis@micon-international.com;
2. This certificate applies to the Technical Report titled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project, Saskatchewan, Canada" dated November 25, 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022;
3. I hold the following academic qualifications:

B.Sc. (Geology)	University of British Columbia	1985

4. I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of Manitoba (membership # 20480); as well, I am a member in good standing of several other technical associations and societies, including:
   - Association of Professional Engineers and Geoscientists of British Columbia (Membership # 20333)
   - Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories (Membership # 1450)
   - Professional Association of Geoscientists of Ontario (Membership # 1522)
   - The Canadian Institute of Mining, Metallurgy and Petroleum (Member # 94758)
5. I have worked as a geologist in the minerals industry for over 34 years;
6. I am familiar with NI 43-101 and, by reason of education, experience and professional registration, I fulfill the requirements of a Qualified Person as defined in NI 43-101. My work experience includes 4 years as an exploration geologist looking for gold and base metal deposits, more than 11 years as a mine geologist in underground mines and 21 years as a surficial geologist and consulting geologist on precious and base metals and industrial minerals;
7. I have read NI 43-101 and this Technical Report has been prepared in compliance with the instrument;
8. I conducted my original site visit to the McIlvenna Bay Project between August 16 and 18, 2018 to review the drilling programs on the property and discuss the ongoing QA/QC program. I conducted a second site visit in conjunction with this report between November 17 and November 19, 2021.
9. I have co-authored a previous Technical Reports for the mineral property that is the subject of this Technical Report;
10. I am independent Foran Mining Corporation and its subsidiaries according to the definition provided in NI 43-101 and the Companion Policy 43-101 CP;
11. I am responsible for Sections 1 through 12 (except 1.7 and 12.3 to 12.5), 14 (except 14.4 to 14.7, 14.8.1, 14.9.2 and 14.10) and 23 through 28 of this Technical Report;
12. As of the date of this certificate, 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 this technical report not misleading;

Report Dated this 25th day of November, 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022.

"William J. Lewis" {signed and sealed as of the report date}

William J. Lewis, B.Sc., P.Geo.
Senior Geologist, Micon International Limited

CERTIFICATE OF AUTHOR
Alan J. San Martin

As the co-author of this report for Foran Mining Corporation entitled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project, Saskatchewan, Canada" dated November 25, 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022, I, Alan J. San Martin do hereby certify that:

1. I am employed as a Mineral Resource Specialist by Micon International Limited, Suite 900, 390 Bay Street, Toronto, Ontario M5H 2Y2, tel. (416) 362-5135, e-mail asanmartin@micon-international.com.
2. I hold a Bachelor Degree in Mining Engineering (equivalent to B.Sc.) from the National University of Piura, Peru, 1999.
3. I am a member in good standing of the following professional entities:
   - The Australasian Institute of Mining and Metallurgy, accredited Chartered Professional in Geology, Membership #301778.
   - Canadian Institute of Mining, Metallurgy and Petroleum, Member ID 151724.
   - Colegio de Ingenieros del Perú (CIP), Membership # 79184.
4. I have continuously worked in my profession since 1999. My experience includes mining exploration, mineral deposit modelling, mineral resource estimation and consulting services for the mineral industry.
5. I am familiar with NI 43-101 and form 43-101F1 regulations and by reason of education, experience and professional registration with AusIMM (CP), I fulfill the requirements of a Qualified Person as defined in NI 43-101.
6. I have not visited the McIlvenna Bay Project.
7. I have co-authored a previous Technical Report for the McIlvenna Bay property.
8. As of the date of this certificate 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 this report not misleading.
9. I have read NI 43-101 and this Technical Report has been prepared in compliance with the instrument;
10. I am independent Foran Mining Corporation and its subsidiaries according to the definition provided in NI 43-101 and the Companion Policy 43-101 CP.
11. I am responsible for the preparation of Sections 12.3, 12.4, 14.4 to 14.7, 14.8.1, 14.9.2 and14.10 of this Technical Report.

Report Dated this 25th day of November 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022.

"Alan J. San Martin" {signed as of the report date}

Ing. Alan J. San Martin, MAusIMM (CP)
Mineral Resource Specialist, Micon International Limited

CERTIFICATE OF AUTHOR
Lyn Jones

As the co-author of this report for Foran Mining Corporation entitled "Technical Report for the 2021 Mineral Resource Estimate on the McIlvenna Bay Project, Saskatchewan, Canada" dated November 25, 2021 with an effective date of September 6, 2021 and amended as of January 31, 2022, I, Lyn Jones, do hereby certify that:

1. I am employed as the Manager, Process Engineering by, and carried out this assignment for, Blue Coast Research Ltd., Unit 2 – 1020 Herring Gull Way, Parksville, British Columbia, Canada, V9P 1R2, tel. (250) 586-0600, fax (250) 586-0445, e-mail lyn.jones@bluecoastresearch.ca.
2. I hold the following academic qualifications:
   M.A.Sc. (Metals and Materials Engineering), University of British Columbia, 1998
   B.A.Sc. (Chemical and Bio-Resource Engineering), University of British Columbia, 1996
3. I am a registered Professional Engineer with the Association of Professional Engineers of Ontario (Membership # 100067095) and am a member of The Canadian Institute of Mining, Metallurgy and Petroleum.
4. I have worked as a metallurgist and process engineer in the minerals industry for over 20 years;
5. I am familiar with NI 43-101 and, by reason of education, experience and professional registration, I fulfill the requirements of a Qualified Person as defined in NI 43-101. My work experience includes 6 years in metallurgical flowsheet development and testing, 6 years in process engineering, and 8 years in project consulting in base metals, precious metals, and industrial minerals;
6. I have read NI 43-101 and this Technical Report has been prepared in compliance with the instrument.
7. I have not visited the Project site.
8. This is the first Technical Report I have co-authored for the McIlvenna Bay Project.
9. I am independent of Foran Mining Corporation and related entities.
10. I am responsible for Sections 1.7, 12.5 and 13 of this Technical Report.
11. As of the date of this certificate, 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 this technical report not misleading.

Report Dated this 25th day of November, 2021 and Effective Report Date: September 6, 2021 and amended as of January 31, 2022.

"Lyn Jones" {signed and sealed as of the report date}

Lyn Jones, M.A.Sc., P.Eng.
Manager, Process Engineering, Blue Coast Research Ltd.

APPENDIX I
GLOSSARY OF MINING AND OTHER RELATED TERMS

The following is a glossary of certain mining terms that may be used in this Technical Report.

A

Assay	A chemical test performed on a sample of ores or minerals to determine the amount of valuable metals contained.

B

Base metal	Any non-precious metal (e.g., copper, lead, zinc, nickel, etc.).
Bulk mining	Any large-scale, mechanized method of mining involving many thousands of tonnes of ore being brought to surface per day.
Bulk sample	A large sample of mineralized rock, frequently hundreds of tonnes, selected in such a manner as to be representative of the potential orebody being sampled. The sample is usually used to determine metallurgical characteristics.
By-product	A secondary metal or mineral product recovered in the milling process.

C

Channel sample	A sample composed of pieces of vein or mineral deposit that have been cut out of a small trench or channel, usually about 10 cm wide and 2 cm deep.
Chip sample	A method of sampling a rock exposure whereby a regular series of small chips of rock is broken off along a line across the face.
CIM Standards	The CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by CIM Council from time to time. The most recent update adopted by the CIM Council is effective as of May 10, 2014.
CIM	The Canadian Institute of Mining, Metallurgy and Petroleum.
Concentrate	A fine, powdery product of the milling process containing a high percentage of valuable metal.
Contact	A geological term used to describe the line or plane along which two different rock formations meet.
Core	The long cylindrical piece of rock, about an inch in diameter, brought to surface by diamond drilling.
Core sample	One or several pieces of whole or split parts of core selected as a sample for analysis or assay.

Cross-cut A horizontal opening driven from a shaft and (or near) right angles to the strike of a vein or other orebody. The term is also used to signify that a drill hole is crossing the mineralization at or near right angles to it.

Cut-off grade The lowest grade of mineralized rock that qualifies as ore grade in a given deposit, and is also used as the lowest grade below which the mineralized rock currently cannot be profitably exploited. Cut-off grades vary between deposits depending upon the amenability of ore to gold extraction and upon costs of production.

D

Deposit An informal term for an accumulation of mineralization or other valuable earth material of any origin.

Development drilling

Drilling to establish accurate estimates of mineral resources or reserves usually in an operating mine or advanced project.

Dilution Rock that is, by necessity, removed along with the ore in the mining process, subsequently lowering the grade of the ore.

Dip The angle at which a vein, structure or rock bed is inclined from the horizontal as measured at right angles to the strike.

E

Epithermal Hydrothermal mineral deposit formed within one kilometre of the earth's surface, in the temperature range of 50 to 200°C.

Epithermal deposit

A mineral deposit consisting of veins and replacement bodies, usually in volcanic or sedimentary rocks, containing precious metals or, more rarely, base metals.

Exploration Prospecting, sampling, mapping, diamond drilling and other work involved in searching for ore.

F

Face The end of a drift, cross-cut or stope in which work is taking place.

Fault A break in the Earth's crust caused by tectonic forces which have moved the rock on one side with respect to the other.

Flotation A milling process in which valuable mineral particles are induced to become attached to bubbles and float as others sink.

Fold Any bending or wrinkling of rock strata.

Footwall	The rock on the underside of a vein or mineralized structure or deposit.
Foran	Foran Mining Corporation, including, unless the context otherwise requires, the Company's subsidiaries.
Fracture	A break in the rock, the opening of which allows mineral-bearing solutions to enter. A "cross-fracture" is a minor break extending at more-or-less right angles to the direction of the principal fractures.

G

Grade	Term used to indicate the concentration of an economically desirable mineral or element in its host rock as a function of its relative mass. With gold, this term may be expressed as grams per tonne (g/t) or ounces per tonne (opt).

H

Hangingwall	The rock on the upper side of a vein or mineral deposit.
High grade	Rich mineralization or ore. As a verb, it refers to selective mining of the best ore in a deposit.
Host rock	The rock surrounding an ore deposit.
Hydrothermal	Processes associated with heated or superheated water, especially mineralization or alteration.

I

Indicated Mineral Resource

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Inferred Mineral Resource

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Intrusive A body of igneous rock formed by the consolidation of magma intruded into other

K

km Abbreviation for kilometre(s). One kilometre is equal to 0.62 miles.

L

Leaching The separation, selective removal or dissolving-out of soluble constituents from a rock or ore body by the natural actions of percolating solutions.

Level The horizontal openings on a working horizon in a mine; it is customary to work mines from a shaft, establishing levels at regular intervals, generally about 50 m or more apart.

M

m Abbreviation for metre(s). One metre is equal to 3.28 feet.

Massive Sulphide Deposit

Any mass of unusually abundant metallic sulphide minerals, e.g. a Kuroko deposit

Measured Mineral Resource

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Metallurgy The science and art of separating metals and metallic minerals from their ores by mechanical and chemical processes.

Metamorphic Affected by physical, chemical, and structural processes imposed by depth in the earth's crust.

Mill A plant in which ore is treated and metals are recovered or prepared for smelting also, a revolving drum used for the grinding of ores in preparation for treatment.

Mine — An excavation beneath the surface of the ground from which mineral matter of value is extracted.

Mineral — A naturally occurring homogeneous substance having definite physical properties and chemical composition and, if formed under favourable conditions, a definite crystal form.

Mineral Claim/Permit

That portion of public mineral lands which a party has staked or marked out in accordance with federal or state mining laws to acquire the right to explore for and exploit the minerals under the surface.

Mineralization — The process or processes by which mineral or minerals are introduced into a rock, resulting in a valuable or potentially valuable deposit.

Mineral Resource

A Mineral Resource is 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. Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals. The term mineral resource used in this report is a Canadian mining term as defined in accordance with NI 43-101 – Standards of Disclosure for Mineral Projects under the guidelines set out in the Canadian Institute of Mining, Metallurgy and Petroleum (the CIM), Standards on Mineral Resource and Mineral Reserves Definitions and guidelines adopted by the CIM Council on December 11, 2005 and recently updated as of May 10, 2014 (the CIM Standards).

Mineral Reserve

A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. The public disclosure of a Mineral Reserve must be demonstrated by a Pre-Feasibility Study or Feasibility Study.

N

Net Smelter Return

A payment made by a producer of metals based on the value of the gross metal production from the property, less deduction of certain limited costs including smelting, refining, transportation and insurance costs.

NI 43-101

National Instrument 43-101 is a national instrument for the Standards of Disclosure for Mineral Projects within Canada. The Instrument is a codified set of rules and guidelines for reporting and displaying information related to mineral properties owned by, or explored by, companies which report these results on stock exchanges within Canada. This includes foreign-owned mining entities who trade on stock exchanges overseen by the Canadian Securities Administrators (CSA), even if they only trade on Over-The-Counter (OTC) derivatives or other instrumented securities. The NI 43-101 rules and guidelines were updated as of June 30, 2011.

O

Open Pit/Cut A form of mining operation designed to extract minerals that lie near the surface. Waste or overburden is first removed, and the mineral is broken and loaded for processing. The mining of metalliferous ores by surface-mining methods is commonly designated as open-pit mining as distinguished from strip mining of coal and the quarrying of other non-metallic materials, such as limestone and building stone.

Outcrop An exposure of rock or mineral deposit that can be seen on surface, that is, not covered by soil or water.

Oxidation A chemical reaction caused by exposure to oxygen that results in a change in the chemical composition of a mineral.

P

Plant A building or group of buildings in which a process or function is carried out; at a mine site it will include warehouses, hoisting equipment, compressors, maintenance shops, offices and the mill or concentrator.

Plunge Plunge refers to the downward angle and direction of a linear structure. Most commonly it is used to measure the direction and angle of the plunge of a fold axis or hinge.

Probable Reserve

A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying

Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

Proven Reserve

A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.

Pyrite — A common, pale-bronze or brass-yellow, mineral composed of iron and sulphur. Pyrite has a brilliant metallic luster and has been mistaken for gold. Pyrite is the most wide-spread and abundant of the sulfide minerals and occurs in all kinds of rocks.

Q

Qualified Person

Conforms to that definition under NI 43-101 for an individual: (a) to be an engineer or geoscientist with a university degree, or equivalent accreditation, in an area of geoscience, or engineering, related to mineral exploration or mining; (b) has at least five years' experience in mineral exploration, mine development or operation or mineral project assessment, or any combination of these, that is relevant to his or her professional degree or area of practice; (c) to have experience relevant to the subject matter of the mineral project and the technical report; (d) is in good standing with a professional association; and (e) in the case of a professional association in a foreign jurisdiction, has a membership designation that (i) requires attainment of a position of responsibility in their profession that requires the exercise of independent judgement; and (ii) requires (A.) a favourable confidential peer evaluation of the individual's character, professional judgement, experience, and ethical fitness; or (B.) a recommendation for membership by at least two peers, and demonstrated prominence or expertise in the field of mineral exploration or mining.

R

Reclamation — The restoration of a site after mining or exploration activity is completed.

S

Shoot — A concentration of mineral values; that part of a vein or zone carrying values of ore grade.

Stockpile — Broken ore heaped on surface, pending treatment or shipment.

Strike — The direction, or bearing from true north, of a vein or rock formation measure on a horizontal surface.

Stringer — A narrow vein or irregular filament of a mineral or minerals traversing a rock mass.

T

Terrain	A terrain in geology, in full a tectonostratigraphic terrain, is a fragment of crustal material formed on, or broken off from, one tectonic plate and accreted or "sutured" to crust lying on another plate.
Tonne	A metric ton of 1,000 kilograms (2,205 pounds).

U

Underground Mining	Is the process of extracting rock from underground using a network of tunnels and openings, often called stopes. This mining is generally more expensive with lower production rates due to the use of smaller equipment than open pit/ open cast mining at the surface.

V

Vein	A fissure, fault or crack in a rock filled by minerals that have travelled upwards from some deep source.
Volcanogenic	Formed by processes directly connected with volcanism: specif., said of mineral deposits (massive sulphides, exhalites, banded iron formations) considered to have been produced through volcanic agencies and demonstrably associated with volcanic phenomena.

W

Wall rocks	Rock units on either side of an orebody. The hanging wall and footwall rocks of a mineral deposit or orebody.
Waste	Unmineralized, or sometimes mineralized, rock that is not minable at a profit.
Working(s)	May be a shaft, quarry, level, open-cut, open pit, or stope etc. Usually noted in the plural.

Z

Zone	An area of distinct mineralization.

APPENDIX II
TSL ASSAY CERTIFICATES FOR THE 2018 MICON SITE VISIT SAMPLES

TSL LABORATORIES

2 - 302 48th Street · Saskatoon, SK · S7K 6A4
P (306) 931-1033 F (306) 242-4717 E info@tsllabs.com

Company: Micon International Ltd
Geologist: B. Lewis
Project:

TSL Report: S55924
Date Received: Nov 26, 2018
Date Reported: Nov 28, 2018
Invoice: 76121

Remarks:

Sample Type:	Number	Size Fraction	Sample Preparation
Reject	13	Reject ~ 70% -10 mesh (1.70 mm) Pulp ~ 95% -150 mesh (106 µm)	Riffle Split, Pulverize
Pulp	0		None

Pulp Size: ~250 grams

Standard Procedure:

Samples for Au Fire Assay/AA (ppb) are weighed at 30 grams.
Samples for Au Fire Assay/Gravimetric (g/tonne) are weighed at 1 AT (29.16 g)
Samples for Ag (g/tonne), Base Metals (%) are weighed at 0.5 gram

Element Name	Unit	Extraction Technique	Lower Detection Limit	Upper Detection Limit
Au	ppb	Fire Assay/AA	5	3000
Au	g/tonne	Fire Assay/Gravimetric	0.03	100%
Ag	g/tonne	HNO_3-HF-$HClO_4$-HCl/AA	1	1000
Cu	%	HNO_3-HF-$HClO_4$-HCl/AA	0.01	80
Pb	%	HNO_3-HF-$HClO_4$-HCl/AA	0.01	80
Zn	%	HNO_3-HF-$HClO_4$-HCl/AA	0.01	80

Results are representative of samples submitted for testing.
Test reports may be reproduced, in their entirety, without our consent.
Liability is limited to the analytical cost for analyses.

TSL LABORATORIES

#2 – 302 48th Street · Saskatoon, SK · S7K 6A4
P (306) 931-1033 F (306) 242-4717 E info@tsllabs.com

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM Micon International Ltd.
Suite 900 - 390 Bay Street
Toronto, ON M5H 2Y2

REPORT No.
S55924

SAMPLE(S) OF 13 Reject

INVOICE #:76121
P.O.:

B. Lewis
Project:

	Au ppb	Au1 ppb	Au g/t	Ag g/t	Cu %	Pb %	Zn %	Specific Gravity	File Name
780581	110			10.8	0.85	0.02	0.70	2.68	S55924
780583	140			20.5	2.29	0.02	2.23		S55924
780584	130			16.9	0.62	0.12	1.08		S55924
780588	620			45.7	0.77	0.88	10.30		S55924
780593	420			16.4	1.87	0.04	4.33		S55924
780597	>1000	>1000	1.37	34.2	3.25	0.27	2.57	3.08	S55924
780600	>1000		7.27	44.8	5.36	0.05	0.38		S55924
780604	10			0.4	<0.01	<0.01	<0.01		S55924
780607	180			7.4	1.49	<0.01	0.06		S55924
780608	880			35.9	9.05	0.02	0.63		S55924
780609	320			6.5	1.50	<0.01	0.15	2.68	S55924
780614	150			3.6	0.66	<0.01	0.04		S55924
780618	35			2.2	0.65	<0.01	0.03		S55924
GS-1P5P	1450								S55924
GS-7E			7.34						S55924
ME-8				61.0	.10	1.94	2.00		S55924
ME-1411				44.1	1.54	.26	.47		S55924

COPIES TO: B. Lewis
INVOICE TO: Micon International Ltd.

Nov 28/18

SIGNED
Mark Acres - Quality Assurance

Page 1 of 1

TSL LABORATORIES

2 - 302 48th Street · Saskatoon, SK · S7K 6A4
P (306) 931-1033 F (306) 242-4717 E info@tsllabs.com

Company:	Micon International Ltd	TSL Report:	S55924
Geologist:	B. Lewis	Date Received:	Nov 26, 2018
Project:		Date Reported:	Nov 29, 2018
Purchase Order.		Invoice:	76121

Sample Type:	Number	Size Fraction	Sample Preparation
Reject	13	Reject ~ 70% at –10 mesh (1.70 mm) Pulp ~ 95% at –150 mesh (106 µm)	Riffle Split, Pulverize
Pulp	0		None

ICP-AES Aqua Regia Digestion $HCl-HNO_3$

The Aqua Regia Leach digestion liberates most of the metals except those marked with an asterisk where the digestion will not be complete.

Element Name	Lower Detection Limit	Element Name	Lower Detection Limit
Ag	0.3 ppm	Mo	1 ppm
Al *	0.01%	Na *	0.01%
As	2 ppm	Ni	1 ppm
Ba *	1 ppm	P *	0.001%
Be *	1 ppm	Pb	3 ppm
Bi	3 ppm	S	0.05 %
Ca *	0.01%	Sb	3 ppm
Cd	0.5 ppm	Sn *	5 ppm
Co	1 ppm	Sr *	1 ppm
Cr *	1 ppm	Ti *	0.01%
Cu	1 ppm	V *	1 ppm
Fe *	0.01%	W *	2 ppm
K *	0.01%	Y	1 ppm
Mg *	0.01%	Zn	1 ppm
Mn *	2 ppm	Zr *	1 ppm

Results are representative of samples submitted for testing.
Test reports may be reproduced, in their entirety, without our consent
Liability is limited to the analytical cost for analyses.

TSL LABORATORIES INC.

2 - 302 48th Street East, Saskatoon, Saskatchewan, S7K 6A4
Tel: (306) 931-1033 Fax: (306) 242-4717

Micon International Ltd
Attention: B. Lewis
Project:
Sample: 13 Reject / 0 Pulp

Report No: S55924
Date: November 30, 2018

MULTIELEMENT ICP ANALYSIS

Aqua Regia Digestion

Element Sample	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm
780581	10.1	4	10	28	16	24	0.57	22.9	27	35	8172	10.53	25	<1
780583	20.1	2.96	26	<20	63	6	0.3	80.3	48	62	>10000	11.18	15	2
780584	14.8	3.3	30	<20	139	79	0.84	31	25	59	5829	8.57	16	<1
780588	42	0.84	202	24	10	64	5.98	302.6	51	34	6831	18.64	34	27
780593	15.4	0.9	119	27	3	7	7.97	146.2	24	15	>10000	16.53	21	7
780597	35.2	0.96	272	26	3	31	9.78	98	24	17	>10000	16.97	25	6
780600	39.2	1.34	81	<20	30	72	0.05	18.2	87	59	>10000	14.76	13	2
780604	<0.3	1.17	18	47	118	<3	0.33	<0.5	6	67	51	1.98	6	<1
780607	6.1	2.15	27	35	49	28	0.07	3.4	27	61	>10000	5.1	9	<1
780608	33	1.4	140	27	22	42	0.03	33.5	77	77	>10000	14.8	15	1
780609	5.9	2.14	73	39	40	32	0.06	5.4	53	61	>10000	8.38	9	<1
780644	2.2	2.74	29	<20	28	5	0.11	1.7	8	78	6210	4.84	14	<1
780618	2	2.15	5	23	9	4	0.04	1.3	13	70	6216	3.79	10	<1
STD OREAS45EA	<0.3	3.08	4	22	143	<3	0.04	<0.5	47	847	673	20.63	29	<1
STD DS11	1.6	1.02	41	<20	392	8	0.96	2.1	12	53	141	2.92	5	<1
STD OREAS262	0.5	1.09	34	<20	240	<3	2.86	<0.5	25	38	112	3.2	6	<1
BLK	<0.3	<0.01	<2	<20	<1	<3	<0.01	<0.5	<1	<1	<1	<0.01	<5	<1

Element Sample	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %
780581	0.08	32	3.16	727	2	<0.01	2	0.003	266	3.77	<3	<5	6	3	0.015
780583	0.22	25	2.43	511	1	0.01	4	0.021	217	6.81	<3	<5	14	<2	0.022
780584	0.42	31	3	579	1	0.03	12	0.068	1230	4.09	<3	<5	41	<2	0.046
780588	0.02	14	4.24	1097	2	<0.01	3	0.002	8864	>10.00	22	<5	50	<2	0.005
780593	0.01	16	6.42	1443	2	0.01	2	0.002	413	>10.00	17	<5	38	<2	0.006
780597	<0.01	20	6.33	1353	<1	0.01	2	0.003	2901	9.13	36	<5	52	<2	0.007
780600	0.21	12	1.06	101	1	<0.01	2	0.001	453	>10.00	<3	<5	2	<2	0.013
780604	0.7	6	0.81	284	<1	0.07	7	0.042	28	0.14	<3	<5	8	<2	0.075
780607	0.4	14	1.79	171	1	0.01	1	<0.001	84	2.18	<3	<5	3	<2	0.023
780608	0.14	9	1.14	118	1	<0.01	2	<0.001	224	6.23	<3	<5	1	<2	0.009
780609	0.23	16	1.66	247	<1	0.01	1	0.001	67	4.59	<3	<5	3	<2	0.017
780644	0.19	19	2.23	306	2	0.01	3	0.008	15	1.14	<3	<5	5	<2	0.011
780618	0.09	18	1.76	212	1	<0.01	2	0.001	7	0.86	<3	<5	2	<2	0.007
STD OREAS45EA	0.05	7	0.09	388	<1	0.02	365	0.028	21	<0.05	<3	80	3	9	0.093
STD DS11	0.37	15	0.77	959	12	0.07	72	0.067	128	0.26	8	<5	59	6	0.077
STD OREAS262	0.28	12	1.11	507	<1	0.07	59	0.037	49	0.25	3	<5	34	8	0.003
BLK	<0.01	<1	<0.01	<2	<1	<0.01	<1	<0.001	<3	<0.05	<3	<5	<1	<2	<0.001

A 0.5 g sample is digested with 3 ml 3:1 HCl-HNO3 at 95C for 1 hour and diluted to 10 ml with D.I. H2O.

Signed: ____________________
Mark Acres - Quality Assurance

Micon International Ltd
Attention: B. Lewis
Project:
Sample: 13 Reject / 0 Pulp

TSL LABORATORIES INC.

2 - 302 48th Street East, Saskatoon, Saskatchewan, S7K 6A4
Tel: (306) 931-1033 Fax: (306) 242-4717

Report No: S55924
Date: November 30, 2018

MULTIELEMENT ICP ANALYSIS

Aqua Regia Digestion

Element Sample	Tl ppm	V ppm	W ppm	Zr ppm
780581	<5	<1	<2	6393
780583	<5	4	<2	>10000
780584	<5	23	<2	8909
780588	<5	1	<2	>10000
780593	<5	<1	<2	>10000
780597	<5	<1	<2	>10000
780600	<5	<1	<2	3453
780604	<5	26	<2	92
780607	<5	<1	<2	604
780608	<5	<1	<2	5576
780609	<5	<1	<2	1451
780614	<5	6	<2	518
780618	<5	<1	<2	378
STD OREAS45EA	<5	296	<2	29
STD DS11	5	45	3	325
STD OREAS262	<5	70	<2	145
BLK	<5	<1	<2	<1

A 0.5 g sample is digested with 3 ml 3:1 HCl-HNO3 at 95C for 1 hour and diluted to 10 ml with D.I. H2O.

Signed: ______________________
Mark Acres - Quality Assurance