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NI 43-101 TECHNICAL REPORT FOR THE COBALT PROJECT

Project Location

Latitude 47°15'26" North and Longitude 79°34'37" West
Province of Ontario, Canada

Prepared for

First Cobalt Corp.
Suite 201, 140 Yonge Street
Toronto, ON M5C 1X6
Canada

Prepared by:

Stéphane Faure, P.Geo.
Marc R. Beauvais, P.Eng.
Catherine Jalbert, P.Geo.
InnovExplo – Consulting Firm

Effective Date: December 31, 2017
Signature Date: March 21st, 2018

SIGNATURE PAGE – INNOVEXPLO

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(Original signed and sealed)
Stéphane Faure, P.Geo., PhD
(APGO No. 2662, OGQ No. 306,
NAPEG No. L3536)
InnovExplo Inc.
Longueuil (Québec)

Signed at Longueuil on March 21st, 2018

(Original signed and sealed)
Marc R. Beauvais, P.Eng.
(PEO No. 100061114, OIQ No. 108195)
InnovExplo Inc.
Val-d'Or (Québec)

Signed at Val-d'Or on March 21st, 2018

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Catherine Jalbert, P.Geo.
(APGO No. 2877, OGQ No. 1412, NAPEG No. L3534)
InnovExplo – Consulting Firm
Val-d'Or (Québec)

Signed at Val-d'Or on March 21st, 2018

CERTIFICATE OF AUTHOR – STÉPHANE FAURE

I, Stephane Faure, P.Geo., PhD (OGQ No. 306, APGO No. 2662, NAPEG No. L3536), do hereby certify that:

1. I am employed as a geological expert and carried out this assignment for InnovExplo Inc., located at 859 boul. Jean-Paul-Vincent, suite 201, Longueuil, Québec, Canada, J4G 1R3.
2. I graduated with a Bachelor of Geology degree from Université du Québec à Montréal (Montréal, Québec) in 1987. In addition, I obtained a Master's degree in Earth Sciences from Université du Québec à Montréal in 1990 and a PhD degree in Geology from the Institut National de la Recherche Scientifique (city of Québec, Québec) in 1995.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ licence No. 306), the Association of Professional Geoscientists of Ontario (APGO licence No. 2662), and the Professional Engineers and Professional Geoscientists, Northwest Territories and Nunavut (NAPEG licence No. L3536). I am a member of the Society of Economic Geologists.
4. I have worked as a geologist for a total of 23 years since graduating in 1995. I acquired my expertise in precious and base metals mineral exploration with Inmet Mining in Central America and South America, Cambior Inc. in Canada, and numerous exploration companies through the Research Consortium in Mineral Exploration (CONSOREM). I have been a geological consultant for InnovExplo Inc. since January 2016.
5. I have read the definition of "qualified person" set out in National Instrument 43-101/Regulation 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes NI 43-101.
6. I am the author of items 7 and 8 and co-author of items 1 and 27 of the report titled "NI 43-101 Technical Report for the Cobalt Project" (the "Technical Report"), prepared for First Cobalt Corp. The effective date of the Technical Report is December 31, 2017 and the signature date March 21st 2018.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. At the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
9. I am independent of the issuer applying all the tests in section 1.5 of NI 43-101.
10. I have read NI 43-101 respecting standards of disclosure for mineral projects and Form 43-101F1, and the items of the Technical Report for which I was responsible have been prepared in accordance with that instrument and form.

Signed this 21st day of March 2018 in Longueuil, Québec

Stéphane Faure (Original signed and sealed)

Stéphane Faure, P.Geo., PhD (APGO No. 2662, OGQ No. 306, NAPEG No. L3536)
InnovExplo Inc.

CERTIFICATE OF AUTHOR – MARC R. BEAUVAIS, P.Eng.

I, Marc R. Beauvais, Professional Engineer, (PEO No. 100061114, OIQ No. 108195) do hereby certify that:

1. I am a consulting engineer for InnovExplo Inc., located at 560 3e Avenue, Val-d'Or (Québec) Canada, J9P 1S4.
2. This certificate applies to the report titled "NI 43-101 Technical Report for the Cobalt Project" prepared for First Cobalt Corp. and completed on December 28, 2017.
3. I have practiced my profession in mining operation, construction and management for more than 25 years. I have experience in gold, base metals and diamonds. I have worked for Aur Resources (1986, 1987, 1994-1998), Agnico-Eagle Mines Ltd (1993-94), McWatters Mines (1998- 2000), Promine Software Inc. (2000-2001). I founded and operated my own consulting firm (Promine Consultant Inc.) from 2001 to 2005. I have been a business associate of Genivar Inc. from 2005 to 2009 where I supervised a staff of nearly 30 professionals and was directly involved in every aspect of the firm's involvement in the mining industry. I worked for a foreign mining company (Aimroc) in Azerbaijan from 2009 to 2010. I also worked as chief engineer for Glencore at the Matagami mine (2015-2017). Since March 2012, I am president and CEO of Minrail Inc. I have multiple specializations in computer modelling in mine planning and construction.
4. I graduated in 1991 from Université Laval located in Ste-Foy (Québec) with a B.Sc. in Mining Engineering.
5. I have read the definition of "qualified person" set out in National Instrument 43-101/Regulation 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes NI 43-101.
6. I visited the Cobalt Project site on January 18 and 19, 2018.
7. I am the co-author of items 1 to 5 and 25 to 27 of the report titled "NI 43-101 Technical Report for the Cobalt Project" (the "Technical Report"), prepared for First Cobalt Corp. The effective date of the Technical Report is December 31, 2017 and the signature date March 21st 2018.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report or the omission to disclose which makes the Technical Report misleading.
10. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
11. I have not received, nor do I expect to receive directly or indirectly any interest in any form for the property that is the subject of this Technical Report, or any other property or project of First Cobalt Corp.

Signed this 21st day of March 2018 in Val-d'Or, Québec

*Marc R. Beauvais (Original signed and sealed)*_____
Marc R. Beauvais, P.Eng. (PEO No. 100061114, OIQ No. 108195)
InnovExplo Inc.

CERTIFICATE OF AUTHOR – CATHERINE JALBERT

I, Catherine Jalbert, P. Geo, B.Sc. (APGO No. 2877, OGQ No. 1412, NAPEG No. L3534) do hereby certify that:

1. At the issuance of the report titled "NI 43-101 Technical Report for the Cobalt Project", I was a consulting geologist for: InnovExplo Inc., located at 560, 3e Avenue, Val-d'Or, Québec, Canada, J9P 1S4.
2. I graduated with a Bachelor's degree in geology from the Université Laval in St-Foy (Québec) in 2009.
3. I am a member of the Association of Professional Geoscientists of Ontario (APGO No. 2877), of the Ordre des Géologues du Québec (OGQ No. 1412), and of the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG No. L3534).
4. I have worked in the mining industry for more than 8 years. My exploration expertise has been acquired with numerous exploration companies through InnovExplo. I have been a geological consultant for InnovExplo Inc. since May 2009.
5. I have read the definition of a qualified person set out in National Instrument 43-101/Regulation 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a qualified person for the purposes of NI 43-101.
6. I am the author of items 6, 9 to 12 and 23, and co-author of items 1 to 5, and 25 to 27 of the report titled ""NI 43-101 Technical Report for the Cobalt Project" (the "Technical Report"), prepared for First Cobalt Corp. The effective date of the Technical Report is December 31, 2017 and the signature date March 21st 2018.
7. I visited the Cobalt Project site on January 18 and 19, 2018.
8. I have not had a prior involvement with the project that is the subject of the Technical Report.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
10. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
11. I have read NI 43-101 respecting standards of disclosure for mineral projects and Form 43-101F1, and the items of the Technical Report, for which I was responsible, have been prepared in accordance with that instrument and form.

Signed this 21st day of March 2018 in Val-d'Or, Québec

Catherine Jalbert ***(Original signed and sealed)***

Catherine Jalbert, P.Geo., BSc, (APGO No. 2877, OGQ No. 1412, NAPEG No. L3534)
InnovExplo Inc.

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1 SUMMARY

1.1 Introduction

InnovExplo Inc. (“InnovExplo”) was commissioned by First Cobalt Corp. (“First Cobalt” or the “issuer”) to complete a Technical Report for the Cobalt Project (the “Project”) in accordance with Canadian Securities Administrators’ National Instrument 43-101 Respecting Standards of Disclosure for Mineral Projects (“NI 43-101”) and Form 43-101F1. The mandate was assigned by Mr. Trent Mell, President and CEO of First Cobalt. This Technical Report presents the exploration work completed by First Cobalt in 2017 following an acquisition and a merger. The environmental aspects of the Project are also described.

First Cobalt is exploring approximately 3,000 hectares of prospective land in the Cobalt Camp in Ontario, Canada. This region includes the historically significant Keeley-Frontier, Haileybury and Bellellen mines.

In 2017, the issuer completed the acquisition of Cobalt Industries of Canada Inc., and a merger with Cobalt One Limited (“Cobalt One”) and CobalTech Mining Inc. (“CobalTech”). On June 7 2017, First Cobalt acquired a 100% interest in 22 claims totalling 848 hectares in Cobalt, Ontario by making a $325,000 cash payment to Brixton Metals Corp. The claims cover prospective ground at both the southern and northern ends of the mining camp, near Silver Centre and Cobalt, respectively.

The Technical Report was prepared by InnovExplo to describe the asset condition of First Cobalt following the acquisition and merger completed in 2017. The Cobalt Project is subdivided into three properties: Cobalt North, Cobalt Central and Cobalt South (the “Properties”).

The Cobalt Project is an exploration project with historical development and production of major quantities of silver and cobalt.

1.2 Property Description and Location

The Cobalt Project is located in Ontario, Canada, approximately 140 km north of the city of North Bay.

The Cobalt North Property is on NTS sheets 31M05. The approximate latitude and longitude of the property centre are 47°22'30"N and 79°39'00" W. The Cobalt North Property is located in the townships of Bucke, Coleman, Lorrain and Gillies Limit.

The Cobalt Central Property is on NTS sheets 31M05 and 31M04. The approximate latitude and longitude of the property centre are 47°16'01"N and 79°36'01" W. The Cobalt Central Property is located in the townships of South Lorrain, Lorrain and Gillies Limit.

The Cobalt South Property is on NTS sheets 31M03 and 31M04. The approximate latitude and longitude of the property centre are 47°11'15"N and 79°29'15" W (Figure 4.2). The Cobalt South Property is located in the townships of South Lorrain, Lorrain and Gillies Limit.

An exploration permit has been acquired by First Cobalt for claim #4275044. The issuer is currently interacting with the Temiskaming, Temagami, Metis Nation of Ontario and Matachewan First Nation groups, and no concerns have been raised with regards to exploration work.

The Cobalt Project is subject to royalties: 1.0% royalty on returns from the commercial production of minerals from claims 4286485 and 4286486 to Gold Rush Cariboo; 1.0% royalty on returns from the commercial production of minerals from claims 4286469 and 4286489 to Gold Rush Cariboo; 2.0% NSR from the sale or other disposition of product produced from the Red Jacket-Hamilton Property; 2.0% NSR royalty on production from the claim 4200044 (Gore Claim) to John Aubrey Gore; 2.0% NSR royalty on production on the Canadian Silver Hunter property; 1.0% NSR royalty on production from the claim 4276645 to Timothy Phillip Harry Martel.

1.3 Infrastructure and environmental liabilities

The Cobalt Project comprises mining titles located within and to the south of the Cobalt city limits and is accessible from the TransCanada Highway 11. The property comprises several patented and unpatented claims as well as several former mining and ore processing infrastructure either abandoned or in an inoperative state.

The Yukon cobalt extraction refinery located in North Cobalt area is in relative good shape and may be put into service provided that rehabilitation work is done. The site was fully permitted (Environmental Compliance Approvals (ECAs) and permits) to process 12 tpd in 2001. Any expansion or modification will require amendments to the current ECAs and permits. On the other end, the former Canadaka mill facility also located in the North Cobalt area is in very poor condition and will be dismantle and removed except for the warehouse facility that could be salvaged and put back into service for storage purposes.

Most of the property contains features reported in the Ontario's Abandoned Mines Information System. Some of these features are tagged as potential hazards that may pose an environmental or safety liability that may need to be addressed. Lately, temporary remediation has been completed by the issuer in Cobalt South to minimize risks and further work is planned for 2018 following guidelines issued by the ministry of Northern Development and Mines (MNDM).

1.4 Mineralization

The issuer’s Cobalt Project properties are in the eastern part of the Cobalt Embayment. Archean metavolcanic and metasedimentary rocks are unconformably overlain by Proterozoic rocks of the Huronian Supergroup. The Archean and Proterozoic rocks have been intruded by the regionally distributed Nipissing diabase sills. All deposits in the Cobalt, and Silver Centre production camps are hosted within or adjacent to the diabase sills, near the Huronian-Archean unconformity. Intrusion of the Nipissing diabase may have been influenced, on a regional scale, by fault structures. A major southeast-trending fault system is manifested by the Montreal River, Cross Lake, and Timiskaming Fault. The Cobalt Project is in a favorable area between the Cross Lake and Montreal River faults where most of the Co-Ag occurrences in the Cobalt Embayment are concentrated.

The silver-cobalt veins in the Cobalt Project are typical of the five-element (Co–Ni–As–Ag–Bi) vein assemblage. The silver-cobalt rich vein systems are generally fault controlled, vertical to steeply dipping and nested, with mineralization occurring adjacent to or within mafic intrusions. High-grade veins are usually narrow and bonanza-rich ore-shoots. All economic deposits in Cobalt and Silver Centre occur near the Huronian-Archean unconformity where diabase sills and steeply dipping Archean volcanic sequences coincide. The intrusion of Nipissing diabase provided favourable sites for fracture generation during regional fault activity before, during, and after the intrusion of the diabase sills. There is a spatial and temporal relationship between the deposits, mafic intrusions and regional-scale faults rooted in the Archean basement. The tectono-magmatic event responsible for the emplacement of the Nipissing Diabase was the most likely driver of larger-scale hydrothermal fluid circulation.

Other types of mineralization in the Cobalt Embayment are Proterozoic gold-bearing veins, a variant of the silver-vein systems, Archean orogenic gold deposits, and Cretaceous kimberlites.

1.5 Exploration

A large program of exploration was accomplished by First Cobalt on its Cobalt project in 2017.

The intent of the regional mapping program was to recognize major structures and styles of deformation associated with cobalt-silver mineralization. Two areas were covered: Maiden Lake–Silver Centre and New Lake. A total of 108 samples were sent to AGAT Laboratories for multi-element geochemical analyses. The principal findings from the work in the Maiden Lake–Silver Centre area recognized multiple phases of faulting, some that affected only Archean volcanic rocks (pre-Huronian sedimentation) and others that displaced all Precambrian rocks (late faults). The principal findings in the New Lake area highlight a northwest-trending fold pattern in mafic volcanic rocks. Individual folds are tight; in the range of less than 100 m. The axial planes of some of these folds appear to control quartz-carbonate veining that host metallic minerals. Folding is superimposed by faults trending north-south, but also bend according to a later broad folding event. The presence of the large Archean felsic intrusion on the eastern margin of the map area appears to not be affected by this stage of folding.

Prospecting during summer 2017 consisted largely of sampling known surface prospects and historical mine sites based on the MNDM's Mineral Deposit Inventory ("MDI") database and published bedrock geology maps. A total of 241 samples were collected and sent to AGAT for multi-element geochemical analyses. In the Juno area, several samples of vein material were collected from a muckpile near one of the two Juno shafts. Caswell appears to be a high-grade cobalt vein system similar to other targets throughout the Camp, such as Silver Banner, although most of the high-grade cobalt at Caswell is hosted by Nipissing Diabase. At Silver Banner, cobalt mineralization occurs within calcite-quartz veins hosted by mafic volcanic rocks. At Drummond, cobalt mineralization occurs in this area within thin, centimetre-sized calcite veins. Cobalt minerals also occur within fractures without calcite. Copper mineralization occurs as both vein-style and disseminated; one copper-rich sample contains Cu-Co-As-S-Bi metal associations similar to those seen at the Bellellen mine.

Detailed mapping was conducted on stripped outcrops on the Kelley-Frontier and Bellellen sites in the Silver Centre area. The purpose of the detailed mapping was to identify the nature and orientation of calcite veining and wallrock alteration near areas of silver-mineralization. Channel sampling across veins and visible mineralization was also done to identify metal values (Co, Ag, Ni, Cu, Pb, Zn, Bi, As) away from the main structures. A total of 382 channel samples were submitted to AGAT for multi-element geochemical analyses.

First Cobalt initiated a muck sampling program. Initially, five or six muckpiles at Keeley-Frontier and one muckpile at Silver Banner were identified. A volumetric survey was also completed using an aerial (drone) survey over two areas. The primary purpose of this program was to expand the issuer's understanding of the bulk grade characteristics of this material and apply this understanding to the potential processing of future ores from the Cobalt Camp. A total of 343 samples was collected from 14 muckpiles. On December 31, 2017, results were pending.

First Cobalt recently surveyed completed drill holes using an EM method. All the selected holes intersected cobalt-bearing calcite veins. Off-hole conductivity anomalies would likely correspond to the extension of veins intersected in the hole, as well as veins containing metallic minerals that would be considered for future drilling. The six surveyed drill holes are: KF-F01V-0009, KF-KD-0003, KF-KD-0004, KF-KD-0005, KF-WV-0004, and KF-WV-0005.

Optical televiewer and acoustic televiewer surveys were completed on three holes for detailed, in-situ structural information and to measure the true orientation of the lithological contacts (DDH CSH-12-001, CSH-12-003 and CSH-12-004).

First Cobalt has initiated the acquisition and digital data compilation of available historical Keeley-Frontier mine and Kerr Lake data for the purpose of generating a 3D geological model of mines and their surrounding area. The 3D model will continue to be improved by integrating underground drilling information, as well as new information from mapping and eventually the 2017 drilling results.

1.6 Drilling

First Cobalt resumed drilling during the fall of 2017. A total of 61 diamond drilling holes were completed by December 31, 2017, for a total of 6361.62 m. Diamond drill holes are planned using vertical cross-sections and plan views in order to intercept interpreted veins or structural features at the proper angle.

The diamond drilling program was designed to test vein sets mapped in outcrop in 10 areas known to be cobalt-rich over a 2-km strike length encompassing the past producing Keeley, Frontier, Haileybury and Bellellen mines.

Assays from three (3) holes at the Woods Vein Extension target area show this vein system extends northward beyond the mine workings. Calcite veins were intersected in holes along strike of the Woods and Watson veins. Assays from drill hole KV-WV-0008 returned 0.83% Co and 30 g/t Ag over 0.48 m in veins near the Nipissing Diabase contact. High lead (1.90% Pb over 0.9 m) occurs in calcite veins in this hole as well, from 10.46 to 11.36 m. These intersections may represent an extension of the Woods-Watson vein system in an area previously unexplored. All three reported

holes at the Woods Vein Extension area intersected metals in calcite veins that may represent a hydrothermal halo around Co-Ag veins.

1.7 Data Verification

Data verification included a site visit on the Cobalt Project.

First Cobalt provided InnovExplo with an Access database containing the 61 holes drilled in 2017. The database included all assays received at that moment. Since the decision was taken to close the database on December 31, 2017, only the data entered by this date were validated. Hole descriptions were provided, including surveys, collar location, geology, etc. Overall, InnovExplo is in the opinion that the data verification process demonstrated the validity of the data and protocols for the Cobalt Project. InnovExplo considers the First Cobalt Database to be valid and of sufficient quality.

1.8 Interpretations and Conclusions

1.8.1 Exploration and drilling programs

In 2017, First Cobalt completed an extended exploration and drilling program over the entire Cobalt Project. The company was active on many levels, from exploration (prospecting) and structural interpretation of the property, to extension of known mineralized veins, to grade characteristics. Emphasis was placed on understanding the structural context of the mineralization.

The Cobalt Project is located in a favorable exploration area between the Cross Lake and Montreal River faults where most of the Co-Ag occurrences are concentrated. The area between Cobalt to the north and Silver Centre to the south hosts only a few occurrences of cobalt and silver. However, the central part of the Project has the pertinent criteria to discover new areas for five-element-vein-type mineralization.

1.8.2 Risks and opportunities

There is a number of risks that have been identified which may have an impact to the future project economics. For example, the numerous abandoned mine sites containing unattended or un protected hazardous features who may pose a threat to human beings or the environment. There are also some opportunities like the appreciation of the market price for the cobalt commodity on the world market that could positively stimulate the project economics

Table 25.2 identifies the significant internal risks, potential impacts and possible risk mitigation measures that could affect the future economic outcome of the Cobalt Project. The list does not include the external risks that apply to all mining projects (e.g., changes in metal prices, exchange rates, availability of investment capital, change in government regulations, etc.).

Significant opportunities that could improve the economics, timing and permitting are identified in Table 25.3. Further information and study is required before these opportunities can be included in the project economics.

Risks for the Cobalt Project (Table 25.1)

RISK	Potential Impact	Possible Risk Mitigation
Unguarded-unmonitored asset – Yukon refinery	- Prone to vandalism - Exposure to safety risks and liabilities - Deterioration of the asset (value depletion) - Prone to chemical instability and water table contamination	- Evaluate the potential to rehabilitate the facility or dismantle and sell the buildings/components for their salvage value. - Move out, bury or dispose of the unattended piles of waste leaching out near the tailings pond. - Consider erecting a fence around the perimeter of the industrial area and install a surveillance camera.
Unguarded/abandoned asset – Canadaka tailings and mill buildings	- Prone to vandalism - Exposure to safety risks and liabilities - Prone to chemical instability and water table contamination	- As proposed by the issuer, dismantle the mill and crusher buildings. - Sell mobile equipment and steel rubbish for their salvage value. - Move out, bury or dispose of the unattended piles of waste leaching out near the tailings pond.
Backlogs to legal environmental requirements	- Exposure to liabilities - Could result in unexpected expenses and delays impeding operation startup - Exposure to negative public perception	- For uncharacterized sites, verify the status and information regarding features and legal requirements, and budget any associated costs and delays as required. - Undertake a complete properties environmental characterization for potential contamination, soil, water, groundwater, etc.
Conflicting or missing location of existing mine hazards	- Exposure to safety risks and liabilities - Exposures to lawsuits - Exposure to negative public perception	- Collect and investigate all historical documents available and prepare a rehabilitation plan.
Unprotected existing mine openings and hazards	- Exposure to safety risks and liabilities - Exposures to lawsuits - Exposure to negative public perception	- Identify such hazards and prepare a rehabilitation plan.
Previously mined veins (historical)	- Insufficient tonnage remaining for mining extraction	- Compile and identify all historical mine openings. Plan drill holes to test the extension of known veins and pay attention to missing core (bad core recovery).

Opportunities for the Cobalt Project (Table 25.2)

OPPORTUNITIES	Explanation	Potential benefit
Undertake a market study to determine the viability of restoring the Yukon mill facility	Market prices of commodities have appreciated significantly over the past few months to the point where processing old tailings material may become profitable.	Increase overall project income
Carry on with the actual restauration workplan and further develop that plan to overtake the situation with the existing hazards	Nowadays, community acceptance has become paramount for a mining project to take place and become successful.	Avoid long-term liabilities and increase positive public image
Exploration potential	Potential for additional discoveries near historical mines and in areas with little past exploration (Cobalt Central)	Potential for new mineralized zones

1.9 Recommendations

1.9.1 Near-mine exploration

Drilling should be done to test the extension of veins that were identified by the 2017 drilling program, as well as testing the mineralized zone identified by compilation work in 2017.

Near-mine target generation consists of detailed mapping of stripped outcrops adjacent to historical mine areas. The mapping would focus on the orientations of local structures controlling mineralization in or der to design more effective drilling. Exposed outcrops would also be sampled and assayed for metal contents.

Borehole geophysics would be done on selected drill holes. Borehole EM surveys proved effective in 2017 in identifying intersected cobalt mineralization and highlighting mineralized extensions away from the drill hole. Induced polarity and resistivity will also be conducted in places to test the effectiveness of this method in detecting mineralization.

A litho-structural 3D model could be generated using historical and recent data. The source and type of the data should include lithological, structural, known veins, historical openings/voids, geophysical, assays (metal and geochemical), etc. This would improve the geological model and understanding of the Cobalt Camp.

1.9.2 Regional exploration

Regional target generation could include 1:5,000 scale mapping to identify regional structural controls on mineralization and identify areas for exploration follow-up or drilling where mineralization is covered by overburden.

Regional mapping (1:20,000 scale) could be conducted by a post-doctoral geoscientist. Mapping will be augmented by interpretations of regional geophysical surveys (seismic, gravity, magnetotelluric) conducted under the Metal Earth Program that was supported by First Cobalt in 2017. Lithogeochemical data would be collected

and interpreted to determine if chemostratigraphic units occur within the Archean volcanic rocks. Geochronological analyses (age dating) would also be done on appropriate samples collected during the regional mapping program.

Prospecting in under-explored areas would also be part of the regional target generation program on claims of the Cobalt Central Property.

Geophysical surveys would be planned for regional targeting. Ground EM and IP will be trialed at Keeley-Frontier-Bellellen, Drummond and Hamilton, followed by larger surveys in these areas as well as Ophir-Silver Banner and Cross Lake using the method deemed the most effective.

Soil geochemistry (B horizon sampling) will be trialed within the New Lake area on mineralization at Silver Banner, Ophir and the small Fleming prospect as orientation examples. Based on its successful application, further sampling will be done over broad areas on the Cobalt Central Property, including over the historical Caswell mine.

The Cobalt Central area contains only a few historical silver-cobalt mines but is considered highly prospective due to similar geology and structural style. A till geochemical sampling program is recommended. Heavy mineral separation and analyses could be completed to identify areas of cobalt mineralization under cover. This method may then be applied to other areas outside the Cobalt Camp to generate projects and develop future exploration programs for this style of mineralization elsewhere in Ontario and Quebec.

A 3D model could also be built using regional information and tested using Machine Learning with parameters identified by a 3D litho-structural model built using near-mine exploration data.

1.9.3 Environment and consultation

Consultations with First Nation groups are ongoing and should be continued throughout the exploration program.

It is important to consider the costs and timelines associated with the requirements that will apply to modify or update ECAs and permits, particularly in the case of the Yukon refinery. For sites with tailings and ponds, it is necessary to complete all the environmental characterizations required by provincial legislation in order to update existing closure plans, if required. It is to be expected that the unrecovered tailings ponds have already caused contamination, especially of surface and underground waters. The abandoned infrastructures and buildings may also have contaminated soils. The restoration of these hazards must comply with environmental legislation and will improve the quality of the environment and contribute to a positive public image.

1.9.4 Abandoned site and mining hazards

There is a significant number of mining hazards present on the entire property that may have a significant impact on the project economics, the environment or the company image. Therefore, it is recommended that First Cobalt carries on with the actual workplan and workout a more thorough plan that will allow the issuer to

overtake the situation with respect to those mining hazards. Consequently, a site investigation program and mitigation plan preparation has been budgeted.

1.9.5 Cost for the recommended work

InnovExplo has prepared a cost estimate for the recommended two-phase work program to serve as a guideline. The budget for the proposed program is presented in Table 26.1. Expenditures for Phase 1 are estimated at C$2,858,325 (incl. 15% of contingencies). Expenditures for Phase 2 are estimated at C$1,595,625 (incl. 15% of contingencies). Phase 2 is contingent upon the success of Phase 1.

Estimated costs for the recommended work program (Table 26.1)

Phase 1 - Work program		Budget	
		Description	Budget Cost (C$)
1a - Detailed mapping of stripped outcrops adjacent to historic mines areas			300 000
1b - Geophysical surveys (ground EM and IP)		~ 40 km	60 000
1c - Soil geochemistry (B-Horizon)		2,000 samples	85 000
1d - Prospection		25 days	37 500
1e - Follow up drilling on 2017 DDH		10,000 m	1 000 000
1f - Follow up drilling on bedrock mapping		3 000 m	300 000
1g - 3D litho structural model (near mine and regional)			200 000
1h - Till sampling in Cobalt Central		500 samples	75 000
1j - Regional mapping			75 000
1k - Regional mapping with Metal Earth program			50 000
1l - EM borehole geophysics		~ 12 DDH	50 000
1m - Consultation with First Nation groups			50 000
1n	AMIS record assessment	5 days	2 500
	First Cobalt document assessment	15 days	15 000
	Field survey - 4 months, 2 individuals, 40hrs/wk	90 days	108 000
	Data compilation	25 days	12 500
	Report preparation	75 days	45 000
	Supplies and project support cost (Lump Sum)		20 000
		Contingencies (~ 15%)	372 825
		Phase 1 sub total	2 858 325

Phase 2 - Work program Conditional to success of Phase 1	Budget	
	Description	Estimated Cost
2a - Follow up drilling on Phase 1 drilling	8,000 m	800 000
2b - Follow up drilling on anomalies identified with ground geophysics	5,000 m	500 000
2c - Follow up prospection on soil geochemistry	25 days	37 500
2d - Consultation with First Nation groups		50 000
Contingencies (~ 15%)		208 125
Phase 2 sub total		1 595 625
TOTAL (PHASES 1 AND 2)		**4 453 950**

InnovExplo is of the opinion that the recommended two-phase work program and proposed expenditures are appropriate and well thought out, and that the character of the Cobalt Project is of sufficient merit to justify the recommended program. InnovExplo believes that the proposed budget reasonably reflects the type and amount of contemplated activities.

2 INTRODUCTION

InnovExplo Inc. (“InnovExplo”) was commissioned by First Cobalt Corp. (“First Cobalt” or the “issuer”) to complete a Technical Report for the Cobalt Project (the “Project”) in accordance with Canadian Securities Administrators’ National Instrument 43-101 Respecting Standards of Disclosure for Mineral Projects (“NI 43-101”) and Form 43-101F1. The mandate was assigned by Mr. Trent Mell, President and CEO of First Cobalt. This Technical Report presents the exploration work completed by First Cobalt in 2017 following an acquisition and a merger. The environmental aspects of the Project are also described.

InnovExplo is an independent mining and exploration consulting firm based in Val-d’Or (Québec).

2.1 Issuer

The issuer (formerly Aurgent Resource Corp.) was incorporated on July 13, 2011 under the Business Corporations Act of British Columbia. On September 22, 2016, the Corporation changed its name to First Cobalt Corp.

First Cobalt is a public company listed on the TSX Venture Stock Exchange (TSXV) (under the symbol FCC).

The issuer’s head office is located at Suite 201, 140 Yonge Street, Toronto, Ontario, M5C 1X6.

2.2 Terms of Reference

First Cobalt is exploring approximately 3,000 hectares of prospective land in the Cobalt Camp in Ontario, Canada. This region includes the historically significant Keeley-Frontier, Haileybury and Bellellen mines.

In 2017, the issuer completed the acquisition of Cobalt Industries of Canada Inc., and a merger with Cobalt One Limited (“Cobalt One”) and CobalTech Mining Inc. (“CobalTech”).

First Cobalt issued 0.145 of a First Cobalt common share for each common share of Cobalt One. First Cobalt also optioned 50% of Canadian Refinery from Cobalt One but became 100% owner following a merger with the previous owner of the refinery. Prior to the merger, on April 19, 2017, an agreement was reached regarding the purchase of Yukon Refinery by Equator Resources Ltd (which became Cobalt One) from 36569 Yukon Inc., for a price of $6,000,000 and the issuance of 100,000,000 shares to the Vendor (36569 Yukon Inc.).

CobalTech shareholders received 0.2632 of a common share of First Cobalt for each CobalTech share. CobalTech’s flagship asset is the Duncan Kerr Project that includes the past-producing Kerr Lake and Lawson mines, which operated between 1905 and 1966, reportedly producing approximately 32.7 Moz of silver as well as significant cobalt by-product. CobalTech also owns a 100 tpd mill in the town of Cobalt (Ontario).

On June 7 2017, First Cobalt acquired a 100% interest in 22 claims totalling 848 hectares in Cobalt, Ontario by making a $325,000 cash payment to Brixton Metals Corp. The claims cover prospective ground at both the southern and northern ends of the mining camp, near Silver Centre and Cobalt, respectively.

The Technical Report was prepared by InnovExplo to describe the asset condition of First Cobalt following the acquisition and merger completed in 2017. The Cobalt Project is subdivided into three properties: Cobalt North, Cobalt Central and Cobalt South.

The Cobalt Project is an exploration project with historical development and production of major quantities of silver and cobalt.

2.3 Principal Sources of Information

InnovExplo's review of the Project was based on published material in addition to data, professional opinions and unpublished material provided by the issuer. InnovExplo has also consulted other information sources, such as the Mining Claims Information database for the status of mining titles and the Geology Ontario online warehouse for assessment work, both available via the website of the Ministry of Northern Development and Mines of Ontario ("MNDM").

InnovExplo has no known reason to believe that any of the information used to prepare this Technical Report is invalid or contains misrepresentations. The authors have sourced the information for the Technical Report from the collection of reports listed in Item 27.

InnovExplo conducted a review and appraisal of the information used to prepare the report, including the conclusions and recommendations. InnovExplo believes this information is valid and appropriate considering the status of the Project and the purpose for which the Technical Report is prepared. The authors have fully researched and documented the conclusions and recommendations made in the report.

None of the QPs involved in the Technical Report have, or have previously had, any material interest in the issuer or its related entities. The relationship with the issuer is solely a professional association between the issuer and the independent consultants. This Technical Report was 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 the Technical Report.

2.4 Qualified Persons

The qualified persons ("QPs"), as defined by NI 43-101, responsible for the preparation of this report are Stéphane Faure, P.Geo., PhD (APGO No. 2662), Marc R. Beauvais, P.Eng. (PEO No. 100061114), and Catherine Jalbert, P.Geo., B.Sc. (APGO No. 2877).

Stéphane Faure is the author of items 7 and 8, and co-author of items 1 and 27.

Marc R. Beauvais is co-author of items 1 to 5 and 25 to 27.

Catherine Jalbert is author of items 6, 9 to 12 and 23, and co-author of items 1 to 5 and 25 to 27.

In addition to the QPs, the following people from InnovExplo were also involved in the preparation of the Technical Report:

- Dario Evangelista, Mining Engineer;
- Stéphanie Lafrenière, Biologist;
- Daniel Turgeon, Technician;
- Katy Lafontaine, Technician;
- Léo-Paul Lamontagne, Technician.

2.5 Inspection of the Property

Catherine Jalbert, and Marc R. Beauvais, visited the property on January 18 and 19, 2018. They were accompanied by Meghan Hewton, project geologist for First Cobalt, and by Stéphanie Lafrenière, biologist for InnovExplo. The visit included an overview of the core shack operations, drilling operations, the Yukon refinery, the Trio mill facility and many historical sites (including tailings, opened shaft, etc.).

2.6 Effective Date

The effective date of the Technical Report is December 31, 2017.

2.7 Abbreviations, Units and Currencies

A list of abbreviations used in this report is provided in Table 2.1. All currency amounts are stated in Canadian Dollars ($, C$, CAD) or US dollars (US$, USD). Quantities are stated in metric units, as per standard Canadian and international practice, including metric tons (tonnes, t) and kilograms (kg) for weight, kilometres (km) or metres (m) for distance, hectares (ha) for area, percentage (%) for copper and nickel grades, and gram per metric ton (g/t) for gold, platinum and palladium grades. Wherever applicable, imperial units have been converted to the International System of Units (SI units) for consistency (Table 2.2).

Table 2.1 – List of abbreviations

Abbreviation or Symbol	Unit or Term
%	Percent
$	Canadian dollar
°	Angular degree
°C	Degree Celsius
µm	Micron (micrometre)
43-101	National Instrument 43-101 (Regulation 43-101 in Québec)
a	Annum
AA	Atomic absorption
Ag	Silver
AMIS	Abandoned Mines Information System
As	Arsenic
Au	Gold
C$, CAD	Canadian dollar
Ca	Calcium
CAD:USD	Canadian-American exchange rate
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM Definition Standards for Mineral Resources and Mineral Reserves
CL	Core length
cm	Centimetre
cm^3	Cubic centimetre
Co	Cobalt
CSA	Canadian Securities Administrators
Cu	Copper
d	Day (24 hours)
deg	Angular degree
DDH	Diamond drill hole
ECA	Environmental Compliance Approval
EM	Electromagnetics
Fe	Iron
ft, '	Foot (12 inches)
g	Gram
Ga	Billion years
g/t	Gram per metric ton (tonne)
h	Hour (60 minutes)
ha	Hectare
HLEM	Horizontal loop electromagnetic
ICP-OES	Inductively coupled plasma optical emission spectroscopy
ICP-MS	Inductively coupled plasma mass spectroscopy
IEC	International Electrotechnical Commission
in, "	Inch
IP	Induced polarization
k	Thousand (000)
ka	Thousand years
kg	Kilogram
kg/t	Kilogram per metric ton (tonne)
km	Kilometre
lb	Pound
LUP	Land Use Permit
M	Million
m	Metre
m^2	Square metre
m^3	Cubic metre
M	Million
Ma	Million years
Mag, MAG	Magnetometer, magnetometric
masl	Metres above mean sea level
MDI	Mineral Deposit Inventory
mesh	US mesh
min	Minute (60 seconds)

Abbreviation or Symbol	Unit or Term
Mlbs	Million pounds
MLO	Mining Licence of Occupation
mm	Millimetre
MNDM	Ontario Ministry of Northern Development and Mines
MNR	Ontario Ministry of Natural Resources
Moz	Million (troy) ounces
Mt	Million metric tons (tonnes)
n/a	Not available, not applicable
NAD	North American Datum
NAD 27	North American Datum of 1927
NAD 83	North American Datum of 1983
NI 43-101	National Instrument 43-101 (Regulation 43-101 in Québec)
NSR	Net smelter return
NTS	National Topographic System
oz	Troy ounce
oz/t	Ounce (troy) per short ton (2,000 lbs)
ppm	Parts per million
QA/QC	Quality assurance/quality control
QP	Qualified person (as defined in National Instrument 43-101)
RES	Resistivity
RQD	Rock quality designation
s	Second
Sb	Antimony
SCC	Standards Council of Canada
SD	Standard deviation
SCC	Standards Council of Canada
t	Metric ton (tonne) (1,000 kg)
TDEM	Time-domain electromagnetics
Ti	Titanium
tpd	Metric tons (tonnes) per day
US$, USD	American dollar
UTM	Universal Transverse Mercator coordinate system
VLF	Very low frequency
VTEM	Versatile time-domain electromagnetic
W	Tungsten
y	Year (365 days)
Zn	Zinc

Table 2.2 – Conversion factors for measurements

Imperial Unit	Multiplied by	Metric Unit
1 inch	25.4	mm
1 foot	0.3048	m
1 acre	0.405	ha
1 ounce (troy)	31.1035	g
1 pound (avdp)	0.4535	kg
1 ton (short)	0.9072	t
1 ounce (troy) / ton (short)	34.2857	g/t

3 RELIANCE ON OTHER EXPERTS

InnovExplo is not an expert in legal, land tenure or environmental matters. InnovExplo has relied on data and information provided in previous technical reports (refer to Item 27). Although InnovExplo has reviewed the available data, only the pertinent portions of the data sets have been validated. Therefore, InnovExplo has made judgments about the general reliability of the underlying data, and where deemed inadequate or unreliable, either the data were not used or the procedures modified to account for the lack of confidence in that specific information.

The various agreements under which the issuer holds title to the Project's mineral claims have been reviewed by InnovExplo, although InnovExplo offers no legal opinion as to their validity. A description of the properties and mineral titles, and ownership thereof, is provided for general information purposes only. Comments on the state of environmental conditions, liability, and estimated costs of closure and remediation have been made where required by NI 43-101. Stéphanie Lafrenière is a biologist at InnovExplo with almost 20 years of experience in the environmental field, including 13 years for Québec's Ministry of Sustainable Development, Environment and the Fight against Climate Change as an analyst for a wide range of projects (road projects, municipal, forestry, hydroelectric, industrial, mining, etc.). She has a good knowledge of the legislative context and environmental management systems. Lafrenière's professional experience is as much in the analysis and management of environmental issues as in the monitoring of field work and execution of ecological studies (characterization of wetlands and natural environments).

InnovExplo used the services of Venetia Bodycomb, M.Sc., of Vee Geoservices, for a critical review and linguistic editing of the Technical Report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Cobalt Project is located in Ontario, Canada, approximately 140 km north of the city of North Bay (Figure 4.1). It comprises three (3) properties, as described below.

4.1.1 Cobalt North Property

The Cobalt North Property is on NTS sheets 31M05. The approximate latitude and longitude of the property centre are 47°22'30"N and 79°39'00" W (Figure 4.2). The Cobalt North Property is located in the townships of Bucke, Coleman, Lorrain and Gillies Limit.

4.1.2 Cobalt Central Property

The Cobalt Central Property is on NTS sheets 31M05 and 31M04. The approximate latitude and longitude of the property centre are 47°16'01"N and 79°36'01" W (Figure 4.2). The Cobalt Central Property is located in the townships of South Lorrain, Lorrain and Gillies Limit.

4.1.3 Cobalt South Property

The Cobalt South Property is on NTS sheets 31M03 and 31M04. The approximate latitude and longitude of the property centre are 47°11'15"N and 79°29'15" W (Figure 4.2). The Cobalt South Property is located in the townships of South Lorrain, Lorrain and Gillies Limit.

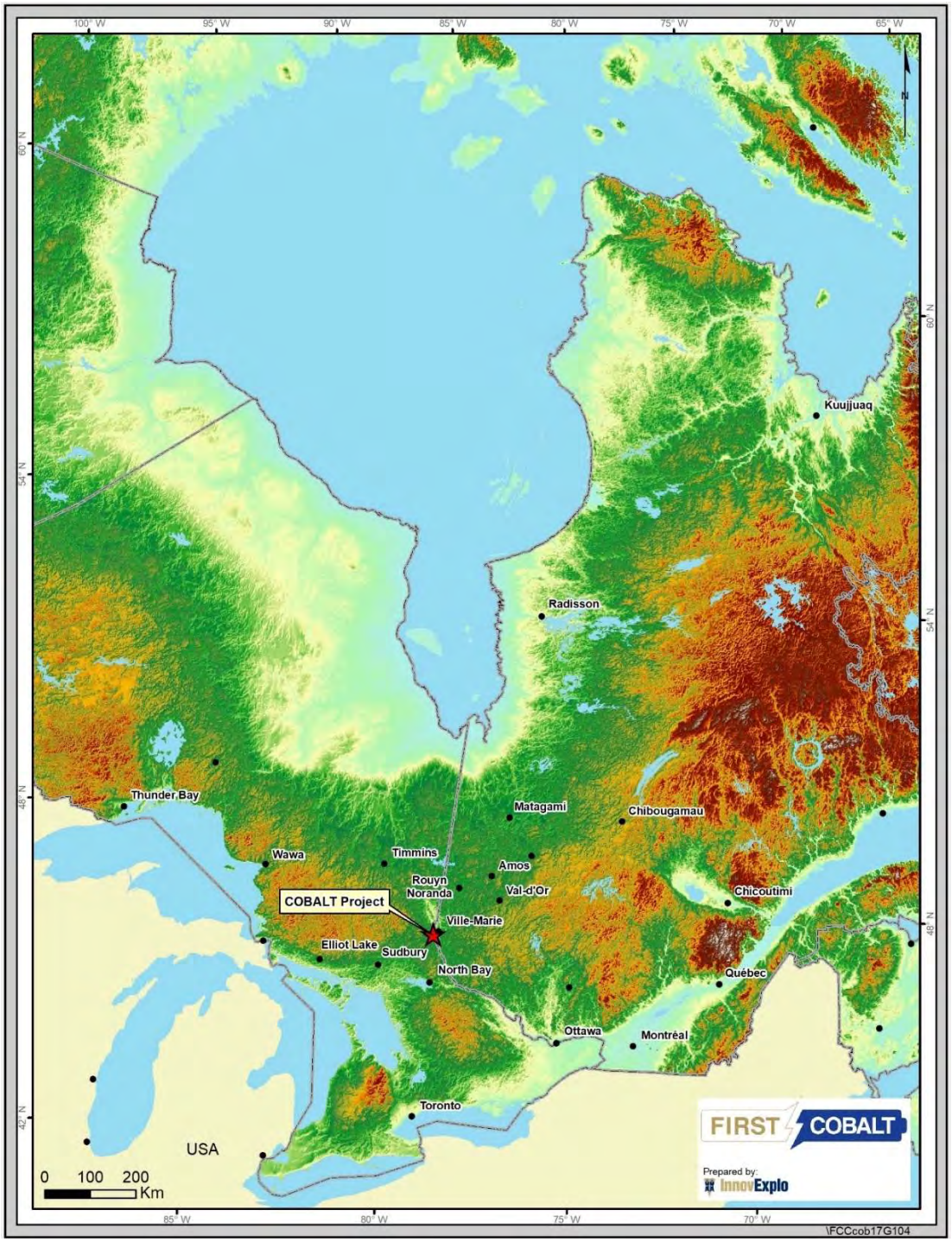

Figure 4.1 – Location of the Cobalt Project in the province of Ontario

4.2 Mining Tenures and Claims Status

In the Province of Ontario, mining is largely regulated by the provincial government, with the Ontario Ministry of Northern Development and Mines (“MNDM”) and the Ontario Ministry of Natural Resources (“MNR”) acting as the two main oversight

bodies. The Canadian federal government may also be involved in the mining process when First Nations matters arise or where the subject lands are federally regulated, as is the case for uranium mining or for lands with navigable water bodies.
The following descriptions were taken from Winton (2012).

4.2.1 Staking

Mining claims can only be obtained by an entity that holds a prospector's licence from the MNDM. A licenced prospector is permitted to enter onto provincial Crown and private lands that are open for exploration and stake a claim on those lands. Notice of the staked claim can then be recorded in the mining register maintained by the MNDM. Once the mining claim has been recorded, the prospector is permitted to conduct exploratory and assessment work on the subject lands. To maintain the mining claim and keep it properly staked, the prospector must adhere to relevant staking regulations and conduct all prescribed work thereon. The prescribed work is currently set at $400 per annum per 16-hectare claim unit. The prescribed work must be completed as no payments in lieu of work can be made. No minerals may be extracted from lands that are the subject of a mining claim – the prospector must possess either a mining lease or a freehold interest to mine the land.

A mining claim can be transferred, charged or mortgaged by the prospector without obtaining any consents. Notice of the change of owner of the mining claim or charge thereof should be recorded in the mining registry maintained by the MNDM.

4.2.2 Mining lease

If a prospector wants to extract minerals, the prospector may apply to the MNDM for a mining lease. A mining lease, which is usually granted for a term of 21 years, grants an exclusive right to the lessee to enter upon and search for, and extract, minerals from the land, subject to the prospector obtaining other required permits and adhering to applicable regulations.

Pursuant to the provisions of the *Ontario Mining Act* (the Act), the holder of a mining claim is entitled to a lease if it has complied with the provisions of the Act in respect of those lands. An application for a mining lease may be submitted to the MNDM at any time after the first prescribed unit of work in respect of the mining claim is performed and approved. The application for a mining lease must specify whether it requests a lease of mining and surface rights or mining rights only and requires the payment of fees.

A mining lease can be renewed by the lessee upon submission of an application to the MNDM within 90 days before the expiry date of the lease, provided that the lessee provides the documentation and satisfies the criteria set forth in the Act in respect of a lease renewal.

A mining lease cannot be transferred or mortgaged by the lessee without the prior written consent of the MNDM. The consent process generally takes between two and six weeks and requires the lessee to submit various documentations and pay a fee.

4.2.3 Freehold mining lands

A prospector interested in removing minerals from the ground may, instead of obtaining a mining lease, make an application to the MNR to acquire the freehold interest in the subject lands. If the application is approved, the freehold interest is conveyed to the applicant by way of the issuance of a mining patent. A mining patent can include surface and mining rights or mining rights only.
The issuance of mining patents is much less common today than in the past, and most prospectors will obtain a mining lease in order to extract minerals. If a prospector is issued a mining patent, the mining patent vests in the patentee all of the provincial Crown's title to the subject lands and to all mines and minerals relating to such lands, unless something to the contrary is stated in the patent.

As the holder of a mining patent enjoys the freehold interest in the lands that are the subject of such patent, no consents are required for the patentee to transfer or mortgage those lands.

4.2.4 Licence of occupation

Prior to 1964, Mining Licences of Occupation ("MLO") were issued, in perpetuity, by the MNDM to permit the mining of minerals under the beds of bodies of water. MLOs were associated with portions of mining claims overlying adjacent land. As an MLO is held separate and apart from the related mining claim, it must be transferred separately from the transfer of the related mining claim. The transfer of an MLO requires the prior written consent of the Ministry. As an MLO is a licence, it does not create an interest in land.

4.2.5 Land use permit

Prospectors may also apply for and obtain a Land Use Permit ("LUP") from the MNR. An LUP is considered to be the weakest form of mining tenure. It is issued for a period of 10 years or less and is generally used where there is no intention to erect extensive or valuable improvements on the subject lands. LUPs are often obtained when the land is to be used for the purposes of an exploration camp. When an LUP is issued, the MNR retains future options for the subject lands and controls its use. LUPs are personal to the holder and cannot be transferred or used as security.

4.3 Mining Titles

Mining title status for the Cobalt Project was supplied by Frank Santaguida, Vice President Exploration of First Cobalt. InnovExplo verified the status of all mining titles using CLAIMaps, the Ontario government's online claim management system, at the following address:

http://www.gisapplication.lrc.gov.on.ca/CLAIMaps/Index.html?site=CLAIMaps&viewer=CLAIMaps&locale=en-US

Figure 4.2 shows the overall Project. Details of the unpatented and patented claims are described in sections 4.3.1 to 4.3.3.

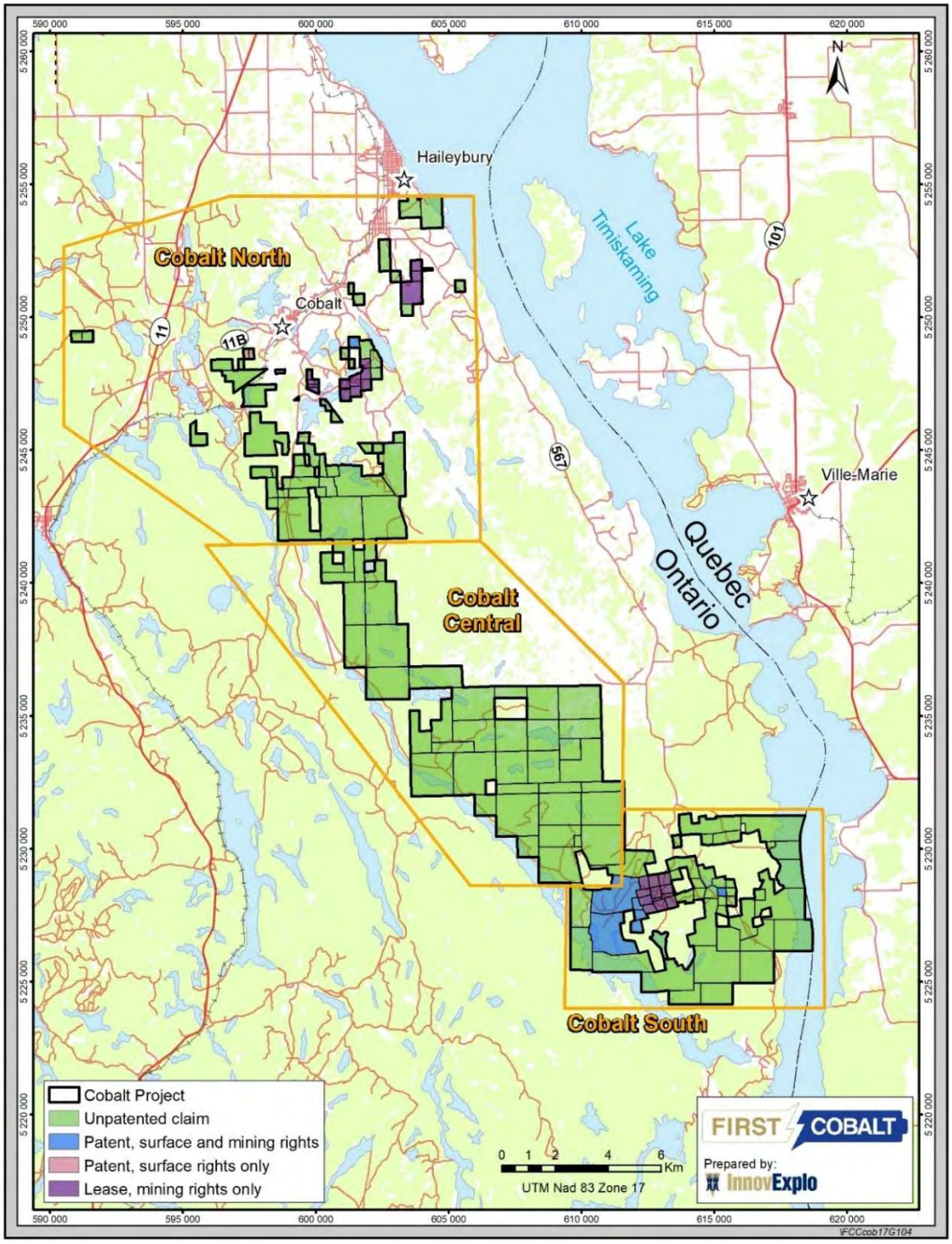

Figure 4.2 – Location of the Cobalt Project mining titles

4.3.1 Cobalt North Property

The positions of patented and unpatented claims composing the Cobalt North Property are shown on Figure 4.3. Table 4.1 lists the details for the unpatented claims.

Table 4.1 – Unpatented claim details – Cobalt North Property

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4243946	BUCKE (G-3413)	1	3.10	2023-DEC-15	400
1118210	BUCKE (G-3413)	6	98.13	2019-JUL-04	400
1118211	BUCKE (G-3413)	4	58.01	2019-JUL-04	902
4280179	BUCKE (G-3413)	3	49.40	2019-SEP-06	1200
4271887	BUCKE (G-3413)	1	15.39	2019-SEP-06	400
4283320	COLEMAN (G-3418)	8	156.97	2019-AUG-29	3200
4280138	COLEMAN (G-3418)	1	15.93	2019-SEP-14	400
4275168	COLEMAN (G-3418)	1	16.73	2019-OCT-20	200
4275169	COLEMAN (G-3418)	1	17.20	2019-OCT-20	200
4275150	COLEMAN (G-3418)	1	15.70	2018-DEC-23	300
4275430	COLEMAN (G-3418)	1	15.32	2019-JUN-22	400
4283634	COLEMAN (G-3418)	1	7.76	2018-DEC-15	400
4242323	COLEMAN (G-3418)	1	17.53	2019-JUN-04	400
4283635	COLEMAN (G-3418)	1	16.77	2018-DEC-15	400
4277084	COLEMAN (G-3418)	1	7.17	2019-JUN-22	400
4217615	COLEMAN (G-3418)	1	13.12	2019-APR-11	400
4283636	COLEMAN (G-3418)	3	31.35	2018-DEC-15	1200
4276121	COLEMAN (G-3418)	2	23.86	2019-JUN-27	800
4275790	COLEMAN (G-3418)	1	11.91	2018-JUL-02	400
4275791	COLEMAN (G-3418)	1	10.91	2019-JUL-02	400
4281651	COLEMAN (G-3418)	2	33.06	2018-DEC-21	800
4276136	COLEMAN (G-3418)	5	70.92	2019-DEC-16	1729
4281652	COLEMAN (G-3418)	1	8.51	2018-DEC-21	400
4280195	GILLIES LIMIT (G-4330)	13	206.14	2019-JUL-04	5200
4280199	GILLIES LIMIT (G-4330)	4	58.63	2019-JUL-15	1600
4280116	GILLIES LIMIT (G-4330)	1	13.45	2018-NOV-22	400
4280196	GILLIES LIMIT (G-4330)	1	16.68	2019-JUL-04	400
4280193	GILLIES LIMIT (G-4330)	2	32.91	2019-JUL-04	800
4280194	GILLIES LIMIT (G-4330)	2	30.97	2019-JUL-04	800
4280197	GILLIES LIMIT (G-4330)	2	26.07	2019-JUL-15	800
4280200	GILLIES LIMIT (G-4330)	2	33.55	2019-JUL-15	800
4280130	GILLIES LIMIT (G-4330)	2	19.49	2019-JAN-26	800
4280192	GILLIES LIMIT (G-4330)	1	7.26	2019-JUL-04	400
4282378	GILLIES LIMIT (G-4330)	1	17.58	2019-JUL-15	400
4280120	GILLIES LIMIT (G-4330)	3	36.36	2019-SEP-20	1200
4280144	GILLIES LIMIT (G-4330)	15	244.80	2019-SEP-20	6000
4280157	GILLIES LIMIT (G-4330)	3	33.90	2019-JAN-26	1200
4282379	GILLIES LIMIT (G-4330)	2	21.51	2019-JUL-15	800
4280145	GILLIES LIMIT (G-4330)	16	258.46	2019-SEP-20	6400
4280198	GILLIES LIMIT (G-4330)	1	14.68	2019-JUL-15	400

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4275037	GILLIES LIMIT (G-4330)	15	186.87	2019-FEB-02	4000
4275172	GILLIES LIMIT (G-4330)	2	35.93	2018-DEC-30	531
4280114	GILLIES LIMIT (G-4330)	1	1.19	2019-SEP-22	400
4275043	GILLIES LIMIT (G-4330)	1	5.04	2019-MAY-27	400
4275173	GILLIES LIMIT (G-4330)	5	75.04	2018-DEC-30	1768
4275175	GILLIES LIMIT (G-4330)	11	179.69	2018-DEC-30	3454
4277086	GILLIES LIMIT (G-4330)	1	16.69	2019-MAR-04	400
4275036	LORRAIN (G-3438)	1	19.13	2019-FEB-02	128
4275034	LORRAIN (G-3438)	1	15.41	2019-FEB-02	258

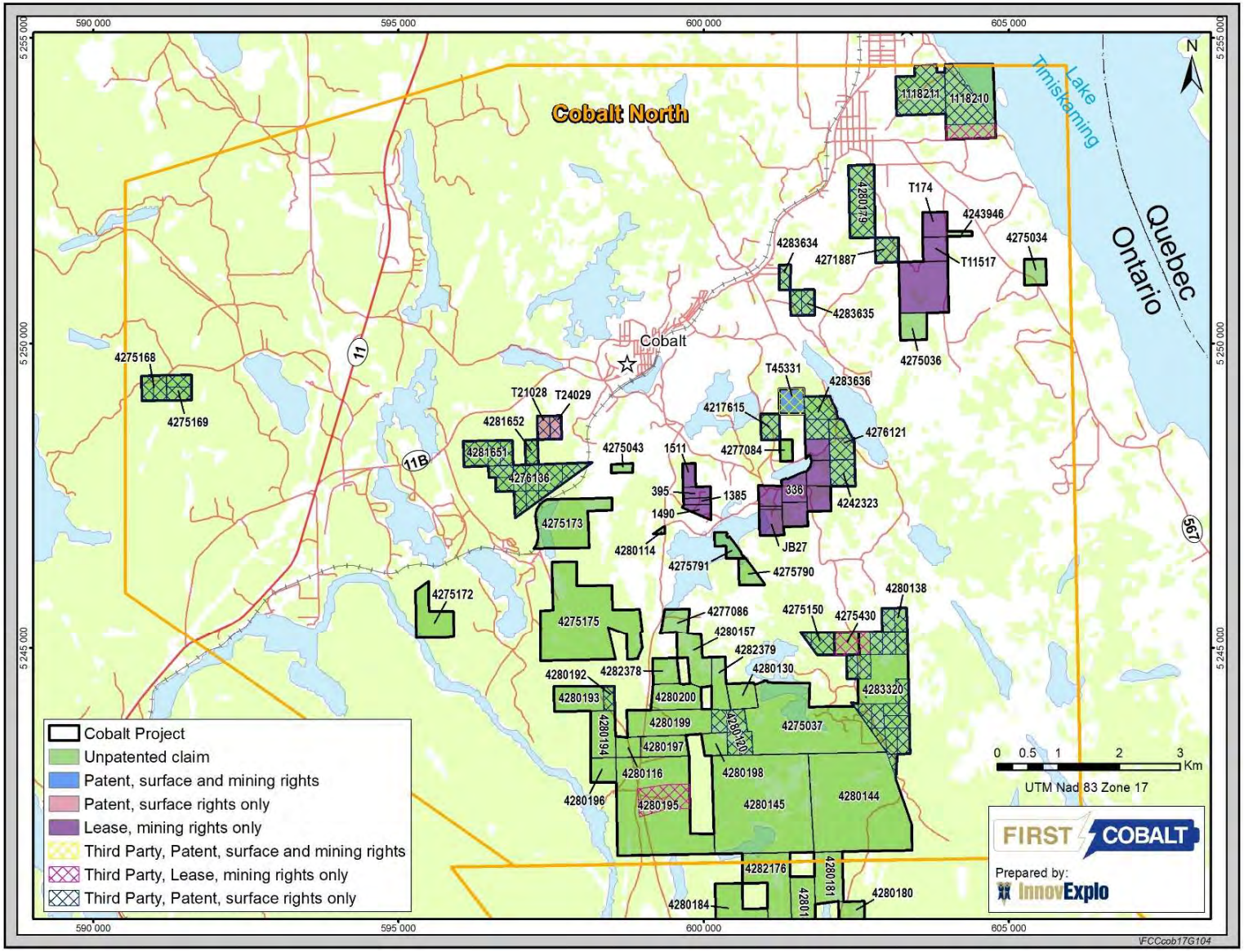

Figure 4.3 – Location of the Cobalt North Property mining titles

4.3.2 Cobalt Central Property

The positions of patented and unpatented claims composing the Cobalt Central Property are shown on Figure 4.4 Table 4.2 lists the details for the unpatented claims.

Table 4.2 – Unpatented claim details – Cobalt Central Property

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4282176	GILLIES LIMIT (G-4330)	4	67.41	2018-DEC-15	1600
4280181	GILLIES LIMIT (G-4330)	2	38.37	2019-AUG-30	800
4280182	GILLIES LIMIT (G-4330)	3	47.68	2019-AUG-30	1200
4280184	GILLIES LIMIT (G-4330)	3	46.51	2019-AUG-30	1200
4280132	GILLIES LIMIT (G-4330)	8	128.89	2019-SEP-20	3200
4280183	GILLIES LIMIT (G-4330)	3	47.04	2019-AUG-30	1200
4280131	GILLIES LIMIT (G-4330)	8	128.80	2019-SEP-20	3200
4280134	GILLIES LIMIT (G-4330)	12	187.09	2019-SEP-20	4800
4280133	GILLIES LIMIT (G-4330)	15	257.15	2019-SEP-20	6000
4280180	GILLIES LIMIT (G-4330)	3	47.45	2019-AUG-30	1200
4286469	LORRAIN (G-3438)	16	257.11	2019-JUN-13	6400
4286489	LORRAIN (G-3438)	15	236.80	2019-JUN-13	6000
4280177	LORRAIN (G-3438)	10	162.11	2019-AUG-08	4000
4276645	LORRAIN (G-3438)	4	64.51	2019-MAR-03	1200
4280160	LORRAIN (G-3438)	9	146.43	2019-AUG-08	3600
4280167	LORRAIN (G-3438)	9	146.61	2019-AUG-08	3600
4281663	LORRAIN (G-3438)	10	164.23	2018-NOV-16	4000
4280162	LORRAIN (G-3438)	12	198.82	2019-AUG-15	4800
4280165	LORRAIN (G-3438)	9	149.78	2019-AUG-08	3600
4280168	LORRAIN (G-3438)	3	53.03	2019-AUG-08	1200
4280161	LORRAIN (G-3438)	12	199.06	2019-AUG-08	4800
4280163	LORRAIN (G-3438)	8	117.36	2019-AUG-08	3200
4280159	LORRAIN (G-3438)	9	145.29	2019-AUG-08	3600
4280166	LORRAIN (G-3438)	9	140.63	2019-AUG-08	3600
4281661	LORRAIN (G-3438)	6	100.31	2018-NOV-16	2400
4280164	LORRAIN (G-3438)	12	200.20	2019-AUG-08	4800
4281662	LORRAIN (G-3438)	9	197.27	2018-NOV-16	3600
4282449	LORRAIN (G-3438)	4	62.10	2018-NOV-04	1600
4282748	LORRAIN (G-3438)	4	61.70	2018-NOV-04	1600
4282446	LORRAIN (G-3438)	4	61.32	2018-NOV-04	1600
4286486	LORRAIN (G-3438)	6	95.00	2019-JUL-31	2400
4286485	LORRAIN (G-3438)	4	63.32	2019-JUL-31	1600
4282749	SOUTH LORRAIN (G-3448)	12	201.39	2018-NOV-04	4800
4282445	SOUTH LORRAIN (G-3448)	4	63.35	2018-NOV-04	1600
4282750	SOUTH LORRAIN (G-3448)	15	235.57	2018-NOV-04	6000

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4278692	SOUTH LORRAIN (G-3448)	2	29.93	2018-NOV-04	800
4280570	SOUTH LORRAIN (G-3448)	1	11.58	2018-NOV-24	400
4282406	SOUTH LORRAIN (G-3448)	14	204.71	2018-NOV-24	5600
4282448	SOUTH LORRAIN (G-3448)	4	62.76	2018-NOV-04	1600
4282747	SOUTH LORRAIN (G-3448)	7	123.18	2018-NOV-04	2800
4282447	SOUTH LORRAIN (G-3448)	16	255.23	2018-NOV-04	6400
4282450	SOUTH LORRAIN (G-3448)	12	192.61	2018-NOV-04	4800

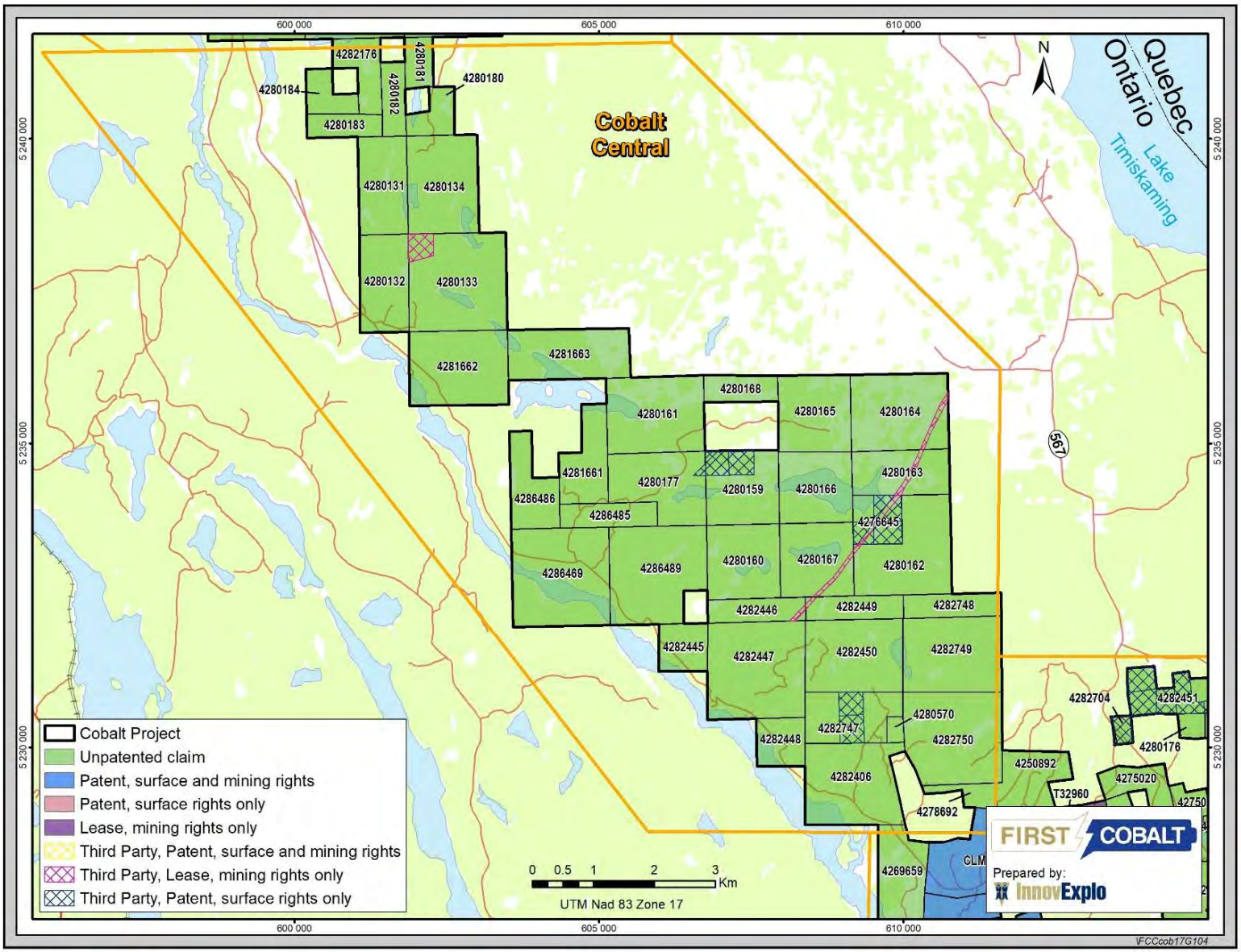

Figure 4.4 – Location of the Cobalt Central Property mining titles

4.3.3 Cobalt South Property

The positions of patented and unpatented claims composing the Cobalt South Property are shown on Figure 4.5. Table 4.3 lists the details for the unpatented claims.

Table 4.3 – Unpatented claim details – Cobalt South Property

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4284438	SOUTH LORRAIN (G-3448)	1	9.06	2019-JUN-08	400
4282704	SOUTH LORRAIN (G-3448)	1	13.24	2018-NOV-30	400
4250892	SOUTH LORRAIN (G-3448)	6	99.74	2022-JUL-16	2400
4269660	SOUTH LORRAIN (G-3448)	8	129.07	2019-JAN-09	412
4282451	SOUTH LORRAIN (G-3448)	12	140.71	2018-NOV-04	4800
4281640	SOUTH LORRAIN (G-3448)	4	69.77	2019-FEB-01	1600
4275170	SOUTH LORRAIN (G-3448)	1	15.97	2019-OCT-20	100
4280172	SOUTH LORRAIN (G-3448)	4	79.48	2019-JUL-15	1600
4282703	SOUTH LORRAIN (G-3448)	13	179.80	2018-NOV-30	5200
4280142	SOUTH LORRAIN (G-3448)	1	16.00	2019-SEP-14	400
4280170	SOUTH LORRAIN (G-3448)	11	190.95	2019-JUL-05	4400
4280171	SOUTH LORRAIN (G-3448)	2	44.24	2019-JUL-05	800
4275042	SOUTH LORRAIN (G-3448)	1	9.89	2019-MAY-26	100
4286434	SOUTH LORRAIN (G-3448)	3	33.41	2019-JAN-23	1200
4275021	SOUTH LORRAIN (G-3448)	3	37.60	2019-MAY-26	230
4268658	SOUTH LORRAIN (G-3448)	2	18.64	2019-JAN-21	800
4281664	SOUTH LORRAIN (G-3448)	6	96.01	2018-NOV-22	2400
4278610	SOUTH LORRAIN (G-3448)	1	19.02	2019-JUL-02	100
4280158	SOUTH LORRAIN (G-3448)	9	153.00	2019-AUG-08	3600
4280169	SOUTH LORRAIN (G-3448)	5	72.23	2019-JUL-05	2000
4280140	SOUTH LORRAIN (G-3448)	1	12.05	2019-SEP-14	400
4264322	SOUTH LORRAIN (G-3448)	1	14.27	2019-MAY-26	100
4280174	SOUTH LORRAIN (G-3448)	12	173.51	2019-JUL-15	4800
4269659	SOUTH LORRAIN (G-3448)	8	123.31	2019-JAN-09	412
4280175	SOUTH LORRAIN (G-3448)	9	131.50	2019-JUL-15	3600
4200044	SOUTH LORRAIN (G-3448)	2	27.75	2020-JUN-16	800
4278609	SOUTH LORRAIN (G-3448)	1	21.16	2019-JUL-02	100
4275171	SOUTH LORRAIN (G-3448)	1	11.34	2019-OCT-20	100
4275044	SOUTH LORRAIN (G-3448)	1	15.45	2019-05-26	100
4280178	SOUTH LORRAIN (G-3448)	13	225.63	2019-SEP-14	5200
4280176	SOUTH LORRAIN (G-3448)	1	17.29	2019-AUG-02	400
4281639	SOUTH LORRAIN (G-3448)	6	96.48	2019-JAN-30	2400
4275020	SOUTH LORRAIN (G-3448)	4	62.99	2019-MAY-26	1600
4280143	SOUTH LORRAIN (G-3448)	13	216.09	2019-SEP-14	5200
4282702	SOUTH LORRAIN (G-3448)	11	155.43	2018-NOV-30	4400

Claim #	Township	Claim units	Area (ha)	Due Date	Work required ($)
4280141	SOUTH LORRAIN (G-3448)	6	99.81	2019-SEP-14	2400
4275041	SOUTH LORRAIN (G-3448)	1	13.54	2019-MAY-26	100
4280173	SOUTH LORRAIN (G-3448)	6	103.45	2019-JUL-15	2400

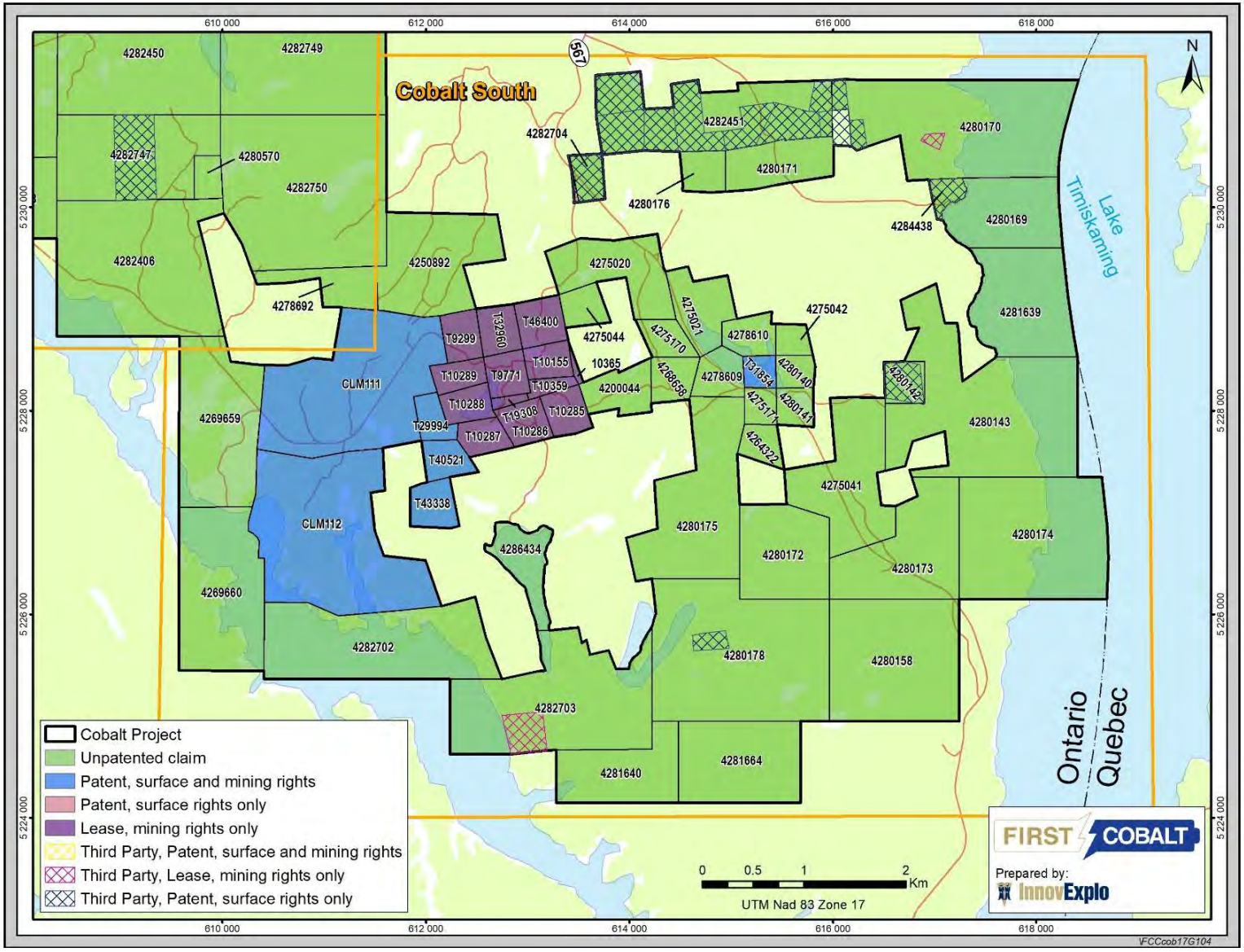

Figure 4.5 – Location of the Cobalt South Property mining titles

4.4 Previous Agreements and Encumbrances

4.4.1 Gold Rush Cariboo (claims # 4286485, 4286486)

The “Vendor” (Gold Rush Cariboo) agrees to sell and the “Purchaser” (Cobalt Industries of Canada Inc.) agrees to purchase claims #4286485 and #4286486 (the “Claims”) free and clear of all liens, charges and encumbrances for and in consideration of the sum of $150,080, payable through the issuance of 112,000 common chares of the Parent (First Cobalt) at a deemed price of $1.34 per share. The Purchaser shall grant to the Vendor a 1.0% royalty on returns from the commercial production of minerals from the Claims. The royalty shall be freely assignable by the Vendor upon written notice to the Purchaser, and one-half of the royalty may be purchased at any time for a cash payment of $250,000. The agreement is dated December 7, 2017.

4.4.2 Gold Rush Cariboo (claims # 4286469, 4286489)

The “Vendor” (Gold Rush Cariboo) agrees to sell and the “Purchaser” (Cobalt Industries of Canada Inc.) agrees to purchase claims #4286469 and #4286489 (the “Claims”) free and clear of all liens, charges and encumbrances for and in consideration of the sum of $150,080, payable through the issuance of 112,000 common chares of the “Parent” (First Cobalt) at a deemed price of $1.34 per share. The Purchaser shall grant to the Vendor a 1.0% royalty on returns from the commercial production of minerals from the Claims. The royalty shall be freely assignable by the Vendor upon written notice to the Purchaser, and one-half of the royalty may be purchased at any time for a cash payment of $250,000. The agreement is dated December 7, 2017.

4.4.3 Red Jacket-Hamilton Property (claims # 4281651, 4281652, 4276136, 4264318)

The “Transferors” (George and Heather Pollock) have agreed to transfer four unpatented claims, known as the Red Jacket-Hamilton Property, to the “Transferee” (Cobalt Camp Ontario Holdings Corp.). The following terms apply:

- A non-refundable payment of $20,000.
- $30,000 payable on the 12-month anniversary of the date of execution of the agreement (June 12, 2017).
- $35,000 payable on the 24-month anniversary of the date of execution of the agreement.
- Ordinary shares from the parent company of the Transferee (Cobalt One Limited) equal to $40,000.

In addition, the Transferee shall make a minimum work expenditure on the Red Jacket-Hamilton Property of:

- $30,000 to be incurred prior to the 12-month anniversary of the date of the execution of this agreement.
- $60,000 in aggregate expenditures to be incurred prior to the 24-month anniversary of the date of the execution of this agreement.

The Red Jacket-Hamilton Property is also subject to an NSR royalty. The operator shall pay a perpetual royalty in the amount of 2.0% NSR from the sale or other disposition of product produced from the property. At any time, the operator shall have the right to repurchase up to 1.0% of the royalty by the payment of $250,000. In case the "Payees" (George and Heather Pollock) want to sell the remaining 1.0% of the royalty, it must firstly be offered to the operator.

4.4.4 Gore Claim (claim # 4200044)

The "Vendor" (John Aubrey Gore) grants to the "Purchaser" (Cobalt Industries of Canada Inc.) the option to purchase claim 4200044 (the "Claim") by completing a series of cash payments and expenditures as follows:

- A cash payment of $10,000 upon execution of this agreement.
- A second cash payment of $10,000 and incurring expenditures of $20,000 before the one-year anniversary of the "Effective Date" (June 20, 2017).
- A further cash payment of $20,000 and incurring further expenditures of $20,000 on or before the two-year anniversary of the Effective Date.
- Incurring further expenditures of $35,000 on or before the three-year anniversary of the Effective Date.

Following completion of the cash payments and the expenditures set forth above, the Purchaser shall have exercised the option in full and shall be the beneficial owner of the Claim, subject to a 2.0% NSR royalty on production from the claim in favour of the Vendor. One half (1.0%) of the royalty may be purchased by the Purchaser though the cash payment of $500,000 to the Vendor, and the balance of the royalty may be purchased through a further cash payment of $500,000.

4.4.5 Canadian Silver Hunter

As stipulated in the press release of March 16, 2017, First Cobalt has entered into a definitive agreement to acquire all of the outstanding share capital of Cobalt Projects International Corp. ("Cobalt Projects International"), a privately-held Ontario-based mineral exploration company. Cobalt Projects International holds the rights to earn up to a 100% interest from Canadian Silver Hunter Inc. in the Keeley-Frontier mine, located within the historical Silver Centre camp, and bordering the Company's existing South Lorrain cobalt claim blocks. As consideration for the acquisition, the First Cobalt will issue 4.45 million shares to existing shareholders of Cobalt Projects International, which shall vest in 6 equal tranches over a period of 4 to 18 months. First Cobalt may earn up to a 100% interest in Keeley-Frontier as follows:

- 50% interest upon payment of $850,000 (of which $350,000 has been paid) and incurring expenditures of $1,750,000 on the property over a period of three years.
- 51% interest upon payment of $200,000 within 60 days of having exercised the first option and producing a NI 43-101 compliant technical report by the fourth anniversary.
- 100% interest upon payment of $750,000 and incurring additional expenditures of $1,250,000 by the fifth anniversary.

Upon earning a 100% interest, Canadian Silver Hunter shall be granted a 2% NSR royalty, subject to First Cobalt having the right to purchase 1% for $1 million over the ensuing 10 years. The Company may elect to accelerate the earn-in. Completion of the acquisition of Cobalt Projects International remains subject to the approval of the TSX Venture Exchange.

Mining leases: CLM111, CLM112, T40521, T29994, T43338

Patent claims: T9299, T32960. T46400, T10289, T10288, T9771, T10155, T19308, T10359, 10365, T10287, T10286, T10285

Unpatented claims: 4269660, 4269659, 4250892, 4275020, 4275021, 4272876, 4268658

4.4.6 Claim 4276645

Claim 4276645 is subject to a 1% NSR royalty payable to the "Vendor" (Timothy Phillip Harry Martel). The NSR on claim 4276645 may be bought back in increments of 0.5% for $100,000 per increment ($200,000 total).

4.5 Environmental Liabilities

The MNDM of Ontario keeps a register of all environmental liabilities related to mineral claims in the province, known as mine features, with the Abandoned Mines Information System ("AMIS"). The AMIS database is available for free and as a reference online. The responsibility of a holder of a mineral claim with regards to new or pre-existing mine features is defined in Ontario's *Mining Act*.

For every mine feature, the appropriate mine hazard status is assigned from the list below:

- Active hazard;
- Not a hazard;
- Rehabilitated;
- Not available;
- Naturally rehabilitated.

These features include (but are not limited to) shafts, head frames, trenches, adits, raises and stopes to surface, winzes, lateral workings, open pits, ponds, tailing ponds, dams, waste rock dumps, mills, adminsitrative buildings.

It should be noted that the MNDM issues a disclaimer with the AMIS database specifying that the information is provided "as is" without warranties or conditions of any kind. It is up to First Cobalt to verify with the MNDM as to the status and accuracy of the information regarding the mine features on its claims. At the time of writing, the online AMIS database was dated November 2016.

The author has not verified with the MNDM as to the accuracy of the information regarding the mine features on the claims of First Cobalt and is not responsible for presenting any inaccurate information or missing any information within the Technical Report regarding any mine feature on First Cobalt's claims.

4.5.1 Patented mining claims

According to the *Mining Act*, First Cobalt may be ordered to file a closure plan for any mine hazard that is present on a patented mining claim for which the issuer is the holder, even if it did not create the hazard. According to the AMIS database, 96 mine features were registered within the patented mining claims, based on the location of the AMIS abandoned site coordinates. Of the 96 mine features, 75 are considered as active hazards, 7 are not a hazard, 7 have been rehabilitated, and the remaining 7 mine features have no description. None of the features are naturally rehabilitated. All these mine features are presented in Appendix I.

It is recommended that First Cobalt verify the status and information regarding these mine features and any potential new mine feature with the MNDM and be precisely located and logged for future reference.

Furthermore, while there are 7 mine features that have been rehabilitated, it should be noted that any person who destroys rehabilitation work without the consent of the MNDM is guilty of an offence. As such, First Cobalt should ensure that any rehabilitation work is either not destroyed or that a request to the MNDM is made and accepted before destroying the rehabilitation work.

4.5.2 Unpatented mining claims

According to the *Mining Act*, First Cobalt may be ordered to file a closure plan for a mine hazard that is present on an unpatented mining claim for which the Company is the holder if they materially affect or disturb the hazard. According to the AMIS database, 177 mine features were registered in the database within the unpatented mining claims, based on the location of the AMIS abandoned site coordinates. Of the 177 mine features, 93 are active hazards, 44 are not a hazard, 13 are rehabilitated, and the remaining 27 mine features have no description available. None of these features are naturally rehabilitated. All these mine features are presented in Appendix II.

It is recommended that First Cobalt verify the status and information regarding these mine features and any potential new mine feature with the MNDM, and that they be precisely located and logged for future reference.

Furthermore, while there are 13 mine features that have been rehabilitated, it should be noted that any person who destroys rehabilitation work without the consent of the MNDM is guilty of an offence. As such, First Cobalt should ensure that any rehabilitation work is either not destroyed or that a request to the MNDM is made and accepted before destroying the rehabilitation work.

4.6 Required Exploration Permits

According to the *Mining Act* and Ontario regulation 308/12, some early exploration activities require an exploration plan and others require an exploration permit. Exploration plans and permits are required when a proponent wishes to undertake prescribed exploration activities on claims, leases or licences of occupation. Exploration plans and permits are not required on patented claims.

4.6.1 Exploration plan

An early exploration proponent who wishes to undertake prescribed exploration plan activities on claims, leases or licences of occupation shall submit an exploration plan.

The early exploration activates that require an exploration plan are:

- Line cutting 1.5 m wide or less;
- Geophysical surveys on the ground requiring the use of a generator;
- Mechanized stripping a total surface area of less than 100 m^2 within a 200-m radius;
- Excavation of bedrock that removes 1 m^3 and up to 3 m^3 of material within a 200-m radius;
- Use of a drill that weighs less than 150 kg.

Exploration plans are used to inform Aboriginal Communities, Government, Surface Rights Owners and other stakeholders about these activities. Aboriginal communities potentially affected by the exploration plan activities will be notified by the MNDM and have an opportunity to provide feedback before the proposed activities can be carried out.

4.6.2 Exploration permit

An early exploration proponent who proposes to carry out exploration permit activities shall apply for an exploration permit.

The early exploration activities that require an exploration permit are:

- Line cutting that is 1.5 m wide or more;
- Mechanized stripping of a total surface area of greater than 100 m^2 within a 200-m radius (and below advanced exploration thresholds);
- Excavation of bedrock that removes more than 3 m^3 of material within a 200-m radius;
- Use of a drill that weighs more than 150 kg.

An exploration permit is an instrument that allows an early exploration proponent to carry out prescribed early exploration activities at specific times and in specific location. Exploration Permits include terms and conditions that may be used to mitigate potential impacts identified through the consultation process. Surface rights owners must be notified when applying for a permit. Aboriginal communities potentially affected by the exploration permit activities will be consulted and have an opportunity to provide comments and feedback before a decision is made on the permit. Permit proposals will be posted for comment on the Ontario Ministry of the Environment Environmental Registry for 30 days.

An exploration permit has been acquired by First Cobalt for claim #4275044, the public consultation is done and no concern have been raised to exploration work.

4.6.3 Consultation

Consultation is known as the process of discussing mining sequence activities with individuals or communities who may be or will be affected by the activities. The consultation is carried out with three groups:

- Aboriginal communities: Aboriginal communities must be consulted before beginning early exploration activities requiring exploration plans and exploration permits;
- Surface rights holder: Mineral rights are the rights to the minerals located in, on or under a piece of land. A surface rights holder is an individual who owns rights to land which do not include the mineral rights. Contact with surface rights holders should be made and maintained throughout the mining sequence, as they have a legal right to the land. In some cases, contacting surface rights holders is also a requirement under the *Mining Act*. It is also highly recommended to contact surface rights holders before entering their property to prospect, entering their property to stake, beginning new exploration activities, making changes to existing exploration activities, etc.;
- Public: The public includes all citizens. Contact with the public should be made and maintained throughout the mining sequence, as changes to the land may influence recreational activities, raise environmental concerns or cause health or safety issues.

The issuer is currently interacting with the Temiskaming, Temagami, Metis Nation of Ontario and Matachewan First Nation groups, to identify with them the environmental and social impacts of the exploration program planned for 2018.

4.6.4 Other applicable regulations

Some other regulatory permits and notable requirements for early exploration activities, outside of the MNDM, can apply. As an example, permits should be obtained from the MNR for road construction, cutting timber, fire permit for burning, water crossings, etc.

The issuer undertakes to obtain all necessary permits for their exploration program.

4.7 Other significant factors and risks

It remains possible that the results of the consultations or other aspects, such as social, political, environmental, legal, economic or other issues, could potentially affect access to the land, title or the right or ability to perform exploration work. However, InnovExplo is currently unaware of any such potential issues that could affect planned exploration activities.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Cobalt Project comprises mining titles located within and to the south of the Cobalt city limits in Northern Ontario (Figure 5.1). The main ways to access the Project are as follows:

- TransCanada Highway 11;
- Highway 11B, which links the city of Cobalt and TransCanada Highway 11;
- King Street; which is the continuation of Highway 11B from Cobalt to the community of North Cobalt;
- Highway 567, a secondary highway starting in North Cobalt and heading south along the Ottawa River.

The Yukon cobalt extraction refinery is accessible from North Cobalt by Highway 567, locally designated as Silver Centre Road, and then branching southward onto an unnamed road (Figure 5.2).

Some of the claims are directly linked to these or other secondary roads, while other claims are only accessible by gravel roads, trails, or hydro transmission line clearings.

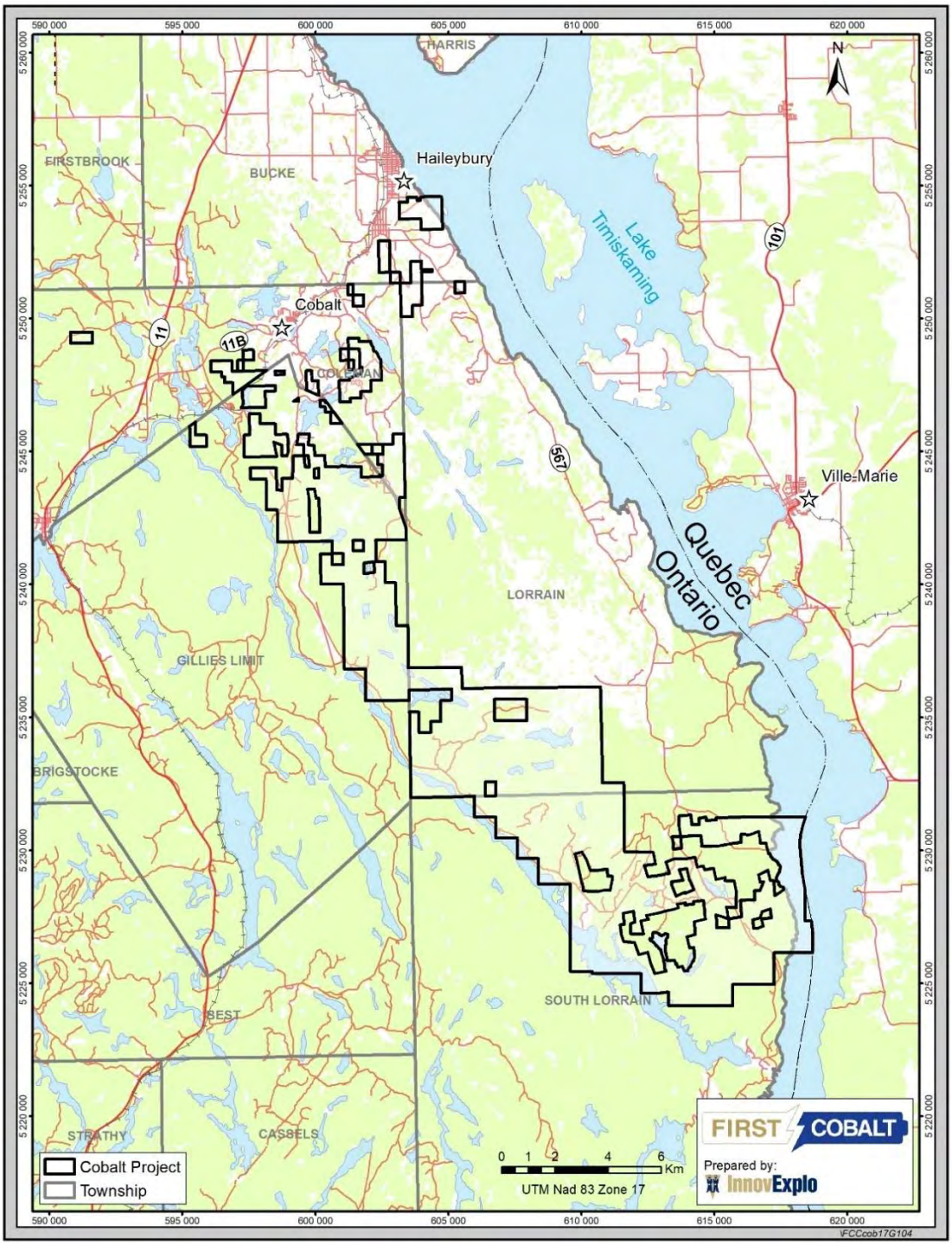

Figure 5.1 – Access and waterways of the Cobalt Project and surrounding region

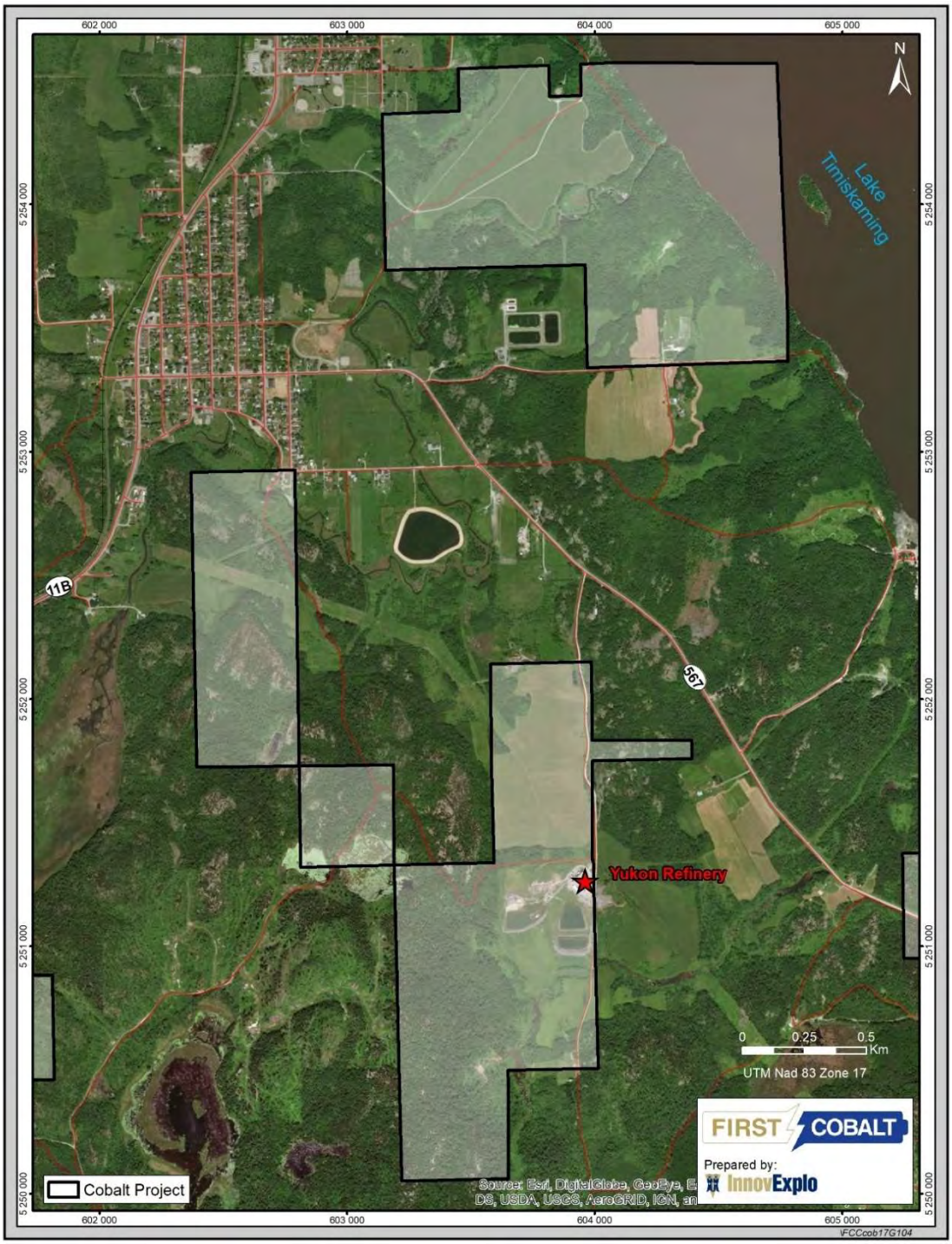

Figure 5.2 – Access to the Yukon cobalt extraction refinery

5.2 Climate

Ville Marie, Québec, on the east side of Lake Temiskaming, is the closest centre considered representative of the Project for which Environment Canada (2017) has climatic records (1981 to 2010).

The region experiences a typical continental-style climate, with cold winters and warm summers. Climate data from the nearest weather station (Ville-Marie), indicate that the daily average temperature ranges from -15°C in January to 18.3°C in July (Environment Canada, 2010). The coldest months are December to March, during which the temperature is often below -20°C and can fall below -30°C. During summer, temperatures can exceed 30°C. Snow accumulation begins in November and generally remains until the spring thaw in mid-March to April, with the average monthly snowfall peaking at 40 cm in January and a yearly average of 181 cm (Environment Canada, 2010). Ville-Marie has an average of 84 cm of precipitation per year.

Season-specific mineral exploration may be conducted year-round. Swampy areas and lakes/ponds may be best accessed for drilling and ground geophysical surveys during the winter months when the ground and water surfaces are frozen. Mining operations in the region can operate year-round with supporting infrastructure.

5.3 Local Resources

The city of Temiskaming Shores (population of 9,920 in 2016), located approximately 25 km north of the project center, offers most of the supplies and services required for a mineral exploration program. Since 2004, the city has amalgamated the towns of New Liskeard and Haileybury and the township of Dymond. The town of Cobalt, at the northern limit of the Project, has a population of 1,118 (2016) and can offer basics services.

The largest city in Northern Ontario is Greater Sudbury (population of 161,531 in 2016), located approximately 200 km by road southwest of the Project. For most of the 20th century, the economy was dominated by the mining industry and related industries. Since that time, the city developed and evolved into a world-class mining centre and became the main hub for the retail, economic, health and education sectors in Northern Ontario. Consequently, equipment, supplies and services for mining development is available there.

The historical mining context of the above cities ensures that labour is also available near the project.

In addition to the infrastructure mentioned in the following section, there are also Hydro One 115 kV and 230 kV transmission lines nearby. Also, there is an abundance of fresh water as many lakes, streams and wetlands presents on the Project.

5.4 Infrastructure

Many roads, trails, and powerlines span the Property. Also, the Ontario Northland railway services the town of Cobalt, linking North Bay with the rest of northeastern Ontario (Figure 5.3). Other than these general infrastructures in the vicinity of the Property, the Yukon cobalt extraction refinery is the only useable infrastructure belonging to the Company.

Figure 5.3 – Ontario Northland freight service map

5.4.1 Property assets visited on January 18-19, 2018

5.4.1.1 Cobalt North Property

The Yukon cobalt extraction refinery is situated in the North Cobalt area (Figure 5.2). This refinery was recently acquired with the purchase of Cobalt One on December 1, 2017. The site includes a service building and several storage ponds for the refinery's wastes (Figure 5.4). The service building (Figure 5.5) includes the refinery, made up of three separate circuits for treating concentrates by pressure acid-leach, solvent extraction, and Merrill-Crowe for precious metals. It also houses the control room, laboratories, a maintenance shop, a warehouse, administrative offices and a change room.

Yukon refinery is in care and maintenance state. Access to the buildings is restricted by locked doors. First Cobalt personnel access the site 2-3 times a week for core storage. It must be noted that the building is actually disconnected from the public power grid, therefore the building is unheated and has no lighting. At the time of the visit, there was a thick layer of ice that had built up on the ground floor due to blocked floor gutters. The ice buildup also restricted access to most parts of the building.

An Environmental Due Diligence was conducted by Story Environmental Inc. Their report mentions that the site was fully permitted (Environmental Compliance Approvals (ECAs) and permits) to process 12 tpd in 2001. Also, a transfer of ownership is necessary and any expansion or modification will require amendments to the current ECAs and permits.

According to the AMIS classification system, the tailings impoundment in the southern area of the refinery site is a class "B" type, which is defined as follows:

- Poses a limited but potential concern to the receiving environments;
- Has a potential for onsite public health concerns; and
- Has a potential for serious injury or death to occur.

Even though the plant is not operating, this type of classification requires that the property owner must continue to monitor the water quality within the impoundment and undertake any appropriate action to contain or treat the water before releasing it into the natural habitat. For this purpose, treatment is ongoing by the issuer as of 2017 in order to meet environmental requirements and to prevent uncontrolled release into the environment.

Figure 5.4 – Yukon cobalt extraction refinery site

The refinery is permitted and equipped to process ore containing high levels of arsenic which is rendered inert with the destruction unit integrated into the circuit by heating it in an autoclave and converting it to ferrous arsenide.

The Yukon Refinery consists of the following major infrastructure components:

- 40 acres of property with ability to expand to 120 acres
- 12 tpd refinery (a second autoclave was added to bring throughout to 24 tpd but never commissioned)
- Primary Settling Pond (59,000 m^3)
- Secondary Settling Pond (20,000 m^3)
- Autoclave Pond (i.e., tailings management facility) with a maximum storage capacity of approximately 82,000 m^3
- Effluent discharge to Slate Creek from the Secondary Settling Pond
- Cyanide destruction system

The First Cobalt Refinery has been on care and maintenance since mid-2015. Power lines to the facility are currently disconnected from the grid but could be reactivated. Details of the process could be found in Appendix III.

Figure 5.5 – Yukon cobalt extraction refinery service building

The former Canadaka mill facility (also called the Trio mill) is part of the group of assets belonging to First Cobalt (Figure 5.6 and 5.7). This mill was built in 1977 and was equipped with gravity and flotation cells to process ore. The mill was shut down in 1984 and has not operated since. The buildings of the mill complex include the actual mill, the crusher, and the warehouse. First Cobalt intends to tear down the crusher and mill buildings but keep the warehouse as it is in relatively good condition.

Several unidentified rock piles are also located around these buildings (Figure 5.8). The rock in these piles is supposedly mineralized and was part of a muck sampling program in 2017.

Figure 5.6 – Aerial view of the historical Canadaka (or Trio) mill

Figure 5.7 – View of the part of the mill in good condition

Figure 5.8 – One of the stockpiles near the abandoned buildings

The former Lawson mine headframe is visible looking west from the Canadaka mill site. The site also contains confined tailings and various infrastructures such as a shaft, head frame and stope to surface.

The Canadaka tailings impoundment (Figure 5.9) and the Lawson site are both classified as "B" type by the AMIS classification system and so subject to the same requirements as defined above in Section 5.4.1.

Lastly, at the time of the author's visit to the Silverfields site (ID 03840) and with the exception of the tailings impoundment, the author did not see any of the infrastructure components reported by the AMIS (such as shafts, adits, raises, head frame or hoist room). For this reason, the author elected to keep the information in the AMIS record in this Technical Report until more information becomes available to validate the existence (or not) of these infrastructure components.

Figure 5.9 – Canadaka confined tailings

5.4.1.2 Cobalt Central Property

None of the features or infrastructure located on the Cobalt Central Property have been assessed during the site visit due to impracticable road access.

5.4.1.3 Cobalt South Property

On the site of the former Keeley-Frontier mine, some tailings are present in ponds and in topographic depressions. There are also remains of foundations related to the former mill facility that are visible from the forestry road (Figures 5.10 and 5.11).

Figure 5.10 – Historical mill foundations

Figure 5.11 – Aerial view of the site of the former Keeley-Frontier mine

5.4.2 Property assets and features not visited on January 18-19, 2018.

There are many assets and remaining mining features located on the group of claims composing the First Cobalt Project that have not been assessed during the site visit. This is mostly due to the snow coverage that rendered site access difficult or impractical. Furthermore, when a few of the features could be visually identified while walking on the property, snow hindered the author's ability to determine their dimensions with any accuracy.

Nevertheless, it must be noted that several of the features represent a significant safety hazard, which is well documented in the AMIS.

Table 5.1 presents the complete AMIS list of mining sites that should be assessed. Figures 5.12 to 5.14 show the location of those sites according to property on which they occur (Cobalt North, Cobalt Central or Cobalt South).

However, temporary remediation work has been completed by the issuer in Cobalt South to minimize risk and further work is planned for 2018 following guidelines issued by the MNDM.

Table 5.1 – Details of sites found on the Cobalt Project, as listed by AMIS

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
00344	UNKNOWN_1	Abandoned	Unknown	C	UNK	UNK	UNK		EXPLORATION SHAFT - VERTICAL SHAFT
00573	LITTLE KEELY	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	SHAFT - 1 COMPARTMENT - INCLINED SHAFT; WASTE ROCK DUMP
01004	MONTROSE	Abandoned	Ceasing production - Other	C	NO	NO	NO		MISCELLANEOUS STRUCTURES; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; RAISE TO SURFACE; OPEN PIT
01005	MINING CORPORATION	Abandoned	Ceasing production - Other	C	NO	NO	NO	CO	SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; OPEN PIT
01006	GORE, J.	Abandoned	Exploratory workings - underground	C	NO	NO	NO		SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
01007	UNKNOWN_2	Abandoned	Ceasing production - Other	C	NO	NO	NO		SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
02223	CANADAKA TAILINGS	State of inactivity	Ceasing production - Other	B	YES	NO	NO	AG	TAILINGS - CONFINED
02236	LORRAIN 2 UNKNOWN	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH; TRENCH; EXPLORATION SHAFT - VERTICAL SHAFT
02261	HELLENS-EPLETT	Abandoned	Ceasing production - Other	B	YES	NO	NO	AG	HEAD FRAME; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; MILL, MILL FOUNDATION; SHAFT - 1 COMPARTMENT - UNKNOWN; ADMINISTRATIVE BUILDINGS; PONDS; PONDS; TAILINGS DAMS
02263	LATOUR LAKE MINES LTD.	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; LATERAL WORKINGS
02264	TAYLOR PIPE	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; TRENCH; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT
02274	LORRAIN 12 UNKNOWN	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH
02275	PRICE, J.	Abandoned	Exploratory workings - surface	D	NO	YES	NO	AG	TRENCH
02276	MCINLEY DARRAH OPTION	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; TRENCH

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
02277	CHUKUNI GOLD MINES L	Abandoned	Exploratory workings - underground	C	NO	NO	NO	CU	EXPLORATION SHAFT - VERTICAL SHAFT; TRENCH; TRENCH; TRENCH
03408	CUMMINGS	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH; TRENCH; TRENCH; TRENCH
03409	SLOAN-OLSEN	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT
03410	GAUTHIER	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH; EXPLORATION SHAFT - VERTICAL SHAFT
03413	GRAY, J.J.	State of inactivity	Ceasing production - Other	C	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; TRENCH; TRENCH
03444	RED JACKET	Abandoned	Exploratory workings - underground	C	UNK	YES	UNK	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; WINZE; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; LATERAL WORKINGS; TRENCH
03447	BELMONT	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03457	ONTARIO DEVELOPMENT	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; TRENCH
03470	KIRK BUDD	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	ADIT; ADIT; EXPLORATION SHAFT - VERTICAL SHAFT; WASTE ROCK DUMP; HEAD FRAME
03485	NANEEK	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT
03486	BOTHA LAKE	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	ADIT; OPEN CUT; TRENCH; EXPLORATION SHAFT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; TRENCH
03489	BULLDOG	Abandoned	Ceasing production - Other	C	NO	NO	NO	AG	EXPLORATION SHAFT - UNKNOWN; TRENCH; TRENCH; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
03490	SANTA MARIA	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; TRENCH; TRENCH
03499	SILVER CROSS	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	ADIT; EXPLORATION SHAFT - VERTICAL SHAFT; LATERAL WORKINGS; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03500	JUNO	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; ADIT; LATERAL WORKINGS; HOIST ROOM; RAISE TO SURFACE; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03510	HARGRAVE	State of inactivity	Ceasing production - Other	B	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; STOPE; LATERAL WORKINGS; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03511	LAWSON	State of inactivity	Ceasing production - Other	B	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; HEAD FRAME; TAILINGS - CONFINED; STOPE TO SURFACE; ST
03512	KERR LAKE	State of inactivity	Ceasing production - Other	B	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; CROWN PILLAR; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT;
03513	DRUMMOND	State of inactivity	Ceasing production - Other	B	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; LATERAL WORKINGS; WASTE ROCK DUMP; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; STOPE TO SURFACE; STOPE TO SURFACE; STOPE TO SURFACE

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
03518	OPHIR	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	TRENCH; LATERAL WORKINGS; WASTE ROCK DUMP; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03520	SILVER BANNER	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; TRENCH; HEAD FRAME; MISCELLANEOUS STRUCTURES; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; LATERAL WORKINGS; TRENCH; HOIST ROOM; MISCELLANEOUS STRUCTURES; WASTE ROCK DUMP; WASTE ROCK DUMP
03527	COBALT LODE	State of inactivity	Ceasing production - Other	C	NO	YES	NO	AG	ADIT; EXPLORATION SHAFT - VERTICAL SHAFT
03529	ROWELL	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT
03530	CLAIM T20321	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	ADIT
03531	BOMONT	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	LATERAL WORKINGS; WASTE ROCK DUMP; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; TRENCH
03534	MCANDREW, J.J.	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	LATERAL WORKINGS; WASTE ROCK DUMP; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT
03541	GLEN	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH
03542	FLEMING	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
03653	PENNAQUE	Abandoned	Exploratory workings - underground	C	NO	NO	NO	CO	EXPLORATION SHAFT - INCLINED SHAFT
03655	COO, C.W.	Abandoned	Ceasing production - Other	C	NO	NO	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; WASTE ROCK DUMP

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
03656	MINING	Abandoned	Exploratory workings - underground	C	NO	NO	NO	CO	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT
03658	NORBAY	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH
03665	KEELEY	Abandoned	Ceasing production - Other	B	NO	YES	NO	AG	EXPLORATION SHAFT - INCLINED SHAFT; SHAFT - 1 COMPARTMENT - UNKNOWN; SHAFT - 2 COMPARTMENT - UNKNOWN; SHAFT - 1 COMPARTMENT - INCLINED SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SH
03667	FORNERI	Abandoned	Ceasing production - Other	C	NO	YES	UNK	CO	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; WASTE ROCK DUMP; WASTE ROCK DUMP; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; WASTE ROCK DUMP
03668	TAYLOR	Abandoned	Ceasing production - Other	C	NO	NO	NO	CO	SHAFT - 1 COMPARTMENT - INCLINED SHAFT; TRENCH; TRENCH; TRENCH; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
03670	MILLER, H.G.	Abandoned	Exploratory workings - underground	C	NO	UNK	NO	CO	ADIT
03672	OSLUND-HERMISTON	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH; TRENCH; TRENCH; TRENCH
03673	CLIFTON	Abandoned	Exploratory workings - underground	C	NO	NO	NO	CO	EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - UNKNOWN; MISCELLANEOUS STRUCTURES; TRENCH; TRENCH
03678	GILGREER	Abandoned	Ceasing production - Other	D	NO	NO	NO	AG	OPEN PIT; OPEN PIT; TRENCH; TRENCH; TRENCH; TRENCH
03680	PRICE, J.A.	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - UNKNOWN; TRENCH; STOPE TO SURFACE; SHAFT - 1

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
									COMPARTMENT - INCLINED SHAFT; RAISE TO SURFACE; SHAFT - 2 COMPAR
03703	PONTIAC	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	ADIT; LATERAL WORKINGS; TRENCH; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
03704	CAMPBELL-CRAWFORD	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT; LATERAL WORKINGS; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
03715	AIRGIOD	State of inactivity	Exploratory workings - underground	C	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; LATERAL WORKINGS
03840	SILVERFIELDS	Abandoned	Ceasing production - Other	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT; LATERAL WORKINGS; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT; RAISE TO SURFACE; HEAD FRAME; HOIST ROOM; CHEMICAL WASTES; HEAD FRAME; TAILINGS - UNCONFINED
03844	CONISIL	State of inactivity	Ceasing production - Other	B	YES	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT; LATERAL WORKINGS; RAISE TO SURFACE; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; ADIT; ADIT; ADIT; ADIT; HEAD FRAME
06571	CLARK	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
10008	PAT 445	Abandoned	Exploratory workings - surface	D	NO	YES	NO	AG	OPEN PIT; OPEN PIT; OPEN PIT; OPEN PIT; OPEN PIT
10009	PAT 1683	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	TRENCH; TRENCH; SHAFT - 2 COMPARTMENT - VERTICAL SHAFT

AMIS ID	Official Name	Status	Closure Reason	Site Class	Plan			Commodity	Infrastructure description
					Closure	Mine	Rehabilitation		
10010	CROWN 02	Abandoned	Exploratory workings - underground	C	NO	YES	NO	AG	SHAFT - 2 COMPARTMENT - VERTICAL SHAFT; WASTE ROCK DUMP; TRENCH
10050	COLEMAN (LT 9 CON V) SW	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	EXPLORATION SHAFT - VERTICAL SHAFT; EXPLORATION SHAFT - VERTICAL SHAFT
10070	WOLVERINE	Abandoned	Unknown	C	UNK	UNK	UNK		EXPLORATION SHAFT - VERTICAL SHAFT
10071	UNKNOWN_3	Abandoned	Unknown	C	UNK	UNK	UNK		EXPLORATION SHAFT - VERTICAL SHAFT
10078	BARTH LAKE WEST	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
10123	BARTH LAKE	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH; SHAFT - 1 COMPARTMENT - VERTICAL SHAFT
10125	G. L. CLAIM 1118400	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10126	GILLIES LIMIT CROWN	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10135	G. L. CLAIM L266361	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10162	BUCKE (LOT 12 CON I S1/2 SHAFT)	Abandoned	Exploratory workings - underground	C	NO	NO	NO	AG	TRENCH; EXPLORATION SHAFT - VERTICAL SHAFT
10214	G. L. CLAIM T35838	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10215	G. L. CLAIM T31051	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10216	G. L. CLAIM T21884	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10218	G. L. CLAIM T28127	Abandoned	Exploratory workings - surface	D	NO	NO	NO	AG	TRENCH
10224	YUKON REFINERY	Temporary suspension	Ceasing production - Other	B	YES	NO	NO	AG	MILL, MILL FOUNDATION

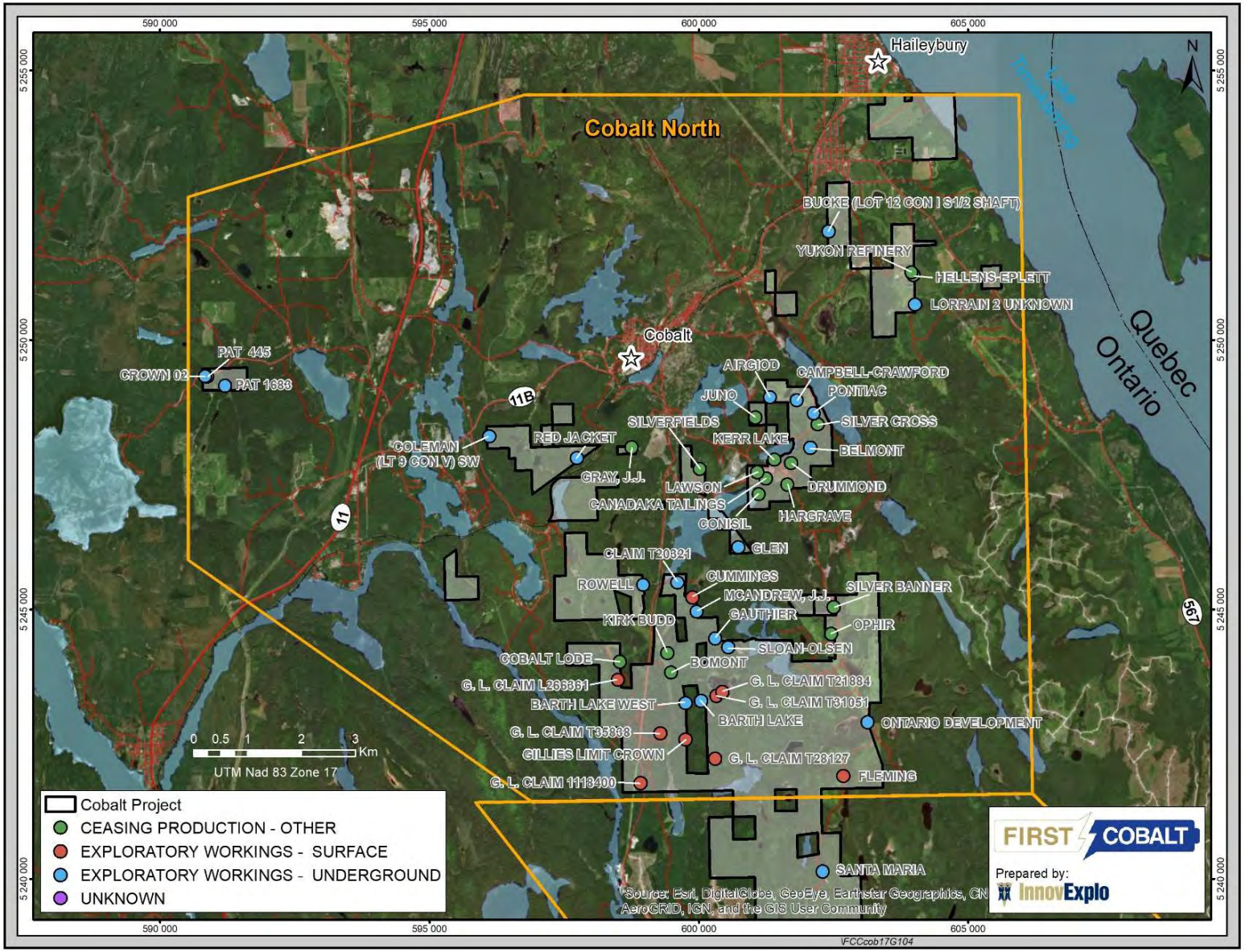

Figure 5.12 – Location of sites listed by AMIS on the Cobalt North Property

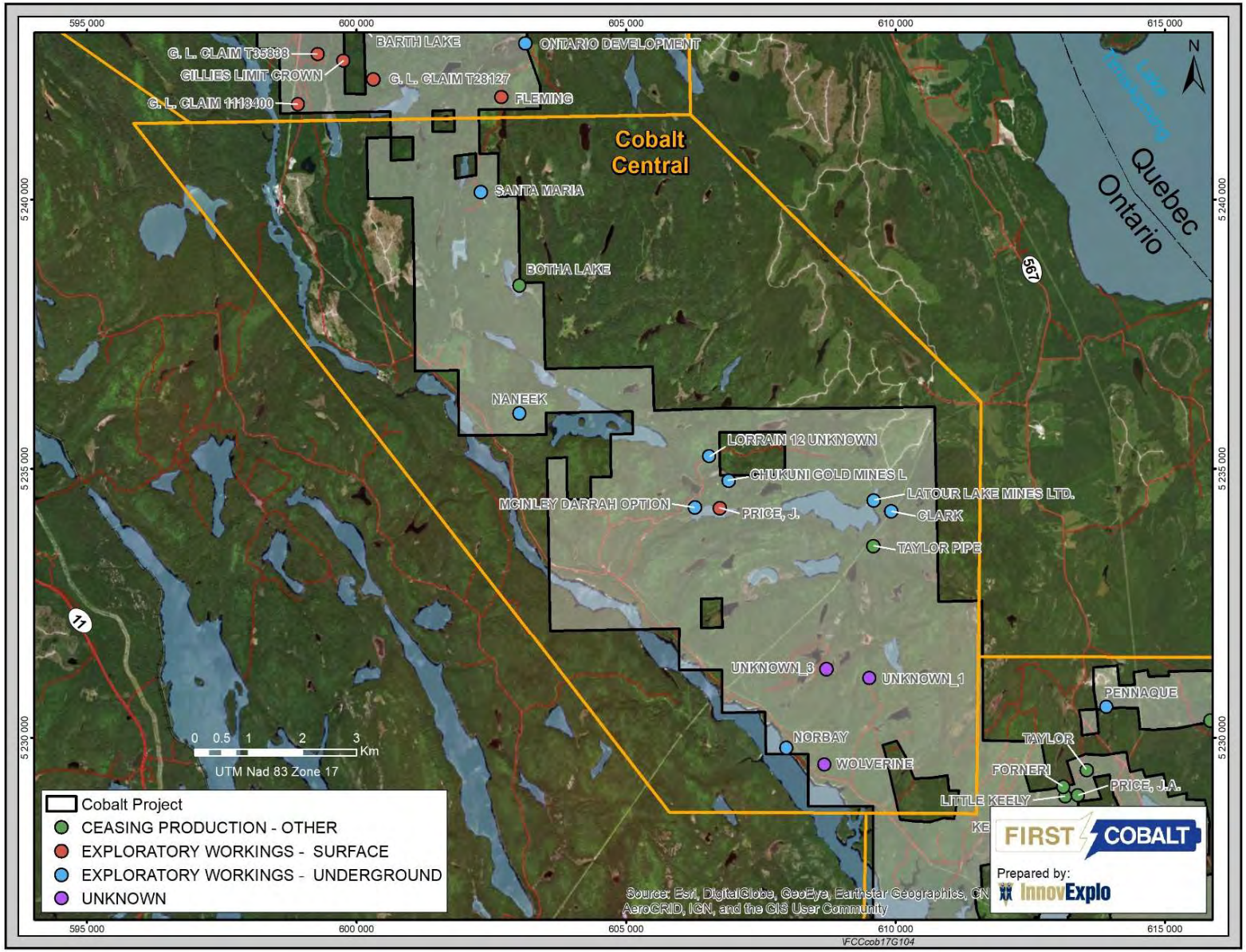

Figure 5.13 – Location of sites listed by AMIS on the Cobalt Central Property

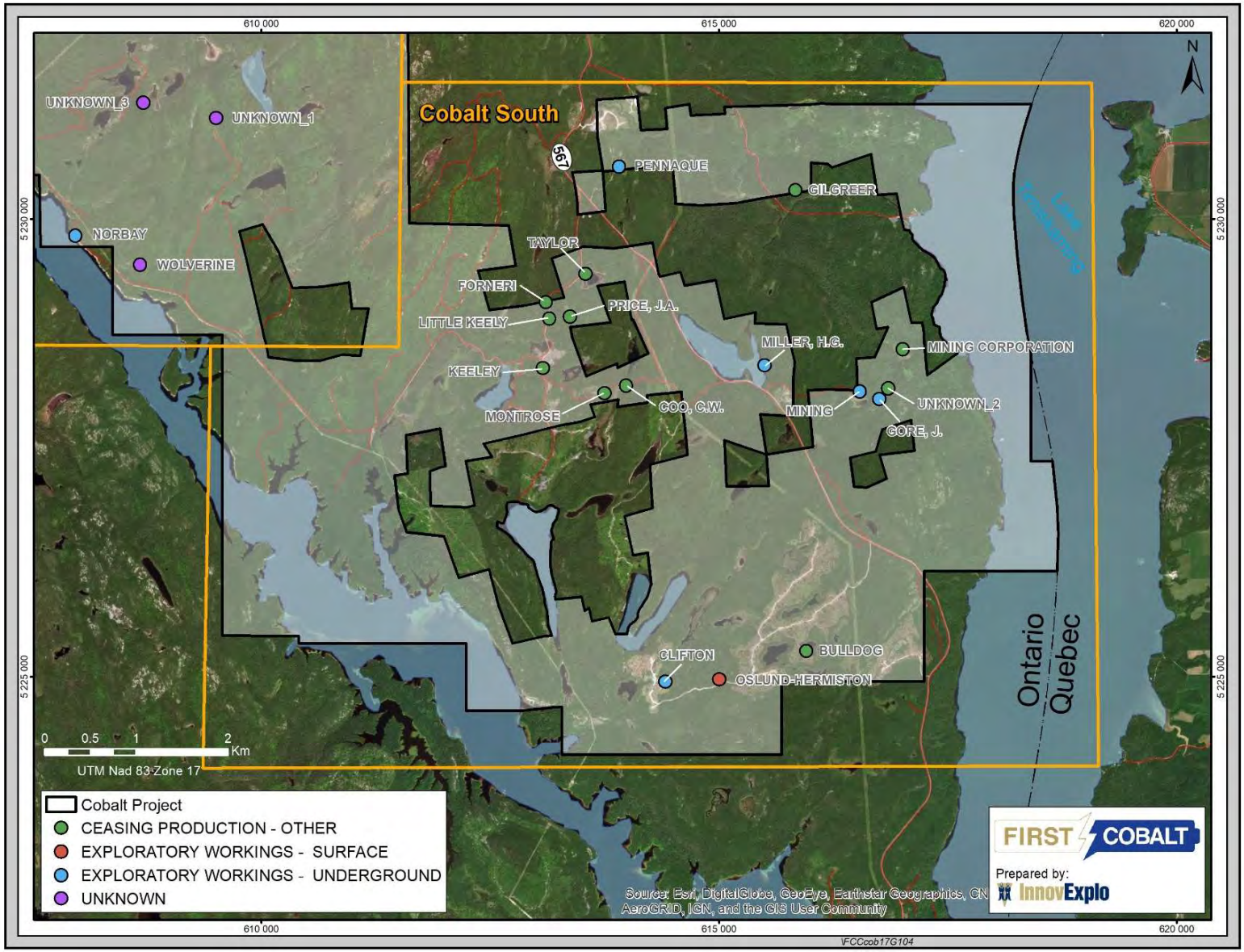

Figure 5.14 – Location of sites listed by AMIS on the Cobalt South Property

5.5 Physiography

The Cobalt Project is located between two major topographic features—Lake Temiskaming and Montreal River—within the Ottawa River watershed.

The topography varies between 200 masl and 400 masl across the Project. The physiography is typical of the Precambrian Shield in northeastern Ontario, with rocky, rolling bedrock hills with locally steep ledges and cliffs, separated by valleys filled with clay, glacial material, swamps and streams. Given the presence of the Clay Belt, some farms are present nearby.

In this boreal region, coniferous and mixed-wood forests dominate. The main conifer species are black and white spruce, jack pine, balsam fir, tamarack and eastern white cedar. The predominant deciduous (hardwood) species are poplar and white birch. Swampy low-lying areas contain abundant tag alders (Figure 5.15).

Figure 5.15 – Representative topography and vegetation in the Keeley-Frontier area

6 HISTORY

The following sections describe the history of the Cobalt properties. The information was modified and verified in Kleinbeck and Clark (2016) and two reports by Trinder (2017a, b). New information was also collected on the Ontario Ministry of Northern Development and Mines (MNDM) Website.

6.1 Regional Exploration and Development History

A vein bearing cobalt was discovered in 1884 by Sir William Logan at a site that would become the Agaunico mine 1 km south of today's town of Haileybury (Hall, 2016). The initial discovery of silver in the region was made west of Lake Temiskaming in 1903 during the construction of the Temiskaming and Northern Ontario Railway. This began a rich mining history in the area. The location along the railway was named Cobalt after one of the elements found in the arsenide minerals within the veins. The first mines commenced production as early as 1904 and mining was more or less, continuous until 1989 with production peaking in 1911 (Petruk *et al*, 1971). In addition to silver, the metals cobalt, nickel and copper were recovered from the ore. Mineralization was not just limited to the area immediately around Cobalt but was recovered from areas with similar geology within the Cobalt embayment of the Southern Province, from Gowganda in the west to Silver Center in the southeast.

Guindon et al. (2016) tabulated the historical production (1904 to 1989) from approximately 140 silver-cobalt properties in the Cobalt Embayment. The Cobalt Project lies within and in the immediate vicinity of the Cobalt and Silver Center mining camps. Table 6.1 presents the historical production from approximately 103 mines in the Cobalt and Silver Center camps. The information is suspected to be under-reported, in part, due to lease mining during the 1930s (Guindon et al., 2016). Only eight of the historical mines are located within the Properties (marked with an asterisk in the table below). The author of this item has been unable to verify the information in Table 6.1 and the information is not necessarily indicative of the mineralization on the properties.

Table 6.1 – Historical mine production in the Cobalt and Silver Centre camps

Mine	Township	Tons Milled	Ag (oz)	Co (lb)	Ni (lb)	Cu (lb)	Years of Production
Agaunico and Reuthel Mine	Bucke	n/a	980,000	4,350,000	418,717	216,767	1905-1960
Agnico Surface Dumps	Coleman	28,907	51,051	7,455	2,606	15,204	1974-1975
Agnico Tailings Mill	Coleman	312,248	607,097	78,827	1,151,744	124,576	1967-1970
Alexandra Silver (Silverfields) *	Coleman	1,322,813	17,793,862	357,501	493,255	238,893	1964-1983
Beaver Consolidated Mines Ltd.	Coleman	65,191	7,127,858	139,472	1,397		1907-1940
Beaver-Temiskaming Mine	Coleman	218,816	3,986,761	240,735	76,395	130,614	1977-1988
Bellellen Mine	South Lorrain	n/a	38,027	28,481			1910-1943

Mine	Township	Tons Milled	Ag (oz)	Co (lb)	Ni (lb)	Cu (lb)	Years of Production
Ben Tailings	Coleman	1,676	3,715	564	196	511	1969-1970
Brady Lake Property	Coleman	55,485	7,000,000	190,641	8,620	11,320	1910-1960
Bufflo Mines Ltd.	Coleman	332,449	14,155,558	152,269			1905-1959
Canadian Lorrain Mine	South Lorrain	n/a	276,825	16,678			1926-1940
Cart Lake	Coleman	n/a	84,193	7,779	2,378	3,070	1966
Chambers Ferland Mining	Coleman	n/a	2,030,000				1908-1958
Chambers Ferland Mining	Coleman	n/a	2,175,469	13,000	2,400		1904-1932
Christopher and Cobalt Lode	Coleman	n/a	35,378	2,140	511	895	1966
Christopher Silver Mines Ltd.	Coleman	n/a	4,100,000				1906-1964
City of Cobalt	Coleman	n/a	14,000,000	25,000			1907-1930
Claim A.3	Gillies Limit	n/a		900			1935-1940
Cleopatra Mining	Gillies Limit	n/a	2,500,000				1964-1968
Cobalt A53 Mining	Gillies Limit	n/a		2,251			1946
Cobalt Badger Silver	Coleman	n/a	3,475	112	89		1929-1940
Cobalt Contact Mine	Bucke	11,074	26,000	31,000			1912-1944
Cobalt Lake	Coleman	175,129	6,900,708	146,073	7,920		1908-1943
Cobalt Lode Silver	Coleman	263,140	4,493,542	2,545,117	610,716	459,078	1917-1956
Cobalt Silver Queen	Coleman	6,969	1,406,000	168,311	102		1905-1939
Cobalt Townsite	Coleman	913,268	37,362,032	1,852,765	163,687	90,288	1907-1939
Cochrane Cobalt Mining	Coleman	2,671	33,280	2,702			1913-1939
Colonial Mining	Coleman	63,687	1,211,956	3,671			1907-1954
Coniagas 73 Shaft	Coleman	207,875	889,617	57,576	19,197	143,823	1975-1985
Coniagas Mines	Coleman	750,164	33,963,067	310,557	3,543	47,470	1905-1943
Conisil Mines	Coleman	n/a	100,000				1961-1965
Consolidated Silver Banner	Coleman	n/a	41,700			412	1927-1964
Cross Lake O'Brien	Coleman	129,670	11,600,000	98,248	38,843	172,611	1928-1966
Crown Reserve mining	Coleman	58,596	20,325,302	33,682			1908-1948
Curry Mine	South Lorrain	87	49,821	7,691			1916-1938
Dotsee Mine	Bucke	n/a	125	8,000			1906-1939
Drummond Mines*	Coleman	60,808	3,887,585	245,807			1905-1936

Mine	Township	Tons Milled	Ag (oz)	Co (lb)	Ni (lb)	Cu (lb)	Years of Production
Farah Mining	Coleman	557	8,952				1923-1926
Foster Cobalt Mining	Coleman	2,818	1,159,390	457,164	21,766	24,121	1951-1956
Frontier	Coleman	2,870	39,433	5,538	1,841	2,522	1973
Genesee Mining	Bucke	n/a	66,236	12,063			1915-1965
Gilgreer mine	South Lorrain	n/a	446	1,732			1936-1943
Green–Meehan & Red Rock Mine	Bucke	n/a	498,000	27,000		6,000	1905-1939
Hargrave Silver Mines*	Coleman	1,534	506,927	6,418			1905-1920
Harris Mines	South Lorrain	462	13,659	26,286			1925-1939
Harrison–Hibbert & Ruby Mine	Bucke	n/a	876,500	214,600	69,458		1920-1963
Hudson Bay Mines	Coleman	52,370	6,452,266	185,572	1,630		1905-1953
Juno Metals	Coleman	2,674	46,391				1918-1922
Keeley and Frontier Mines*	South Lorrain	n/a	19,197,413	3,310,556	27,252	10,292	1908-1965
Kerr Lake Mining*	Coleman	235,503	28,502,037	650,094		1,792	1905-1948
King Edward Mining	Coleman	53,357	1,294,233	3,466	1,310	18,618	1905-1964
Lang–Caswell*	Lorrain	n/a	1,503	4,932			1965
LaRose Mines	Coleman	57,544	17,479,977	200,000	111,010		1904-1948
Lawson*	Coleman	n/a	4,213,513				1905-1953
Little Nipissing	Coleman	n/a	82,000				1906-1945
Lorrain Lake Mines	South Lorrain	22,405	1,093,404	64,458			1924-1943
Mayfair Mines	Coleman	n/a	26,240				1945-1953
McKinely–Darragh Savage Mines	Coleman	n/a	17,300,000				1904-1952
Mensilvo Mines	Coleman	62,571	374,824	149,508	21,605	21,834	1913-1964
Nancy Helen Mines	Coleman	249	91,770				1907-1911
Nerlip Mines	Coleman	613	911	2,949	2,502		1940-1944
New Bailey Mines*	Coleman	90,769	3,131,352	76,780		4,084	1912-1966
Nipissing Lorrain Mine	South Lorrain	n/a	350,000	5,521			1925-1929
Nipissing Mines	Coleman	n/a	32,000,000				1904-?
Nipissing Mines	Coleman	n/a	7,000,000				1904-?
Nipissing Mines	Coleman	n/a	1,000				1915-1917
Nipissing Mines	Coleman	1,066,589	32,000,000	3,636,704			1905-1951
Nipissing Mines	Coleman	n/a	300,000				1932?

Mine	Township	Tons Milled	Ag (oz)	Co (lb)	Ni (lb)	Cu (lb)	Years of Production
Nipissing Mines	Coleman	n/a	20,000,000				1910?-1967
Nipissing Mines	Coleman	n/a	1,750,000				1904-1967
Nipissing Mines	Coleman	n/a	300,000				1913-1967
No. 407 Shaft	Coleman	92,159	1,838,433	157,597	69,370	37,687	1966-1971
No. 96 Shaft	Coleman	56,153	1,236,879	73,970	22,329	46,738	1969-1974
North Cobalt and Hunter Mine	Bucke	n/a	1,453				1909
Nova Scotia Silver	Coleman	7,184	1,082,774	114,199			1906-1952
O'Brien	Coleman	n/a	33,655,872	835,764	1,481	2,130	1905-1966
O'Brien Dumps	Coleman	8,524	26,709	2,204	710	2,633	1968-1970
Ophir Cobalt Mines	Coleman	n/a	69				1921
Penn Canadian Mines	Coleman	189,356	4,418,802	190,650	11,246	26,806	1908-1974
Peterson Lake Silver Cobalt	Coleman	n/a	909,064	27,303			1906-1966
Peterson Lake Silver Cobalt	Coleman	60,341	5,627,297				1912-1916
Princess Claim	Coleman	n/a	3,713,805				1908-1922
Provincial Mine	Gillies Limit	258	286,897	54,473	2,842		1908-1940
Red Jacket Property	Coleman	n/a	3	354			1938-1943
Refinery	Coleman	n/a	11,656				1983-1985
Reinlardt Cross Lake Group	Coleman	n/a	278,631	2,532	484	141	1949-1951
Right of Way Mines	Coleman	n/a	169,000				1906-1935
Right of Way Mines	Coleman	23,073	2,800,000				1906-1935
Savage Mine	Coleman	646,439	4,500,000	465,582	11,348	51,751	1904-1954
Silver Cliff Mining	Coleman	20,552	535,246	9,314	15,380	6,287	1908-1954
Silver Cross Cobalt	Coleman	n/a		3,091			1940-1942
Silver Eagle Claim	South Lorrain	n/a	7,989				1918
Silver Leaf Mining	Coleman	321	495,443	1,206			1906-1931
Smith Cobalt Mines	Coleman	n/a		914			1939-1940
Temiskaming Mining	Coleman	149,807	12,118,796	202,687	25,337	6,261	1907-1963
Trethewey Silver Cobalt Mines	Coleman	17,666	7,256,470	216,198			1904-1943
Trout Lake	Coleman	44,705	1,783,536	250,530	85,506	33,312	1969-1977
University Mines	Coleman	400	790,000	82,681			1905-1968

Mine	Township	Tons Milled	Ag (oz)	Co (lb)	Ni (lb)	Cu (lb)	Years of Production
Victoria Silver Cobalt Mines	Coleman	n/a	1000				1906-1910
Violet Mining	Coleman	n/a	897,291				1905-1925
Waldman Silver Mines	Gillies Limit	58	33,525	2066			1910-1930
Wettlaufer Mine	South Lorrain	6,861	2,593,041	23,910			1909-1940
Wyandoh Silver Mines	Gillies Limit	29	33,699	1234			1910-1937
Total			**553,168,278**	**24,685,219**	**3,624,546**	**2,625,714**	**1904-1989**

6.2 Cobalt North Property

6.2.1 Overview

The exploration history of the Cobalt North property is summarized in Table 6.2 based on online Government of Ontario assessment files, MDI files, historical Ontario Resident Geologist notes on file at the District Geologist's office in Kirkland Lake, and OGS publications MRC 10 and MP 051. The approximate locations of the historical work areas are shown on Figure 6.1 with the Map ID or MDI numbers referenced in Table 6.2.

Table 6.2 – Exploration history of the Cobalt North Property

Map ID	Year	Assessment file/reference	Operator	Work History
N01	1947	31M05SE0096	Fairfax Mining	Geological mapping
	1950	31M05SE0035	Fairfax Mining	2 DDH -480.4 m (1576 ft)
N02	1953	31M05SE0051	Bradville	DDH-403.7 m (1324.6 ft) in 11 holes
N03	1960	31M05SE0052	Benner	DDH-569.2 m (1867.5 ft) in 9 holes
N04	1960	31M05SE0085	Gareau	Geological mapping
N05	1964	31M05SE0056	Mentor Exploration	DDH-871.5 m (2859.1 ft) in 9 holes
N06	1975	31M05SE0103	McAllister	1 DDH – drilled to 70 m in 1974, re-drilled to 144 m (473 ft) in 1975
N07	1998	31M05SE2006	Simpson	Stripping
N15	1999	31M05NE2001	Branchwater Resources Cabo Mining	Soil, silt and rock geochemistry (53 samples)
	2000	31M05NE2013	Cabo Mining	VLF and Mag survey, geological mapping
N08	2000	31M05SE2028	Cabo Mining	Ground EM and Mag
N09	2001	31M05SE2033	Cabo Mining	Geochem – 7 alluvial samples – kimberlite exploration
N15	2001	31M05NE2014	Cabo Mining	Geochem – 5 alluvial samples
	2002	31M05NE2018	Cabo Mining	Mag survey

Map ID	Year	Assessment file/reference	Operator	Work History
	2002-2003	31M05NE2023	Cabo Mining	Geological mapping and prospecting
	2004	31M05NE2032	Cabo Mining	VLF and Radioactivity surveys
	2005	20001430	Cabo Mining	MMI survey (100 samples)
	2006	20002704	Cabo Mining	B-horizon soil survey (51 samples)
N10	2006	20000001646	Cabo Mining	2 DDH – 319 m COB-29 and 30
N16	2013	20011943	Canagco Mining	Ground-truthing and prospecting
N11	2016	2.5693	Alan Kon	Prospecting and Mag survey
N12	2016	2.57245	Brixton Metals Corp	Airborne Mag survey
N13	2016	2.57309	G. and H. Pollock	VFL and Mag survey
N14	2016-2017	2.57484	Brixton Metals Corp	Airborne Mag survey
Silverfields	1906	Resident geologist notes	Alexandra Silver Mining Company	Silver discovered on Reinhart claim 395
	1907	Resident geologist notes	Alexandra Silver Mining Company	Claim 395 Alexandra Shaft sunk through Nipissing diabase into underlying Coleman Member sedimentary rocks
	1907-1922	Resident geologist notes	1907 – Alexandra Silver Mining Company 1913 – Canadian Gold and Silver Mining Company 1915 – Leased to Sydney Smith 19?? – Carl Reinhardt 19?? – Mining Corporation of Canada Limited	Claim 395: Alexandra Shaft: 1st, 2nd and 3rd levels driven at 19.8 m (65 ft), 61 m (200 ft) and 94.5 m (310 ft) respectively. Total of 281.9 m (925 ft) drifts, 265.2 m (870 ft) crosscuts and 37.8 m (124 ft) raises. Claim 1490: Shaft sunk approximately 91.5 m (300 ft). In 1922, lateral work from the No. 3 University shaft southeast of property was extended into Claim 1490 on the 91 ft (27.7 m) level. Claim 1385: A shaft sunk approximately 30.5 m (100 ft). Claim 1511: Meteor #1 adit approximately 152.4 m (500 ft) long with 76.2 m (250 ft) internal shaft and levels at 31.7 m (104 ft) and 76.2 m (250 ft). Meteor #2 adit and Meteor inclined shaft are collared on the Savage claim to the west. Meteor #2 adit was driven 27.4 m (90 ft). Workings from the inclined shaft connect with those from the #1 adit.
	1962-1964	Resident geologist notes	Silverfields Mining Corporation	Alexandra Shaft deepened 38.4 m (126 ft) to depth of 132.9 m (436 ft). 4th and 5th levels driven at 108.5 m (356 ft) and 127.7 m (419 ft), respectively. Mine development work included 1,436.8 m (4,714 ft) of drifting, 888.8 m (2,916 ft) cross-cutting, 194.5 m (638 ft) raising and 237 underground drill holes totaling 1,106.4 m (43,000 ft).
	1964	Resident geologist notes	Silverfields Mining Corporation	Mine production begins

Map ID	Year	Assessment file/reference	Operator	Work History
	1965-1967	Resident geologist notes	Silverfields Mining Corporation	Alexandra Shaft deepened 25 m (82 ft) and sixth level opened at 157.9 m (518 ft). 1965 cut-off grade reported to be 994 g/t Ag (29 oz/ton) ($1.10/oz).
	Jan 1964 – Aug 1967	Resident geologist notes	Silverfields Mining Corporation	174,182 t (192,003 tons) milled producing 143,673.4 kg Ag (4,619,245 oz), 108,360 kg Cu (238,893 lbs), and 99,430 kg Co (219,206 lbs). Average head-grade 823 g/t Ag (24 oz/ton), 0.65 kg/t Cu (1.3 lb/ton) and 0.55 kg/t Co (1.1 lb/ton).
	1971	Resident geologist notes	Teck Corporation Limited Silverfields Division	Silverfields merged into Teck.
	April 1976	Resident geologist notes	Teck Corporation Limited Silverfields Division	Mine production 263 t (290 tons) per day. Cut-off grade rose from 137 g/t Ag (4 oz/ton) to 206 g/t Ag (6 oz/ton).
	janv-78	Resident geologist notes	Teck Corporation Limited Silverfields Division	Mine production 227 t (250 tons) per day with a 206 g/t Ag (6 oz/ton) cut-off grade. Production down from 272 t (300 tons) per day.
	1980	Resident geologist notes	Teck Corporation Limited Silverfields Division	Cut-off grade lowered from 206 g/t Ag (6 oz/ton) to 103 g/t Ag (3 oz/ton).
	oct-82	Resident geologist notes	Teck Corporation Limited Silverfields Division	Cut-off grade reported to be 206 g/t Ag (6 oz/ton).
	June 1983	Resident geologist notes	Teck Corporation Limited Silverfields Division	Mine shut down June 1983. Teck reported 1964-1983 total production: 1,290,753 t (1,422,812 tons) totalling 566,593 kg Ag (18,216,523 oz); average head-grade 439 g/t Ag (12.8 oz/ton).
	19?? – 200?	Resident geologist notes	Moore	Ownership – former Teck geologist.
	200? - 2016	Resident geologist notes	Andre Dugas	Ownership.
Ophir Mine	1910-1913	MDI31M05SE00108	Ophir Cobalt Mines Limited	Shaft #1 sunk to depth of 61 m (200 ft) by 1910. Underground work continued to 1913 and Shaft #2 put down about this time.
	1915	MDI31M05SE00108	Ophir Cobalt Mines Limited	Underground work continued from Shaft #1. Levels are reported at depths of 30.5 m, 61 m and 91.5 m (100, 200 and 300 ft).
	1917	MDI31M05SE00108		Drift driven north on the 121.9 m (400 ft) level from Peoples Silver Mine (now the Mayfair Shaft) onto the property; #4 winze started on this level.
	1918	MDI31M05SE00108	Mining Corporation	Continued work on the 1,221.9 m (400 ft) level and the #4 winze.
	1919	MDI31M05SE00108	Nipissing Mining Company	Optioned property and continued operations.
	1920-1952	MDI31M05SE00108		No work, except a brief and unsuccessful leasing operation in 1930.

Map ID	Year	Assessment file/reference	Operator	Work History
	1952	MDI31M05SE00108	Silver Crater Mines	Acquired lease on claim.
	1954	MDI31M05SE00108	Silver Crater Mines	At this time #4 Winze down 42.7 m (140 ft) with sublevels established at depths of 152.4 m and 164.6 m (500 ft and 540 ft) (relative to Mayfair shaft). Extended 61 m (200 ft) level of the Mayfair Shaft north onto Ophir claim and mined 2,282 t (2,515 tons) of Co ore (89.9 m (295 ft) of drifting on the Ophir section). Ophir Shaft #2 connects with these workings. Stope about 18.3 m (60 ft) high above the level and about 61 m (200 ft) long. Cobalt mineralization restricted for the most part to the vein proper so width of stope kept small, about 0.8 m (32 inches). Minor silver and bismuth in stoped material. A crosscut from the Victory shaft on the Silver Banner claim was extended south on the 152.4 m (500 ft) level to connect with the Ophir 152.4 m (500 ft) sublevel workings (333.5 m (1,094 ft) of lateral development). One very small silver-rich pocket (some 4,000 oz/ton or 137,143 g/t) was found but vein was not workable for its silver or cobalt content.
	1957	MDI31M05SE00108	Juno Metals Corp	Sub-leased Ophir from Silver Crater. Sublease and lease dropped during the year.
N11	1977	MDI31M05SE00108	Burton & McAllister	DDH95-2, Az 088°, dip 50°, TD 160.3 m (526 ft); did not reach interpreted upper contact of Nipissing Diabase: • 51.8 m (170 ft): 4-in banded calcite vein – brecciated with some galena, sphalerite and chalcopyrite, 22.84 oz/ton Ag • 66.5 m (218 ft): 1-in calcite vein – 10% cobaltite some pyrite and chalcopyrite each side 342 g/t Ag (9.98 oz/ton) • 76.2 m (250 ft) 1-in calcite vein – 10% cobaltite some pyrite each side 242g/t Ag (7.07 oz/ton).
Gauthier Occurrence	Pre-1935	MDI31M05SE00138	Gauthier	In early days of Cobalt camp, Gauthier put down a 15.9 m (52 ft) shaft by hand steel and windlass. Shaft and adjacent trenches investigated a zone trending northwest along New Lake Creek. Gauthier reported a 1-in cobalt-bearing vein in shaft. S. Cole reported six samples from the shaft contained between 137 g/t Ag and 789 g/t Ag (4 oz/ton and 23 oz/ton) and dump samples containing galena and pyrite yielded assays of about 100 oz/ton Ag (~3,429 g/t).
	1968	MDI31M05SE00138	Sisco Metals of Canada	Ownership.

Map ID	Year	Assessment file/reference	Operator	Work History
McGary Occurrence	1922-1928	MDI31M05SE00160	Kirk-Budd Mining Company	Underground work started in 1922 and continued intermittently until 1928. Kirk-Budd shaft completed to depth of 51.8 m (170 ft) with a level at 47.6 m (156 ft). Lateral work extended 158.5 m (520 ft) east and 76.2 m (250 ft) west from the shaft. Two adits driven easterly 6.4 m and 14.6 m (21 ft and 48 ft) into a westerly-facing cliff.
Cobalt Lode Occurrence	Pre 1950	MDI31M05SE00119		Early days Cobalt Camp shaft possibly 30 ft deep, put down on approx. ½ in wide northwesterly striking calcite vein with associated aplite dike in Diabase.
	1949-1950	MDI31M05SE00119	Cobalt Lode Silver Mines Limited	Two scissor DDHs each approximately 121.9 m (400 ft) long and one DDH approximately 167.9 m (551 ft) long.
	1965	MDI31M05SE00119	Mentor Expl. & Dev. Ltd	Additional DDH?
Trainmen (Bomont) Occurrence	19??-1922	MDI31M05SE00123	J. McAndrew	
	1922-195?	MDI31M05SE00123	Trainmen Company	1925 – Trainmen shaft sank to 23.8 m (78 ft). 1926 – Shaft was deepened to 32.6 m (107 ft) and an eastward crosscut of 71.9 m (236 ft) made on the 30.5 m (100 ft) level. 1927 – Drifts of 23.2 m (76 ft) north and 24.4 m (80 ft) south were made on 30.5 m (100 ft) level. Underground work continued intermittently until 1928 and claims subsequently lapsed.
	1952	MDI31M05SE00123		One DDH (designated T-1 on Map P.95).
	1953	MDI31M05SE00123	Bomont Mines	1953 – Bomont Mines acquired claims in 1953. 1954 – Detailed geological survey. 1956 – Two DDHs (T-2 and 3). 1958 – Two DDHs totalling 61 m (200 ft).
	1960	MDI31M05SE00123	Chimo Gold Mines	Optioned property. Five DDHs (S-1 to S-5, aggregate 778.5 m (2,554 ft)).
Armstrong Occurrence	1950	MDI31M05SE00161	Penn-Cobalt Silver Mines, Limited	One DDH (S-1) 309.7 m (1,016 ft) inclined -45. MDI file reports 182 g/t Ag over 2.5 cm in calcite-chalcopyrite vein in Huronian conglomerate.
Knight Occurrence	1950-1954	MDI31M05SE00114	H.W. Knight	Exploring for eastern extension of veins intersected at Kelly Prospect. 11 short DDHs of which one was reported for assessment. Only DDH K-2 passed through Keewatin into underlying Nipissing Diabase at vertical depth of 40.5 m (133 ft). DDH K-1 intersected a 15 cm (6-in) intersection of disseminated cobalt mineralization reported at downhole depth of 21.3 m (70 ft).
Fairfax Occurrence	1947	MDI31M05SE00164	Fairfax Mines Limited	Geological mapping.

Map ID	Year	Assessment file/reference	Operator	Work History
	1952-1953	MDI31M05SE00164	Fairfax Mines Limited	Schumann Lake diabase arch regarded as geological feature of good exploration potential for silver-cobalt veins, particularly in view of the rich deposits associated with the similar Kerr Lake diabase arch in Coleman Township. 7 DDH (F8-F14, 4,432 ft).
	1959	MDI31M05SE00164	Fairfax Mines Limited	1 DDH (F15, 228.8 m (751 ft)) and deepened (F9). All DDHs passed through Nipissing Diabase from surface, entered underlying Cobalt Series sediments and ended in Keewatin below. Vertical depth from surface to bottom of the diabase was 112.8 m to 143.3 m (370 ft to 470 ft). Vertical thickness of Huronian sediments was 11 m to 49.1 m (36 ft to 161 ft). A few small calcite-quartz veins are known at surface; the only mineralization seen in these was sparse chalcopyrite. Small calcite veins intersected in drill hole but no mention of cobalt or silver mineralization in logs.
Fleming Occurrence	Circa 1930	MDI31M05SE00135	J. Burke	Cobalt bearing vein discovered and trenched.
	1951	MDI31M05SE00135	Fairfax Mines Limited	7 DDH (aggregate length 426.7 m (1,400 ft)) in trench area. Holes designated K-1 to 7 on Map P.95. Tested vein's downward extension into the Keewatin and to lesser extent, the underlying Nipissing Diabase. DDH K-3 reported to have intersected a ½-in vein of calcite with cobalt mineralization at 31.2 m (102.5 ft) downhole. Intersection was in Keewatin rock 70 ft below surface and 0.61 m (2 ft) above contact with Nipissing diabase sill. Benner reported an assay of 276 g/t Ag (8.04 oz/ton Ag) and 2.1% Co over the ½-in width. Drill results insufficient to warrant exploration of vein by underground work.

Map ID	Year	Assessment file/reference	Operator	Work History
	1959	MDI31M05SE00135	Fairfax Mines Limited	Resistivity survey completed over much of Fleming claim group. One of the anomalies extended northward from north end of Chopin Lake; corresponds to topographic low, suggestive of a fault. 11 DDHs (F-1 to F-4, F-6 to F-11 and F-15 to F-16) totalling approximately 694.9 m (2,280 ft) completed after geophysics. Numerous calcite and quartz-calcite veins intersected in Keewatin volcanics, lamprophyre, Lorrain granite and Nipissing diabase sills. Silver and cobalt-bearing veins intersected in hole F-3 which Thomson 1961 reports as distinct from vein exposed at surface and explored by DDHs K-1 to K-7. Mineralization in hole F-3 includes: • 50.7 m (166.4 ft) – native silver (in leaves up to an estimated thickness of 1/25 in), argentite, and cobalt mineralization in small amount occurred in a 1/3-in calcite vein; native silver in a small amount also occurred in the wall rock. • 48.1 m and 48.5 m (157.8 ft and 159 ft) – cobaltite with chalcopyrite in 1/4-in veinlets. • 51 m (167.2 ft) – argentite in a 1/2-in calcite vein. These three intersections are in Lorrain granite and ~2.4 m (8 ft) above Lorrain-Nipissing contact. In DDH F-3, Lorrain granite has vertical thickness of 10.1 m (33 ft) lying between Keewatin volcanics (above) and Nipissing diabase (below). The attitude and extent of silver-cobalt mineralization yet determined; other drill holes not successful in intersecting mineralization.

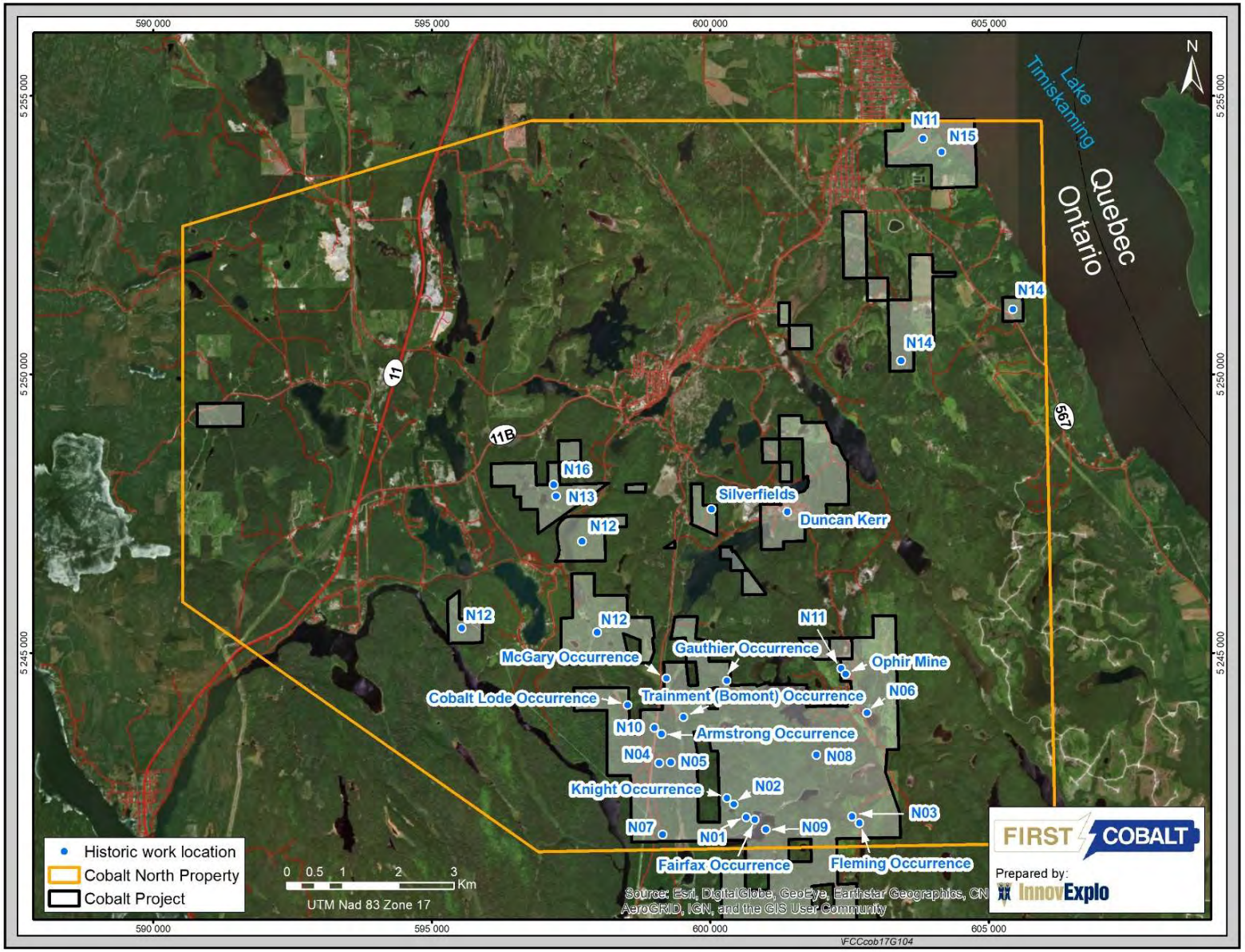

Figure 6.1 – Historical work on the Cobalt North Property

6.2.2 Historical mineral production

6.2.2.1 Silverfields mine

At the time of the shutdown of the Silverfields Mine in June 1983, Teck reported a total production of 1,290,753 t (1,422,812 tons) with 566,593 kg Ag (18,216,523 oz) recovered and an average head-grade 439 g/t Ag (12.8 oz/ton). Guindon *et al.* (2016) reported total production from 1964 to 1983 at 1,200,035 t (1,322,813 tons) with 553,447 kg Ag (17,793,862 oz), 162,160 kg Co (357,501 lbs), 223,737 kg Ni (493,255 lbs) and 108,360 kg Cu (238,893 lbs) recovered. Total cobalt production at the Silverfields Mine is probably uncertain because smelters often did not credit cobalt content of the ore shipped. In a site examination report dated July 20, 1981, Resident Geologist Howard Lovell referred to millheads at the Silver Summit Mill, where the Silverfields production was being processed, as 308.6 g/t Ag (9 oz/ton), 0.12% Co, 0.76% Cu, 0.04% Ni, 0.04% Zn and 0.55% As. In addition, since silver was the targeted metal, if mineralization did not exceed the mine's silver cut-off grade but contained significant cobalt, it may not have been mined since, depending on where the concentrates were processed, Teck did not always receive payment for the cobalt. Cobalt grades in the veins at the Silverfields Mine are uncertain. In a site examination report dated 5 December 1978, Resident Geologist, Howard Lovell, referred to an ore grade of 1% Co when calculating potential losses from the non-payment for cobalt in the concentrates from Silverfields. However, in the same report while discussing a vein in the back of the level 3 drift, it describes a strong cobalt bloom unrepresentative of the cobalt content of the vein, which was estimated to be less than 1%, perhaps 0.25%.

6.2.2.2 Duncan-Kerr area

The Kerr Lake deposit was discovered in 1904 and production commenced in 1905 whereby the Kerr Lake Mine was operated intermittently until it finally closed in 1964. The original Kerr Lake Property was comprised of three claims historically referred to as Parcel 1764 NND (under Kerr Lake), 1831 NND, and 4821 NND (referred to as the Kerr Lake fraction). From 1905 to 1956, the three claims produced 28,502,037 oz of Ag (Cunningham, 1963). A total of 8 shafts and were sunk on the Kerr Lake claims, along with one adit that was driven south from the shoreline of Kerr Lake. The main shaft, known as the Number 3 shaft, was sunk to a depth of 550 ft with 9 levels being developed. The underground workings were connected to the Hargrave, Conisil, and Lawson Mines located to the southeast, south, and west respectively.

The Lawson deposit was discovered in 1905 and production commenced at the Lawson Mine in 1909. A total of 4 shafts were sunk on the Lawson claim (Parcel 3694 NND). The deepest shaft, the No 8, was sunk to a depth of approximately 410 ft. All underground workings were connected and 6 levels were developed. When the mine initially closed in 1919, a total of 4,213,553 oz of Ag had been produced (Cunningham, 1963). From 1922 through to 1944, the Lawson Mine was operated pursuant to several leases. The mine was later re-opened in 1953 and was operated through to 1960 by Silver Miller Mines Ltd. No records of silver production were recorded during this period as the ore was mixed with other Silver Miller ores from the surrounding mines (Cunningham, 1963).

In 1977, St. Joseph Exploration Ltd. constructed the Canadaka Mill on the Lawson claim (parcel 3694NND). It was designed to process up to 500 tons per day but was estimated to have only processed 350 tons per day. The mill was designed as an ore concentrator by combining gravity and flotation methods to process ore from the company's area mines. The mill was closed in 1980 when the company's mines ceased production.

In 1983, the mill was bought by Sulpetro Minerals Ltd. and was modified to process tailings being mined at the Chambers-Ferland tailings containment area. Milling rates averaged 450 to 500 short tons per day. The tailings were deposited to the south of the Main Shaft in a series of three ponds that were formed by damming a small creek flowing from Kerr Lake to Giroux Lake. At the time, the tailings capacity had not been reached and an estimated 500,000 tons of tailings could be added (Anderson, 1993). The mill was later sold prior to Trio's acquisition of the Property.

In 2012, Trio completed eight (8) short AQ diameter (2.7 cm) diamond drill holes, with the longest drill hole, DK12-07, drilled to a depth of 165.1 ft. In 2013, Joerg Kleinboeck did review the core in four drill holes, DK12-02, DK12-04, DK12-07, and DK12-08. No core samples were submitted for analysis at the time. Hole DK12-07 intersected local sections of mineralization consisting of cobaltite±silver veinlets up to several millimetres wide were intersected. Hole DK12-07 was drilled at a vertical inclination and would have been orientated subparallel to the known orientation of the veins on the property. This is supported by several mineralized fractures that are orientated 0° to the core axis. The diamond drilling program was not conducted to industry standards as outlined by CIM Best Practice Guidelines. At the time, Joerg Kleinboeck attempted to validate the drill results, and was of the opinion that the results should not be considered reliable.

6.2.2.3 Ophir mine

Guindon et al. (2016) reported Ophir Mine production of 2.2 kg Ag (69 oz) in 1921. Thomson (1961) reported that 2,282 t (2,515 tons) of cobalt mineralization was extracted in 1954 from the Ophir Mine claim via underground development extending from the Mayfair workings on the property immediately to the south. Cobalt mineralization was generally restricted to the vein proper so the width of the stope was kept small, about 0.8 m (32 in); the stope was approximately 18.3 m (60 ft) high by about 61 m (200 ft) long. Minor silver and bismuth was reported in the stoped material. Thomson (1961) reported that production statistics for silver and cobalt from the Ophir claim were not available to him but states that production would appear to have been small and unprofitable.

Total historical silver and cobalt production from the Ophir Mine is uncertain, complicated by the fact that the Ophir claim was also accessed via shafts and underground development from the adjacent Mayfair and Silver Banner mine properties. Any production from Ophir hoisted at those shafts may have been attributed to their respective mines.

6.3 Cobalt Central Property

6.3.1 Overview of exploration

The exploration history of the Cobalt Central Property is summarized in Table 6.3, based on online Ontario government assessment files, MDI files, historical Ontario Resident Geologist notes on file at the District Geologist's office in Kirkland Lake, and OGS publications MRC 10 and MP 051. The approximate locations of the historical work areas are shown on Figure 6.2 with the Map ID or MDI numbers referenced in Table 6.3.

Table 6.3 – Exploration history of the Cobalt Central Property

Map ID	Year	Assessment file/reference	Operator	Work History
C01	1972	31M04NE0006	Aggressive Mining Ltd	Ground EM
C02	1972-1973	31M04NE0009; 31M04NE0007	Aggressive Mining Ltd	DDH 3,186 ft in 8 holes
C03	1973	31M04NE0003	Aggressive Mining Ltd	GCHEM 500 rock samples/DDH core/Co Ag GEOL Mapping PDRILL 8 DDH/3,186 ft/DDH core samples VLF 30 linear miles
C04	1974	31M04NE0024	F Joubin P Hermiston	MAG unknown
C05	1980	31M04NE0002	Clarke	Geology, prospecting
	1981-1982	31M05SE0001; 31M05SE0003	Clarke	Ground VLF
C06	1988	31M04NE0001	Bishop	Ground VLF and magnetic
C07	1997	31M05SE0072	Wabana Expl.	Ground VLF, magnetic, gradiometric, prospecting, geochemistry, stripping
C08	1998	31M04NE2012	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	GCHEM 29 samples PROSP 4 days
C09	1998	31M04NE2011	Wolverine Expl. And Mineral Recovery	GCHEM Approx 38 samples PROSP 3.5 days
C10	1999	31M04NE2010	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	GCHEM 23 samples PROSP 20 days
C11	1999	31M04NE2009	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	GCHEM 11 samples PROSP 1 claim
C12	1999	31M04NE2013	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	PROSP 2 days

Map ID	Year	Assessment file/reference	Operator	Work History
C13	1999	31M04NE2021	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	GCHEM 101 soil, 65 rock GEOL 1:1000 geol map MAG 1:2500 total field contour map PCUT 13 days PMECH 5 days excavator, VLF 1:2500 Profiles Map
C14	2000	31M04NE2023	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	GCHEM 41 rock samples, 6 soil samples PROSP 28 days
C09	2000	31M04NE2019	Wolverine Expl. And Mineral Recovery	GCHEM 4 soil samples PROSP 4 hours
C15	2000	31M05SE2019; 31M05SE2022	Cabo Mining	Prospecting, stripping, geochemistry, petrography. Geology, ground VLF and magnetic.
C16	2001	31M05SE2037	Cabo Mining	Geochemistry – 14 alluvial samples (KIMs).
C17	2001	31M04NE2030	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 15 grab samples GCHEM 10 soil samples GOVER 3 till samples PMECH 13 hours backhoe, 3 areas PROSP 5.5 days
C18	2001	31M04NE2029	Marlene R. Carr Wolverine Expl And Mineral Recovery	ASSAY 7 grab samples GCHEM 4 alluvial samples GEOL 1:10,000 geol map
C19	2001	31M05SE2037	Murray Simpson Outcrop Expl Ltd	GCHEM 14 alluvial samples
C20	2002	31M04NE2037	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 6 grab samples GCHEM 4 soil samples GOVER 9 till & 2 sed samples LC 11.431 line-km MAG 11.431 line-km MICRO 51 grains, microprobe analysis PROSP 1:1,250 prospecting maps
C21	2002	31M04NE2034	Marlene R Carr Wolverine Expl And Mineral Recovery	ASSAY 13 samples MICRO 3 polished thin sections PROSP 10 man-days
C22	2002	31M04NE2034	Marlene R Carr Wolverine Expl And Mineral Recovery	ASSAY 13 samples MICRO 3 polished thin sections PROSP 10 man-days
C23	2002	31M05SE2043	Cabo Mining	Geology.
C11	2003	31M04NE2038	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	PMECH 1 area excavater PROSP 4 man-days PSTRIP 1 area
C24	2003	31M04NE2039	Marlene R Carr Wolverine Expl And Mineral Recovery	PROSP 1:2,000 prospecting map

Map ID	Year	Assessment file/reference	Operator	Work History
C25	2004	31M05SE2060	Cabo Mining	Geology and stripping.
C26	2004	31M05SE2064, 31M05SE2069	Cabo Mining/ Simpson	Seven DDH, 215 assays; including two DDH at Santa Maria 342 m; one DDH at Fleming - 81 m.
C27	2004	31M04NE2043	Marlene R Carr Wolverine Expl And Mineral Recovery	ASSAY 2 rock samples PROSP 1:2000 prospecting map, 8 man-days
C28	2007	20000002299	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 2 samples PMAN 10 man-days
C29	2009	20000000115	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 1 sample PMAN 2 man-days
C11	2011	20000006591	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 1 sample PROSP 2 man-days
C30	2011	20000005679	Dave Ross Hanes James Malcolm Maclachlan Sherwood Plunkett	ASSAY 20 soil samples GCHEM 26 soil samples PMAN 2 man-days
Santa Maria Occurrence		MDI31M05SE00169		Quartz calcite veins: up to 243 g/t Ag over 6.4 cm; large high grade “float”. Diamond drilling, geophysics, geology.
Naneek Occurrence		MDI31M05SE00169		Surface geology – Nipissing diabase, Mafic-felsic volcanics. Diamond drilling assays: up to 0.39% Zn over 1.0 m; 0.20% Cu over 1.5 m; 37 g/t Ag over 0.43 m.
Thomson, R. Occurrence	1920s	MP051	Richardson	Discovery of Ag occurrence at Paul's shaft by Richardson. Prospecting, trenching and pitting in the area of Paul's shaft (15m deep). The Northern Miner (1923) reported: “The surface silver showing in a vein two feet wide was blasted out with the first round, and while from time to time in the shaft sinking silver was found the quantities were small”.
	1923	MP051	McKinley-Darragh-Savage Mines of Cobalt Limited	Three DDH. No records.
	1950	MP051	Vanadium Exploration Syndicate	One DDH - 49.4 m (162 ft) hole – no significant mineralization.
	1970	MP051 and 31M05SE0008	R. Thomson	Three DDH (totalling 87.2 m (286 ft)) drilled in the vicinity of Paul's shaft – chalcopyrite and low Ag assays reported.
	1971-1973	MP051	R. Thomson	Geological and limited geochemical surveys and trenching.

Map ID	Year	Assessment file/reference	Operator	Work History
	1975	MP051	R. Thomson	Reduced claim holdings.
Chukuni Occurrence	19??	MP051	?	Shaft – depth and age unknown.
	1970	MP051	Chukuni Gold Mines Limited	Three DDH from the same set up (total footage of 234 m (766 ft)). Minor pyrite and chalcopyrite disseminated in feldspar porphyry and lamprophyre, and along slips in chlorite schists. Drill core assayed trace amounts of Ag.
La Tour Occurrence	19??	MRC010		15.2 m (50 ft) shaft with 7.3 m (24 ft) of crosscutting.
	1940	MRC010		Production: Silver: 1.7 kg (53 oz), Cobalt: 11.8 kg (26 lbs).
Caswell (Lang-Caswell) Occurrence	1910	MP051	Lang-Caswell Cobalt Mines Limited	Sank No. 1 shaft to a depth of 47.2 m (155 ft), with 39.9 m (131 ft) of crosscutting on the 38.1 m (125 ft) level, and also sank No. 2 shaft to 10 m (32 ft).
	19??	MP051		Extensive trenching and pitting carried out (dates uncertain).
	19??	MDI31M04NE00051		Trench sampling northeast of shaft, assays to 4.2% Co, 0.8% Ni, 0.96% Cu over unknown intervals.
	1936	MRC010		Minor production: 46.75 kg Ag (1,503 oz); 2,237 kg Co (4,932 lb).
	1951	MP051	Siscoe Metals of Ontario Limited	Six DDH (659.3 m (2,163 ft)). Pyrite, pyrrhotite and minor chalcopyrite reported. One drill hole is reported to have intersected cobalt arsenides. Dewatered shaft.
	1968	MRC010	Taylor Pipe	Ownership.
	1976	MP051	Lepaladan Corporation Limited	Ownership.
	1998	31M05SE2009	M. Simpson and S. Wareing	11 grab samples collected from random excavations of the surface of Shaft #1 dump along its length. The dump is estimated to be on the order of 1000 t. samples were not described but based on cobalt content it appears that mineralized material was selectively sampled. samples assayed 1.75% to 12.30% Co, 2.74 to 14.4 g/t Ag (0.08 oz/ton to 0.42 oz/ton) and 0.219% to 3.83% Ni. The low Ag grades were attributed to high-grading of the Ag mineralization during the shaft sinking and underground development in 1910-1936.
C23	2000	31M05SE2024	Cabo Mining	Geology, ground VLF and magnetic.

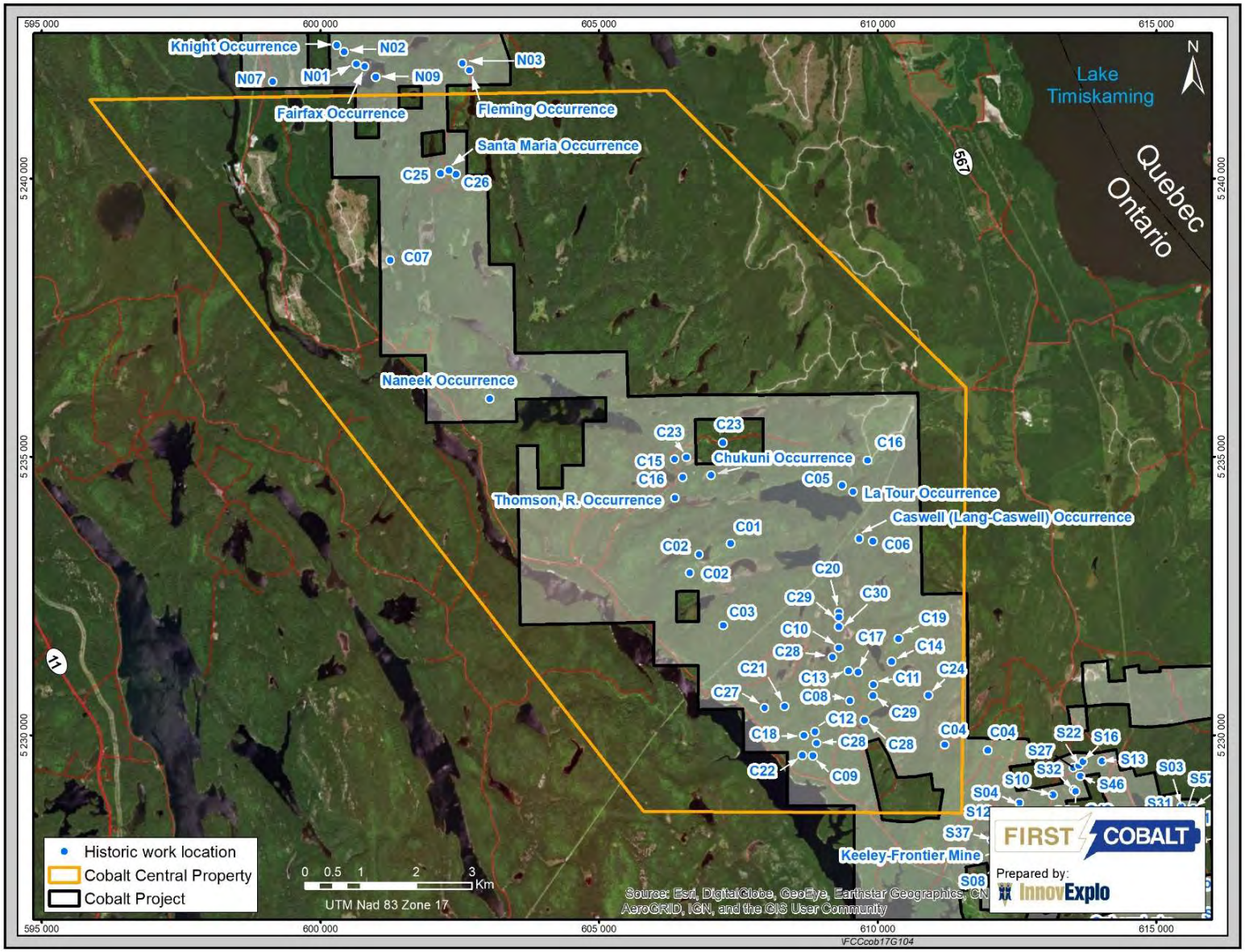

Figure 6.2 – Historical work on the Cobalt Central Property

6.3.2 Historical mineral production

6.3.2.1 Lang-Caswell mine

Guindon *et al.* (2016) reported minor production of 46.8 kg Ag (1,503 oz) and 2,237 kg Co (4,932 lbs) from the Lang-Caswell mine in 1936.

6.4 Cobalt South Property

6.4.1 Global exploration

The exploration history of the Cobalt South Property is summarized in Table 6.4 based on online Ontario government assessment files, MDI files, historical Ontario Resident Geologist notes on file at the District Geologist's office in Kirkland Lake, and OGS publications MRC 10 and MP 051. The approximate locations of the historical work areas are shown on Figure 6.3 with the Map ID or MDI numbers referenced in Table 6.4.

Table 6.4 – Exploration history of the Cobalt South Property

Map ID	Year	Assessment file/reference	Operator	Work History
S01	1949	31M03NW0017	Ramardo Mines Limited	2 DDH 93 m (305 ft)
S02	1949	31M03NW0019	Ramardo Mines Limited	7 DDH 355.4 m (1,166 ft)
S03	1950	31M03NW0009	H.G. Miller	PDRILL 2 DDH/435 ft
S04	1952	31M04NE0040	Macfie Expl Ltd	PDRILL 1 DDH/266.5 ft
S05	1954	31M03NW0011	De Camp	5 DDH 717.5 m (2,354 ft)
S06	1954	31M03NW0013	Unknown	1 DDH 50.4 m (165.5 ft)
S07	1956	31M04NE0027	W. Hammerstrom	GEOL mapping
S08	1959	31M04NE0039	W. Hammerstrom	ASSAY diamond drill core PDRILL 6 DDH over 6011 ft
S09	1960	31M03NW0018	Geoscientific Prospectors Ltd	ASSAY diamond drill core PDRILL 2 DDH over 2510 ft
S10	1961	31M04NE0032	Keeley-Frontier Mines	PDRILL 1 DDH over 200 ft
S11	1963	31M03NW0010	De Camp	PDRILL 1 DDH over 200 ft
S12	1963	31M04NE0033	Bi-met Mines Ltd	PDRILL 1 DDH over 121 ft
S13	1965	31M03NW0021	M. Oslund	PDRILL 2 DDH over 202.5 ft
S14	1966	31M03NW0007	Millerfields Silver	Ground magnetic and resistivity – 28.8 km (18 miles).
S15	1970	31M04NE0035	J Price	PDRILL 3 DDH over 318 ft
S16	1974	31M04NE0029	J Price	PDRILL 1 DDH over 105 ft
S17	1987	31M04NE0021	Place Res. Corp Winteroad Res. Ltd	ASSAY DDH core PDRILL 2 DDH v2956 ft
S18	1992	31M03NW9737	Chitaroni	3 DDH at Oxbow Lake – 61 m (200 ft) total 2 DDH at Highway 357 – 22.9 m (75 ft) total.
S19	1992	31M03NW9740	Chitaroni	Airborne Mag and VLF, prospecting.
S20	1995	31M03NW0035	Moore	Ground Mag and VLF – 11.3 km.

Map ID	Year	Assessment file/reference	Operator	Work History
S21	1995	31M03NW0040	John A Gore	MAG 5.1 km PCUT 5.5 km VLF 4.2 km
S22	1995	31M03NW0032	Hugh A Moore	MAG 5.6 km PCUT 5.7 km VLF 5.6 km
S23	1996	31M03NW0047	John A Gore	ASSAY 15 samples, PCUT 35 days PROSP 32 days, PSTRIP 11 areas
S24	1996	31M03NW0048	John A Gore	MAG 6.1 km PCUT 6.1 km PROSP 3 claims VLF 5.3 km
	1996	31M03NW0033	John A Gore	GCHEM 40 samples GLCOMP geol map incl. sample location
S25	1996	31M03NW0045	Moore	Geochemical – 113 samples, geology.
S26	1997	31M03NW2001	John A Gore	Ground Mag, EM, VLF -11.5 km.
S27	1997	31M03NW0049	Hugh A Moore	GCHEM 39 samples
S28	1998	31M03NW2002	Isometric Min.	Ground Mag and IP – 31.75 km.
S26	1998	31M03NW2003	John A Gore	Stripping, prospecting, geochemistry – 27 samples
	1998	31M03NW2007	John A Gore	Prospecting
	1998	31M03NW2008	John A Gore	Stripping, prospecting, geochemistry – 8 samples.
S29	1998	31M03NW2002	John A Gore	IP 14.5 line-km, MAG 24.26 line-km, PCUT 31.75 line-km
S30	1999	31M03NW2006	John A Gore	ASSAY 96 samples, PDRILL 3 holes
S31	1999	31M03NW2012	John A Gore	ASSAY 67 samples GEOL2 maps 1 1:200 1 1:2500
S32	1999	31M03NW2004	Hugh A Moore	MAG 2.72 line-km PCUT 2.72 line-km, VLF 2.72 line-km
S33	1999	31M03NW2009	John A Gore	EM 7 line-km, MAG 8.13 line-km PCUT 8.13 line-km, VLF 8.13 line-km
S34	1999	31M03NW2006	Gore/Medici	DDH 3 holes, geochemistry 96 samples.
S35	1999	31M03NW2009	John A Gore	Ground Mag, EM, VLF – 8.13 km.
S36	2000	31M03NW2010	John A Gore	ASSAY 34 samples, PDRILL 1 hole
S17	2000	31M04NE2040	Frank Palmay John Ross Moses	ASSAY 58 core samples, PDRILL 1 hole
S37	2000	31M04NE2020	Frank Palmay John Ross Moses	EM 9.43 line-km, PCUT 10 line-km
S17	2002	31M04NE2035	Frank Palmay John Ross Moses	ASSAY 64 core samples, PDRILL 1 hole
S35	2002	31M03NW2016	John A Gore	Pits – 8
	2003	31M03NW2018	John A Gore	Stripping, geochemistry – 1
S38	2003	31M03NW2019	John A Gore	PROSP 2 man-days
S39	2004	20000000283	John A Gore	PROSP 3 man-days
S17	2004	31M04NE2041	Frank Palmay John Ross Moses	BENEF 1 sample caustic dissolution
S17	2005	20000000862	Frank Palmay John Ross Moses	ASSAY 117 core samples PDRILL 2 holes 816 m
S40	2006	20000002444	Adroit Resources	Work overlapped some of FCC claims AEM 241 line-km, AMAG 241 line-km

Map ID	Year	Assessment file/reference	Operator	Work History
S41	2006	20000001575	John A Gore	Prospecting
S42	2006	20000001752	John A Gore	Prospecting
S43	2006	20000002444	Adroit Resources	Airborne EM and Mag
S42	2007	20000000051	Silver Shield/Gore	Ground Mag – 1.5 km
S44	2007	20000002465	Adroit Resources	Ground Mag and IP – 23 km
S42	2007	20000002529	John A Gore	Prospecting
S43	2007	20000002725	Adroit Resources	DDH – 1,063 m in 9 holes GCHEM – 43 soils, 62 rocks
S45	2007	20000002465	Adroit Resources	IP 23 line-km, MAG 25 line-km
S40	2007	20000002725	Adroit Resources	Work overlapped some of FCC claims ASSAY 64 rock 42 soil samples, GCHEM 42 Soil Samples, PDRILL 9 holes 1063 m
S44	2008	20000000190	Adroit Resources	DDH – 887 m in 3 holes GCHEM – 141 samples; only 1 hole in current property area
S35	2008	20000003235	John A Gore	Prospecting
S56	2008	20000978	John A Gore	Prospecting
	2009	20006368	John A Gore	Ground Mag and VLF
	2010	20006654	John A Gore	Ground Mag and VLF
S35	2011	20000006885	John A Gore	Ground Mag and VLF – 1.9 km.
S35	2011	20000006529	John A Gore	Ground Mag - 1.6 km.
S46	2011	20000006393	Mhakari Gold Corp.	LC 11.7 line-km, MAG 11.7 line-km, VLF 11.7 line-km
S47	2011	20000006529	John A Gore	LC 1.6 line-km, MAG 1.6 line-km
S47	2012	20000007308	John A Gore	PMECH 1 man-day
S48	2012	20000007783	John A Gore	MAG 3.6 line-km
S49	2012	20000007783	John A Gore	Ground Mag 3.6 km.
S49	2012	20000007233	Meunier	Ground Mag, VLF – 1.9 km.
S35	2012	20000007305	John A Gore	Stripping
S56	2016	2.57117	John A Gore	Prospecting
S57	2016	2.57211	Brixton Metal Corp	Airborne survey
H.G. Miller, Maiden's Lake (1949) Occurrence	Circa 1909	MDI31M03NW00023		Underground development (adits, winze to 18.3 m (60 ft)). Assays from the main adit vein returned values of 0.48% Co and 0.42% Co. A second vein found in the adit strikes across the adit (N75W) also reportedly returned Co values.
	1950	MDI31M03NW00023 and 31M03NW0009	H.G. Miller	DDH 1 and 2, on the east shore of the southern bay of Maidens Lake.
	1952-1963	MDI31M03NW00023 and 31M03NW0010	De Camp	Grab samples collected by E.B.E. de Camps from the adit dump returned assays of 0.34% Co and 0.07% Co. DD-1 (drilled in 1963), on the west shore of the southern bay of Maidens Lake returned assays of trace to 0.01% Ag over lengths up to 0.55 m (1.82 ft).
S54	2008	20000003007	Silver Shield/Gore	Geology

Map ID	Year	Assessment file/reference	Operator	Work History
J.A. Gore Property - 1980	1928-1929	MDI31M03NW00016	Mining Corporation of Canada Ltd	Shaft sinking to 128 m (420 ft); level developed at 123.8 m (406 ft), with drifting, cross-cutting and diamond drilling.
S53	1990	31M03NW0003	John A Gore	Geochemistry
	1991	31M03NW0001 31M03NW0023	John A Gore	1 DDH -70.1 m (230 ft), geochemistry. Trenching - 4, geochemistry – 14 samples.
	1992	31M03NW0002 31M03NW0004 31M03NW0025 31M03NW9738	John A Gore	Prospecting, geochemistry. Stripping. 1 DDH – 90.7 m (297.5 ft) extension from 70.1 m to 160.8 m (230 ft to 527.5 ft), geochemistry, Huronian-Keewatin contact reported at 114.3 m (375 ft) below surface. Trenching - 4, prospecting, geochemistry – 26 samples. A trench grab sample assayed 3582 ppm Cu, 629 ppm Co and trace Ag. Additional grab samples from the property returned values up to 0.905% Cu, 0.166% Co and 0.003% Ni.
	1993	31M03NW9783	John A Gore	Stripping, geochemistry.
	1994	31M03NW0022	John A Gore	Stripping, prospecting, geochemistry – 7 samples.
	2003	31M03NW2017	John A Gore	Stripping, geochemistry.
	2012	20000007308	John A Gore	Stripping.
Oxbow Lake Claims – 1993	1953	MDI000000001585	Ramardo Mines Limited	5 DDH.
S52	1993	31M03NW0024	John A Gore	Prospecting, geochemistry, VLF-EM.
	1994	31M03NW0027 31M03NW0028 31M03NW0030	Chitaroni/Gore	Prospecting, geochemistry – 47 samples. Assay – 14 samples.
	1995	31M03NW0031	John A Gore	Prospecting, stripping – 9 areas.
Ox-Bow Silver Mining Company Limited Property – 1946	1924-1925	MDI31M03NW00020	Clifton Consolidated Mines Limited	Shaft sinking, pitting, stripping, 298.7 m (980 ft) of diamond drilling.
	1946-1953	MDI31M03NW00020	Ox-Bow Silver Mining Company Limited	23 DDHs, pitting, trenching. Assays from the 1947 diamond drilling returned Ag-Co value of $28.68 including, 3.25% Co over 0.95 m (3.1 ft). DDH 8 yielded 37.7 g/t Ag (1.1 oz/t Ag), 1.41% Co over 0.85 m (2.8 ft). DDH 6 assayed 10.5 g/t Ag (0.299 oz/t Ag) and 2.167% Co over an unspecified length.
S50	1956	31M03NW0016	Elite Cobalt Mines Ltd.	4 DDH-totalling 378.6 m (1,242 ft).
S18	1992	31M03NW9737	Chitaroni	3 DDH at Oxbow Lake – 61 m (200 ft) total, two DDH at Highway 357 – 22.9 m (75 ft) total.
S51	1995	31M03NW0036	John A Gore	Prospecting
	1995	31M03NW0040	John A Gore	Ground Mag, VLF – 5.1 km.
	1996	31M03NW0033	John A Gore	Geochem – 40, compilation/geology.

Map ID	Year	Assessment file/reference	Operator	Work History
	1996	31M03NW0037	John A Gore	Geology, geochemistry – 11 samples.
	1996	31M03NW0038	John A Gore	Prospecting.
	1996	31M03NW0047	John A Gore	Stripping, prospecting, geochemistry – 15.
	1996	31M03NW0048	John A Gore	Ground Mag and VLF – 6.1 km.
	2000	31M03NW2011	John A Gore	Geochem, geology.
	2002	31M03NW2014	John A Gore	Stripping.
	2003	31M03NW2019	John A Gore	Prospecting.
	2007	20000002019	Silver Shield/Gore	Ground Mag – 3.2 km.
Oslund-Hermiston Group – 1949	Pre 1956	MDI31M03NW00021		Pitting, trenching.
S50	1956-1965	MDI31M03NW00021 and 31M03NW0016	Elite Cobalt Mines Ltd.	1956 – 4 DDH totalling 378.6 m (1,242 ft).
Oslund-Hermiston Group – 1949	1968	MDI31M03NW00021	Silver Tower Mines Limited	4 DDH. The best assay reportedly returned 61.7 g/t Ag (1.8 oz/ton Ag) over 1 in. Other assays ranged from 6.9 g/t Ag to 27.4 g/t Ag (0.2 oz/t Ag to 0.8 oz/t Ag) over sample lengths ranging from 1 to 4 in. Galena was observed within chlorite schist in irregular streaks over a maximum core length of 1.5 m (5 ft). Minor pyrite and carbonate also was observed. Traces of pink carbonate also carried galena and minor cobalt bloom. The mineralization appears to lie adjacent to the contact with the overlying metasedimentary rocks.
	1969	MDI31M03NW00021	M. Oslund	4 DDH totalling 128.3 m (421 ft).
Bulldog Shaft - 1914 (S55)	1969	MDI31M03NW00029 and 31M03NW0015	Price-Bradley	2 DDH totalling 554.4 m (1,819 ft). Assays from the 1969 diamond drilling returned values up to 37.7 g/t Au (1.1 oz/t Au) over 2 in and 68.6 g/t Ag (2 oz/ton Ag) over 4 in in a calcite vein in metavolcanics.

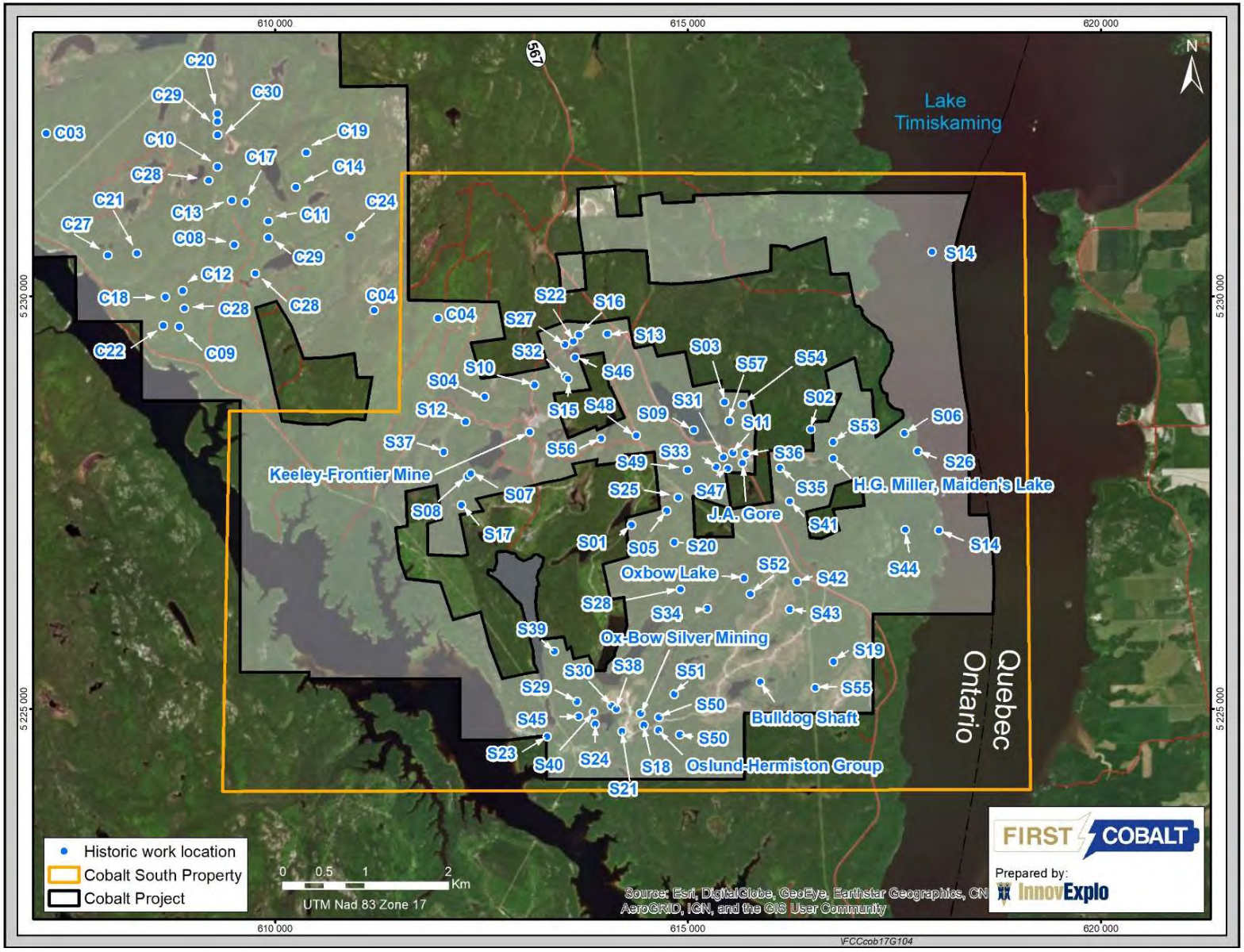

Figure 6.3 – Historical work on the Cobalt South Property

6.4.2 Keeley-Frontier mines area

The original discovery of silver mineralization on the Keeley claim (HR19) was made in 1907 by prospectors J.M. Wood, R.J. Jowsey, and C. Keeley, leading to development of the Keeley mine. In 1908, J.M. Wood discovered the Wood vein on the adjacent Beaver Lake claim (HR-21). Claims HR19 and HR21 were sold to interests connected with “Farmers Bank”, however the bank was never owner of the mine. The property, under the name of Keeley Mine Limited, was worked by interests associated with the bank until 1911. The Farmers Bank then became involved, and the bank failed. The liquidators of the bank gained possession of the Keeley mine. The operating company, Keeley Mine Limited was kept in good standing and not allowed to fail. In 1913, Associated Gold Mines of Western Australia acquired an option on the property from Keeley Mine Limited and in August 1919, following several option renewals, the property and the majority of the stock in Keeley Mine Limited was transferred to Associated Gold (Knight, 1922). Keeley Mines Ltd and the property were acquired by Anglo-Huronian Limited in 1933.

What is now known as the Frontier mine originated in the south half of the Haileybury Silver Mining Company’s claim, HR16. Henry Newburger of Memphis, Tennessee, bought the south half of HR16 from the Haileybury Silver Mining Company in 1912 and formed the Haileybury Frontier Company. Haileybury Frontier sank two shafts. Minor drifting and crosscutting was completed on the 75ft and 150ft levels of the northern of the two shafts. Both levels showed a strong vein carrying smaltite, but no significant silver. Henry Newburger died and the company went into liquidation in 1914. Joseph Newburger, brother of the deceased, bought into the property in the interests of his brother’s widow, and the mine remained closed until the autumn of 1920. During the summer of 1920, Joseph Newburger had the mine dewatered and examined by representatives of several silver-mining companies.

In 1920, a United States-based company represented by Horace Strong purchased the Haileybury Silver Property (north half of HR16) and secured a one-year lease option to purchase the Frontier Mine (south half HR16) (Knight, 1922). Strong discovered high-grade silver on the south half of claim HR16 in 1921 immediately north of the Keeley claim (Willars, 1965). In 1921, the Mining Corporation of Canada amalgamated several companies and claims, including the Haileybury Silver Mines and Frontier Mine properties (north and south halves of HR16 respectively), the former Compton (HR25), Little Keeley (HS40) and the Keeley Extension properties (HR39, HR41) into Frontier Silver Mines Limited.

Both the Keeley and the Frontier mines have extensive underground workings. As summarised by McIlwaine (1970), during initial operations five shafts were sunk on the Keeley Property and three on the Frontier Property. Sixteen (16) shafts and winzes totalling 2,513 m were sunk on the Keeley Frontier group patents providing access to a maximum depth of 427 m. The Keeley mine of Keeley Silver Mines Ltd produced intermittently from 1908 to 1942 with most of the production occurring between 1921 and 1931. The Frontier mine was operated by Mining Corporation of Canada Ltd from 1921 to 1943.

In 1961 Keeley-Frontier Mines Limited purchased and consolidated the 13 patented claims that now form the core Keeley-Frontier patent claim group:

- Keeley claims HR19 and HR21 from Anglo-Huronian Limited that controlled Keeley Silver Mines Limited
- Frontier claims HR16, HR17, HR20, HR25, HR68 and HS39 from The Mining Corporation of Canada Limited which controlled Frontier Silver Mines Limited
- Claims HR22, RL455 and RL456 from Keeley Extension Mines Limited
- Claims T32960 and T46400 (formerly HS40 or the Little Keeley claim) from N. Oslund of Haileybury, Ontario.

Keeley-Frontier Mines Limited was subsequently re-organised as Canadian Keeley Mines Ltd in 1964, and then became Keeley Frontier Resources Inc. in 1980. Keeley-Frontier began work on the property in 1961 and in 1962 the Keeley and Frontier mines were dewatered and rehabilitated. Keeley-Frontier connected the two mines at three points including the main haulage way between the 6th level of the Frontier Mine and the 8th level of the Keeley Mine. Access and services were provided largely through the Frontier No. 3 shaft and the 828 winze, which was deepened by Keeley-Frontier from the 11th to the 12th level. Development totals occurring between 1961 and 1965, include 1,110 m of drifting, 341 m of cross cutting, 39 m of shaft sinking and 1,117 m of raising. Very little diamond drill exploration was done at the mines prior to 1961, but from 1961 to 1965, five surface drill holes and 276 underground drill holes were completed for a total of 15,922 m.

The Woods vein had been mined out by this time and the 1963–1965 Keeley-Frontier production came primarily from the Keeley Mine and reprocessed tailings. Based on limited information available on level plans filed as assessment files with the MNDM, Agnico Eagle optioned the property circa 1969 to 1972 and completed an underground drilling program. M & M Porcupine Gold Mines (M & M Porcupine) acquired the property from Keeley Frontier Resources in 1984 (Pearson and Kerr, 1985). 155433 Canada Limited, a subsidiary of LaChib Development Corporation (LaChib) acquired the property from M & M Porcupine in 1987 (Mayer and Pearson, 1989). Geological consultants Derry, Michener, Booth and Wahl recommended a 4,570-m diamond drilling program focusing on fault vein systems near Beaver Lake (Mayer and Pearson, 1989). This proposal incorporated many of the targets proposed by Hammerstrom, Thoday and Watts (1981). No exploration was conducted. Circa 1994, Transway Capital Inc. (Transway) acquired the property from LaChib. Transway sold to Cobatec Ltd approximately 10,000 tons of surface muck which was removed to the latter's cobalt recovery plant under construction in the Cobalt area (Trussler, 1994). In 1995 Transway contracted JVX Ltd of Richmond Hill, Ontario to conduct time-domain spectral induced polarisation/resistivity (IP/RES), VLF-EM, magnetic and time domain electromagnetic (TDEM) surveys on the property, excluding the area covered by Beaver Lake, (JVX, 1996). Truncations of magnetic patterns with coincident IP/RES and/or time domain EM surveys or VLF-EM surveys were interpreted as five geophysical targets suggestive of disseminated to massive sulphide mineralization and warranting diamond drill testing. 1695255 Ontario Inc. acquired the property from Transway on April 13, 2007. 1695255 Ontario Inc. changed its name to Silver Centre Resources Inc. (Silver Centre) effective February 20, 2007.

In 2010, Silver Centre contracted JVX Ltd to conduct magnetic, pole-dipole IP/RES and moving loop transient EM (TerraTEM) surveys over the Beaver Lake area in the southwestern part of the Keeley-Frontier group patents. The magnetic data indicates

the possible location of north-trending faults identified by previous property operators, which are now CSH (Canadian Silver Hunter) targets. The TerraTEM survey was only conducted on Beaver Lake and produced ambiguous results. Pole-dipole IP/RES data for the whole project area has identified 50 IP anomalies of which 33 are classified as strong. Four of the IP anomalies have an associated resistivity high and 6 have an associated resistivity low, and 40 have no clear resistivity expression. The best quality anomalies reside in the 1995 IP/RES survey (JVX, 1996). The present IP/RES survey did not identify additional quality targets underneath Beaver Lake. The VLF-EM data did not present an easily interpretable array of information. However, given the shallow nature of the overburden, some of the responses are indicative of fault/shear zones, generally trending north-south.

Silver Centre Resources Inc. changed its name Canadian Silver Hunter Inc. effective 23 November 2010.

During 2012, Canadian Silver Hunter completed a six-hole, 2,058 m diamond drilling program on the Keeley-Frontier group claims (Jamieson, 2012 and Jamieson, 2014). The focus of the 2012 diamond drilling program were areas of the Beaver Lake Fault that had been the final target of exploration and mining when the mine closed in 1968. Trinder (2017a) specified that archived drill core is stored in a locked ocean-shipping container at the historical Keeley-Frontier mine site. The author saw the container but cannot confirm its content.

Diamond drill hole CSH12-03 returned significant silver values potentially in the historical # 40 vein structure between 111.0 m and 122.3 m downhole, with a composite silver value of 72.47 g/t Ag over 11.3 m, including 168.22 g/t over 4.2 m, with no individual silver assay below 2.4 g/t. This # 40 vein system received relatively little historical underground drifting and there is no record of any historical surface drilling in the area. Further down hole, disseminated arsenides and fine calcite veining occur in what may be a parallel or second branch of the # 40 zone. Elevated copper and bismuth values also occur within both zones.

CSH12-04 returned a composite silver assay of 25.9 g/t Ag over 4.3 m, starting at 254 m downhole which appears to correlate to the north extension of the Beaver Lake Fault.

CSH12-05 and CSH12-06 were drilled to test beneath the one stope developed on the Beaver Lake Fault before mine closure.

CSH12-05 returned a composite silver value from the Beaver Lake Fault of 398.42 g/t Ag over 1.9 m, however 0.9 m of this intersection was lost core or void due to the hole intercepting what is interpreted to be old workings at 258.8 m downhole. At 249 m, it appears that the hole broke into the corner of Beaver Lake drift, resulting in 0.9 m of lost core within a 1.1 m interval. Angular fragments of altered volcanic material containing cobalt arsenides were recovered and assayed 447 g/t Ag. The hanging wall samples assayed 226 g/t Ag over 0.4 m, and 65.9 g/t Ag over 0.4 m, while the footwall sample assayed 12.7 g/t Ag over 0.4 m. A second zone of interest was located at 143 m in the form of a dark grey streaked calcite vein 33 cm in core length, which assayed 26.2 g/t Ag over 0.55 m. Several samples of faulted material between 15 m and 75 m returned anomalous silver, arsenic, cobalt values.

CSH12-06 was drilled to test within 25 m below and west of CSH12-05 to avoid the historical drift/stope area and returned a composite silver value of 58.21 g/t Ag over 0.95 m. At 253 m, a 0.65 m sample in the immediate hanging wall of the Beaver Lake Fault assayed 86.9 g/t Ag, and 108 ppm Bi, with subsequently check assaying returning 68 g/t Ag by screen metallic methods. This sample is described as having hairline carbonate veinlets with associated hematite and epidote alteration; chalcopyrite, arsenopyrite (possibly cobalt arsenides), bismuthite(?) and pyrite are common as grains and small masses.

The Beaver Lake Fault is interpreted to be located between 254.5 m and 255.1 m, consisting of a brittle fault zone with a 5.5 cm core length of pink carbonate-quartz vein at 60° to the core axis with grey metallic streaks and local silvery blebs (bismuthite?). The fault itself assayed 32.8 g/t Ag, 0.1% Co and 60 ppm Bi.

In November 2012, Canadian Silver Hunter completed a bedrock stripping and channel sampling program on the Keeley-Frontier patent claim block at the DDH CSH12-03 collar area (#40 Vein System) and immediately west of Gibson Lake (Jamieson and Cutting, 2014). Geological mapping was undertaken followed by markup of channel sampling intervals based on geological observations. Cold late fall temperatures limited the amount of detailed mapping possible, however basic geological observations were completed, and channel cut samples examined for mineralisation by the field geologist. The CSH12-03 collar area was stripped to expose bedrock in the area of the drill hole where it is interpreted to have intercepted the #40 vein system. No detailed geological mapping or channel sampling of the outcrop was undertaken in 2012. The outcrop exposure measures about 61 m by 10 m in an irregular shape.

The second area of mechanical stripping in the 2012 program is located immediately to the west of Gibson Lake to follow-up on grab sample results taken in the summer of 2012 from a historical blasted surface trench while prospecting geophysical IP anomalies. The stripped area of approximately 48 m by 10–15 m exposed a pillowed mafic volcanic cut by numerous brittle looking fractures and faults trending principally between 310° and 330°, variably though normally steeply dipping. Disseminated pyrite grains and blebs, chalcopyrite, galena, sphalerite, arsenopyrite, native silver and bismuth were visible within and in proximity to many of the fractures in the system. Pyrite mineralisation is also associated with the pillow selvages. A total of 50.45 m was collected in 77 channel samples. The average length weighted composite analysis for all 77 samples collected was 11.33 g/t Ag, 0.12% Pb, 0.14% Zn, and 0.12% Cu. Silver values ranged from 0.4 to 190 g/t Ag with only seven samples assaying below 1.0 g/t. A similar widespread dispersion of Cu, Pb and Zn values was also noted with a high correlation to Ag values (65.9 ppm to 5,760 ppm Cu; 17 ppm to 1.46% Pb and 39.9 ppm to 1.72% Zn).

Selected highlights include:

- Channel line 2 returned a composite silver value of 70.4 g/t Ag over 1.85 m, including 190 g/t Ag over 0.6 m.
- Channel line 7 returned composite silver values of 69.3 g/t Ag over the full length of 2.9 m, including 86.8 g/t Ag, 0.91% Pb, 0.65% Zn, 0.28% Cu over

2.25 m. One sample returned a value of 174 g/t Ag and 1.46% Pb over 0.95 m.
- Channel line 8 returned a composite silver value of 28.0 g/t Ag over 2.05 m, with 0.58% Pb, and 0.69% Zn. The composite included a 0.6 m of 70 g/t Ag, 1.31% Pb, 1.64% Zn and 0.42% Cu.

It is significant to note that the Gibson Lake stripping area is approximately 100 m above the historical "productive zone" above the Nipissing diabase with which the Keeley-Frontier high grade silver zones are associated.

Strong chargeability anomalies from earlier Canadian Silver Hunter IP surveying suggests the presence of disseminated sulphide/arsenide targets along a northwest trending anomaly 100 m wide by at least 400 m long stretching northwest from the Gibson Lake stripping area. In addition to the bedrock stripping and channel sampling, backhoe sampling was completed in 2012 along the edge of Little Beaver Lake at one location to examine the depth of tailings and distribution of silver and other metals in the tailings profile. Five samples were assayed at AGAT Labs and returned silver values between 74.8 g/t Ag (2.18 oz/t) and 404 g/t Ag (11.78 oz/t).

In 2013, Canadian Silver Hunter power-stripped an area along the #1 Fault structure, proximal to the Frontier #1 Shaft, approximately 440 m east of the Gibson Lake stripping area. No channel sampling was completed in 2013 due to depth of overburden and flooding of the trenches. In 2014, the area was revisited, with additional power-stripping, mapping and channel sampling. Results indicate that the #1 Fault structure in this area consists of a wide (20 m) zone of fractured, epidotized and silicified pillowed metavolcanics, cut by syenitic and micaceous dykes. The Frontier #1 Shaft area channel samples returned anomalous silver, arsenic, and copper (up to 20.7 g/t Ag, 0.16% As and 25.7 to 1,650 ppm Cu). No discrete veins were sampled; higher metal values are associated with pyrrhotite-pyrite-chalcopyrite veinlets within patchy epidote-silica altered metavolcanics. The mineralisation and assay results are similar to the Gibson Lake area, although the Gibson Lake area returned locally higher silver, zinc and lead values including 86.6 g/t Ag, 0.28% Cu, 0.65% Zn and 0.91% Pb over 2.25 m.

6.4.3 Historical mineral production

6.4.3.1 Keeley and Frontier mines

The Keeley Mine of Keeley Silver Mines Ltd produced intermittently from 1908 to 1942 with most of the production occurring between 1921 and 1931. Total reported production was 12,154,353 oz Ag (378,043 kg) and 1,617,684 lbs Co (73,377 kg).

The Frontier Mine was operated by Mining Corporation of Canada Ltd from 1921 to 1943 and produced 6,695,415 oz Ag (208,251 kg) and 1,683,769 lb Co (763,746 kg) and 12,158 lb Ni (5,515 kg).

Keeley Frontier Mines Ltd/Canadian Keeley Mines Ltd operated the combined Keeley and Frontier mines during the 1963–1965 period and produced 347,645 oz Ag (10,812 kg), 9,003 lb Co (4,083 kg) and 14,358 lb Ni (6,512 kg). The 1963–1965 production was primarily from the Keeley Mine and included reprocessed tailings.

Actual production is probably higher than recorded because under the Delora Smelter contract, the smelter accepted ore for either its silver content or its cobalt content. For example, in 1930 and 1931 when the silver price was too low for profitable mining, both mines shipped cobalt ore with considerable silver content but were only credited for the cobalt content (Hammerstrom *et al.,* 1981). Similarly, cobalt production shipped from the Frontier Mine under Mining Corporation contract with Delora was credited to its main operation in Cobalt proper, not the Frontier Mine (Hammerstrom *et al.,* 1981). Credits were not readily given for minor elements present; Ni, Bi, As, Sb etc. (Harron, 2011).

To the end of 1965, South Lorrain Township (Silver Centre) had produced a total of 23,338,906 oz Ag with 82% coming from the Keeley and Frontier combined production, and over 50% from the Keeley mine alone (McIlwaine, 1970).

6.4.3.2 Bellellen mine

Sergiades (1968) reported total production of 1,182,772 g Ag (38,027 oz); 12,930 kg Co (28,481 lb) and 6,085 kg Ni (13,404 lb) from the Bellellen mine between 1910 and 1943 (intermittent).

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Cobalt-Gowganda silver-cobalt mining camps of northeastern Ontario are located in the Cobalt Embayment, which represents the northeastern part of the Southern geological province, close to the boundary of the Superior and Grenville provinces (map inset Figure 7.1).

Archean metavolcanic and metasedimentary rocks are unconformably overlain by Proterozoic rocks of the Huronian Supergroup (Figure 7.1). The Archean and Proterozoic rocks have been intruded by the regionally distributed Nipissing diabase sills. All deposits in the Gowganda, Cobalt, and Silver Centre production camps are hosted within or adjacent to the diabase sills, in close proximity to the Huronian-Archean unconformity. In the northeastern corner of the embayment, outliers of Paleozoic sedimentary rocks made up of limestone, dolostone, and sandstone unconformably overlie the Huronian sedimentary rocks followed by Pleistocene and Recent sediments.

The following regional geology description is based on the regional geological map of Ayer and Chartrand (2011) and geological reviews presented by Andrews et al. 1986a, Potter and Taylor (2000), Marshall (2008), and Trinder (2017), and the discussion retains the references therein.

7.1.1 Archean basement

The oldest rocks are found in the Archean basement and are exposed as isolated inliers in the north and northeast margin of the Cobalt Embayment (Figure 7.1). They consist of metavolcanic rocks and associated interflow sedimentary rocks of the Abitibi Subprovince. The Abitibi greenstone belt is one of the world's largest, best preserved and most economically productive greenstone belts in the world in terms of gold and base metal production (Robert et al., 2005). Volcanics are composed dominantly of massive to pillowed, intermediate to mafic, flows containing some pyroclastic units and felsic volcanic rocks, and minor interflow sedimentary rocks. Interflow, tuffaceous, and sedimentary rocks consist of chert and sulphide units intercalated with graphitic argillite, iron formation, siltstone, lithic wacke, and coarse feldspar-quartz sandstone (Goodz et al., 1986; Smyk 1987; Nicols, 1988). Felsic intrusive and metamorphic rock types predominate along the western margin. Unconformably overlying the volcanic rocks are synorogenic Timiskaming-type lithic and feldspathic arenites, wackes and conglomerates (Jambor, 1971a). These rocks were intruded by Archean granites followed by mafic, ultramafic and lamprophyric dikes and sills, and were subsequently metamorphosed to greenschist facies and folded isoclinally during the Kenoran Orogeny, ca. 2675-2660 (Wilkinson et al., 1999).

7.1.2 Proterozoic Huronian Supergroup

The Cobalt Embayment is a large (~10,000 km^2) roughly 120 km across circular domain of flat-lying, gently undulating succession of dominantly siliciclastic sedimentary rocks belonging to the Huronian Supergroup. The overall setting of the Cobalt Embayment is that of a continental rift system. The pattern of the embayment reflects the original configuration of the sedimentary basin. The succession unconformably overlies steeply dipping Archean basement rocks of the Abitibi greenstone belt (Figure 7.1). The embayment is bounded in most directions by

Archean rocks, except to the south, where it is truncated by the Grenville Front tectonic zone, the remnants of a mountain building event that terminated at ca. 1.0 Ga.

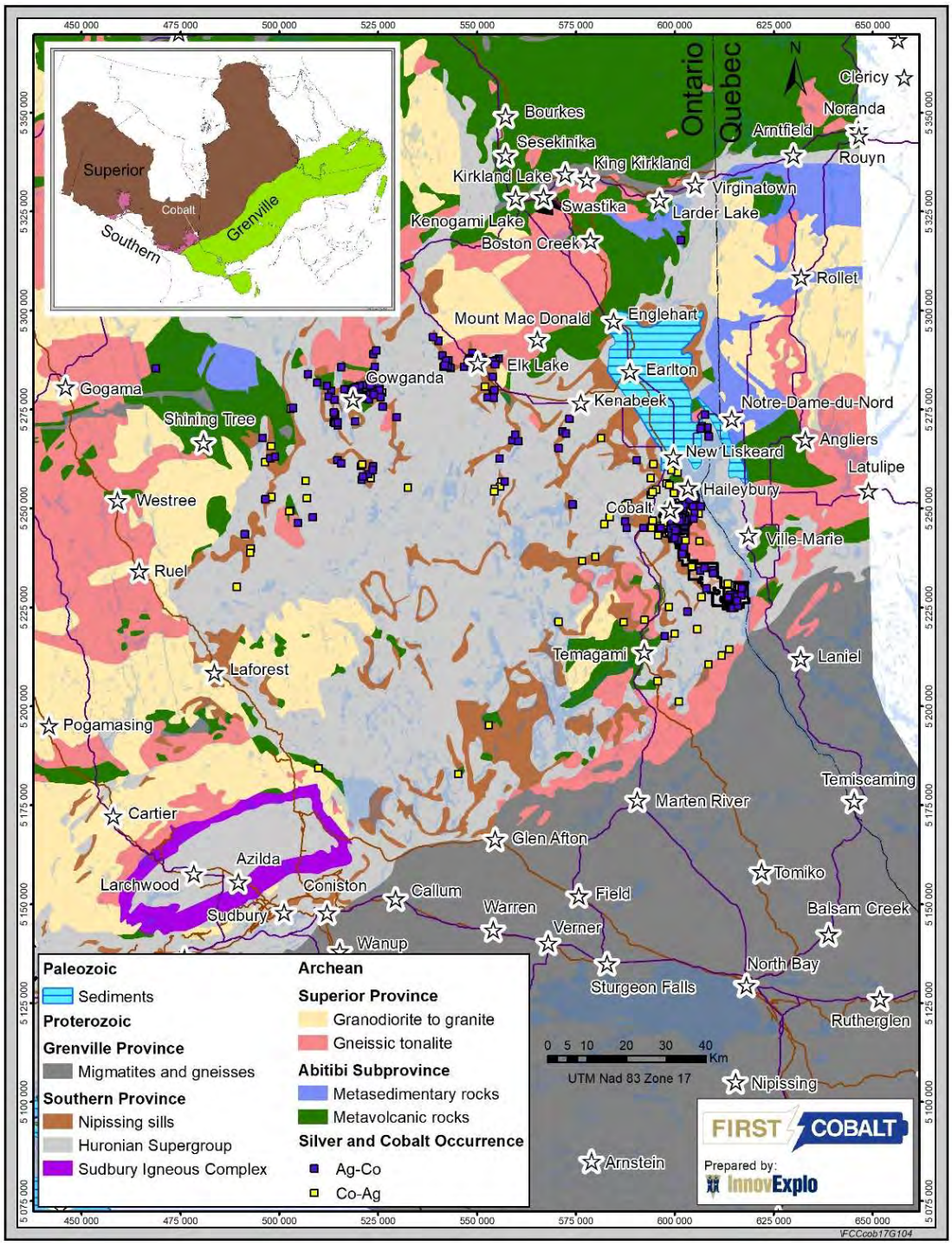

Figure 7.1 – Regional geological setting of the Cobalt Embayment with distribution of silver-cobalt mineralization

Geology and silver-cobalt occurrences from public Ontario Geological Survey databases.

The Huronian Supergroup forms a belt approximately 325 km that extends from Noranda, Quebec in the northeast to the Sault Ste. Marie, north of Lake Huron, in the west (map inset Figure 7.1). The supergroup is up to 12 km thick at its southern boundary where it underlies Paleozoic rocks of the Michigan Basin, and thins northward across the Cobalt Embayment due to wedging out of lower cycles, a thinning of clastic units and erosion within the sequence (Howe et al. 2016). Although significant sediment thicknesses have been recorded in the Cobalt Embayment (Debicki, 1987), depth to basement, as measured from the present surface, is extremely variable and most likely reflects the highly irregular basement topography, with possible relief of up to 1000 m (Andrews et al. 1986a). The basement irregularities are attributed to large-scale vertical movements along major crosscutting faults. Gupta and Grant (1985) provided evidence of depth changes of the order of 700 to 1600 meters over a maximal horizontal distance of 8 kilometers.

The Huronian Supergroup represent fluviatile, marine and glacial paleoenvironments and comprises four individual shelf type sedimentary cycles. Each cycle consists of a lower sequence of conglomerate of probable glacial origin succeeded by mudstone, siltstone and coarse arenite; some chemical sediments are associated with the uppermost cycle named the Cobalt Group.

The maximum age of the Huronian Supergroup is 2450 $^{+25/-10}$ Ma, based on U-Pb zircon analysis of the Copper Cliff Formation (Krogh et al., 1984). The minimum age of the Huronian Supergroup was determined to be 2219.4 $^{\pm 3.6}$ Ma from based on U-Pb analysis of primary baddeleyite from the Nipissing diabase dikes that intrude the succession (Corfu and Andrews, 1986). The duration of the Huronian glaciation events could be constrained to 2.29–2.25 Ga, given their similarity to glacial deposits elsewhere around the world (Tang and Chen, 2013).

The Huronian sedimentary rocks were subsequently affected by a poorly constrained subgreenschist-facies metamorphism (Easton, 2000) and by a regionally-distributed, K- and Na-metasomatic event at ca. 1.7 Ga Ma, likely related to the waning stages of the Penokean orogeny ca. 1900 Ma. (Fedo et al., 1997). The metamorphism produces chlorite and muscovite porphyroblasts in the eastern region of the embayment and pyrophyllite plus the latter assemblage in the central part of the embayment (Easton, 2000). Although the precise timing of the subgreenschist facies metamorphism is unresolved, it has been broadly constrained between the ages of 2219.4 $^{\pm 3.6}$ Ma (i.e. post-intrusion of the Nipissing Diabase, Corfu and Andrews, 1986) and ~1747 Ma (i.e. pre-intrusion of the Cutler batholith in the Algoma region, Andrews et al., 1986b; Easton, 2000).

7.1.3 Proterozoic Nipissing Diabase sills

The Nipissing Diabase (2219.4 $^{\pm 3.6}$ Ma; Corfu and Andrews, 1986) is a regionally-distributed complex of mafic sills and dikes. They are the most abundant and widespread igneous rocks intruding the Archean metavolcanic and the Huronian sedimentary rocks (Figure 7.1). The Nipissing sill complex occurs throughout most of the basin and is typical of many large diabase sill complexes which tend to have intruded as an integral part of the basin development (Kerrich et al. 1986). In general, the sills are horizontal to shallowly dipping and form regionally basin and dome like undulations (Petruk 1971a), although locally the diabase has been shown to follow pre-existing steep faults in the basement (Thomson, 1967). They maintain a relatively uniform thickness of 300-335 meters.

The ubiquitous Nipissing diabase sills comprise a range of rock types from fine-grained border facies through coarse-grained amphibole-bearing diabase to late stage granophyric diabase. Mineralogical and textural zoning within the lowest zone of the Nipissing diabase is manifested by a thin chilled margin 5-10 mm thick (Hriskevich, 1968; Jambor, 1971b), grading upward into the lower quartz diabase, which has a thickness of 15 to 30 m. Quartz diabase grades upward into hypersthene diabase, which forms up to two-thirds of the sill thickness. The hypersthene diabase grades upward into diabase with variable texture and grain size, and is locally aplitic, granophyric or pegmatitic. The granophyres have escaped from the Nipissing to form dykes within the sill and the Huronian sediments. The variable-textured diabase is gradational into an upper quartz diabase that is generally not as thick as the lower quartz diabase. The contact with the intruded country rocks is marked by an upper chilled margin up to 10 mm thick.

The sills are well differentiated and have a bulk composition of olivine tholeiite; some gabbroic dikes are also present (Hriskevich 1968; Jambor 1971b; Andrews et al. 1986a). Trace-element signatures of these intrusive rocks suggest a derivation from a compositionally uniform, MORB-type parental magma, characteristic of oceanic crust. The source rocks may have been underplated beneath the southern Superior Province margin, possibly under the Labrador trough, with transportation of the magmas through a series of radiating dike swarms (Lightfoot et al., 1993; Ernst, 2007).

7.2 Regional Structural Geology

Deformation within the Cobalt Embayment is dominated by faults (Figure 7.2). Intrusion of the Nipissing diabase which cuts the Huronian rocks may have been influenced, on a regional scale, by fault structures (Andrews et al., 1986a). A major southeast-trending fault system is manifested by the Montreal River, Cross Lake, and Timiskaming Fault (Wilson 1986; Potter, 2009). This regional-scale fault system is part of the Lake Timiskaming Structural Zone, a graben that trends from the Grenville Front and extends across the Cobalt Embayment well beyond the Cobalt/Kirkland Lake area. The axial portion of the graben is filled with flat lying Ordovician and Silurian sedimentary rocks that rest unconformably upon both Archean and Proterozoic rocks. Faulting affects these Paleozoic rocks with fault displacements as great as 305 m, noted along the Lake Timiskaming fault (Jambor, 1971a; Andrews et al., 1986a). These faults can be traced up to hundreds of kilometres and represent one of the three major fault systems in the Cobalt and Silver Centre areas. Geological and geophysical evidence indicates that these major fault systems were probably initiated in the late Archean, prior to Huronian sedimentation, and were reactivated during and after Huronian sedimentation and intrusion of Nipissing diabases (Andrews et al. 1986a). They probably exerted a major influence on the geological development of the Cobalt Embayment, the most obvious effects of which related to the configuration of the Archean basement topography, Huronian sedimentation patterns, and Nipissing diabase intrusions. Post diabase fault activity has long been cited as one potential mechanism for generating the structures that now host the Silver-Cobalt vein deposits.

The second fault set trends northeast, and the largest of these, the Cobalt Lake fault, offsets the Nipissing diabase prior to silver mineralization (Map 2050; Thomson, 1964a). These faults and the southeast-trending system are generally veined with carbonate and silicate minerals and exhibit no apparent control over the occurrence

of the silver veins, as most are barren (Jambor 1971a). The third set of faults, trending east-southeast, are generally smaller, subvertical normal faults that show displacements of up to 7.5 m, and locally host silver veins (Wilson, 1986).

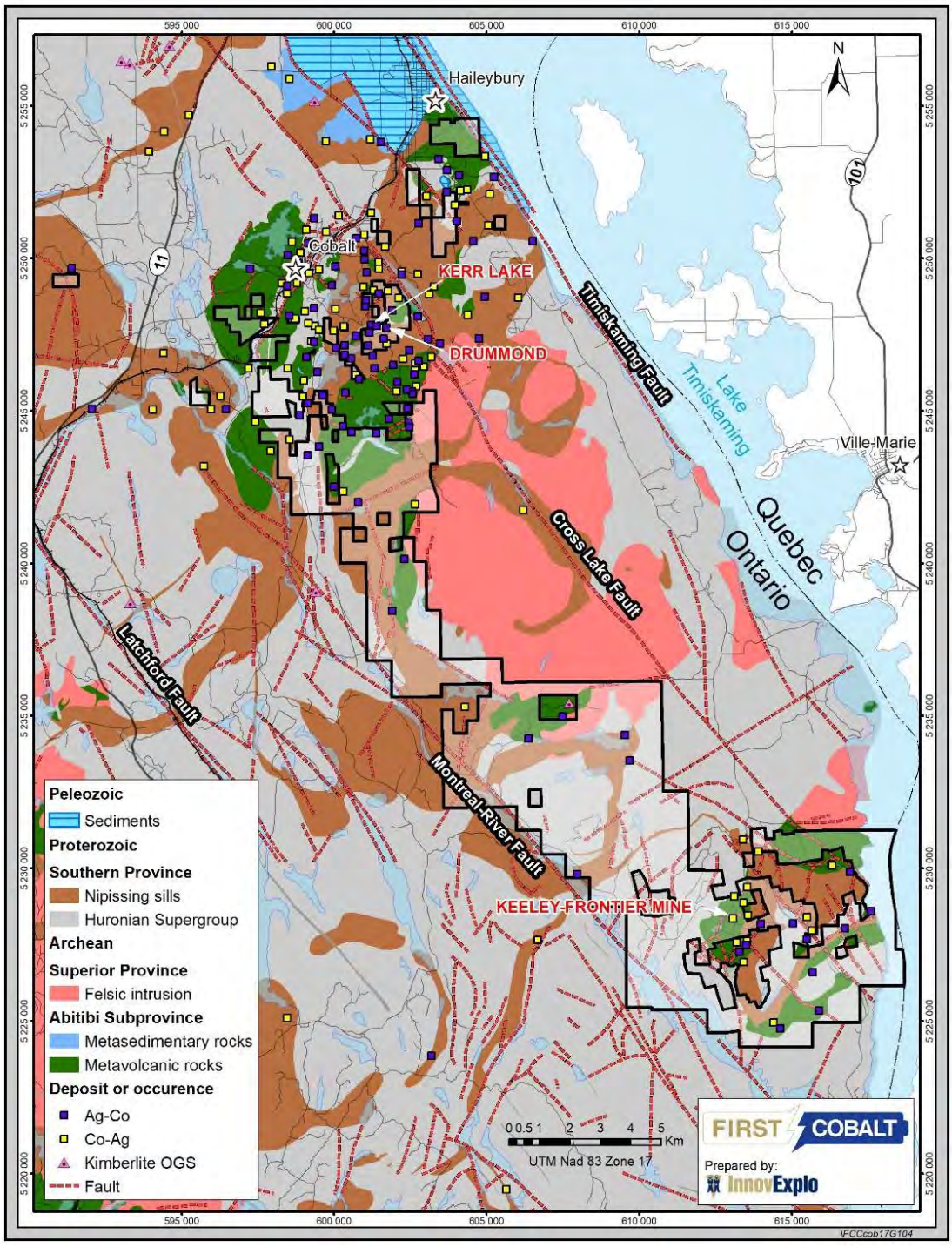

Figure 7.2 – Generalized geologic map showing the major faults cutting the Cobalt Embayment of the Lake Timiskaming Structural Zone
Geology and silver occurrences from public Ontario Geological Survey databases.

7.3 Silver-Cobalt Vein Mineralization in the Cobalt Embayment

Mineralization in the Cobalt Embayment occurs as Ag-Co-Ni-Bi-arsenides predominantly hosted in veins and stockworks known as Five-Element Vein Type deposits (Kissin, 1992). Since 1904, the Cobalt mining camp produced 458,830,085 oz Ag, 19,392,037 lbs Co, 3,407,495 lbs Ni and 1,964,728 lbs Cu (data from Table 2 in Gouindon et al., 2015). Production of silver from the Cobalt camp reached its peak in 1911 when 31,507,791 oz were shipped and continued at a high level until 1922 with the production of 10,711,727 oz (Harron, 2010). A decline in the price of silver in the early 1920s and exhaustion of high-grade silver ore caused most mines to close.

The silver-cobalt vein deposits at Cobalt and Gowganda mining camps were discovered along the north and northeast margins of the Cobalt Embayment (Figure 7.1), where the Proterozoic vein systems typically occur in proximity to pre-Huronian faults that were reactivated during emplacement of the Nipissing Diabase, ca. 2219 Ma (Corfu and Andrews, 1986). There is a regional spatial distribution of silver-cobalt vein mineralization. Silver dominant veins with subordinate cobalt, nickel, copper and zinc content, occur in the northern part and margin of the embayment, in the area of Gowganda (Figure 7.1). Cobalt dominant over silver vein mineralization is mainly found in the eastern margin of the embayment, in the Cobalt and Silver Centre mining camps.

All known deposits of economic grade in the Cobalt and Gowganda mining camps, irrespective to host lithology, are hosted within or adjacent to the regionally distributed Nipissing diabase sills, in close proximity to the Huronian-Archean unconformity (Cambell, 1930, Andrews et al., 1986a). They occur within the diabase itself and (or) within 200 m of its upper and lower contacts (Figure 7.3). However, more than 90% of the silver produced in the main Cobalt camp came from veins in the Huronian Cobalt Group sediments adjacent to (underlying) the lower diabase sill contact.

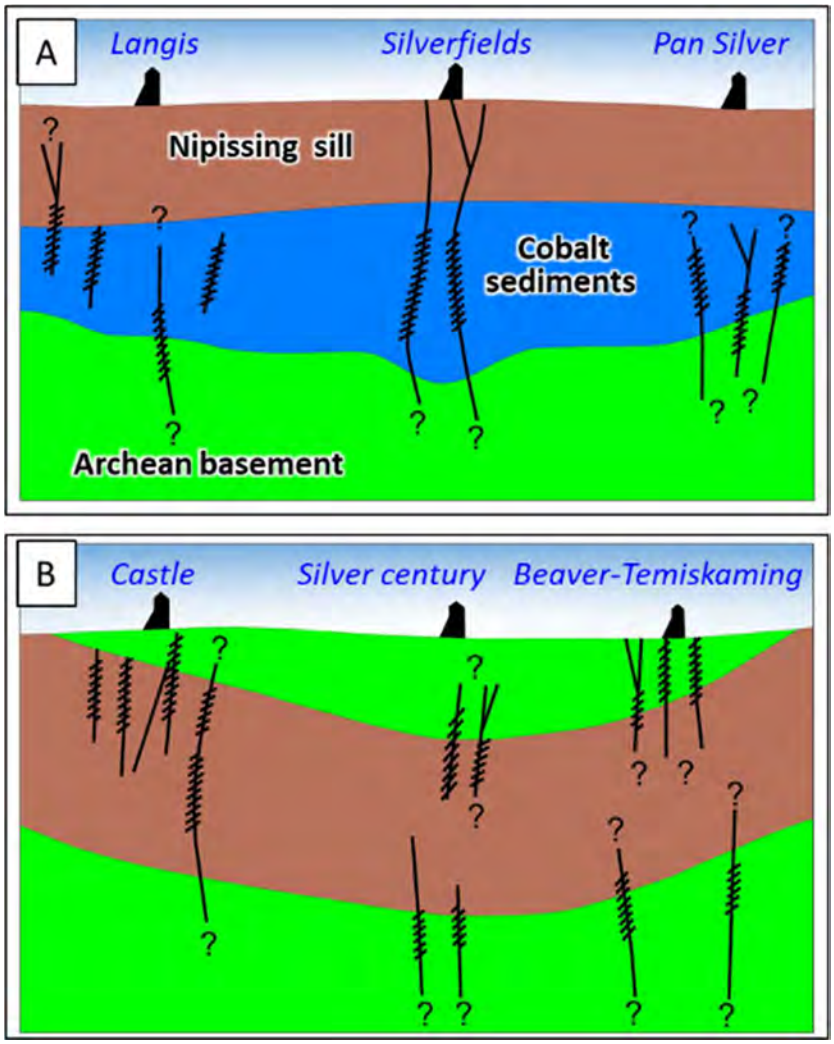

Figure 7.3 – Schematic diagrams illustrating the vein systems in ore hosted by Huronian sediments (A) and hosted by Archean basement (B) in the Cobalt Embayment. The names of representative historical mines are shown.
Black lines represent individual vein systems, often of unknown extend, with hatched areas indicating the location of silver-cobalt ore. Redrawn from Andrews (1986a).

7.4 Property Geology

The Cobalt Project properties cover the main eastern Cobalt Embayment portion of the Nipissing sill complex and most of the exposed Archean-Proterozoic unconformity (Figure 7.2). Generally, the Quaternary cover is thin and bedrock exposures are excellent. The sections below describe the geology of the Cobalt and Silver Centre areas.

7.4.1 Cobalt area geology and mineralization

Andrews et al. (1986a), Kerrich et al. (1986), Potter and Taylor (2000), and Marshall (2008) described the mineralization in the Cobalt area. The text below is taken from those sources and retains the references therein.

In the Cobalt mining camp, the relatively undeformed Huronian Supergroup rocks is represented by the Cobalt Group (McIlwaine 1970; Mustard and Donaldson 1987; Rainbird and Donaldson, 1988). A basal conglomerate above the steeply dipping and folded Archean volcanics rocks is assigned to the Coleman Member of the Gowganda Formation (Figure 7.4). The Coleman Member is the most important sediment host to the silver-cobalt vein deposits. It is composed of conglomerate, greywacke, quartzite and laminated siltstone, and has a maximum thickness of 180 m. It is conformably overlain by the Firstbrook Member, consisting of laminated argillite having a maximum thickness of 610 meters. The Gowganda Formation is conformably overlain by the Lorrain Formation, which has a maximum observed thickness in excess of 300 m and is cut by an erosional surface. The Nipissing Diabase is interpreted as a thick undulating sheet intruding the Cobalt Group sediments at or immediately above the Archean unconformity.

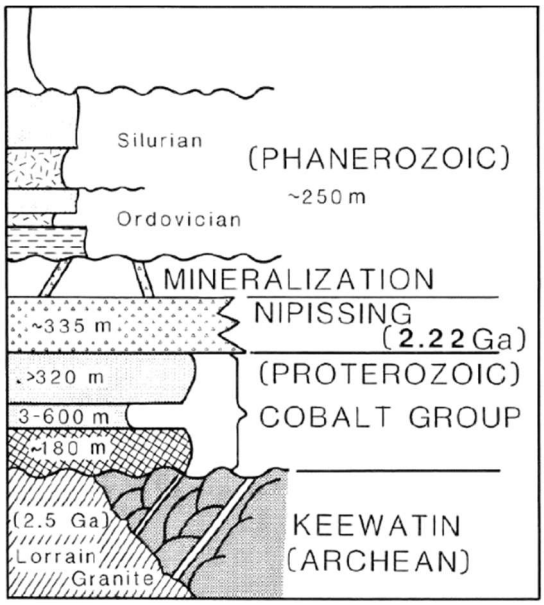

Figure 7.4 – Simplified stratigraphic column of the Cobalt area, with thicknesses from Jambor (1971a)
From Kerrich et al. (1986).

The deposits in the Cobalt mining camp are extremely rich, polymetallic, small and narrow, sharp-walled and fracture-infilled veins. In contrast to the ore, which is localized, the vein systems themselves can be quite extensive, in some instances completely transecting the Nipissing sills, and commonly continuing for significant distances into surrounding country rocks (Figure 7.3; Andrews et al. 1986a). They extend horizontally as much as 1,000 m and vertically as much as 120 m (Ruzicka and Thorpe, 1996). Ore veins pinch and swell and vary in width from a few millimetres to more than 30 cm, and average less than 5 cm (Jambor 1971a). They are over 300 m long and 100 m deep but are not necessarily ore grade over their entire length and depth.

Silver-cobalt ore is found almost exclusively within the steeply dipping veins but has a fairly restricted vertical extent, and in flat-laying veins it is only present at intersections with steep veins. Field relationships indicate that the flat veins are coeval

with or later than the ore veins. The ore veins are characterized by a complex ore mineralogy composed of arsenides and sulpharsenides of Co, Ni, Fe, together with native silver and bismuth, with minor antimonides, and sulphides of Pb, Sn, and Cu (Petruk, 1971a, b). The gangue mineralogy is dominated by carbonate minerals (mainly calcite ± dolomite), with silicate minerals (quartz, chlorite, amphibole, epidote, K-feldspar, albite) limited in their occurrence to thin selvages attached and/or immediately adjacent to vein walls. Where present, the ore assemblage occurs at or near the interface between the silicate and carbonate minerals and is, as a result, often distributed along vein walls. Silver grades are highest in the Ni-bearing assemblages (Petruk 1971b). Flat veins are generally less abundant, thinner (up to 15 cm), and are dominated by silicate minerals (quartz, potassic feldspar, epidote, and axinite) and carbonate. Intersections of flat and ore veins are commonly preferred sites for ore deposition (Andrews et al. 1986a; Petruk 1971a).

The mineralized veins display a spectrum of vein morphology and styles from simple dilatant to sheared and brecciated textures with evidence of multiple vein generations and multiple faulting episodes, although the vein margins remain sharp and discordant in all three styles of veining (Kerrich et al. 1986; Figure 7.5). In brecciated veins, fragments of the silicate gangue and both the early-and main-stage mineralization occur as angular fragments set in a late calcite matrix. In most of the mineralized vein systems, the complete spectrum of vein morphology exists, although the dominant morphology present in the majority of the occurrences is that of simple, dilatant veins.

Hydrothermal wall-rock alteration associated with the veins is minor and extends only up to several centimetres into the host rocks. Where wallrock alteration is present, it is weak chloritization.

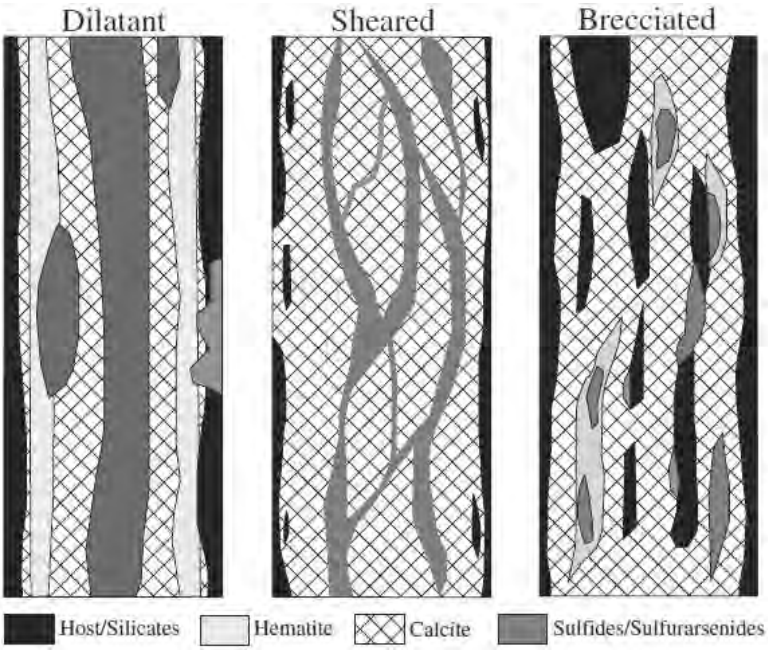

Figure 7.5 – Representative vein morphologies of precious metal-bearing polymetallic veins in the Cobalt mining camp, all of which can be present within one vein system
From Potter and Taylor (2000) after Andrews (1986a).

The issuer's Cobalt Project properties include the past-producing Kerr Lake, Lawson, Drummond, Conisil and Juno silver mines (Figures 7.6 and 7.7). Operations within the Kerr Lake area ran primarily from 1905 to 1983. An estimated 84,7M oz Ag and 2,0M lbs Co have been produced from 13 mines (Guindon et al. 2015). On their own, Kerr Lake, Crown Reserve and Silverfields have produced 66,621,201 oz Ag and 1,041,277 lbs Co (Guindon et al. 2015). Some veins contained high-grade silver ore. For example, Thomson (1961) in Petruk (1971a) reported that the Carson vein on the Crown Reserve mine yielded 9,100,000 oz Ag from a vein 97 m long (286 ft) and 46 m high (150 ft).

The general trend of the ore veins is east-northeast parallel to the long axis of the Kerr Lake dome structure (Figures 7.6 and 7.7). Minor north-south and northwest trending systems also occur. InnovExplo constructed a 3D geological model of the Kerr Lake area mines from the Silverfields mine to the Drummond mine based on historical underground mining and drilling (Figure 7.8).

The local geology and ore vein systems in the Kerr Lake historical mine area has been described by Petruk (1971a) and presented on Figure 7.7. Silver-cobalt veins are located mainly in the Nipissing diabase sill and Huronian sediments. The ore occurred largely in sediments of the Coleman Member and extended for short distances into interflow horizons in the underlying Archean basement. The Coleman is thinner to the west. Most orebodies had high-grade silver ore in the Coleman Member and were enriched in cobalt and iron arsenides in Archean rocks below the Coleman Member. For example, the Conisil No. 8 vein is a 6-in-wide vein hosted in Archean greenstones and consists largely of massive cobalt and iron arsenides with a pocket of high-grade silver ore. It is at right angles to a fault that contains small pockets of cobalt and iron arsenides, sulphides, and calcite in the fault gouge. The large veins in the Kerr Lake area are discontinuous and contained a series of orebodies. In some places the veins were close enough together to be mined as one orebody, and in other places the rock between the veins is coated and impregnated with leaf silver. There are some veins south of the Kerr Lake mine where the Coleman Member pinches out. The highest-grade silver veins at the University, Lawson and Conisil mines generally occur near the diabase, although pockets of high-grade silver ore are present several tens of metres below the diabase in the Archean rocks.

The Kerr Lake No. 3 vein occurs in the lower part of the Nipissing diabase, and the orebody extends from 40 m above the lower contact to the middle of the diabase. It continues as a calcite vein into the underlying Archean rocks where it contains some galena, chalcopyrite and about 54 oz/t Ag and up to 0.5 oz/t Au (Petruk, 1971a).

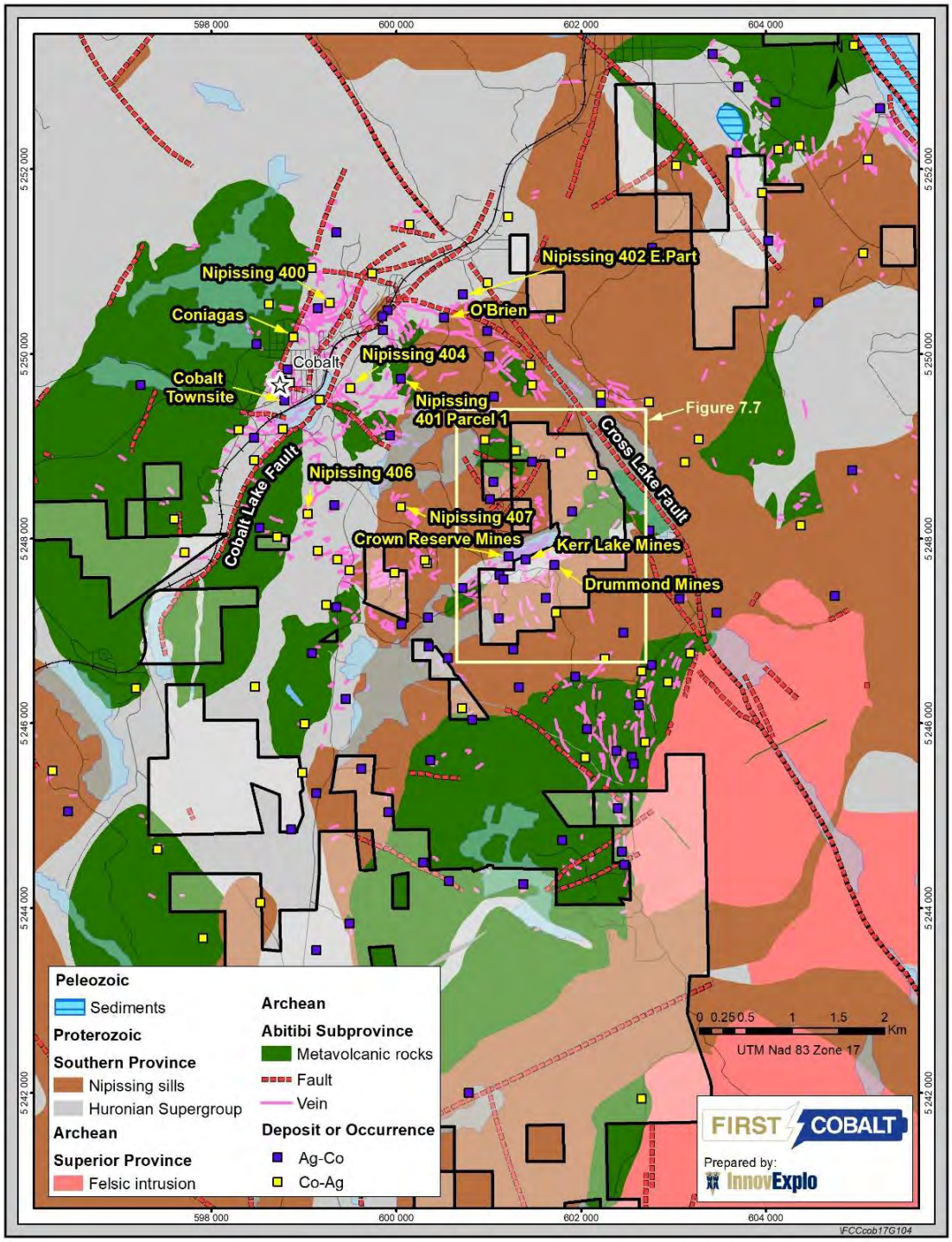

Figure 7.6 – Silver-cobalt vein systems in the Cobalt camp, Cobalt North Property

Vein traces from Thomson (1964a and 1964b).

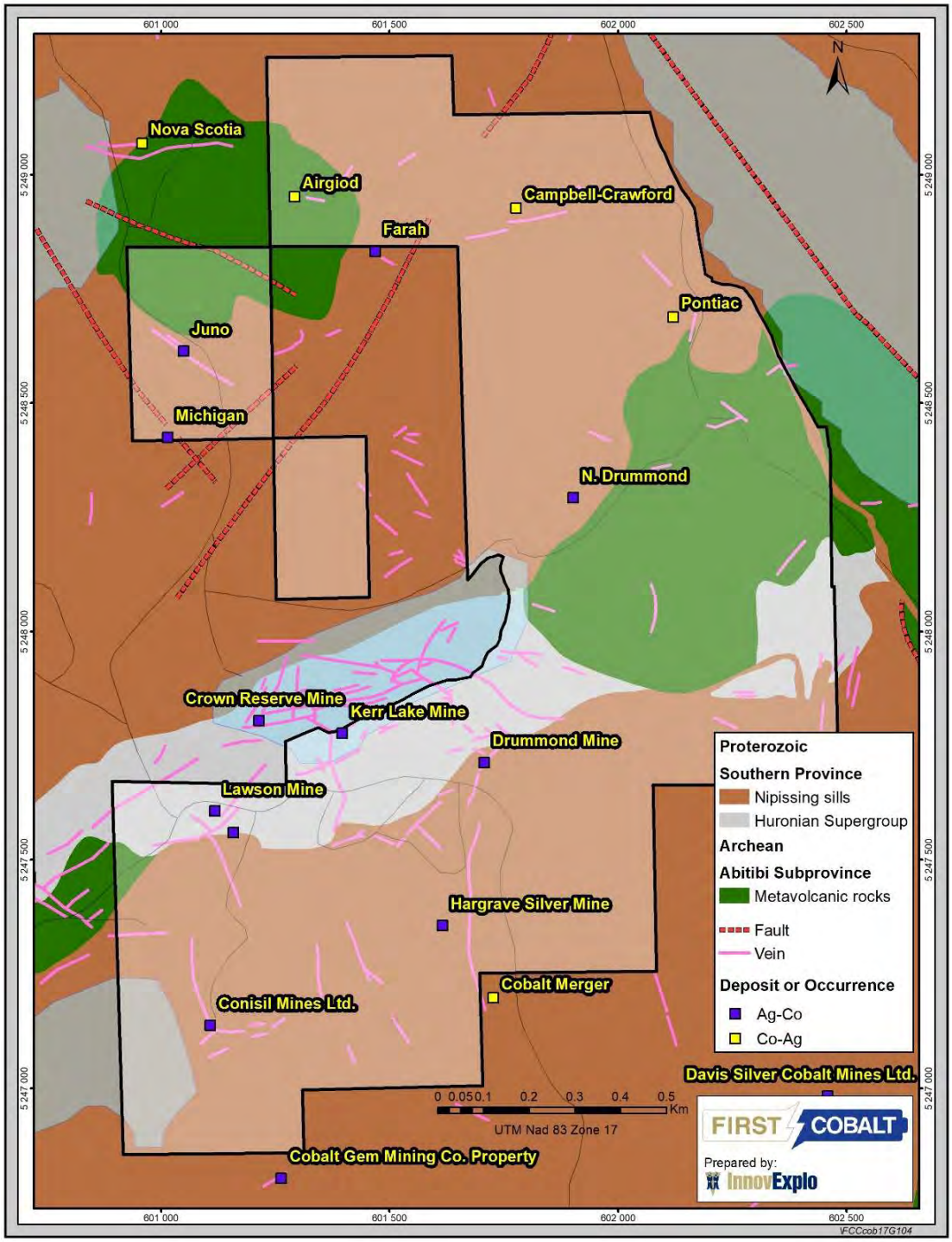

Figure 7.7 – Geological map showing the silver-cobalt vein systems in the Kerr Lake area, Cobalt North Property
Vein traces from Thomson (1964a and 1964b).

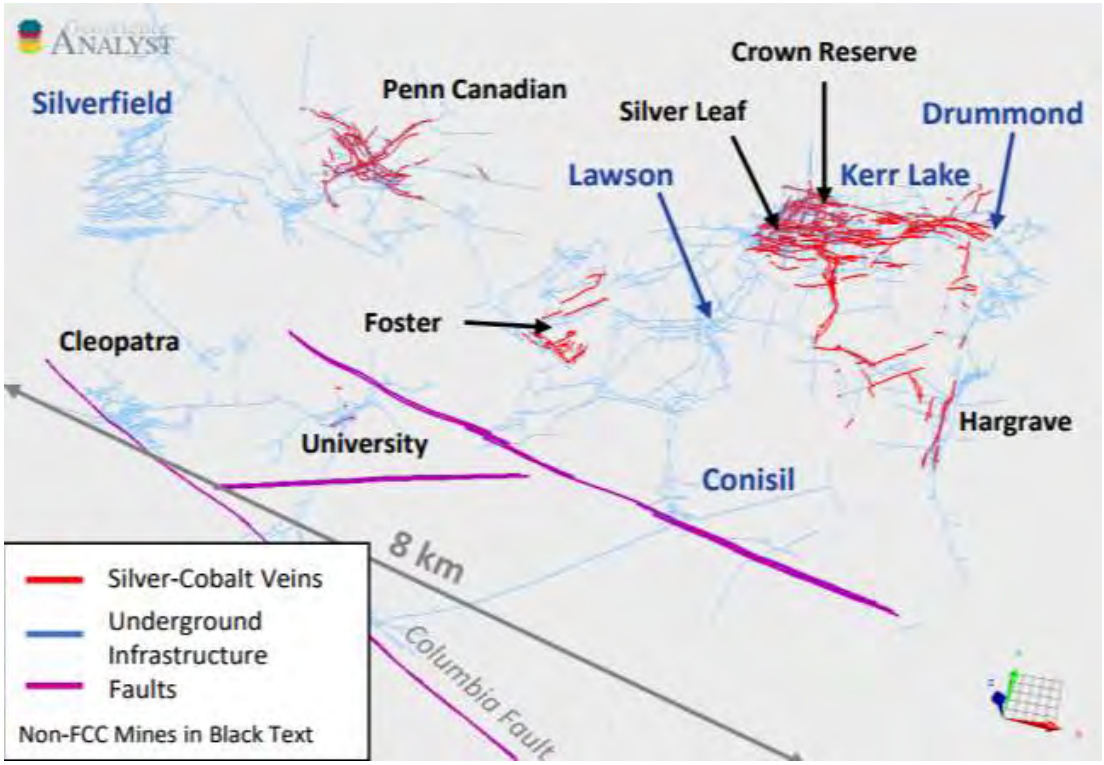

Figure 7.8 – 3D perspective view of the Kerr Lake silver-cobalt camp showing underground infrastructures
Image provided by First Cobalt.

7.4.2 Silver Centre area geology and mineralization

In the Cobalt South Property (South Lorrain Township), the main interest is the Keeley-Frontier mine and nearby vein systems, near the old town of Silver Centre (Figures 7.9, 7.10 and 7.11). The Keeley and Frontier mines were originally developed and operated as separate mines and eventually integrated in 1961. A total of 19.2 Moz Ag, 3.3 Mlbs Co, 27,252 lbs Ni and 10,292 lbs Cu have been produced between 1908 and 1965 (Guindon et al. 2015).

The South Lorrain has been mapped by McIlwaine (1970) who described in detail the local geology. Most of the following descriptions come from his report and from extracted parts of the Harron (2010) and Trinder (2017) reports.

The issuer's Cobalt Project properties enclose most of the Archean rock inliers exposed in this region. Intermediate to mafic volcanics flows with associated mafic intrusions and minor felsic rocks and very minor metasediments are exposed as topographic highs. Schistosity is prominent and strikes within a few degrees of east with steep dips. A quartz monzonite intrusion occurs bordering the northeast part of the property. Biotite lamprophyre and hornblende lamprophyre are found in the area generally as small dikes, some of which are subhorizontal.

The nearly flat-lying beds of the Cobalt Group are covered by much of the Cobalt Project properties. Bedding planes have a gentle dip, the maximum angle being about 25°. Slickensides were found in several of the shear plans of exposures in the area

west of the Montreal River, suggesting deformation by faulting. The vertical thickness of the basal Coleman Member is interpreted to be between 55 m and 240 m based on historical drill logs. McIlwaine (1970) suggests that the variation in thicknesses represents irregular basement topography on which the Coleman Formation was deposited. According to the same author, a local trough trending east-northeast subparallel to the flanks of the diabase dome is interpreted. South of the dome, the Coleman Formation might reach a maximum thickness of approximately 300 m based on bedding attitudes and topography. The Lorrain Formation is the most extensive sedimentary formation in the area and its thickness is estimated to be from 0 to 350 m. The schistosity in the Proterozoic sediments is only well developed adjacent to faults.

The Nipissing sill occurs at the same stratigraphic position than in the Cobalt mining camp; i.e., at or near the Proterozoic unconformity. The Nipissing Diabase is believed to be a single sheet of approximately 275 m thick, with numerous rolls, both major and minor. The diabase forms of a triangular domal structure, with the axis of the dome striking north-northeast (Figure 7.9). The central part is removed by erosion. This axis is subparallel to the margin of the interpreted basin of deposition of the Cobalt Group sediments. The southeast flank of the dome is thin and dips steeply southeast (Figure 7.12). On the northwest and wider flank, contours of the top of the diabase, based on historical underground workings and diamond drilling, indicate an anticlinal limb dipping to the west across the property. The average dip of the sill varies from 15° to 34°, but there is evidence of a marked flattening to about 8° and there may be a major downthrow farther west (Figure 7.12; Kent, 1965). The north contact of the northwest flank dips to the south and thus forms a minor basin within the dome (Figure 7.10). A second diabase dome with an erosional window (fenster) exposing underlying Archean metavolcanics is present to the northwest, suggesting a diabase basin structure lies between the two domes.

Recent surface mapping program by First Cobalt was completed in summer and fall 2017, covering the entire Keeley-Frontier property, including the Bellellen, Haileybury, Keeley and Frontier mines (Figure 7.11). The mapping showed that the Nipissing Diabase unit is more prevalent within formerly mined areas than previously recognized. The dominant host of mineralization is the mafic volcanic rocks, in which folding is apparent.

The structural and stratigraphic setting of the deposit in the Silver Centre area is different than the Cobalt mining camp. Production veins area were predominantly in Archean metavolcanic rocks adjacent to (overlying) the first 60 m upper contact of the diabase sill (Figure 7.12). Ore shoots ranged from 3 m to 30 m in length, 15 cm to 1 m wide. One shoot measured 31 m by 10 m and up to 1 m wide. The majority of the veins are localized in steeply dipping fault zones. Only limited production in the Keeley Mine, approximately 300,000– 400,000 oz of silver, came from veins to maximum of 30 m below the lower contact of the diabase (Mayer and Pearson, 1989; Figure 7.12).

The main ore structure is the Woods vein, which is part of a major vein system that is known over a north-south strike length of 2 km and was mined in the Keeley, Frontier, Crompton and Little Keeley mines (Figures 7.10, 7.12 and 7.13). The Woods vein occurs in a reverse fault. Other productive parallel veins include the No. 2 vein at the Frontier mine and the Watson vein. The ore bodies are preferentially developed at the intersection of east-west and north-northwest trending faults. At the Keeley mine, a

series of east-west veins such as the No. 14 and No. 20-28 veins, contained considerable mineralization where they intersected the Woods vein. Other areas on the property are known where similar intersections occur and these represent exploration targets.

Preglacial weathering on part of the Wood vein extends to a depth of 146 m. Consequently, ore mineralogy is partly secondary. The vein is vuggy, silver is present as leaf, wire, ruby and spongy forms, smaltite (a cobalt iron nickel arsenide) is both massive and vuggy in grape-like form. Metal zonation results in higher cobalt values in distal location and high silver values in proximal location.

There is a lack of significant historical exploration beneath the diabase in the camp (Trinder, 2017). No significant silver-bearing veins have yet been found in Cobalt Group sediments in the South Lorrain township area. Mayer and Pearson (1989) suggests the reason may be that Huronian sediments to the east are adjacent to (underlie) the historically less favourable lower contact of the Nipissing Diabase at Silver Centre, while the Huronian sediments to the west are too high (± 250 m above the diabase) and are outside the “productive horizon” above the diabase sill (Figure 7.12).

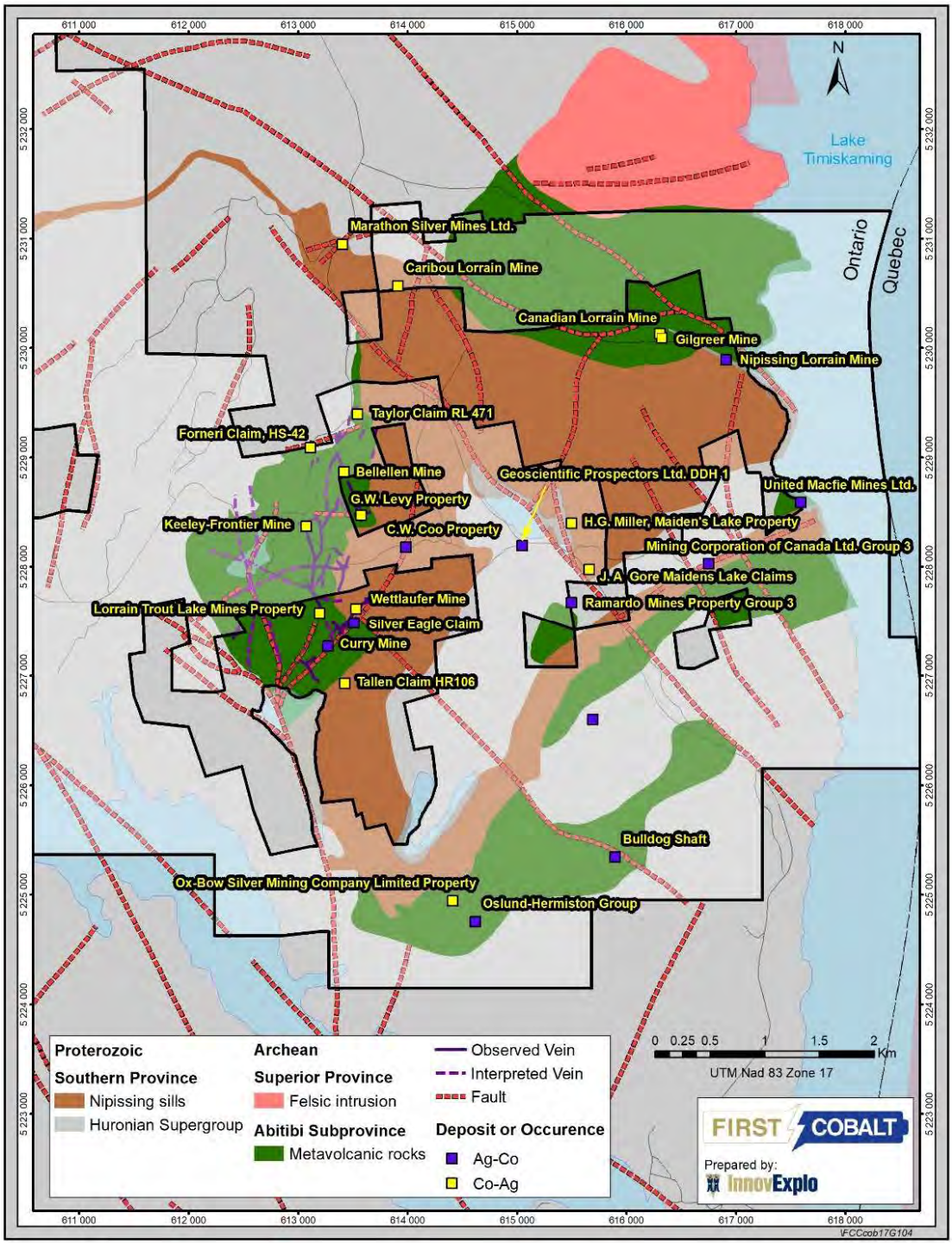

Figure 7.9 – Geology of the Cobalt South Property, Silver Centre, South Lorrain Township

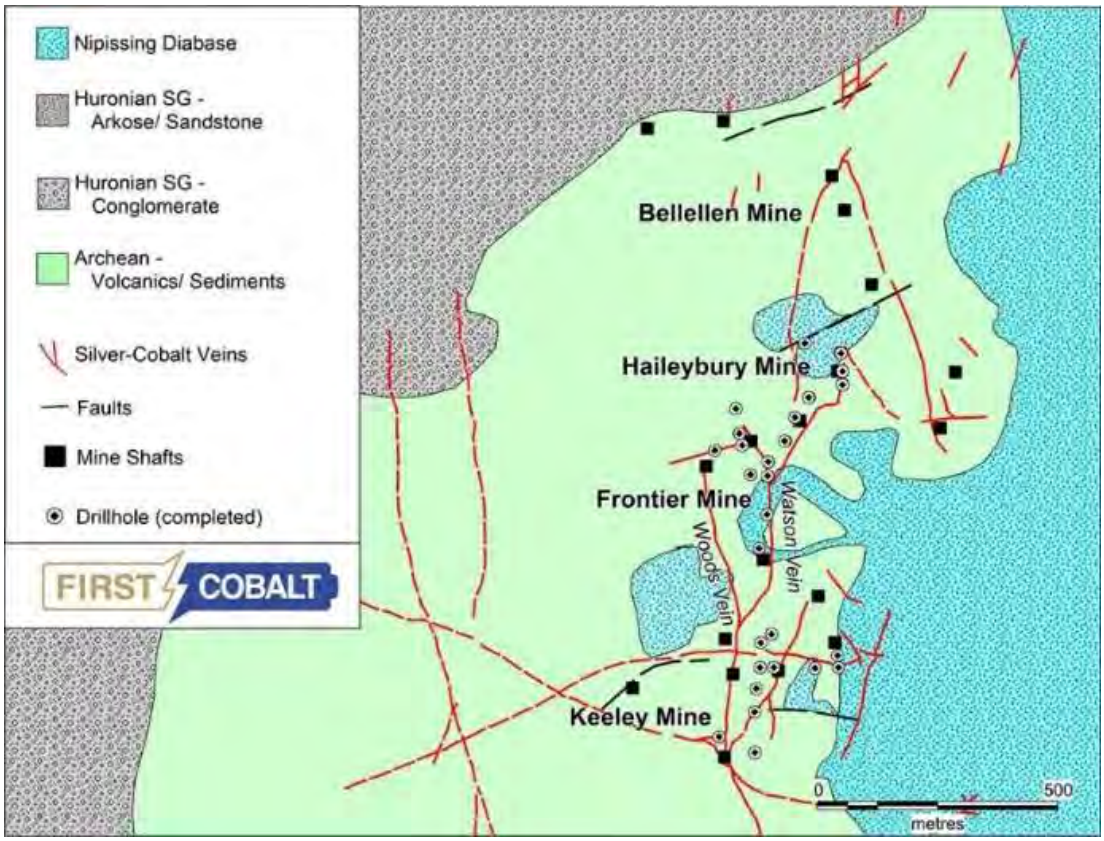

Figure 7.10 – Detailed geology and ore vein systems in the Keeley-Frontier historical mine area
Vein traces from MacVeigh (1956).

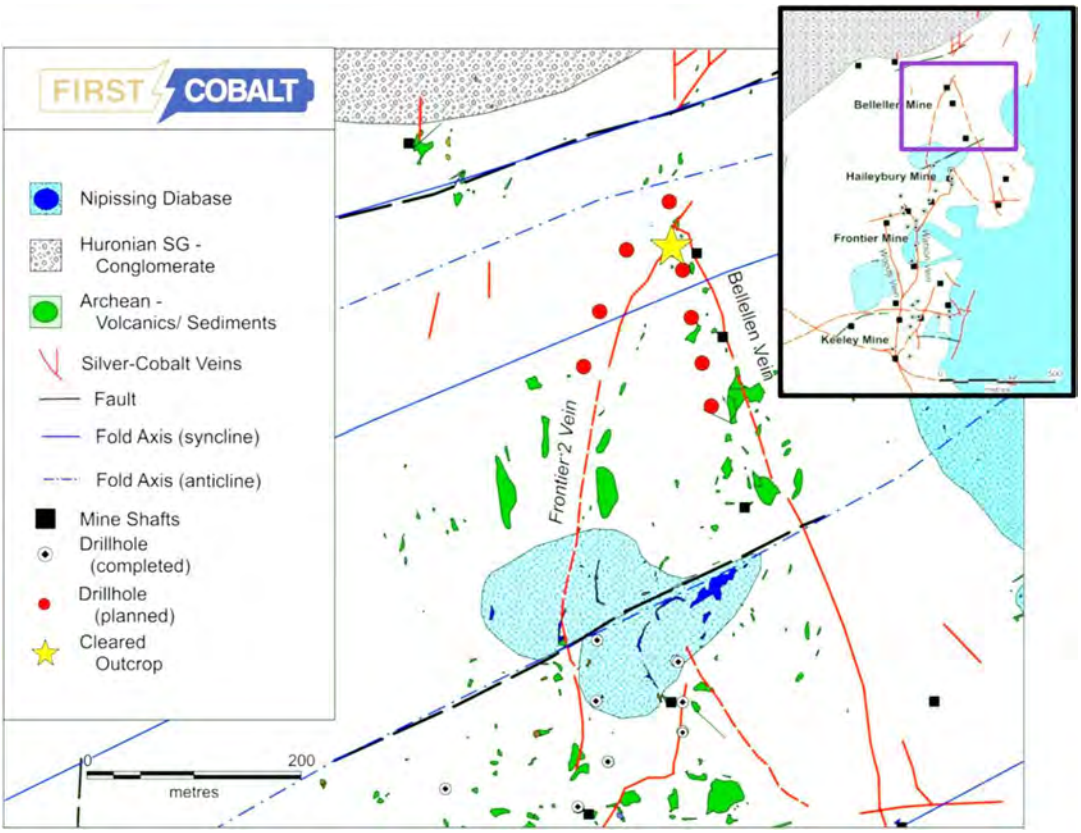

Figure 7.11 – Detailed geological map compilation in the Bellellen mine area
(From First Cobalt, 2017)

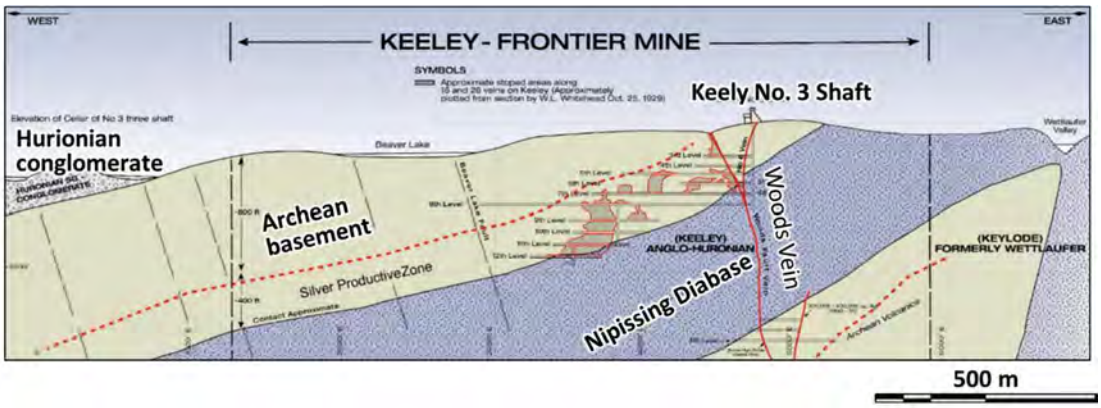

Figure 7.12 – Approximate stoped areas along the 16 and 28 veins in the past-producing Keeley-Frontier mine
Section from W.L. Whitehead Oct. 25 (1929). Redrawn by Trinder (2017).

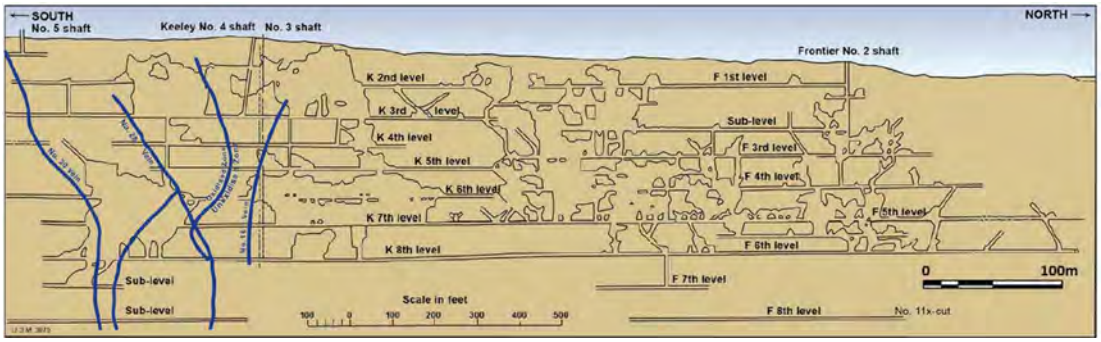

Figure 7.13 – Longitudinal north-south section of the Woods vein in the past-producing Keeley-Frontier mine

From Canadian Keeley Mines (O.D.M. GR 83) published in McIlwain (1970) and redrawn by Trinder (2017).

7.5 Other types of mineralization in the Cobalt Embayment

Gold-bearing polymetallic vein systems also occur near the northern margin of the Cobalt Embayment (Merico-Ethel property, 50 km northwest of Cobalt; Potter, 2009; Potter and Taylor 2010). The gold-bearing veins are variants of the silver-vein systems. They formed close to the time of crystallization of the Nipissing Diabase. The ore mineralogy is complex, typically comprising sulphides, arsenides, native gold and silver. In terms of their age, geology, mineralogy, paragenesis, and morphology, the gold-bearing vein systems resemble the silver-sulpharsenide vein deposits of the historical Cobalt and Gowganda mining camps (Potter et al. 2011).

Gold-only and gold-base metal veins of probable orogenic type occur in the Archean greenstone window about 20 km southwest of the Cobalt Project. However, no occurrence of this type is found on the Project.

At least 15 Cretaceous to Jurassic age kimberlites are known in the Cobalt Embayment in the New Liskeard field (Figure 7.2). Half of these contain microdiamonds (Faure, 2010). Intrusions are associated with the Ottawa-Bonnechere Graben and its extension to the Lake Timiskaming Graben (Sage 1998). Sage (1996) notes that kimberlites of the Cobalt-New Liskeard area are often spatially associated with northwest-trending Lake Temiskaming structures and obliquely cross structures. No kimberlite occurs on the Cobalt Project.

8 DEPOSIT TYPE

The silver-cobalt veins in the Cobalt Embayment are typical of the five-element (Co–Ni–As–Ag–Bi) vein assemblage recognized as a distinctive ore type since the early 20th century (Bastin, 1939; Kissin 1992). The most notable occurrences worldwide of the five-element-type vein system are Kongsberg in Norway, Jáchymov in the Czech Republic, and the Bou Azzer deposits in Morocco (Ruzicka and Thorpe, 1996). In Canada, major districts are Cobalt-Gowganda, Thunder Bay in Lake Superior, and Echo Bay Silver Islet in Northwest Territories (Ruzicka and Thorpe, 1996). Veins at Cobalt Project exhibit many of the geologic characteristics of this type of deposit. Native silver and (to a lesser extent) native bismuth generally occur with cobalt-arsenides, sulpharsenides and sulphosalts in near-vertical carbonate (± silicate) veins.

The descriptive and genetic model in the next two sections are extracted and modified from Kerrich et al. (1986), Potter and Taylor (2000), and Marshall (2008).

8.1 Five-element (Co–Ni–As–Ag–Bi) vein descriptive Model

The silver-cobalt rich vein systems are generally fault controlled, vertical to steeply dipping and nested, with mineralization occurring adjacent to or within mafic intrusions. In Cobalt Embayment, all economic deposits occur in close proximity to the Huronian-Archean unconformity where diabase sills and steeply dipping Archean volcanic sequences coincide (Figure 8.1; Kerrich et al. 1986). Steeply dipping faults and large scale, tight to isoclinal folds developed in the Archean basement may controlled the orientation/dip of vein systems.

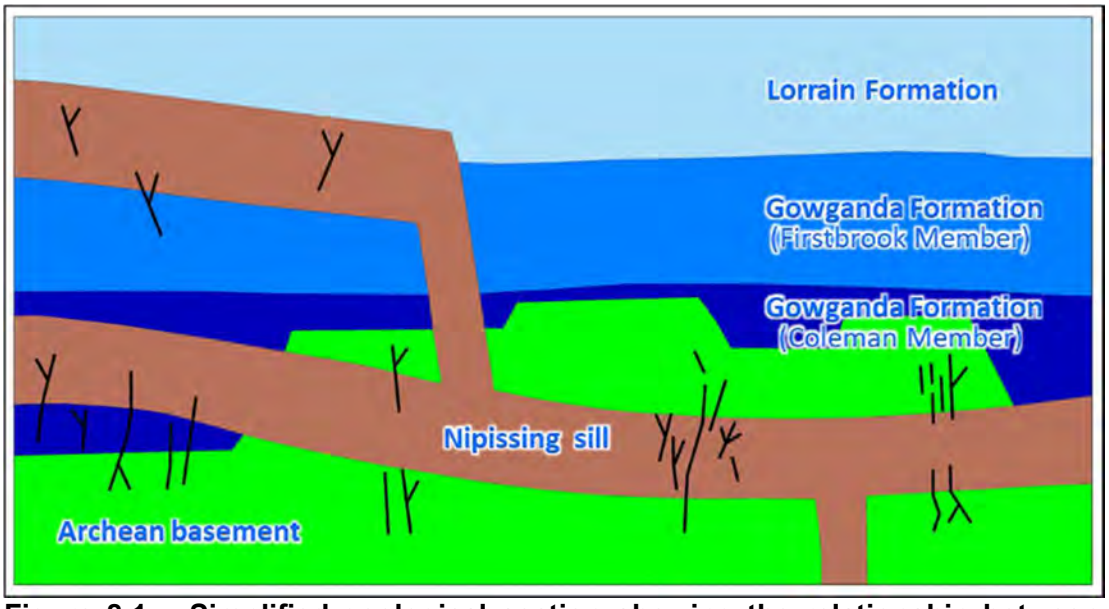

Figure 8.1 – Simplified geological section showing the relationship between major lithological units and distribution of silver-cobalt vein systems (black lines) in the Cobalt Embayment
Redraw from Andrews et al. (1986).

High-grade veins are usually narrow and bonanza-rich ore-shoots that may host several thousands of ounces of silver. They occur in a narrow depth range, although veins may persist to deeper levels but are barren. Veins appear to have formed within simple fissure openings along pre-existing faults and shear zones, or rare late dykes. High grade ore pockets commonly occur in the vicinity of vein intersections, intersections of veins with late, shallow-dipping shear, lithological contacts and abrupt changes in the basement topography. Mineable ores are rich shoots separated by narrow veins. Vein systems often complex. Multiphase open-space filling veins with sharp contacts are common. They extend horizontally to 1,000 m and vertically to 120 m. Vein pinch and swell and vary in thickness from mm to tens of cm, and in exceptional cases, to 1 m. Replacement of wall rock is not extensive.

Andrews et al. (1986a) suggested a sequential mineralogical stages and ore-depositing model, which may represent the product of a hydrothermal solution that evolved with time (Figure 8.2). Detailed petrographic examination of all the mineralized vein systems has revealed the presence of a common paragenetic sequence. Silicate formation occurs at the early stage. During initial and limited dilation, vein formation involved the precipitation of silicate assemblage, mainly quartz, chlorite, actinolite and K-feldspar, followed by the introduction of significant quantities of calcite and dolomite during subsequent dilation episodes. Carbonates compose the dominant gangue component and typically occupy the main, central part of the veins. Silicate minerals are limited to thin (<1 cm) selvages immediately adjacent to vein walls.

The main ore-bearing stage consists in the introduction of the silver-bearing minerals and sulphides (Figure 8.2; Potter and Taylor, 2010). The early-stage mineralization is hosted in a silicate gangue and is typically dominated by pyrite, some of which contains appreciable concentrations of nickel and cobalt (Potter and Taylor, 2010). The main stage of mineralization occurs at the transition from a silicate to calcite gangue, often following the deposition of specular hematite. The main stage is marked by additional pyrite mineralization, overprinted and/or partially replaced by chalcopyrite, linnaeite-group minerals (cobalt sulphide), cobaltite, precious metals, an unusual suite of Bi-Pb ± Cu sulphide minerals, and galena. In many of the occurrences, galena displays textural evidence indicating that it was the final ore mineral to crystallize, typically occurring in fractures within pre-existing sulphides (Figure 8.2).

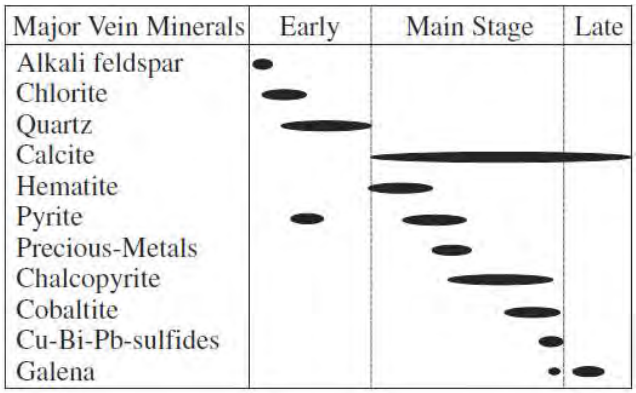

Figure 8.2 – Idealized paragenetic sequence of the common ore and gangue minerals from the polymetallic vein systems located within the Cobalt Embayment
From Potter and Taylor (2010)

8.2 Genetic model

The origin of the silver-cobalt vein systems in the Cobalt Embayment has been debated for a long time. Andrews et al. (1986) proposed that the intrusion of Nipissing diabase provided favourable sites for fracture generation during regional fault activity before, during, and after the intrusion of the diabase sills. Fracture generation occurs more vigorously where the intrusions are within, or in close proximity to, the steeply dipping Archean basement volcanic rocks and less so where they occur within the flat-lying Huronian sequence.

The silver veins cut the Nipissing diabase sills and are therefore synchronous or younger. The U-Pb analyses of primary baddeleyite from the Nipissing diabase and vein-related secondary rutile have yielded ages of 2217.5 ±1.6 and 2217.0 ± 6 Ma, respectively (Andrews et al. 1986) indicating contemporaneous diabase emplacement and silver mineralization. Fluid inclusions in mineralized veins at Cobalt suggest ore precipitation at 700 m depth (Kerrich et al. 1986).

The Cobalt Embayment is broadly characterized by basinal subsidence and deep crustal intracontinental rifting causing Huronian sedimentation and Nipissing diabase intrusions (Andrews 1986; Kerrich et al. 1986; Kissin, 1988). There is a spatial and temporal relationship between the deposits, mafic intrusions and regional-scale faults rooted in the Archean basement. The tectono-magmatic event responsible for the emplacement of the Nipissing Diabase was the most likely driver of larger-scale hydrothermal fluid circulation at ca. 2200 Ma (Kerrich and Ludden, 2000). The Nipissing diabase and regional high heat flow/geothermal gradient served as a heat source to mobilized metals from Huronian and Archean rocks and advect hypersaline formation brines. Both mineralizing solutions and magmas may have utilized the periodically reactivated, deep regional fault systems to access the upper levels of the crust. Deposition occurs where oxidized basin fluids reacted with localized reductants (carbonaceous shale, sulphides), and possibly structural traps (sills, dykes), where boiling may augment deposition (Kerrich et al. 1986). Diabase sills acted as mechanically favorable site for fracture generation during regional fault activity. Post mineralized fault event displaced paleodepth level of Cobalt mineralization and ore bodies.

9 EXPLORATION

The information found in this section was taken from press releases published on the issuer's website and from files provided by First Cobalt employees. Figures 9.5 to 9.7 summarize the 2017 exploration program.

9.1 Bedrock (regional) mapping

The intent of the regional mapping program was to recognize major structures and styles of deformation associated with cobalt-silver mineralization. The program was to support ideas for near-mine exploration drilling targeting as well as to generate new areas for exploration follow-up in 2018. Two areas were covered: Maiden Lake–Silver Centre and New Lake. A total of 108 samples were sent to AGAT Laboratories ("AGAT") for multi-element geochemical analyses. All results were received and compiled in a database, but at the time of writing this Technical Report, the location data were not available. Lithogeochemical samples collected during the bedrock mapping program were not validated.

9.1.1 Maiden Lake–Silver Centre

The principal findings from the work in the Maiden Lake–Silver Centre area recognized multiple phases of faulting, some that affected only Archean volcanic rocks (pre-Huronian sedimentation) and others that displaced all Precambrian rocks (late faults). Previous workers emphasized these latter faults, but it is now thought they do not to exist (e.g., the Maiden Lake Fault from McIlwaine, 1970). Mapping in 2017 showed that the area is greatly affected by NE-SW trending folding at two scales: (i) large, kilometre-scale open folds and (ii) tight, decametre-scale parasitic folds. Folding has deformed all of the Precambrian rocks in the map area. Previous workers had considered exposures of the Archean volcanic rocks to reflect "basement highs" and a function of pre-Huronian sedimentation doming; in part providing a focal point for upwelling hydrothermal fluids containing silver, cobalt and other metals. Instead, folding of the complete Precambrian sequence may be the major control on the vein systems hosting the silver-cobalt mineralization as fractures develop in the axial planes of the parasitic folds.

To improve the mapping interpretations, lithogeochemical sampling and magnetic susceptibility measurements were taken in the field. The magnetic susceptibility measurements were used for constrained inversion modelling of the magnetic data. Results from the lithogeochemical sampling are pending review.

Figure 9.1 shows a preliminary interpretation of geology and structural features in the Maiden Lake–Silver Centre area.

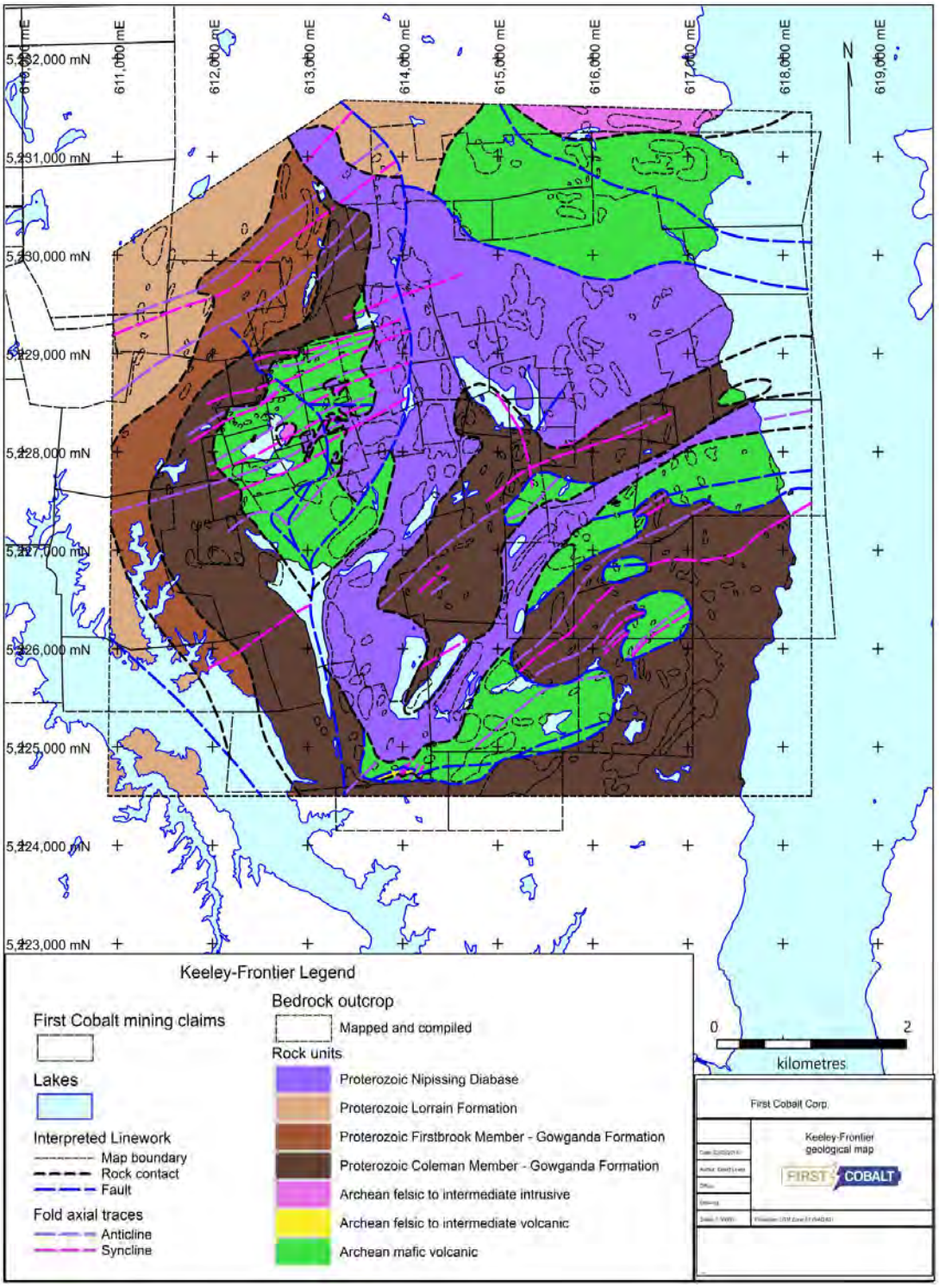

Figure 9.1 – Bedrock geology of the Maiden Lake–Silver Centre area
(from First Cobalt internal document) Note: outcrop mapping beyond the First Cobalt Property was compiled from previous maps.

9.1.2 New Lake

The principal findings in the New Lake area highlight a northwest-trending fold pattern in mafic volcanic rocks. Individual folds are tight; in the range of less than 100 m. The axial planes of some of these folds appear to control quartz-carbonate veining that host metallic minerals. Folding is superimposed by faults trending north-south, but also bend according to a later broad folding event. The presence of the large Archean felsic intrusion on the eastern margin of the map area appears to not be affected by this stage of folding.

Figure 9.2 shows a preliminary interpretation of geology and structural features in the New Lake area.

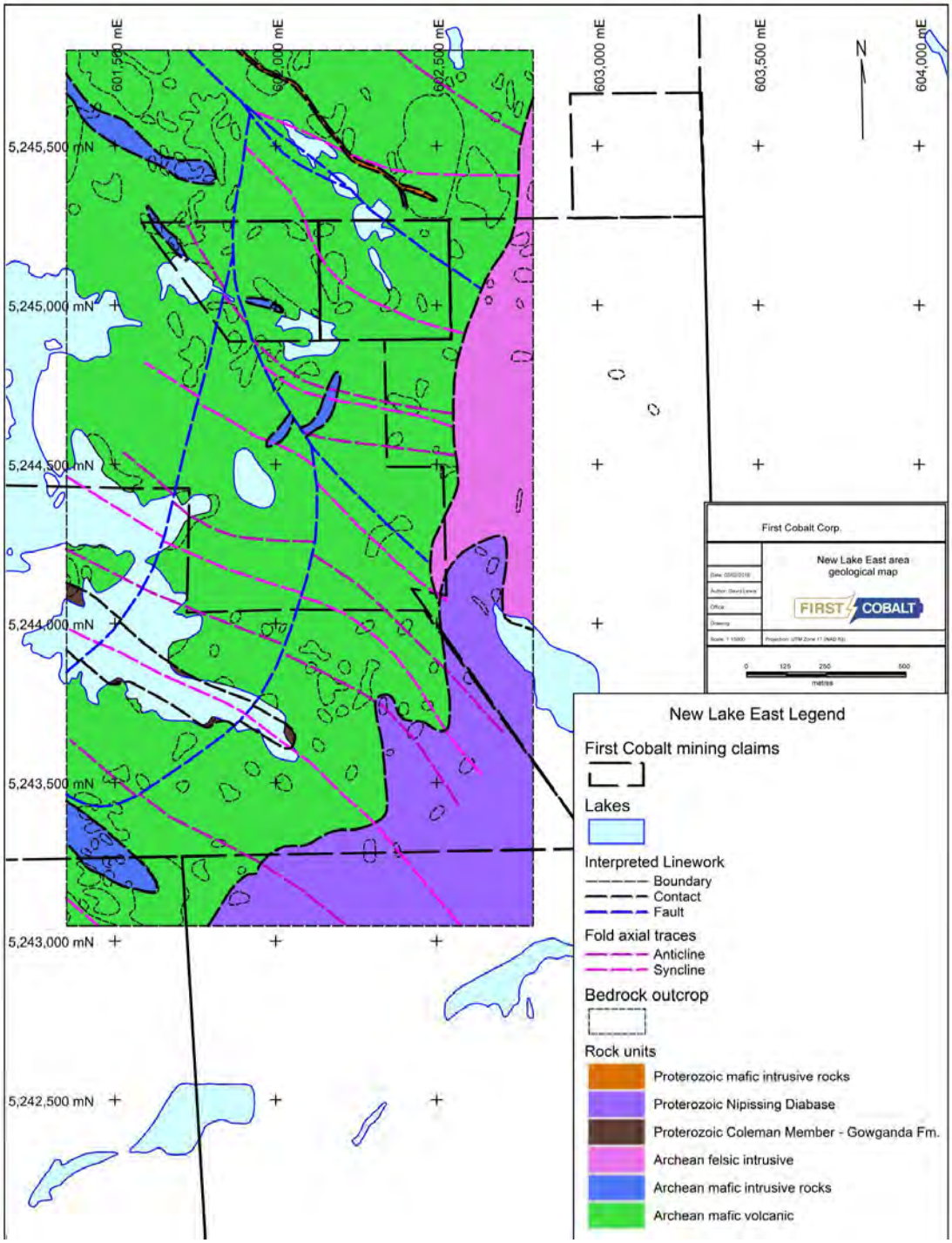

Figure 9.2 – Bedrock geology of the New Lake Area

(From First Cobalt internal document. Note: outcrop mapping outside the First Cobalt properties was compiled from previous maps).

9.2 Prospecting summer 2017

Prospecting consisted largely of sampling known surface prospects and historical mine sites based on the MNDM's Mineral Deposit Inventory ("MDI") database and published bedrock geology maps. At most of the historical mine sites in the Cobalt

Camp, material from underground workings has been left near the mine shafts in large piles, “muckpiles”, some consisting of several thousand tonnes. These were sampled to determine the metal grade and associations, and to identify mineralization textures to assist with drill core logging. In places, nearby outcrops were also sampled. The program was carried out from May to November.

A total of 241 samples were collected and sent to AGAT for multi-element geochemical analyses. Partial results were received and compiled in a database. The final locations of the samples were not available at the time of this report’s publication. Grab samples were not validated.

Table 9.1 shows the distribution of samples in three areas of the Cobalt Project, and the type of sample collected.

Table 9.1 – Distribution of grab samples collected in 2017 over areas of the Cobalt Project

Area	Site	Sample of	Quantity
North	Cobalt Lode	Muckpile	2
	Drummond1	Muckpile	7
	Drummond2	Muckpile	6
	Hamilton	Muckpile	35
	Juno Shaft Area	Muckpile	13
	Ophir North Shaft Area	Muckpile	15
		Outcrop	3
	Ophir South Shaft	Muckpile	21
	Remi	Muckpile	17
	Silver Banner	Muckpile	13
Central	Thomson	Muckpile	2
		Outcrop	2
	Caswell	Muckpile	25
		Outcrop	5
		Sub-crop	1
	Chukuni	Muckpile	2
		Outcrop	1
	Giroux	Muckpile	2
		Outcrop	1
	Latour Pit	Muckpile	5
South	Adit	Muckpile	4
	Bellellen Shaft	Muckpile	11
	Clifton Shaft	Muckpile	5
	Copper East 1 Area	Muckpile	1
		Outcrop	1
	Copper East 1 Pit	Muckpile	1
		Outcrop	3
	Forneri	Muckpile	3
		Outcrop	2
	Frontier #1	Muckpile	4
	H001 Shaft	Outcrop	3
	Lakeshore	Outcrop	1
	Meadon Shaft	Muckpile	4
	Mining Corp Shaft	Muckpile	6
	Oxbow East Pit	Muckpile	2
	Oxbow South Shaft	Muckpile	6
		Outcrop	1
	Ramardo HR56	Muckpile	1
	United Macfie Mines Ltd. Pit	Muckpile	3
		Outcrop	1
		Total	241

Table 9.2 shows the best grab samples selected from several of the issuer's press releases. The descriptions below were also taken from press releases available on the issuer's website.

In the Juno area, several samples of vein material were collected from a muckpile near one of the two Juno shafts. The dominant vein at Juno is hosted within the Nipissing Diabase unit near the contact with the Archean mafic volcanic rocks; a similar setting that occurs at the Keeley mine in Cobalt South.

Caswell appears to be a high-grade cobalt vein system similar to other targets throughout the Camp, such as Silver Banner, although most of the high-grade cobalt at Caswell is hosted by Nipissing Diabase. This is in contrast to mafic volcanic rocks that are more commonly associated with cobalt mineralization. Based on the government maps of the Caswell area, folding is prominent in the volcanic rocks and can be inferred in the Nipissing Diabase. In the Keeley-Frontier area some vein systems develop along faults within fold axes therefore these are considered important structures associated with mineralization in the Cobalt Camp.

At Silver Banner, cobalt mineralization occurs within calcite-quartz veins hosted by mafic volcanic rocks. By contrast, high grade silver veins (up to 5,000 oz/ton) in the northern end of the Camp were commonly mined in the Huronian metasedimentary rocks such as at the Nipissing and Crown Reserve mines. Veins in the underlying mafic volcanic rocks were often not considered due to lower silver content but have been shown in some cases to be cobalt-rich.

At Drummond, cobalt mineralization occurs in this area within thin, centimetre-sized calcite veins. Cobalt minerals also occur within fractures without calcite. Copper mineralization occurs as both vein-style and disseminated; one copper-rich sample contains Cu-Co-As-S-Bi metal associations similar to those seen at the Bellellen mine. The host rocks for the samples from Drummond are mainly felsic volcanic breccia with the disseminated Cu-Zn-Pb sulphide minerals occurring within the matrix. One sample that returned 1.07% copper is hosted by diabase which may reflect a widespread distribution of the mineralization. The Zn-Pb mineralization however, is disseminated style and may be less prevalent than the Cu mineralization. This relatively unique style of mineralization further reflects the breadth of exploration targets throughout the Cobalt Camp.

Table 9.2 – Best grab samples collected in 2017
(compiled from multiple First Cobalt press releases).

Sites	Mineralization type	Sample	Co (%)	Ag (g/t)	Ni (%)	Cu (%)	Zn (%)	Pb (%)
Juno	Vein	E6607271	**3.940**	73.0	**0.583**	**1.190**	0.065	0.001
	Vein	E6607276	**2.610**	8.0	0.111	0.128	0.006	<0.0005
	Vein	E6607275	**2.000**	20.0	0.136	0.334	0.021	0.002
	Vein	E6607272	**1.680**	**4112.0**	0.114	0.411	0.017	0.001
	Vein	E6607277	**1.280**	16.0	0.442	0.083	0.003	0.001
	Vein	E6607270	0.604	12.0	0.160	0.095	0.007	0.003
	Vein	E6607278	0.198	**3528.0**	0.044	0.321	0.008	0.001
	Vein	E6607274	0.113	11.0	0.042	0.003	0.010	0.040
	Vein	E6607269	0.014	4.0	0.008	0.019	0.005	0.614
	Vein	E6607273	0.007	19.0	0.007	0.016	0.004	0.980
	Vein	E6607279	0.006	21.0	0.008	0.101	0.009	**3.620**
	Vein	E6607268	0.005	18.0	0.006	**0.737**	0.114	0.408
	Vein	E6607267	0.005	3.0	0.010	0.002	0.007	**1.080**
Caswell	Muckpile	E6607121	0.000	<1	0.010	**0.610**		
	Muckpile	E6607126	0.910	<1	0.120	0.000		
	Outcrop	E6607122	0.410	<1	0.030	0.010		
	Muckpile	E6607114	**9.440**	17.0	**2.920**	0.050		
	Muckpile	E6607111	0.410	9.0	0.050	**1.270**		
	Muckpile	E6607110	**4.800**	9.0	**1.840**	0.060		
	Muckpile	E6607115	0.040	23.0	0.020	**8.920**		
	Muckpile	E6607144	**6.090**	2.0	0.470	0.040		
	Muckpile	E6607155	**1.130**	9.0	0.100	**0.690**		
Silver Banner	Vein	E6596624	**1.140**	3.0	0.170	0.000	0.010	0.000
	Vein	E6596619	0.470	738.0	0.020	0.130	0.080	**1.160**
	Vein	E6596620	0.690	313.0	0.020	0.010	0.100	0.200
	Vein	E6596621	0.240	41.0	0.010	0.010	0.020	0.080
	Vein	E6596622	0.240	35.0	0.010	0.000	0.020	0.030
	Vein	E6596623	0.150	6.0	0.020	0.010	0.000	0.010
	Vein	E6596618	0.010	23.0	0.010	0.070	**0.890**	0.200
	Vein	E6596625	0.050	4.0	0.010	0.000	0.010	0.330
Drummond	Vein	E6596601	0.260	48.0	0.030	0.050	0.010	0.000
	Vein	E6596607	0.630	4.0	0.190	0.010	0.000	0.000
	Vein	E6596610	0.650	**4990.0**	0.130	0.290	0.020	0.010
	Vein	E6596612	0.010	60.0	0.010	0.290	**0.680**	**1.170**
	Fracture	E6596602	0.120	37.0	0.010	0.490	0.010	0.000
	Fracture	E6596603	0.300	18.0	0.060	0.220	0.010	0.000
	Fracture	E6596605	0.010	56.0	0.000	**1.790**	0.010	0.010
	Disseminated	E6596604	0.040	67.0	0.010	**0.810**	0.010	0.010
	Disseminated	E6596609	0.030	91.0	0.010	**1.070**	0.020	0.020
	Disseminated	E6596611	0.010	41.0	0.000	0.040	**1.630**	0.450
	Disseminated	E6596613	0.030	120.0	0.010	**0.650**	0.010	0.010
	None Visible	E6596606	0.000	2.0	0.010	0.020	0.000	0.000

9.3 Detailed mapping and channel sampling in summer 2017

Detailed mapping was conducted on stripped outcrops on the Kelley-Frontier and Bellellen sites in the Silver Centre area. The purpose of the detailed mapping was to identify the nature and orientation of calcite veining and wallrock alteration near areas of silver-mineralization. Channel sampling across veins and visible mineralization was also done to identify metal values (Co, Ag, Ni, Cu, Pb, Zn, Bi, As) away from the main structures Generally, this mapping was also used in places to determine drilling orientations for the 2017 program.

Six areas were mapped in the 2017 field season: 1) Bellellen, 2) Pillowed Outcrop, 3) Haileybury, 4) Frontier No. 1 Shaft, 5) Keeley No. 3 Shaft, 6) CSH12-03. At the time of writing, two of the detailed maps have been digitized: Bellellen and Keeley No. 3 Shaft.

A total of 382 channel samples were submitted to AGAT for multi-element geochemical analyses. By the effective date of this report, most assays had been compiled, but not the sample location. Data interpretation was still in progress, but the best preliminary results can be found in Table 9.3.

Table 9.3 – Best channel samples collected in 2017

Area	Samp-ID	Co (%)	Ag (g/t)	Ni (%)	Cu (%)	Zn (%)	Pb (%)
Pillowed Outcrop	35055	0.007	8.0	0.019	**0.163**	**0.218**	**0.26**
Pillowed Outcrop	35072	0.006	<1	0.018	0.010	**0.183**	0.009
Pillowed Outcrop	35082	0.008	5.0	0.016	**0.115**	0.013	0.003
Pillowed Outcrop	35346	0.011	5.0	0.016	**0.111**	0.019	0.017
Frontier V01	35208	0.007	<1	0.015	0.032	**0.129**	0.004
Haileybury	37128	0.009	3.0	0.013	**0.132**	0.007	0.003
Haileybury	37131	0.006	<1	0.016	0.003	**0.158**	0.042
Haileybury	37132	0.006	4.0	0.017	0.004	**0.156**	**0.183**
Haileybury	37138	0.088	1.0	**0.325**	0.002	0.008	0.001
Haileybury	37145	0.009	7.0	0.044	0.022	**0.462**	**0.338**
DDH3 Outcrop	37218	0.014	<1	0.010	**0.101**	0.016	0.005
DDH3 Outcrop	37219	0.015	1.0	0.010	**0.192**	0.014	0.001
DDH3 Outcrop	37220	0.012	1.0	0.011	**0.115**	0.011	0.001
DDH3 Outcrop	37241	0.007	2.0	0.019	0.027	**0.165**	0.073

9.3.1 Bellellen

An outcrop beside an unnamed shaft west of the main shaft was cleared, exposing altered pillowed mafic volcanic rocks. Locally, pillow selvages contain sulphide mineralization. Stockwork-style calcite-veins cut the volcanic rocks, but a preferred north-south orientation is evident in larger veins. The interpretation of lithogeochemical data is ongoing. Detailed mapping of the Bellellen stripping is shown on Figure 9.3.

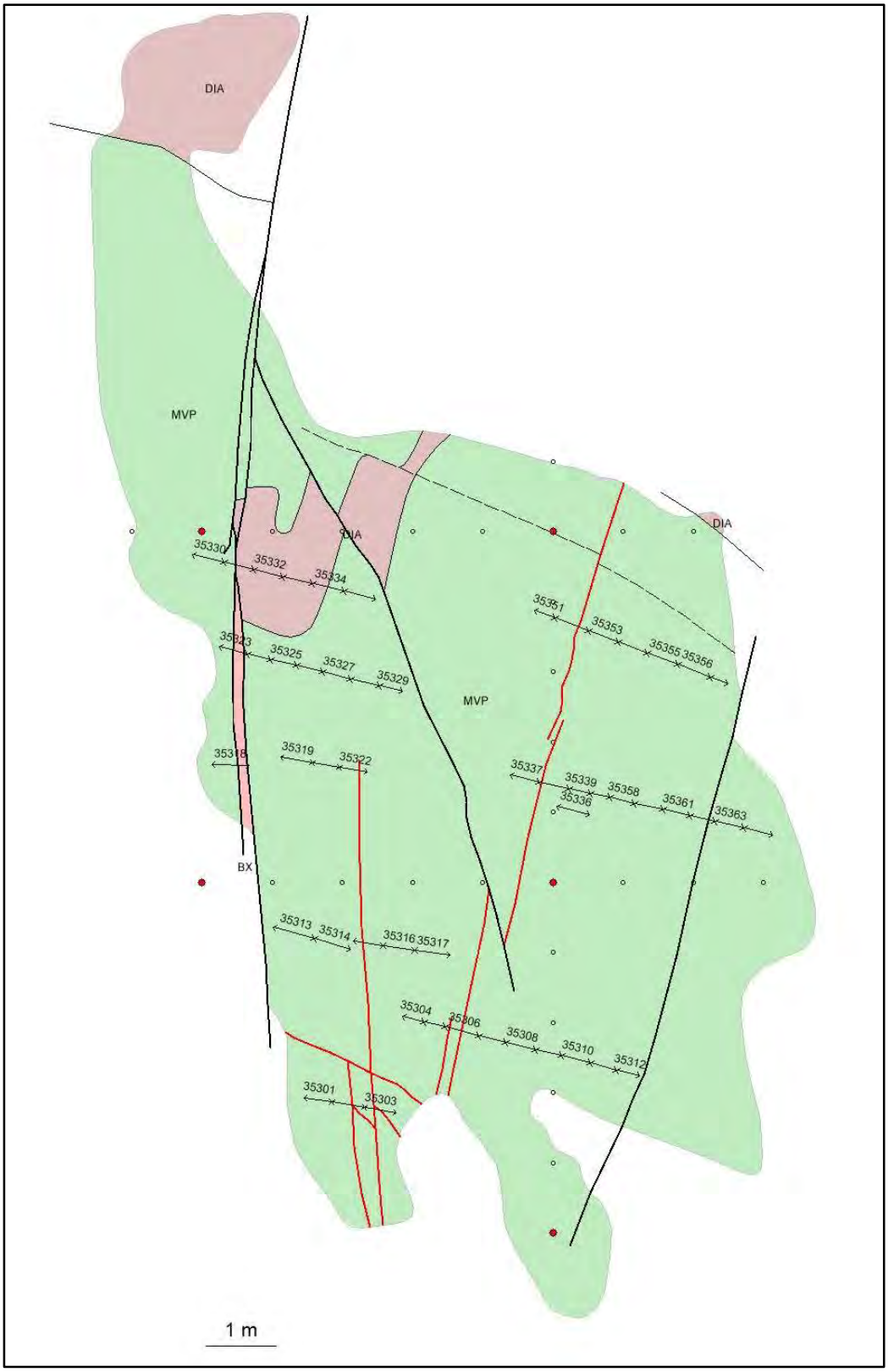

Figure 9.3 – Detailed map and channel sample location on the Bellellen stripping (From First Cobalt internal document). Sample 35301 is located at 613,343.4 E and 5,229,001.3 N (NAD83 Zone 17 UTM).

9.3.2 Keeley No. 3 Shaft

An outcrop 30 m southwest of the Keeley No. 3 shaft was cleared, exposing altered pillowed mafic volcanics. Stockwork-style calcite veins are prevalent throughout the outcrop, but generally occur as a conjugate set with northeast and northwest orientations. The veins were sampled across each direction.

Figure 9.4 – Detailed map and channel sample location on the Keeley No. 3 Shaft stripping

(from First Cobalt internal document). Sample 35275 at the north end of the outcrop is located at 613,163.2 E and 5,227,944.7 N (NAD83 Zone 17 UTM).

9.4 Muck sampling

In 2017, First Cobalt initiated a muck sampling program. Initially, five or six muckpiles at Keeley-Frontier and one muckpile at Silver Banner were identified. A volumetric survey was also completed using an aerial (drone) survey over two areas.

The primary purpose of this program was to expand the issuer's understanding of the bulk grade characteristics of this material and apply this understanding to the potential processing of future ores from the Cobalt Camp. To achieve this objective, the issuer intended to obtain a representative sample of grades across several muckpiles and assay the material. The program focused on providing additional insight into the distribution of cobalt, silver, nickel and copper from underground waste material brought to surface, and identifying potential opportunities for early cash flow from muckpile processing using existing First Cobalt infrastructure

The established sampling procedure was as follows:

- Using an excavator, a trench was dug in the middle of the muckpile. When completed, the length and depth of the trench was measured.
- Samples were collected in a 2.5-gallon pail. Assuming a target sampling rate of one (1) sample per 40 t, one (1) sample was taken every 22 excavator bucket loads.
- The sample bucket was identified with a unique sample number tag.
- Sample buckets were transported to the PolyMet laboratory facilities in Cobalt.

In addition to these small samples, three large samples (1-tonne each) were collected for advanced metallurgical testing.

A total of 343 samples was collected from 14 muckpiles. On December 31, 2017, results were pending.

9.5 Borehole geophysics

First Cobalt recently surveyed completed drill holes using an EM method. All the selected holes intersected cobalt-bearing calcite veins. EM surveying is a measure of conductivity that may be directly related to the quantity of metallic minerals potentially connected within a rock. The system detects conductivity in rocks intersected by the drill hole and away from the hole to approximately 100 m. Off-hole conductivity anomalies would likely correspond to the extension of veins intersected in the hole, as well as veins containing metallic minerals that would be considered for future drilling. Anomalies would be tested with follow up drilling.

The six surveyed drill holes are: KF-F01V-0009, KF-KD-0003, KF-KD-0004, KF-KD-0005, KF-WV-0004, and KF-WV-0005.

9.6 Televiewer survey

The program is intended to assist First Cobalt in improving the understanding of structural controls on the mineralized system. The Woods Vein was historically the largest productive vein for Keeley and is well defined. However, other north-trending structures and east-west cross faults were not well defined. By improving the understanding of the broader structural environment, First Cobalt anticipates it will be in a better position to predict where other vein structures may lie.

Optical televiewer and acoustic televiewer surveys were completed on three holes for detailed, in-situ structural information and to measure the true orientation of the lithological contacts.

The three surveyed drill holes are: CSH-12-001, CSH-12-003 and CSH-12-004.

9.7 Digital Compilation

First Cobalt has initiated the acquisition and digital data compilation of available historical Keeley-Frontier mine and Kerr Lake data for the purpose of generating a 3D geological model of mines and their surrounding area. Preliminary 3D models were focused on mine infrastructure: shafts, drifts, stopes and winzes. The Nipissing Diabase-volcanic rock contact will be modelled with the available data. This will be used, in part, to constrain the drill hole location. The 3D model will continue to be improved by integrating underground drilling information, as well as new information from mapping and eventually the 2017 drilling results.

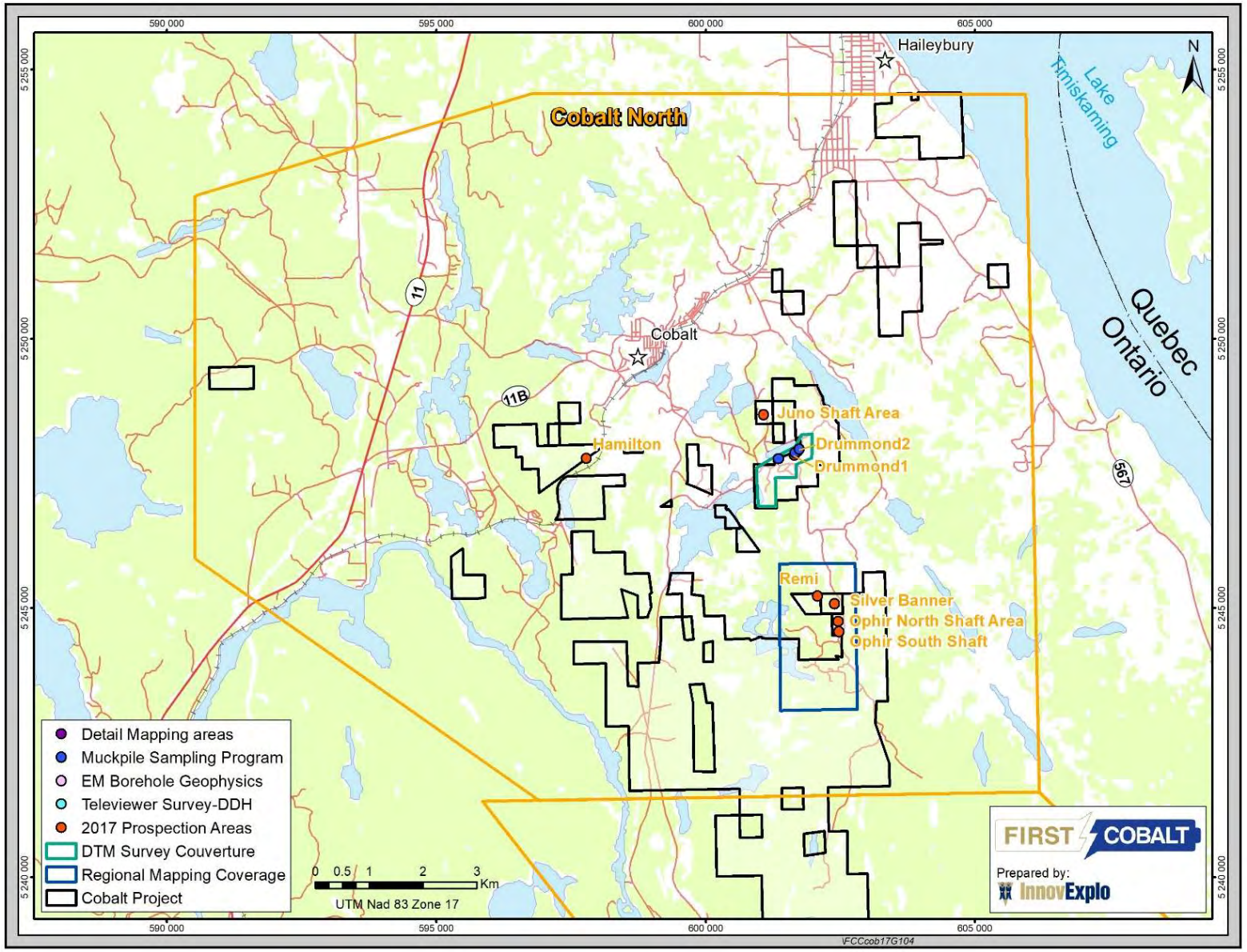

Figure 9.5 – Summary of the 2017 exploration program on the Cobalt North Property

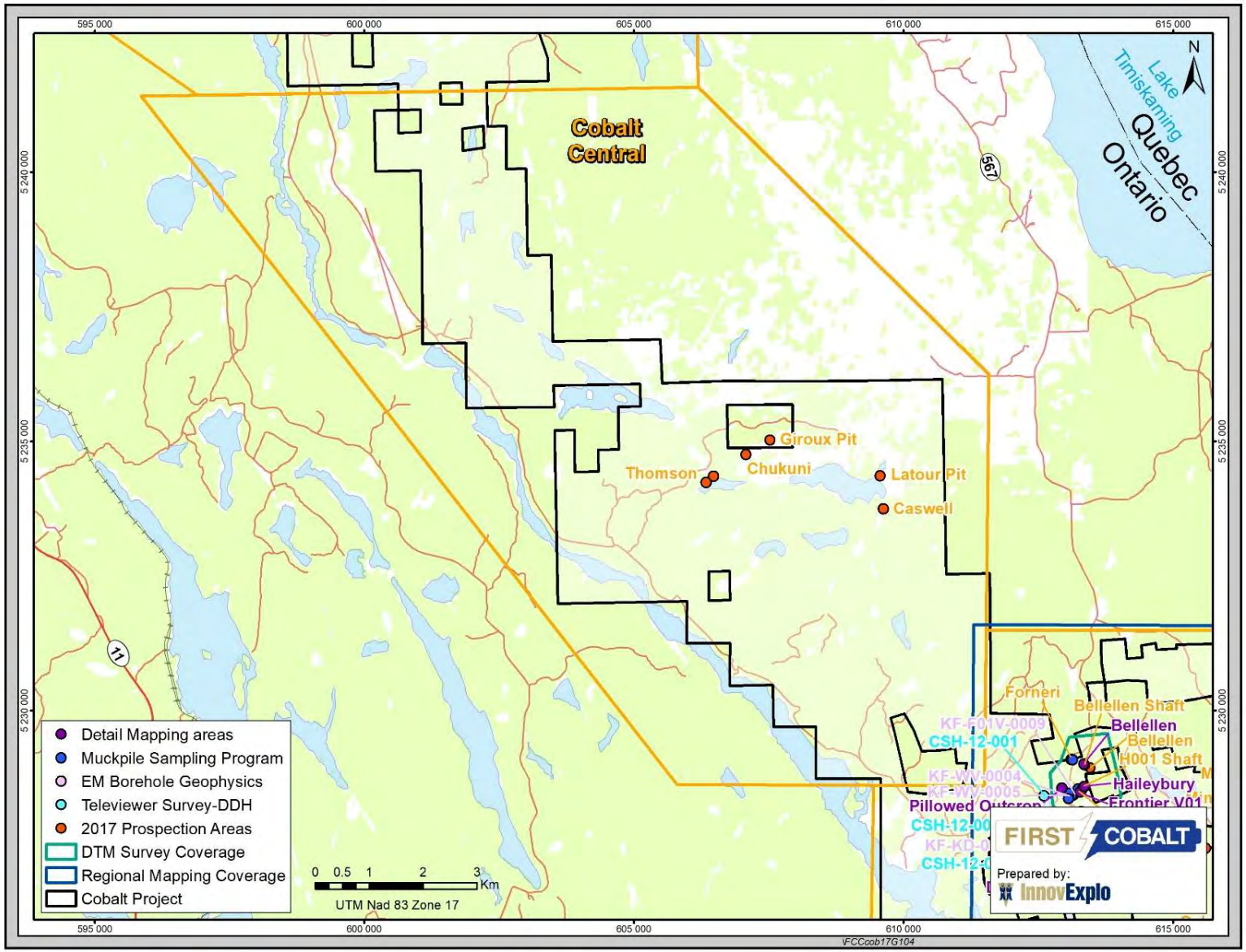

Figure 9.6 – Summary of the 2017 exploration program on the Cobalt Central Property

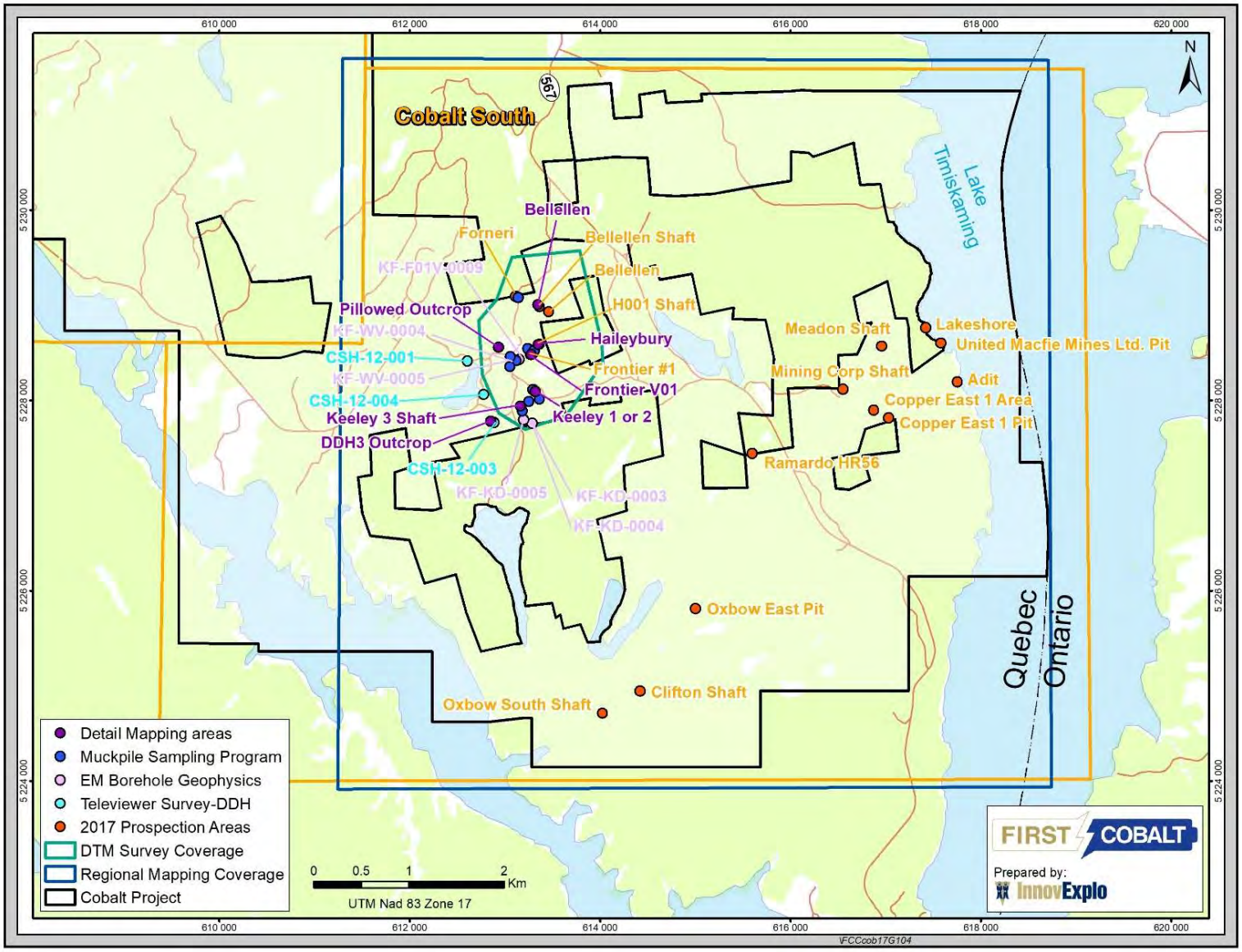

Figure 9.7 – Summary of the 2017 exploration program on the Cobalt South Property

10 DRILLING

First Cobalt resumed drilling during the fall of 2017. A total of 61 diamond drilling holes were completed by December 31, 2017, for a total of 6361.62 m.

10.1 Drilling Methodology

All drilling on the Cobalt Project in 2017 was done using a rig from Laframboise Drilling Inc. of Earlton, Ontario. All holes were drilled from surface, with NQ core diameter (47.6 mm core diameter). The overall average of RQD is 81.1%.

Diamond drill holes are planned using vertical cross-sections and plan views in order to intercept interpreted veins or structural features at the proper angle. The planning software was MapInfo Discover and Geoscience ANALYST. In-house geologists and external consultants were involved in planning the drilling program. First Cobalt geologists and technicians used a handheld Garmin GPS (model 64) to position the hole. Holes are surveyed using a differential GPS (DGPS) with an approximate precision of ± 2 m. Deviation surveys consist of single shots only, taken at the beginning and end of each drill hole, with additional tests every 50 m. The REFLEX EZ-Trac™ instrument is used to record azimuth and dip information. The instrument is handled by the drilling contractor, and surveys are downloaded directly from the instrument by geologists. Once the hole is completed, the casing is left in place and usually capped with a metallic plug identifying the hole ID (Figure 10.1).

Figure 10.1 – Casing of DDH KF-WV-0024 capped with a metallic plug

10.2 Core Logging Procedures

The first time the core is handled is at the drill by the driller helper who takes the core from the core tube and places it in core boxes, marking off every 3 m. Once a core box is full, the helper wraps the box with tape or wire. At the end of each shift, the core is delivered to the core shack. The core shack facility was in one of the buildings of the refinery until November when it becomes too cold. At that point, the core shack was set up in a rented building in the town of Haileybury. First Cobalt personnel remove the wire or tape and install the boxes on the logging tables. The technicians rotate the core so that all pieces slant one way, at about a 45° angle. They check that distances are correctly indicated on the wooden blocks placed every 3 m. The core is measured in each box and the box labelled. Red lines are drawn along the centre of the core to provide a reference for the core cutters/splitters. Geological technicians and geologists are then responsible for taking photographs of the core, once samples are marked on the core. Both dry and wet core pictures are taken.

Rock quality designation (RQD) is done by either geologists or the geological technicians. Any breakage under 10 centimetres is recorded. Core from the Cobalt Project is of very good quality and recovery is high. Sample length typically ranged from 0.5 to 1.0 m, with some exceptions from 0.17 to 4.8 m. The sampled core is considered representative. Once logged and/or ticketed, the core is stored inside in racks until it is sawed or split (Haileybury core shack) or stored outside in racks until it is brought in the cutshack for sawing (refinery core shack). The core of each selected interval is cut in half using a typical table-feed circular rock saw (for mineralized zones) or a splitter (for all other sample intervals) (Figure 10.5), with one half placed in a numbered plastic bag for shipment to the laboratory, and the other half returned to the core box as a witness (reference) sample. A tag bearing the sample number is left in the box at the beginning of the sampled interval. The core box is then stockpiled outside the Haileybury core shack until it is brought and stockpiled at the refinery, the official core storage.

InnovExplo is of the opinion that the core samples from the 2017 First Cobalt drilling program are valid and of sufficient quality to be used for a future mineral resource estimation.

10.3 Preliminary results

The diamond drilling program was designed to test vein sets mapped in outcrop in 10 areas known to be cobalt-rich over a 2-km strike length encompassing the past producing Keeley, Frontier, Haileybury and Bellellen mines.

Assays from three (3) holes at the Woods Vein Extension target area show this vein system extends northward beyond the mine workings. Calcite veins were intersected in holes along strike of the Woods and Watson veins. Assays from drill hole KV-WV-0008 returned 0.83% Co and 30 g/t Ag over 0.48 m in veins near the Nipissing Diabase contact. High lead (1.90% Pb over 0.9 m) occurs in calcite veins in this hole as well, from 10.46 to 11.36 m.

These intersections may represent an extension of the Woods-Watson vein system in an area previously unexplored. The Woods and Watson veins accounted for over 80% of the production in the southern end of the Cobalt Camp area known as Silver Centre. The veins were previously believed to have ended at an east-west fault.

All three reported holes at the Woods Vein Extension area intersected metals in calcite veins that may represent a hydrothermal halo around Co-Ag veins. Two holes returned elevated values of Ag, Cu, Zn and Pb in the Woods Vein Extension area, including:

- 27.75 g/t Ag and 0.10% Cu over 9.53 m in hole KF-F01V-0009
- 7.75 g/t Ag, 0.15% Cu, 0.80% Pb and 1.62% Zn over 1.81 m in hole KF-KV-0002

The best results for the 2017 drilling program (received by the effective date of December 31, 2017) are shown in Table 10.1.

Table 10.1 – Best results of the 2017 drilling program

Hole ID	Sample-ID	From (m)	To (m)	Length (m)	Co (%)	Ag (g/t)	Ni (%)	Cu (%)	Zn (%)	Pb (%)	Target
KF-WV-0008	E6595570	10.46	11	0.54	0	7	0.02	0.06	0.03	1.4	Woods Extension
	E6595571	11	11.36	0.36	0	10	0.01	0.02	0.01	2.64	Woods Extension
	E6595690	96.98	97.45	0.47	0.83	30	0.04	0.02	0.01	0.07	Woods Extension
KF-F01V-0009	E6595253	24.44	25.75	1.31	0.12	73.36	0.07	0.47	0.02	0	Frontier 1 Vein
	E6595254	25.75	26.9	1.15	0.04	35.65	0.02	0.07	0.01	0	Frontier 1 Vein
KF-WV-0002	E6596214	18.39	19.03	0.64	0	7	0.01	0.04	1.31	0.6	Woods Extension
	E6596215	19.03	19.66	0.63	0.01	10	0.01	0.07	2.36	1.45	Woods Extension
	E6596216	19.66	20.2	0.54	0.01	6	0.01	0.36	1.12	0.27	Woods Extension
KF-KD-0005	E6597616	77.53	78.42	0.89	0.164	240	0.033	0.005	0.021	0.66	Keeley Drift
	E6597617	78.42	78.76	0.34	0.682	1473	0.084	0.011	0.053	3.39	Keeley Drift
	E6597768	198.62	199	0.38	0.598	5	0.06	0.022	0.007	0.0037	Keeley Drift
	E6597773	201	201.42	0.42	1.15	6	0.553	0.023	0.005	0.0008	Keeley Drift
KF-WV-0003	E6598017	107.1	107.5	0.4	0.57	2	1.4	<0.01	<0.01	<0.01	Woods Extension
KF-K3-0001	E6596097	108.47	109.47	1		558					Wood's Vein
	E6596099	109.47	110.47	1		111					Wood's Vein
	E6596100	110.47	111.47	1		665					Wood's Vein
	E6597001	111.47	112.47	1		11.2					Wood's Vein
KF-KD-0004	E6597335	203.68	204.08	0.4	0.051	1	1.31				Wood's Vein
KF-WV-0013	E6596848	45.8	46.2	0.4	2.89	25	0.098				Keeley South
	E6596870	62	62.3	0.3	0.008	2	0.528				Keeley South

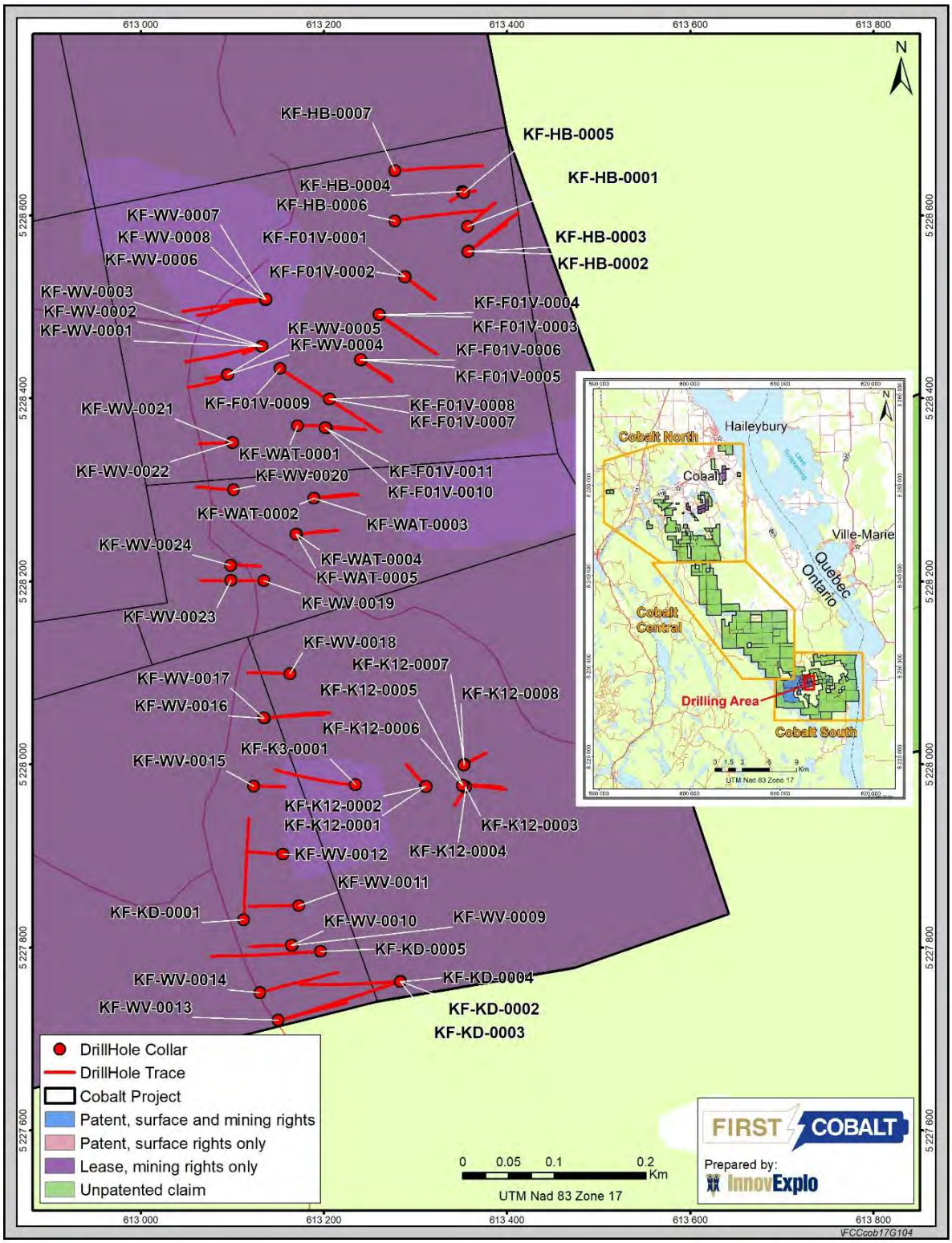

Figure 10.2 – Location of the 2017 drill holes on the Cobalt South Property

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

The following paragraphs describe the issuer's sample preparation, analysis and security procedures for the 2017 diamond drilling program. The information was provided by Meghan Hewton, Project Geologist, and Frank Santaguida, Vice-President Exploration, both of First Cobalt. InnovExplo reviewed the QA/QC results for the 2017 drilling program.

11.1 Core handling, Sampling and Security

Core boxes are delivered after every 12-hour shift to the core shack by the drilling contractor. Drill core is logged and sampled by experienced and qualified geologists in accordance with established First Cobalt guidelines. Sample length normally ranges from 0.5 m to 1.0 m (with some exceptions, from 0.3 to 1.2 m long). Samples are chosen with respect to lithological contacts, mineralization and alteration changes. Sample core intervals are identified by geologists with marks on the core and sample tags. Core is either sawed (in mineralized zones) or split (everywhere else) in half. Splitting is carried out by an experienced technician using an electric core saw or splitter, following the geologist's markings. One half of the core is placed in plastic bag with the matching sample tag while the other half is replaced in the core box and stored for future reference. Samples from the core shack are shipped to the laboratory by Manitoulin Transport.

11.2 Laboratories Accreditation and Certification

The International Organization for Standardization ("ISO") and the International Electrotechnical Commission ("IEC") form the specialized system for worldwide standardization. ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories sets out the criteria for laboratories wishing to demonstrate that they are technically competent, operating an effective quality system, and able to generate technically valid calibration and test results. The standard forms the basis for the accreditation of competence of laboratories by accreditation bodies. ISO 9001 applies to management support, procedures, internal audits and corrective actions. It provides a framework for existing quality functions and procedures.

For the 2017 drilling program, samples were prepared at the sample preparation facilities of AGAT Laboratories (Mississauga, Ontario) and SGS Mineral Services (Lakefield, Ontario). In each case, assaying was also done in the same facility. Both laboratories received ISO/IEC 17025 accreditation through the Standards Council of Canada ("SCC"), and both are commercial laboratories independent of First Cobalt with no interests in the Cobalt Project.

11.3 Laboratory Preparation and Assays

11.3.1 Drill core (AGAT)

- Samples are weighed upon receipt (implemented during the 2017 drilling program).
- Samples are dried to 60°C and then crushed to 75% passing 10 mesh (2 mm) and split to 250 g using a Jones riffle splitter or rotary split. The subsample is pulverized to 85% passing 200 mesh (75µm).

- Samples are fused with sodium peroxide and sodium hydroxide in a muffle furnace for half an hour. The resultant cake is dissolved in dilute nitric acid and completed to 100 ml with de-ionized water. Blanks, sample replicates, duplicates, and internal reference materials (both aqueous and geochemical standards) are routinely used as part of AGAT's quality assurance program.
- Perkin Elmer 7300DV/8300DV ICP-OES and Perkin Elmer ELAN 9000/NexION ICP-MS instruments are used in the analysis. Inter-Element Correction (IEC) techniques are used to correct for any spectral interferences. The list of elements assayed with these techniques is shown in Table 11.1.
- Assay results are provided as Excel spreadsheets.

Table 11.1 – AGAT 56-element package with detection limits (Sodium Peroxide Fusion – ICP-OES/ICP-MS Finish)

Element	Unit	Range	Element	Unit	Range
Ag	ppm	1 - 1000	Mn	ppm	10 - 10000
Al	%	0.01 - 50	Mo	ppm	2 - 10000
As	ppm	30 -100000	Nb	ppm	1 - 10000
B	ppm	20 - 10000	Nd	ppm	0.1 - 10000
Ba	ppm	0.5 – 10000	Ni	ppm	5 - 10000
Be	ppm	5 – 2500	P	%	0.01-25
Ca	%	0.05 – 50	Pb	ppm	5 - 10000
Cd	ppm	0.2 - 10000	Pr	ppm	0.05 - 1000
Ce	ppm	0.1 - 10000	Rb	ppm	0.2 - 10000
Co	ppm	0.5 - 10000	S	%	0.01 - 60
Cr	%	0.005 - 30	Sc	ppm	5 - 10000
Cs	ppm	0.1 - 10000	Si	%	0.01 - 50
Cu	ppm	5 - 10000	Sm	ppm	0.1 - 1000
Dy	ppm	0.05 - 1000	Sn	ppm	1 - 10000
Er	ppm	0.05 - 1000	Sr	ppm	0.1 - 10000
Eu	ppm	0.05 - 1000	Ta	ppm	0.5 - 10000
Fe	%	0.01 - 50	Tb	ppm	0.05 - 10000
Ga	ppm	0.01 - 1000	Th	ppm	0.1 - 1000
Gd	ppm	0.05 - 1000	Ti	%	0.01 - 30
Ge	ppm	1 - 1000	Tl	ppm	0.5 - 1000
Hf	ppm	1 - 10000	Tm	ppm	0.05 - 1000
Ho	ppm	0.05 - 1000	U	ppm	0.05 - 1000
In	ppm	0.2 - 1000	V	ppm	5 - 10000
K	%	0.05 - 30	W	ppm	1 - 10000
La	ppm	0.1 - 10000	Y	ppm	0.5 - 1000
Li	ppm	10 - 50000	Yb	ppm	0.1 - 1000
Lu	ppm	0.05 - 1000	Zn	ppm	5 - 10000
Mg	%	0.01 - 30	Zr	ppm	0.5 - 10000

11.3.2 Drill core (SGS)

- Samples are dried and crushed to 75% passing 2 mm using a jaw crusher. A representative subsample weighing 250 g of the -2 mm fraction is prepared using a Riffle Jones splitter. The subsample is then pulverized to 85% passing 75 µm using a ring pulverizer;
- Core samples are analyzed by ICP-AES and ICP-MS (GE_IC90A and GE_IC90M). The list of elements assayed with these techniques is shown in Table 11.2.
- When a sample returns a result higher than the upper detection limit (for a specific element), this sample is re-assayed using a different technique: XRF method for As (GO_XRF75F, detection limit >0.001%), ICP-OES after Na_2O_2 fusion for Bi, Co, Cu, Ni, Pb and Zn (GO_ICP90Q, detection limit in Table 11.3), and fire assay with gravimetric finish for Ag (GO_FAG313, detection limit 10–5000 ppm).
- Assay results are provided as Excel spreadsheets.

Table 11.2 – SGS 55-element package with detection limits (GE_IC90A and GE_IC90M)

Element	Detection limit
Ag	1ppm-0.1%
Al	0.01%-25%
As	5ppm-10%
Ba	0.5ppm-1%
Be	5ppm-0.25%
Bi	0.1ppm-0.1%
Ca	0.1%-35%
Cd	0.2ppm-1%
Ce	0.1ppm-1%
Co	0.5ppm-1%
Cr	10ppm-10%
Cs	0.1ppm-1%
Cu	5ppm-1%
Dy	0.05ppm-0.1%
Er	0.05ppm-0.1%
Eu	0.05ppm-0.1%
Fe	0.01%-30%
Ga	1ppm-0.1%
Gd	0.05ppm-0.1%

Element	Detection limit
Ge	1ppm-0.1%
Hf	1ppm-1%
Ho	0.05ppm-0.1%
In	0.2ppm-0.1%
K	0.1%-25%
La	0.1ppm-1%
Li	10ppm-5%
Lu	0.05ppm-0.1%
Mg	0.01%-30%
Mn	10ppm-10%
Mo	2ppm-1%
Nb	1ppm-1%
Nd	0.1ppm-1%
Ni	5ppm-1%
P	0.01%-25%
Pb	5ppm-1%
Pr	0.05ppm-0.1%
Rb	0.2ppm-1%
Sc	5ppm-5%

Element	Detection limit
Sb	0.5ppm-1%
Sm	0.1ppm-0.1%
Sn	1ppm-1%
Sr	0.1ppm-1%
Ta	0.5ppm-1%
Tb	0.05ppm-0.1%
Th	0.1ppm-0.1%
Ti	0.01%-25%
Tl	0.5ppm-0.1%
Tm	0.05ppm-0.1%
U	0.05ppm-0.1%
V	5ppm-1%
W	1ppm-1%
Y	0.5ppm-0.1%
Yb	0.1ppm-0.1%
Zn	5ppm-1%
Zr	0.5ppm-1%

Table 11.3 – SGS 6-element package with detection limit for GO_ICP90Q

Element	Detection limit
Bi	0.01-30%
Co	0.01-30%
Cu	0.01-30%
Ni	0.01-30%
Pb	0.01-30%
Zn	0.01-30%

11.4 Quality Control and Quality Assurance (QA/QC)

The First Cobalt QA/QC program for drill core includes the insertion of blanks, standards (certified reference material, CRM) and duplicates in the flow stream of core samples. QA/QC samples location is predetermined. Therefore, blanks are located at sample ending with 12, 32, 52, 72 and 92. Standards are located with sample numbers ending with 06, 26, 46, 66 and 86. Duplicates are at samples ending with 18, 38, 58, 78 and 98.

11.4.1 Blank samples

The field blank used for the 2017 drilling program was derived from unmineralized segments of drill core (diabase from the bottoms of holes CSH-12-03 and CSH-12-04) and from barren rock (crushed marble decorative stone). Each was placed into a plastic sample bag and given a routine sample identification number. Blanks were sent to both laboratories used: SGS and AGAT.

During the 2017 drilling program, a total of 50 barren diabase and 124 barren marble stone samples were inserted in batches. The results were received for 50 and 52 samples, respectively, by December 31, 2017. Barren diabase was used at the beginning of the program, and then changed to barren marble.

According to First Cobalt's quality control protocol, if any core of marble blank yields a cobalt value above 100 ppm (200x the detection limit), the entire batch should be re-analyzed.

For the 2017 drilling program, two (2) diabase samples (4% of this type of samples) and no marble blank exceeded this recommended threshold (Fig 11.1 to 11.3).

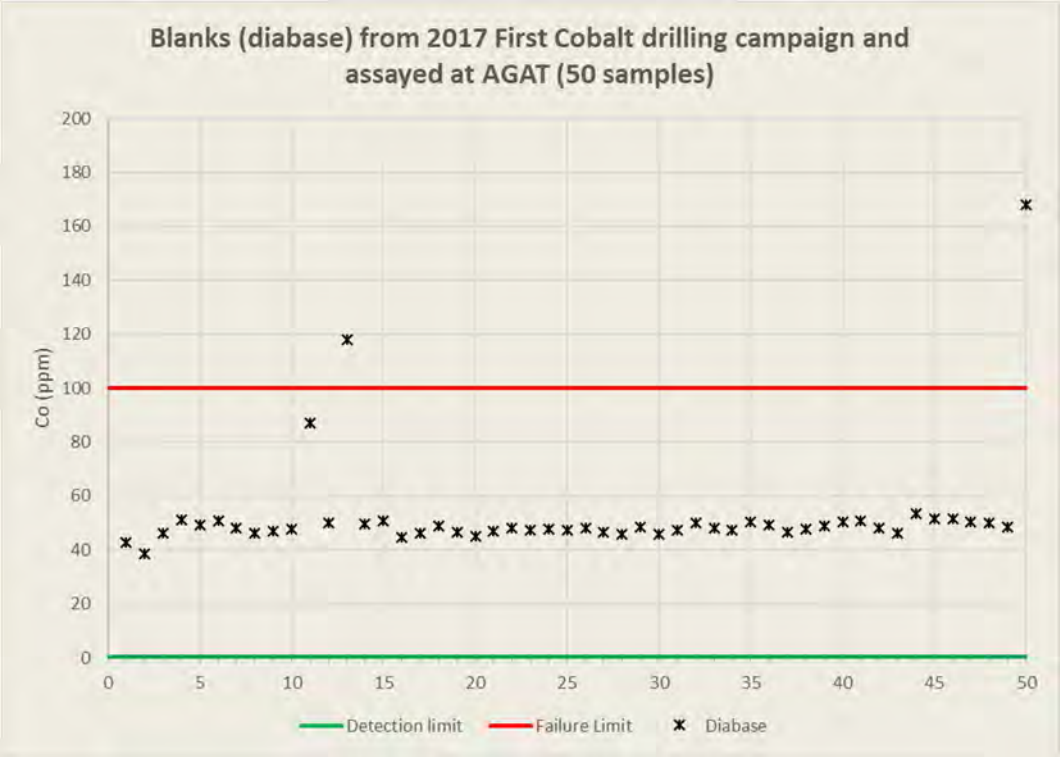

Figure 11.1 – Distribution graph showing results from assayed blanks (diabase) from the 2017 drilling program (AGAT)

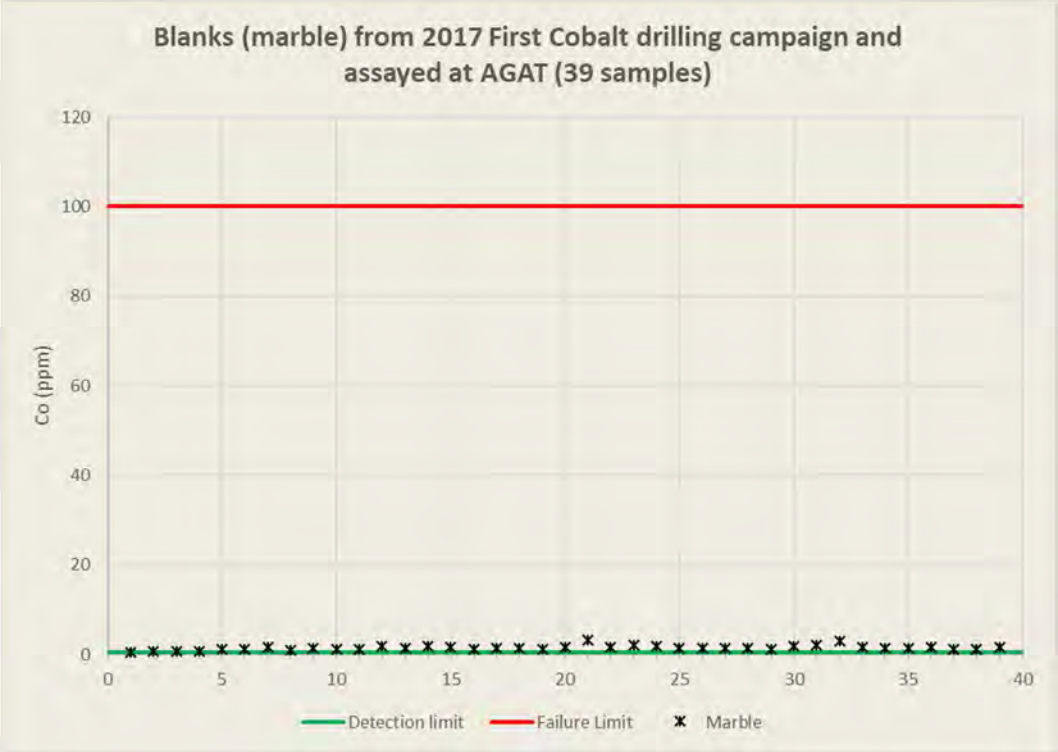

Figure 11.2 – Distribution graph showing results from assayed blanks (marble) from the 2017 drilling program (AGAT)

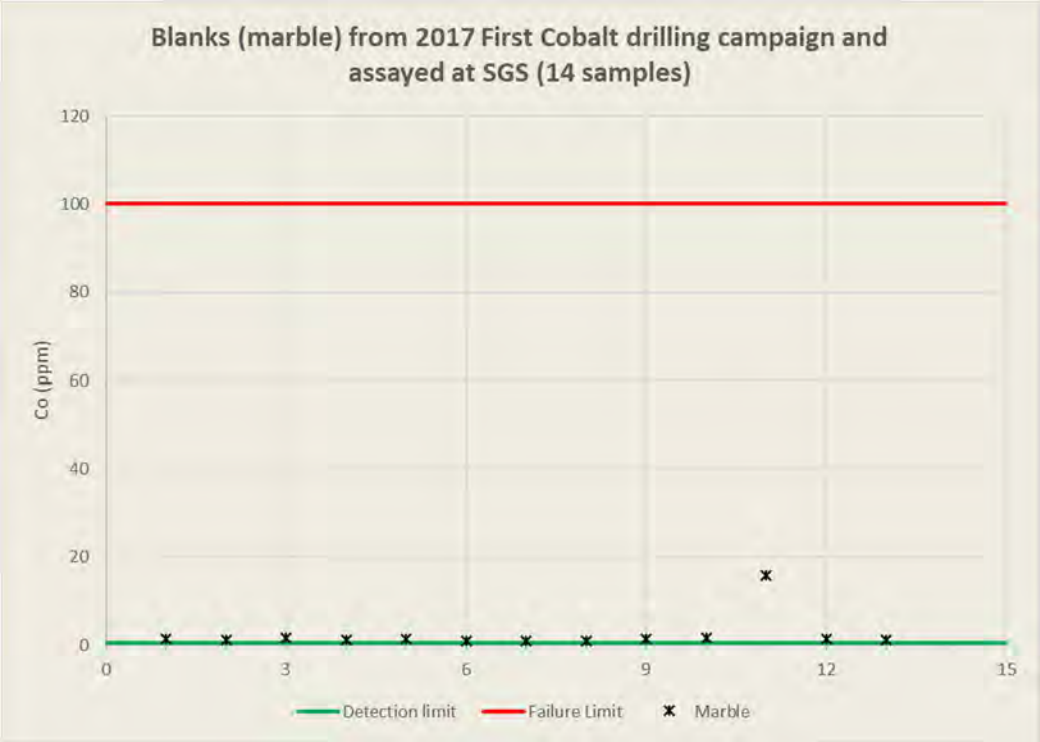

Figure 11.3 – Distribution graph showing results from assayed blank (marble) from the 2017 drilling program (SGS)

11.4.2 Certified reference materials (standards)

Accuracy was monitored by the insertion of certified reference materials (CRMs; standards). CRMs are used to detect assays problems with specific sample batches and long-term biases in the overall dataset.

The definition of a quality control failure is when assays for a CRM are outside three standard deviations (±3 SD).

The 2017 drilling program (up to December 31, 2017) used seven (7) different CRMs from CDN Resource Laboratories Ltd (Langley, British Columbia). One of them, CDN-ME-1208, is commercially offered. The other six, FC-QC1 to FC-QC6, were specially prepared for First Cobalt. They were prepared from a blend of barren material and ore grade material collected by First Cobalt geologists from the Cobalt Project.

The material from each CRM was prepared in the following manner:

- Drying to constant mass at 105°C;
- Crushing and milling of the materials to nominal 200-mesh;
- Screening of materials at 150-mesh and discard of the +150-mesh fraction;
- Combining barren and ore grade materials in appropriate proportions to achieve the desired grade;
- Pulverizing combined materials in pulverizer bowls bowl for a minimum of 6 min;

- Splitting to 160 gm using riffle splitter;
- Subdivision by Retsch to 10 g subsamples; and
- Packaging in 10g units in re-closable foil packets.

Table 11.4 presents the details for each CRM, including their certified value for Co, As, Ni, Fe, Mg, S and Cu, as well as the number inserted during the 2017 drilling program and the number assayed by December 31, 2017.

Table 11.4 – Details for standards (CRMs) used during the 2017 First Cobalt drilling program

CRM	Co (%)		As (%)		Ni (ppm)		Fe (%)		Mg (%)		S (%)		Cu (ppm)		Quantity inserted during 2017 drilling program
	Certified value	Standard deviation	Certified value	Standard deviation	Certified value	Standard deviation	Certified value	Standard deviation	Certified value	Standard deviation	Certified value	Standard deviation	Certified value	Standard deviation	
FC-QC1	0.203	0.009	0.659	0.032	427	22	7.570	0.196	5.520	0.231	0.540	0.049	65	6	34
FC-QC2	0.644	0.018	2.136	0.084	1059	47	7.800	0.278	5.360	0.227	0.740	0.053	67	11	30
FC-QC3	0.828	0.020	2.752	0.106	1312	52	7.910	0.172	5.290	0.258	0.820	0.065	66	8	28
FC-QC4	0.930	0.027	3.129	0.155	1476	71	7.960	0.221	5.270	0.203	0.870	0.074	68	12	28
FC-QC5	1.876	0.070	6.209	0.250	2801	117	8.370	0.248	4.940	0.234	1.300	0.084	69	14	14
FC-QC6	3.849	0.077	12.790	0.853	5715	171	9.190	0.390	4.150	0.290	2.190	0.122	72	14	16
CDN-ME-1208	0.099	0.006	N/A	N/A	47700	2300	18.450	1.250	N/A	N/A	8.980	0.200	16350	840	29

According to recommended quality control protocols, a batch should be re-analyzed if its standard yields a cobalt value above or below three standard deviations of the standard grade (i.e., an outlier). Applying such criteria to the database received from First Cobalt, InnovExplo determined that 25% and 15% of the 2017 batches (SGS and AGAT, respectively) warrant re-analysis (Table 11.5).

Table 11.5 – Summary of batches with failed standards during the 2017 First Cobalt drilling program.

CRM	Co (%)		Quantity assayed before Dec 31st 2017		SGS		AGAT	
	Certified value	3* Standard deviation (3SD)	SGS	AGAT	Count Failure (>3SD)	% Failure (>3SD)	Count Failure (>3SD)	% Failure (>3SD)
FC-QC1	0.203	±0.027	3	16	0	0%	0	0%
FC-QC2	0.644	±0.054	3	15	0	0%	2	13.3%
FC-QC3	0.828	±0.06	4	14	2	50%	7	50%
FC-QC4	0.930	±0.081	3	10	1	33%	1	10%
FC-QC5	1.876	±0.21	0	4	-	-	2*	50%
FC-QC6	3.849	±0.231	3	5	1	33%	1	20%
CDN-ME-1208	0.099	±0.018	0	23	-	-	0	0%
TOTAL			**16**	**87**	**4**	**25%**	**13**	**15%**

* Note: one of them is probably an insertion error since grade corresponds to FC_QC6

11.4.3 Duplicates

A series of duplicate samples taken at multiple stage of the sampling and sample preparation process enables the precision to be monitored incrementally through the stages. The three types of duplicates are field, coarse and pulp. For the Cobalt Project, only field and coarse duplicates were used, as described below.

A total of 91 original-duplicate sample pairs (30 field duplicates and 61 coarse duplicates) were identified in the database.

11.4.3.1 Sawed core (field duplicates)

Core from mineralized zones is sawed using a diamond saw. Half of the core is sent for the original sample (with an unique sample ID), while the duplicate is taken as a quarter core (half of the remaining witness core). The remaining quarter-core is left for reference in the core box. The duplicate is sent to the laboratory with a unique sample ID.

The cobalt grades for field duplicate pairs are plotted on Figures 11.4 and 11.5 for AGAT and SGS, respectively. Correlation coefficients vary from 95.41% to 100% for the field duplicates, depending of the laboratory. The correlation coefficient (%) is given by the square root of R^2 and represents the degree scatter of data around the linear regression slope. The field duplicate results correlate well.

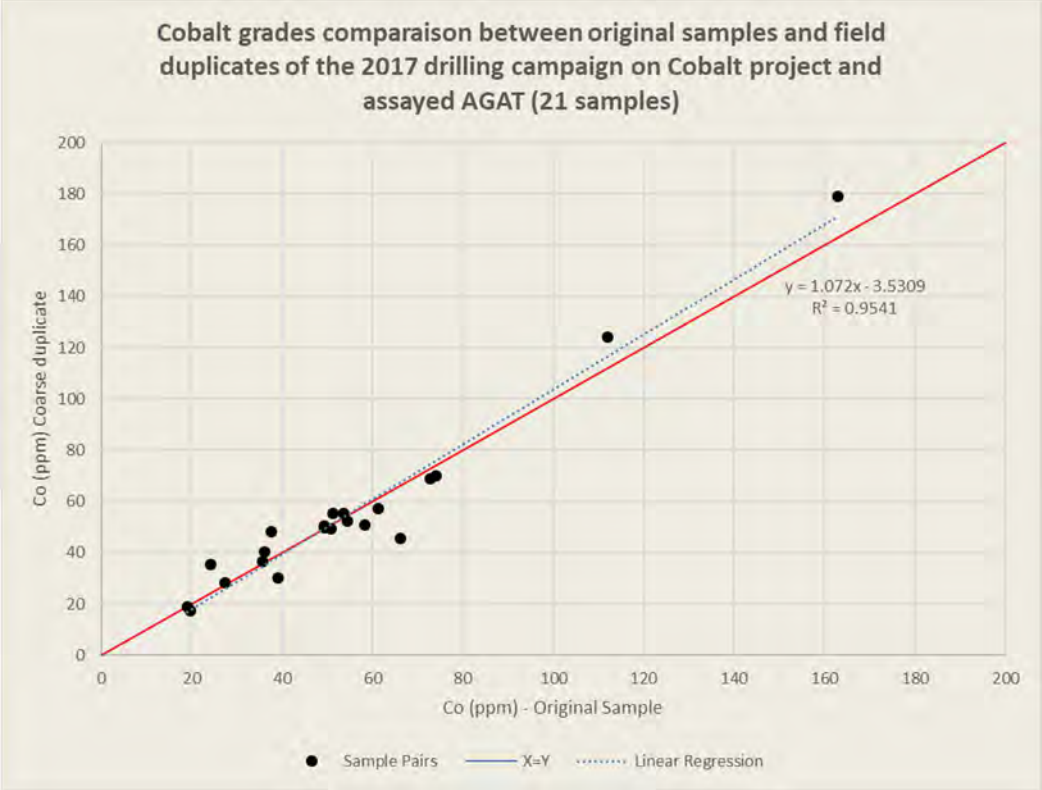

Figure 11.4 – Linear graph comparing cobalt grades for field duplicates from the 2017 drilling program (AGAT).

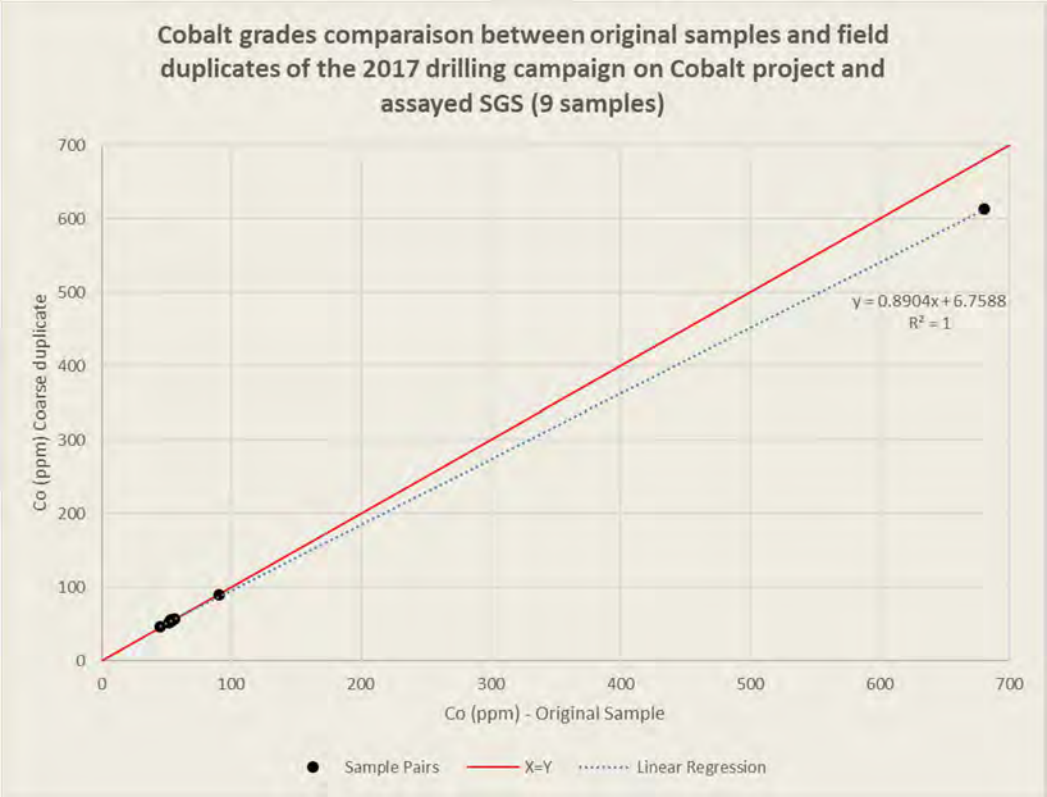

Figure 11.5 – Linear graph comparing field duplicates from the 2017 drilling program (SGS).

11.4.3.2 Split core (coarse duplicates)

Core from outside the mineralized zones (potentially barren) is split using an electric splitter. Half of the core is sent to the laboratory, with its own sample ID. A second bag (identified with an unique sample ID) is added to the sample bag containing the original sample. The laboratory has the instruction to split the coarse reject into a second sample, which will be considered as the duplicate (coarse duplicate).

The cobalt grades for coarse duplicate pairs are plotted on Figure 11.6 and 11.7 for AGAT and SGS, respectively. Correlation coefficients vary from 58.03% to 93.74% for the coarse duplicates, depending of the laboratory. The correlation coefficient (%) is given by the square root of R^2 and represents the degree scatter of data around the linear regression slope. The coarse duplicate results correlate well for AGAT, but not SGS. This may be explained by the small number of duplicates assayed at SGS.

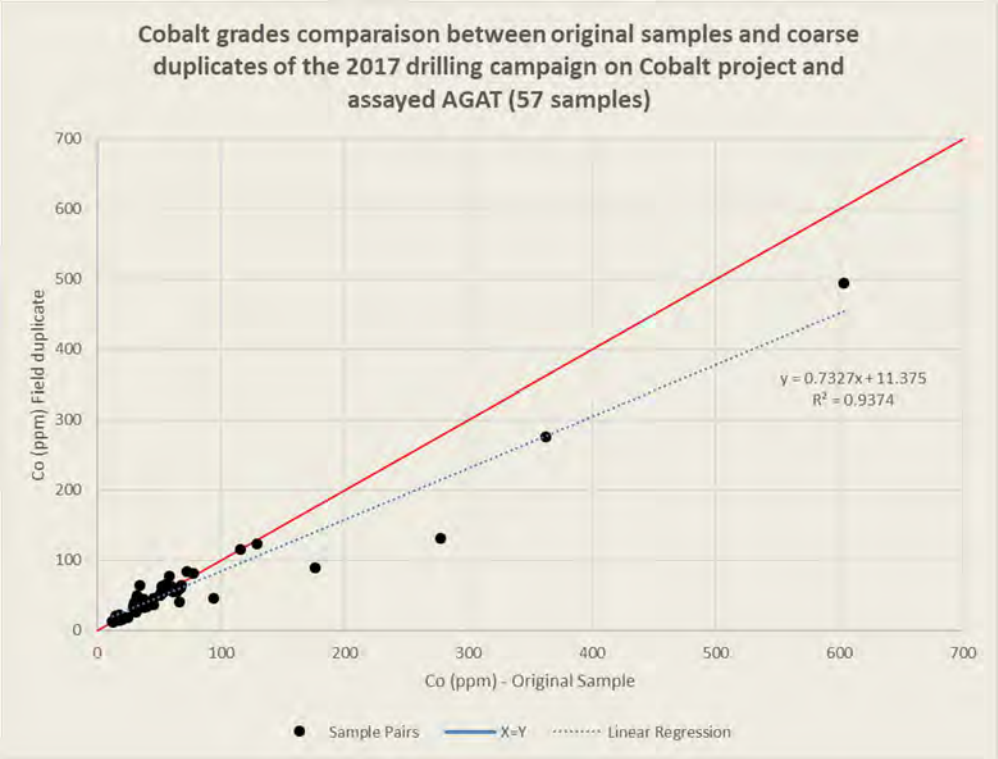

Figure 11.6 – Linear graph comparing coarse duplicates from the 2017 drilling program (AGAT).

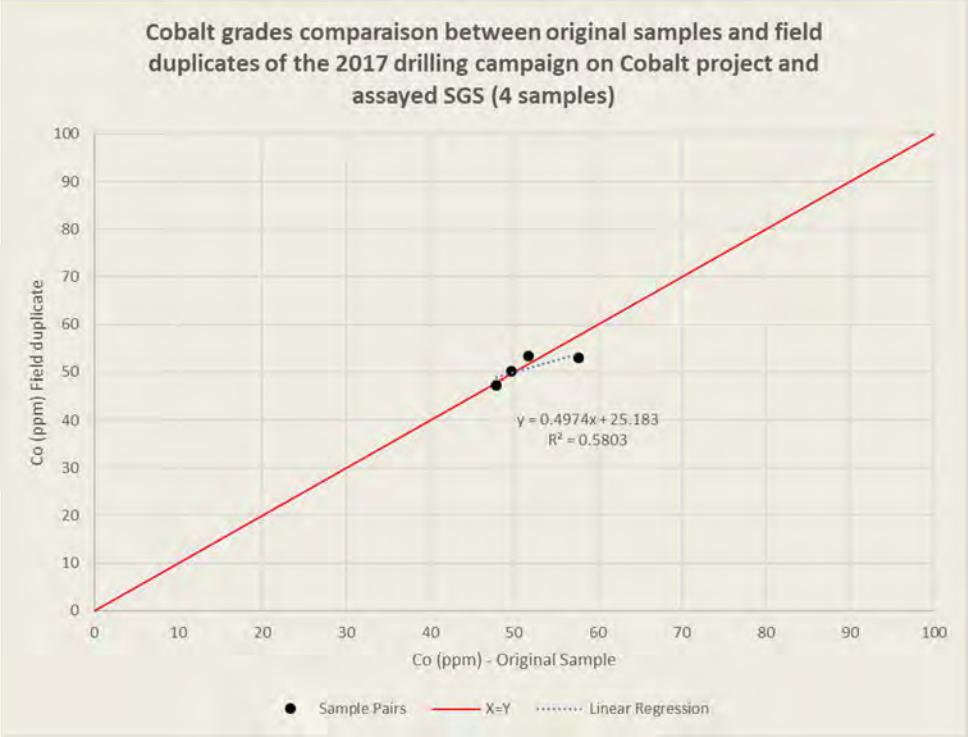

Figure 11.7 – Linear graph comparing coarse duplicates from the 2017 drilling program (SGS).

11.5 Conclusions on the QA/QC for the 2017 drilling campaign

A statistical analysis of the QA/QC data provided by First Cobalt revealed some analytical issues.

Of the 102 blanks results received (50 diabase and 52 marble) before December 31, 2017, two (2) diabase samples returned values higher than the accepted threshold. This may suggest that diabase from the Greater Cobalt Project is not completely barren. The certificates containing these two blanks should be re-assayed, by introducing new blanks. The marble sample used as a blank should be kept.

It is recommended that a thorough review be conducted on all batches in which a CRM failed to return acceptable values. Where the reason for such failure cannot be explained or if the explanation warrants it, the entire batch should be re-assayed.

Low cobalt grades seem to be easier to reproduce, corresponding to grades of about 1% Co or less. The analysis technique used might not be adequate for higher values. A protocol should be established for samples grading higher than 0.5 or 0.7% (grade to be determined). Tests should be done and a discussion initiated with the laboratories as they may have a package they could recommend for this type of mineralization.

Also, it is recommended the number of CRM standards be reduced. Three different standards are enough to control and manage the QA/QC for this type of drilling program. CRMs with a wide range of Co grades should be chosen (low, medium and high grade). The follow-up of laboratory performances would be easier if only 3 CRMs have to be managed.

As for the duplicates, the insertion protocol for field and coarse duplicates is adequate for an exploration program and the results are of good quality overall.

InnovExplo is in the opinion that the sample preparation, analysis, QA/QC and security protocol used by First Cobalt for the Cobalt Project is appropriate for an exploration program, with some follow-up recommended for the CRMs. If the Project experiences rapid evolution to the resource estimate phase, some adjustments will be necessary, such as the regular insertion of coarse and pulp duplicates in every batch.

12 DATA VERIFICATION

The reviewed diamond drill hole database was provided by First Cobalt and is referred to as the “First Cobalt Database” below.

The author, Catherine Jalbert, visited the Cobalt Project on January 18 and 19, 2018, accompanied by Stéphanie Lafrenière and Marc R. Beauvais of InnovExplo and Meghan Hewton, GIT, of First Cobalt. During the site visit, the author was able to examine the logging facilities, review the core and drill hole collar location, and visit an active drill rig and multiple historical work location.

Some of the data verification also took place both before and after the site visit.

12.1 First Cobalt Drilling

At the time of the visit, one drill rig was active on the Cobalt South Property but Is not considered in the present Technical Report. The decision was taken to close the database on December 31, 2017, and to use all DDH completed by this date.

12.2 First Cobalt Database

On January 29, 2018, First Cobalt provided InnovExplo with an Access database containing the 61 holes drilled in 2017.

The database included all assays received at that moment. Since the decision was taken to close the database on December 31, 2017, only the data entered by this date were validated. Hole descriptions were provided, including surveys, collar location, geology, etc.

The specific information in the First Cobalt database is as follows:

- DDH location (X, Y and Z coordinates), available in UTM NAD 83 Zone 17
- Deviation survey data
- Geological description, including primary and secondary lithologies, alteration, mineralisation, texture, veins
- Structural measurements and description
- Geotechnical measurements (RQD)
- Samples with assay results
- Magnetic susceptibility measurements

QA/QC descriptions and positions were included in the Access database, but their assay results were sent separately in an Excel spreadsheet.

12.2.1 Drill hole location

All surface drill holes on the Cobalt Project were positioned using a handheld GPS and have been surveyed (after drilling) using a differential GPS (DGPS). Given the snow coverage during the site visit, only one capped collar was found: KF-WV-0024 (Figure 12.1). The table below (Table 12.1) compares the coordinates in the database (DGPS lecture) to the handheld GPS readings taken during the site visit.

Figure 12.1 – Casing of KF-WV-0024 found during site visit, with location coordinates

Table 12.1 – Comparison of coordinates in First Cobalt Database to readings taken with handheld GPS during the site visit

Hole-ID	Coord_Type	X (Nad 83, Zone 17)	Y (Nad 83, Zone 17)
KF-WV-0024	DGPS (First Cobalt)	613098.087	5228217.685
	GPS Garmin 76Csx (InnovExplo)	613097	5228218

12.2.2 Downhole survey

Deviation tests consist of a single-shot survey using a Reflex EZ-Trac™ tool. Tests are done at beginning and at the end of hole, and every 50m between that. All information was mathematically reviewed for all drill holes in the database to identify anomalies, and visual checks were performed on 100% of the downhole surveys. No modifications were made to the database. It is considered valid.

12.2.3 Assays

InnovExplo was granted access to the assay certificates for all holes in the drilling programs that took place between August 2013 and April 2014, the last programs before 2017. Assays were verified for 5% of the holes from these programs.

Minor errors of the type normally encountered in a project database were addressed and corrected. InnovExplo considered the First Cobalt Database to be of good overall quality.

12.2.4 First Cobalt logging, sampling and assaying procedures

InnovExplo reviewed core while visiting the onsite core logging and core storage facilities (Fig. 12.2 to 12.5). All core boxes were labelled and stored outside. Sample tags were still present in the boxes and it was possible to validate sample numbers.

Drilling was underway in the Bellellen mine area during InnovExplo's site visit. Even though the 2018 program is not included in the present report, the occasion did allow First Cobalt personnel to explain the entire path of the drill core, from drill rig to the logging and sampling facility and finally to the laboratory. The same protocol was used in 2017.

Figure 12.2 – Logging facility building in Haileybury (left), and indoor logging facility (right).

Figure 12.3 – Electric diamond saw used for mineralized zones (left), and hydraulic splitter used for all other intervals (right).

Figure 12.4 – Temporary storage of core at the Haileybury core shack (top picture) and final storage at the refinery site (bottom picture).

Figure 12.5 – Views of some of the core reviewed at the logging facility (temporary storage) visited by InnovExplo representatives.

12.3 Conclusion

Overall, InnovExplo is in the opinion that the data verification process demonstrated the validity of the data and protocols for the Cobalt Project. InnovExplo considers the First Cobalt Database to be valid and of sufficient quality.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The issuer has not carried out any NI 43-101 compliant mineral processing and metallurgical tests on samples from the Project.

14 MINERAL RESOURCE ESTIMATES

The issuer has not published any NI 43-101 compliant mineral resources for the Project.

15 MINERAL RESERVE ESTIMATES

The issuer has not published any NI 43-101 compliant mineral reserves for the Project.

16 MINING METHODS

The issuer has not evaluated mining methods for the Project.

17 RECOVERY METHODS

The issuer has not carried out any recovery method tests on samples from the Property.

18 PROJECT INFRASTRUCTURE

Project infrastructure has not been evaluated in this Technical Report.

19 MARKET STUDIES AND CONTRACTS

No market study has been conducted for the Project and no contracts have been issued.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

No environmental, permitting or social/community impact studies have been carried out at this stage of the Project.

21 CAPITAL AND OPERATING COSTS

Capital and operating costs have not been calculated for the Project.

22 ECONOMIC ANALYSIS

No economic analysis has been prepared for the Project.

23 ADJACENT PROPERTIES

The Cobalt and Silver Centre areas have recently seen greater interest for their silver and cobalt exploration potential.

A number of junior companies have been carrying out field work. The work includes the compilation of historical data, prospecting, and both ground and airborne geophysics (magnetic and electromagnetic surveys).

None of the properties in the immediate area of the Cobalt Project are considered significant exploration or development projects.

Figure 23.1 shows the exploration players in the Cobalt Project area.

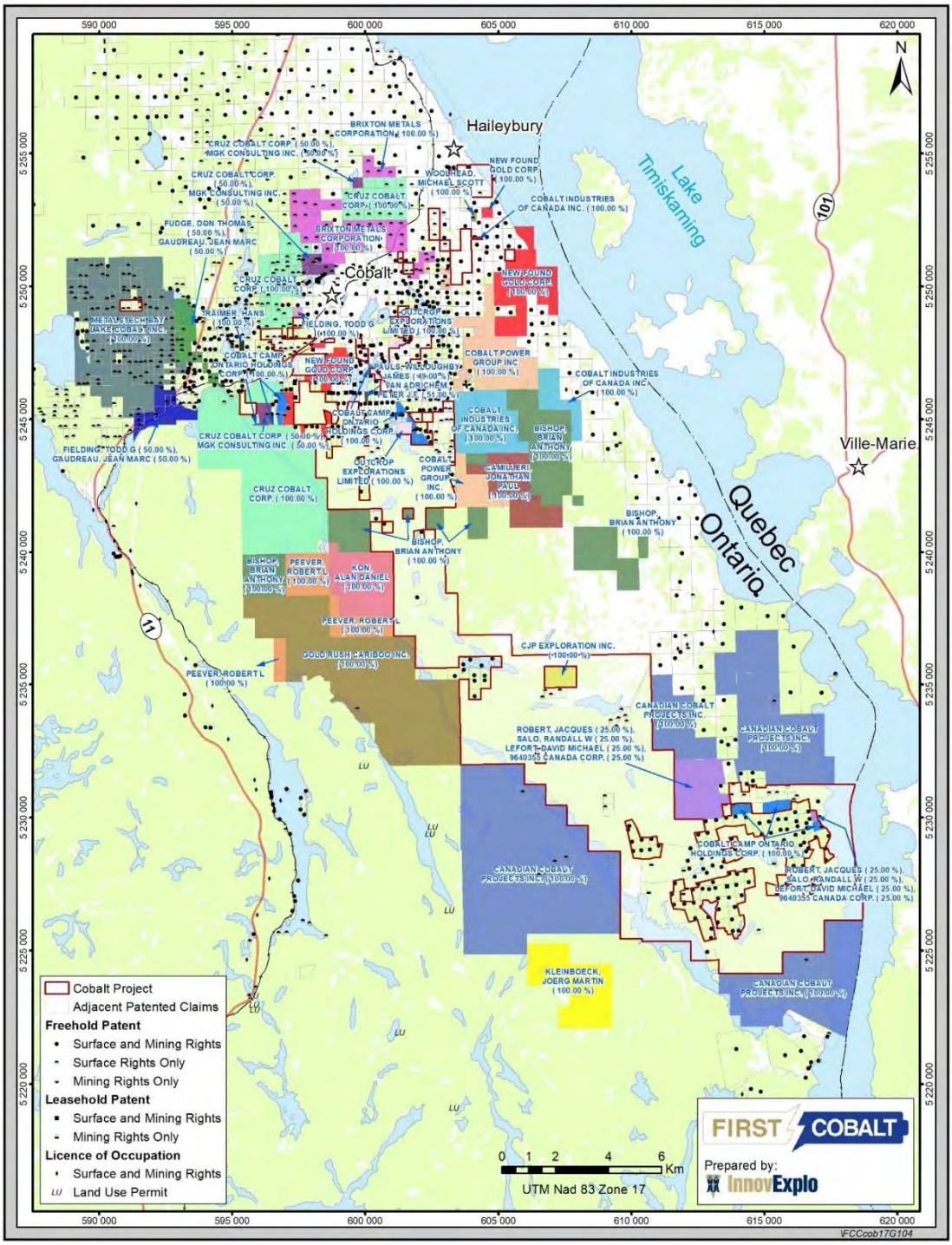

Figure 23.1 – Cobalt Project and adjacent properties in the Cobalt and Silver Centre areas in the province of Ontario

24 OTHER RELEVANT DATA AND INFORMATION

All relevant data and information regarding the Project have been disclosed under the relevant sections of this Technical Report.

25 INTERPRETATION AND CONCLUSIONS

This Technical Report was prepared by InnovExplo to present the current holdings of First Cobalt following the acquisition and mergers completed in 2017, as well as the details and findings of the 2017 exploration program carried out by the issuer. The Cobalt Project is subdivided into three properties: Cobalt North, Cobalt Central and Cobalt South.

With its Cobalt Project. First Cobalt is exploring almost 3,000 hectares of prospective land in the Cobalt Camp in Ontario, Canada. This region includes the historically significant Keeley-Frontier mine, the Haileybury mine, and the Bellellen mine.

In 2017, the issuer completed the acquisition of Cobalt Industries of Canada and merged with Cobalt One Limited and CobalTech. First Cobalt also acquired a package of 22 claims, separated into two groups, one near Silver Centre (southern group) and the other near the town of Cobalt (northern group).

The Cobalt Project is an exploration project with historical development and production that yielded major quantities of silver and cobalt.

The Cobalt Project is located in a favorable exploration area between the Cross Lake and Montreal River faults where most of the Co-Ag occurrences are concentrated. The area between Cobalt to the north and Silver Centre to the south hosts only a few occurrences of cobalt and silver. However, the central part of the Project has the pertinent criteria to discover new areas for five-element-vein-type mineralization. The Nipissing sills are present throughout the central part of the Project in Cobalt sediments and Archean windows (fensters).

25.1 2017 Exploration and Drilling programs

In 2017, First Cobalt completed an extended exploration and drilling program over the entire Cobalt Project. The company was active on many levels, from exploration (prospecting) and structural interpretation of the property, to extension of known mineralized veins, to grade characteristics.

Emphasis was placed on understanding the structural context of the mineralization. Many parts of the program were completed with this goal in mind. Two areas were regionally mapped: Maiden Lake–Silver Centre and New Lake. This bedrock mapping program provided a better understanding of the structural geology in theses areas. In the Maiden Lake area, the principal finding was the identification of multi-phase faulting and NE-SW trending folding at two scales that greatly affected the area. In the New Lake area, the work highlighted a northwest trending fold pattern in the mafic volcanic rocks. The goal of detailed mapping in the Silver Centre area (Cobalt South Property) was similar to the regional mapping goal: identify the nature and orientation of calcite veining and wallrock alteration in order to support the 2017 drilling and core logging activities. Stockwork-style calcite veins are predominant, with orientations ranging from NE to NW. The televiewer survey on the 2012 Canadian silver drill holes permitted to localise and better understand other north-trending veins and east-west faults present in vicinity of Woods Vein (Keeley Mine, in Cobalt South).

The aim of the prospecting program was to determine the metal grades and associations and to identify mineralization textures to improve recognition in diamond drill core. A number of muckpiles and outcrops were sampled, returning significant grades for cobalt and silver. Mineralization is mostly contained in quart-calcite veins, and veins are hosted in Nipissing diabase or mafic volcanics.

Borehole EM surveys proved effective in 2017 in identifying intersected cobalt mineralization and highlighting mineralized extensions away from the drill hole. Two holes returned major anomalies: KF-KF-0003 and KF-KD-0004.

A total of 61 diamond drill holes were completed by December 31, 2017, totalling 6361.62 m. They aim was to intercept know mineralized extensions and structural features to improve the geological understanding. The assay results included many cobalt and silver grades, although a number of results were still pending at the effective date. The results are significant in that, as with the sulphide-style mineralization identified by First Cobalt elsewhere in the Cobalt Camp, they support the hypothesis that a larger mineralized system exists around the past-producing vein systems. Copper, zinc and lead occur as sulphide minerals in holes KF-F01V-0009 and KF-KV-0002 as well as in calcite veins in KF-WV-0008 and can be considered the distal hydrothermal halo around the Co-Ag vein system.

25.2 Risks and Opportunities

Table 25.2 identifies the significant internal risks, potential impacts and possible risk mitigation measures that could affect the future economic outcome of the Cobalt Project. The list does not include the external risks that apply to all mining projects (e.g., changes in metal prices, exchange rates, availability of investment capital, change in government regulations, etc.).

Significant opportunities that could improve the economics, timing and permitting are identified in Table 25.3. Further information and study is required before these opportunities can be included in the project economics.

Table 25.1 – Risks for the Cobalt Project

RISK	Potential Impact	Possible Risk Mitigation
Unguarded/unmonitored asset – Yukon refinery	-Prone to vandalism -Exposure to safety risks and liabilities -Deterioration of the asset (value depletion) -Prone to chemical instability and water table contamination	- Evaluate the potential to rehabilitate the facility or dismantle and sell the buildings/components for their salvage value. - Move out, bury or dispose of the unattended piles of waste leaching out near the tailings pond - Consider erecting a fence around the perimeter of the industrial area and install a surveillance camera
Unguarded/abandoned asset – Canadaka tailings and mill buildings	- Prone to vandalism - Exposure to safety risks and liabilities - Prone to chemical instability and water table contamination	- As proposed by the issuer, dismantle the mill and crusher buildings. -Sell mobile equipment and steel rubbish for their salvage value. - Move out, bury or dispose of the unattended piles of waste leaching out near the tailings pond
backlogs to legal environmental requirements	- Exposure to liabilities - Could result in unexpected expenses and delays impeding operation startup - Exposure to negative public perception	- For uncharacterized sites, verify the status and information regarding features and legal requirements, and budget any associated costs and delays as required. - Undertake a complete properties environmental characterization for potential contamination, soil, water, groundwater, etc.
Conflicting or missing location of existing mine hazards	- Exposure to safety risks and liabilities - Exposures to lawsuits - Exposure to negative public perception	- Collect and investigate all historical documents available and prepare a rehabilitation plan
Unprotected existing mine openings and hazards	- Exposure to safety risks and liabilities - Exposures to lawsuits - Exposure to negative public perception	- Identify such hazards and prepare a rehabilitation plan
Previously mined veins (historical)	- Insufficient tonnage remaining for mining extraction	- Compile and identify all historical mine openings. Plan drill holes to test the extension of known veins and pay attention to missing core (bad core recovery)

Table 25.2 – Opportunities for the Cobalt Project

OPPORTUNITIES	Explanation	Potential benefit
Undertake a market study to determine the viability of restoring the Yukon mill facility	Market prices of commodities have appreciated significantly over the past few months to the point where processing old tailings material may become profitable.	Increase overall project income
Carry on with the actual restauration workplan and further develop that plan to overtake the situation with the existing hazards	Nowadays, community acceptance has become paramount for a mining project to take place and become successful.	Avoid long term liabilities and increase positive public image
Exploration potential	Potential for additional discoveries near historical mines and in areas with little past exploration (Cobalt Central)	Potential for new mineralized zones

26 RECOMMENDATIONS

Based on the results presented herein, InnovExplo recommends an exploration on the Cobalt Project.

Exploration work is subdivided into “Near-Mine” for target generation near historical mines and “Regional” for work in other claim areas.

26.1 Near-mine Exploration

The near-mine exploration program is divided into multiple stages.

Drilling should be done to test the extension of veins that were identified by the 2017 drilling program, as well as testing the mineralized zone identified by compilation work in 2017.

Near-mine target generation consists of detailed mapping of stripped outcrops adjacent to historical mine areas. The mapping would focus on the orientations of local structures controlling mineralization in or der to design more effective drilling. Exposed outcrops would also be sampled and assayed for metal contents.

Borehole geophysics would be done on selected drill holes. Borehole EM surveys proved effective in 2017 in identifying intersected cobalt mineralization and highlighting mineralized extensions away from the drill hole. Induced polarity and resistivity will also be conducted in places to test the effectiveness of this method in detecting mineralization.

A litho-structural 3D model could be generated using historical and recent data. The source and type of the data should include lithological, structural, known veins, historical openings/voids, geophysical, assays (metal and geochemical), etc. This would improve the geological model and understanding of the Cobalt Camp.

26.2 Regional Exploration

Regional target generation could include 1:5,000 scale mapping to identify regional structural controls on mineralization and identify areas for exploration follow-up or drilling where mineralization is covered by overburden.

Regional mapping (1:20,000 scale) could be conducted by a post-doctoral geoscientist. Mapping will be augmented by interpretations of regional geophysical surveys (seismic, gravity, magnetotelluric) conducted under the Metal Earth Program that was supported by First Cobalt in 2017. Lithogeochemical data would be collected and interpreted to determine if chemostratigraphic units occur within the Archean volcanic rocks. Geochronological analyses (age dating) would also be done on appropriate samples collected during the regional mapping program.

Prospecting in under-explored areas would also be part of the regional target generation program on claims of the Cobalt Central Property.

Geophysical surveys would be planned for regional targeting. Ground EM and IP will be trialed at Keeley-Frontier-Bellellen, Drummond and Hamilton, followed by larger

surveys in these areas as well as Ophir-Silver Banner and Cross Lake using the method deemed the most effective.

Soil geochemistry (B horizon sampling) will be trialed within the New Lake area on mineralization at Silver Banner, Ophir and the small Fleming prospect as orientation examples. Based on its successful application, further sampling will be done over broad areas on the Cobalt Central Property, including over the historical Caswell mine.

The Cobalt Central area contains only a few historical silver-cobalt mines but is considered highly prospective due to similar geology and structural style. A till geochemical sampling program is recommended. Heavy mineral separation and analyses could be completed to identify areas of cobalt mineralization under cover. This method may then be applied to other areas outside the Cobalt Camp to generate projects and develop future exploration programs for this style of mineralization elsewhere in Ontario and Quebec.

A 3D model could also be built using regional information and tested using Machine Learning with parameters identified by a 3D litho-structural model built using near-mine exploration data.

26.3 Environment and Consultation

Consultation with First Nation groups is ongoing and should be continued throughout the exploration program.

It is important to consider the costs and timelines associated with the requirements that will apply to modify or update ECAs and permits, particularly in the case of the Yukon refinery. For sites with tailings and ponds, it is necessary to complete all the environmental characterizations required by provincial legislation in order to update existing closure plans. It is to be expected that the unrecovered tailings ponds have already caused contamination, especially of surface and underground waters. The abandoned infrastructures and buildings may also have contaminated soils. The restoration of these hazards must comply with environmental legislation and will improve the quality of the environment and contribute to a positive public image.

26.4 Abandoned Sites and Mining Hazards

Table 5.1 lists a significant number of sites that are either unsafe to reach by foot, or that show signs of instability that pose a risk to users of the land. Those risks may in turn become a financial burden to the property stakeholders if any one is hurt or the regional water table or any other water bodies are contaminated to the point where the effects are irreversible.

To this end, First Cobalt should keep carry on with the actual workplan and workout a more thorough plan that will allow the issuer to overtake the situation with respect to those mining hazards. Accordingly, it is proposed to undertake a thorough assessment of their Cobalt properties to better understand the scope of the work that needs to be done to mitigate the above-mentioned issues, and every feature should be defined as accurately as possible and supported by a remediation plan that will reduce or eliminate the risks to human beings and wildlife.

As part of the investigation, the MNDM should be consulted and the AMIS record reviewed jointly to make sure it is up to date. The issuer should work with the Ministry to report any new feature that may be missing from that list.

It is therefore recommended that either an environmental or engineering firm be contracted to prepare such an assessment program.

26.5 Cost Estimate for the Recommended Work

InnovExplo has prepared a cost estimate for the recommended two-phase work program to serve as a guideline. The budget for the proposed program is presented in Table 26.1. Expenditures for Phase 1 are estimated at C$2,858,325 (incl. 15% of contingencies). Expenditures for Phase 2 are estimated at C$1,595,625 (incl. 15% of contingencies). Phase 2 is contingent upon the success of Phase 1.

Table 26.1 – Estimated costs for the recommended work program

Phase 1 - Work program		Budget	
		Description	Budget Cost (C$)
1a - Detailed mapping of stripped outcrops adjacent to historic mines areas			300 000
1b - Geophysical surveys (ground EM and IP)		~ 40 km	60 000
1c - Soil geochemistry (B-Horizon)		2,000 samples	85 000
1d - Prospection		25 days	37 500
1e - Follow up drilling on 2017 DDH		10,000 m	1 000 000
1f - Follow up drilling on bedrock mapping		3 000 m	300 000
1g - 3D litho structural model (near mine and regional)			200 000
1h - Till sampling in Cobalt Central		500 samples	75 000
1j - Regional mapping			75 000
1k - Regional mapping with Metal Earth program			50 000
1l - EM borehole geophysics		~ 12 DDH	50 000
1m - Consultation with First Nation groups			50 000
1n	AMIS record assessment	5 days	2 500
	First Cobalt document assessment	15 days	15 000
	Field survey - 4 months, 2 individuals, 40hrs/wk	90 days	108 000
	Data compilation	25 days	12 500
	Report preparation	75 days	45 000
	Supplies and project support cost (Lump Sum)		20 000
		Contingencies (~ 15%)	372 825
		Phase 1 sub total	2 858 325

Phase 2 - Work program Conditional to success of Phase 1	Budget	
	Description	Estimated Cost
2a - Follow up drilling on Phase 1 drilling	8,000 m	800 000
2b - Follow up drilling on anomalies identified with ground geophysics	5,000 m	500 000
2c - Follow up prospection on soil geochemistry	25 days	37 500
2d - Consultation with First Nation groups		50 000
Contingencies (~ 15%)		208 125
Phase 2 sub total		1 595 625
TOTAL (PHASES 1 AND 2)		**4 453 950**

InnovExplo is of the opinion that the recommended two-phase work program and proposed expenditures are appropriate and well thought out, and that the character of the Cobalt Project is of sufficient merit to justify the recommended program. InnovExplo believes that the proposed budget reasonably reflects the type and amount of contemplated activities.

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APPENDIX I – AMIS Features in Patented Claims

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
82057	00573	LITTLE KEELY	T46400	ACTIVE HAZARD	613147	5228911	2000 ASSESSMENT; SHAFT - WAS FENCE ONCE BUT FENCE IS NOW MOSTLY DOWN. THERE ARE ROTTED LOGS COVERING THE SHAFT -- SOME OF THE LOGS HAVE FALLEN IN THE SHAFT.
82058	00573	LITTLE KEELY	T46400	NOT A HAZARD	613140	5228920	2000 ASSESSMENT; ROCK PILE.
88286	02223	CANADAKA TAILINGS		ACTIVE HAZARD	601242	5247432	
73058	02236	LORRAIN 2 UNKNOWN		NOT A HAZARD	603988	5250657	1993 ASSESSMENT; PIT IN BEDROCK WITH SLOPED SIDES.
73136	02236	LORRAIN 2 UNKNOWN		NOT A HAZARD	603968	5250737	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
73137	02236	LORRAIN 2 UNKNOWN		ACTIVE HAZARD	604008	5250653	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS PARTIALLY HIDDEN.
89614	02261	HELLENS-EPLETT		ACTIVE HAZARD	603983	5251202	1993 ASSESSMENT; HEADFRAME CONSTRUCTED WITH A STEEL FRAME AND STEEL CLADDING.
89615	02261	HELLENS-EPLETT		ACTIVE HAZARD	603983	5251202	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH CONCRETE COLLAR. COVERED WITH A REMOVEABLE CONCRETE SLAB IN MODERATE TO GOOD CONDITION.
89616	02261	HELLENS-EPLETT		ACTIVE HAZARD	603968	5251252	1993 ASSESSMENT; MILL CONSTRUCTED WITH A STEEL FRAME AND STEEL CLADDING.
91889	02261	HELLENS-EPLETT		REHABILITATED	603981	5251175	HELLENS EPLETT SOUTH SHAFT OPENINGS HAVE BEEN IDENTIFIED IN THE CLOSURE PLAN. THE COMPANY DOES NOT OWN THE MINING RIGHTS FOR THE SITE AND EXPRESSLY DO NOT ASSUME RESPONSIBILITY FOR THE UNDERGROUND WORKINGS OR THE SHAFT ON SITE. AS ABOVE, THE MININ
91890	02261	HELLENS-EPLETT		ACTIVE HAZARD	603974	5251289	MAIN BUILDING (OFFICE) NO FURTHER DESCRIPTION WAS FOUND IN THE IR.
91891	02261	HELLENS-EPLETT		ACTIVE HAZARD	603885	5251065	PRIMARY SETTLING POND (CROSSOVER PIPE) THE PRIMARY SETTLING POND WAS EXCAVATED INTO NATIVE CLAY. A ROCK SHELL DAM/BERM IS LOCATED ALONG THE SOUTHERN END OF THE POND AND EXTENDS PARTIALLY ALONG THE EAST AND WEST SIDES. AT THE CURENT OPERATING LEVELS TH

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
91892	02261	HELLENS-EPLETT		ACTIVE HAZARD	603909	5251025	SECONDARY SETTLING POND DAM (DECANT TOWER) THE SECONDARY POLISHING POND IS COMPLETELY ENCLOSED BY A ROCK SHELL DAM. NO OBVIOUS SLUMPING, SETTLING OR EROSION OF THE STRUCTURE WAS NOTICED. AT THE CURRENT OPERATING LEVEL THE DAM DOES NOT PROVIDE CONTAINM
91893	02261	HELLENS-EPLETT		ACTIVE HAZARD	603705	5251197	AUTOCLAVE TAILINGS AREA THE AUTOCLAVE TAILINGS AREA HAS NOT BEEN CONSTRUCTED TO ITS APPROVED SIZE. THE CURRENT BASIN WAS EXCAVATED IN A NATIVE CLAY AND BERMED ALONG THE SOUTH AND WEST SIDES. THE BERMS CONSIST OF A COMPACTED CLAY CORE AND ROCK SHELL. T
74008	03446	EAST MICHIGAN	T435331	ACTIVE HAZARD	601423	5249217	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION.
74009	03446	EAST MICHIGAN	T435331	ACTIVE HAZARD	601278	5249107	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74010	03446	EAST MICHIGAN	T435331	ACTIVE HAZARD	601313	5249202	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74011	03446	EAST MICHIGAN	T435331	ACTIVE HAZARD	601618	5249127	1993 ASSESSMENT; ADIT, COLLARED IN BEDROCK AND NOT SCREENED. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74159	03510	HARGRAVE		REHABILITATED	601689	5247643	SHAFT #3: ABOUT 175' DEEP WITH LEVELS AT 65', 75', 175' AND 375'. A DRIFT WAS EXTENDED 100' INTO WEST CLAIM FROM 550' LEVEL OF THE ADJOINING KERR LAKE #3 SHAFT, AND A 90' RAISE WAS DRIVEN FROM THE LEVEL. 1993 SITE ASSES
74160	03510	HARGRAVE		ACTIVE HAZARD	601659	5247378	1993 ASSESSMENT; OPEN TO SURFACE WHICH IS UNSUPPORTED. SURROUNDED BY A PERIMETER CHAIN LINK FENCE. DEPTH OF STOPE COULD NOT BE FOUND.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74161	03510	HARGRAVE		NOT AVAILABLE	601659	5247375	LATERAL WORKINGS: SHAFT #1 - ABOUT 175' DEEP WITH LEVELS AT 75', 125' AND 175'. EXTENSIVE DRIFT WAS DRIVEN ON 125' LEVEL. SHAFT #3 - ABOUT 175' DEEP WITH LEVELS AT 65', 75', 175' AND 375'. A DRIFT WAS EXTENDED 100&
84276	03510	HARGRAVE		REHABILITATED	601643	5247312	SHAFT #1: ABOUT 175' DEEP WITH LEVELS AT 75', 125' AND 175'. EXTENSIVE DRIFT WAS DRIVEN ON 125' LEVEL. SHAFT WAS FENCED BY PROPRIETOR PRIOR TO 1989. 1993 SITE ASSESSMENT REPORT: THIS SHAFT (S01) IS PROTECTED BY A PERMANENT, RECE
84277	03511	LAWSON		ACTIVE HAZARD	601119	5247607	SHAFT #1: IS VERTICAL AND ABOUT 195' DEEP. SHAFT WAS FENCED BY PROPRIETOR PRIOR TO 1989. 1993 SITE ASSESSMENT REPORT: (SHAFT NO.1) (S02) IS IN BEDROCK WITH A TIMBER-CRIBBED COLLAR AND IS PROTECTED BY A LUNDY-TYPE FENCE WITH THREE BARBED WIRE ST
84278	03511	LAWSON		ACTIVE HAZARD	601084	5247543	SHAFT #8: WAS SUNK ABOUT 410'. LEVELS WERE ESTABLISHED AT 88', 185', 240', 300', AND 400' DEPTHS. THE 300' AND 400' LEVELS EXTEND ACROSS THE ADJOINING KERR LAKE FRACTION. THE 185' LEVEL IS CONNECTED WITH THE #1 SHAFT A
84280	03511	LAWSON		ACTIVE HAZARD	600914	5247548	SHAFT #11: IS ABOUT 80' DEEP. SHAFT WAS FENCED BY PROPRIETOR PRIOR TO 1989. 1993 SITE ASSESSMENT REPORT: (SHAFT NO.11) (S04) IS PROTECTED WITH A LUNDY-TYPE FENCE WITH THREE BARBED WIRE STRANDS; CURRENT PROTECTION IS INADEQUATE AND THE SHAFT SHO
89867	03511	LAWSON		ACTIVE HAZARD	601083	5247542	1993 ASSESSMENT; HEADFRAME CONSTRUCTED WITH A TIMBER FRAME AND WOOD AND METAL CLADDING. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION. HEADFREAME FOR SHAFT S03 (SHAFT NO.8).
89868	03511	LAWSON		ACTIVE HAZARD	601198	5247467	1993 ASSESSMENT; TAILINGS CONFINED IN A POND OR BY A DAM. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
89870	03511	LAWSON		ACTIVE HAZARD	601058	5247542	1993 ASSESSMENT; STOPE, OPEN TO SURFACE, PARTIALLY COLLAPSED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE STRANDS OF BARBED WIRE IN GOOD CONDITION. OPENING PARTIALLY OBSCURRED BY ROTTING TIMBERS.
89871	03511	LAWSON		ACTIVE HAZARD	601113	5247492	1993 ASSESSMENT; (NO.2 VEIN STOPE) OPEN TO SURFACE, NO SUPPORT EVIDENT. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION. MINOR SLOUGHING/CAVING AT NORTH END OF FENCE.
89872	03511	LAWSON		ACTIVE HAZARD	601113	5247492	1993 ASSESSMENT; (NO.8 VEIN EXTENSION) STOPE, OPEN TO SURFACE, NO SUPPORT EVIDENT. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE STRANDS OF BARBED WIRE IN GOOD CONDITION. LOCATED ADJACENT ROAD WITHIN 2M.
89873	03511	LAWSON		ACTIVE HAZARD	600898	5247622	1993 ASSESSMENT; (NO.9 STOPE) OPEN TO SURFACE, NO SUPPORT EVIDENT. SURROUNDED BY PAGE WIRE FENCE ~1.3M HIGH IN POOR CONDITION. SLOUGHING/CONING ALONG EDGE OF STOPE.
89874	03511	LAWSON		ACTIVE HAZARD	600900	5247620	PLANS INDICATE WORKINGS ON 27, 56, 73, 91 AND 122M LEVELS.
74164	03512	KERR LAKE	336	ACTIVE HAZARD	601583	5247832	1993 ASSESSMENT; (NO.1 SHAFT) ONE COMPARTMENT SHAFT WITH VERTICAL SIDES. SURROUNDED BY BARBED WIRE FENCE IN POOR CONDITION. SHAFT OBSCURRED OR WORKED OUT WITHIN STOPE. OPEN STOPE EXTENDS INTO LAKE.
74165	03512	KERR LAKE	336	ACTIVE HAZARD	601498	5247752	1993 ASSESSMENT; (NO.9 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE STRANDS OF BARBED WIRE IN GOOD CONDITION. OBSCURRED OR WORKED OUT WITHIN STOPE AT SOUTH END. OPEN STOP
74166	03512	KERR LAKE	336	ACTIVE HAZARD	601418	5247727	1993 ASSESSMENT; (PRICE SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DEPTH. COVERED WITH A PERMANENT, CONCRETE SLAB (VENTED) IN GOOD CONDITION.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74167	03512	KERR LAKE	336	ACTIVE HAZARD	601398	5247777	1993 ASSESSMENT; (SHAFT NO.8) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH CLASSIFIED TAILINGS. SHAFT REPORTED TO BE UNDER KERR LAKE (MAIN PRODUCTION SHAFT WITH OPEN CUTS).
74168	03512	KERR LAKE	336	ACTIVE HAZARD	601338	5247712	1993 ASSESSMENT; (NO.7 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
74170	03512	KERR LAKE	336	ACTIVE HAZARD	601523	5247527	1993 ASSESSMENT; (NO.2 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES, IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74171	03512	KERR LAKE	336	ACTIVE HAZARD	601673	5247607	1993 ASSESSMENT; (LITTLE NO.3 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES, IN BEDROCK, WITHOUT A CONSTRUCTED COLLAR. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE STRANDS OF BARBED WIRE IN GOOD CONDITION. SLOUGHING AT COLLAR.
74172	03512	KERR LAKE	336	ACTIVE HAZARD	601678	5247412	1993 ASSESSMENT; (NO.3 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE STRANDS OF BARBED WIRE IN GOOD CONDITION. OPEN CUT WITH BLOCK CAVING IN. SHAFT COLLAR OBSCUR
74173	03512	KERR LAKE	336	ACTIVE HAZARD	601338	5247712	1993 ASSESSMENT; FOUNDATION, FUNCTION UNKNOWN, CONSTRUCTED OF CONCRETE, INCORPORATING VERTICAL OR STEEP DROPS >1.5M. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
74174	03512	KERR LAKE	336	ACTIVE HAZARD	601638	5247777	1993 ASSESSMENT; CROWN PILLAR WHICH HAS PARTIALLY COLLAPSED. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE. CIRICULAR DEPRESSION/SUDBSIDENCE INDICATES PARTIAL COLLAPSE OF CROWN PILLAR.
82621	03512	KERR LAKE	336	ACTIVE HAZARD	601603	5247817	1993 ASSESSMENT; STOPE, OPEN TO SURFACE WHICH IS PARTIALLY COLLAPSED. SURROUNDED BY A BARBED WIRE FENCE IN POOR CONDITION.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
89875	03512	KERR LAKE	336	ACTIVE HAZARD	601488	5247762	1993 ASSESSMENT; STOPE, OPEN TO SURFACE WHICH HAS PARTIALLY COLLAPSED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
89876	03512	KERR LAKE	336	ACTIVE HAZARD	601387	5247622	1993 ASSESSMENT; WORKINGS NEAR (<30M) SURFACE, NO SUPPORT EVIDENT. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
89877	03512	KERR LAKE		ACTIVE HAZARD	601668	5247357	1993 ASSESSMENT; OPEN CUT WHICH IS UNSUPPORTED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
74176	03513	DRUMMOND		ACTIVE HAZARD	601733	5247932	1993 ASSESSMENT; (WRIGHT SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN MODERATE TO GOOD CONDITION. SHAFT LOCATED WITHIN STOPE, MUCK PILE INDICAT
74177	03513	DRUMMOND		ACTIVE HAZARD	601793	5247862	1993 ASSESSMENT; (MAIN SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN MODERATE TO GOOD CONDITION. SHAFT LOCATED WITHIN MAIN STOPE. MUCK PILE INDICATE
74178	03513	DRUMMOND		ACTIVE HAZARD	601708	5247792	1993 ASSESSMENT; (NO.4 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN MODERATE TO GOOD CONDITION.
74179	03513	DRUMMOND		ACTIVE HAZARD	601708	5247713	1993 ASSESSMENT; (NO.5 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DEPTH. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN GOOD CONDITION.
74180	03513	DRUMMOND		ACTIVE HAZARD	601768	5247927	1993 ASSESSMENT; (WRIGHT STOPE) STOPE, OPEN TO SURFACE WHICH IS UNSUPPORTED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74181	03513	DRUMMOND		ACTIVE HAZARD	601708	5247713	PLANS INDICATE WORKINGS ON 15, 18, 23, 24, 30, 38 AND 61M LEVELS.
74182	03513	DRUMMOND		ACTIVE HAZARD	601728	5247827	1993 ASSESSMENT; (MAIN SHAFT STOPE) OPEN TO SURFACE WHICH IS UNSUPPORTED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
74183	03513	DRUMMOND		NOT AVAILABLE	601708	5247713	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74184	03513	DRUMMOND		ACTIVE HAZARD	601718	5247757	1993 ASSESSMENT; (SHAFT NO.5 STOPE) OPEN TO SURFACE, WHICH IS UNSUPPORTED. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
74187	03515	COBALT BADGER		ACTIVE HAZARD	601313	5247217	1993 ASSESSMENT; (SHAFT NO.9) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES, IN BEDROCK WITH CONCRETE COLLAR. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN GOOD CONDITION.
74515	03665	KEELEY	T10286	ACTIVE HAZARD	613140	5227952	2000 ASSESSMENT; OPEN, INCLINED EXPLORATION SHAFT: TIMBERED TWO COMPARTMENT, INCLINED AT 80 DEGREES EAST, KEELEY NO.4 SHAFT IN LITERATURE, TRUE DEPTH UNSPECIFIED IN REPORT.
74516	03665	KEELEY	T10285	ACTIVE HAZARD	613220	5227958	2000 ASSESSMENT; SHAFT #4: COLLAPSED HEAD FRAME OVER THE SHAFT, TIMBER CRIBBED, KEELEY NO.3 SHAFT. HISTORICAL DEPTH UNSPECIFIED.
74517	03665	KEELEY	T10155	ACTIVE HAZARD	613163	5228419	2000 ASSESSMENT; SHAFT: 2 COMPARTMENT, BACKFILLED WITH ROCK AND WOOD, KNOWN AS FRONTIER NO.3 SHAFT. HISTORICAL DEPTH OF SHAFT UNSPECIFIED IN REPORT.
74518	03665	KEELEY	T10155	ACTIVE HAZARD	613286	5228483	2000 ASSESSMENT; LOGS USED TO CAP SHAFT. FENCE IS DOWN, FRONTIER NO.1 SHAFT. HISTORICAL DEPTH OF SHAFT UNSPECIFIED IN REPORT.
74519	03665	KEELEY	10365	ACTIVE HAZARD	613450	5228479	2000 ASSESSMENT; TIMBER CRIBBED.
74520	03665	KEELEY	T10155	ACTIVE HAZARD	613011	5228539	2008 TAILINGS ASSESSMENT; APPROXIMATELY 70% OF THE TAILINGS SURFACE IS COVERED BY A POND. A WASTE ROCK PAD IS SITUATED ON THE SOUTHEAST EDGE OF THE BASIN, ADJACENT THE SITE ACCESS ROAD. A SMALL TAILINGS BEACH OCCURS IN THE SOUTHWEST SECTION OF BASIN. BEA

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
82093	03665	KEELEY	T10155	ACTIVE HAZARD	613075	5228369	2000 ASSESSMENT; SHAFT COVERED WITH LOGS TO FORM A 'CAP', WATER FILLED TO 12 METERS BELOW GRADE SURFACE. HISTORICAL DEPTH NOT SPECIFIED IN REPORT.
82094	03665	KEELEY	T10286	ACTIVE HAZARD	613136	5227789	2000 ASSESSMENT; CAVING IN AT SURFACE - ROCK PILE OCCURS NEAR THE SHAFT, LISTED AS KEELEY NO.5 SHAFT IN LITERATURE - UNKNOWN TOTAL DEPTH, NOT SPECIFIED IN REPORT.
82095	03665	KEELEY	T10286	ACTIVE HAZARD	613143	5227999	2000 ASSESSMENT; STOPE INCLINED AT 35 DEGREES EAST, PARTIALLY FILLED IN ON ONE SIDE. DEPTH OF STOPE UNSPECIFIED.
82096	03665	KEELEY	T10285	ACTIVE HAZARD	613303	5228000	2000 ASSESSMENT; SMALL HOLE ON THE EDGE OF A "TRENCH". THE "TRENCH" WAS A STOPE CAPPED WITH PLYWOOD. NOW, IT IS FILLED WITH SOIL AND FEW TREES, PREVIOUSLY FENCED, BUT FENCE IS NOW DOWN. HISTORICAL DEPTH OF STOP UNSPECIFIED IN RE
82097	03665	KEELEY	T10155	ACTIVE HAZARD	613367	5228586	2000 ASSESSMENT; SHAFT: TIMBER CRIBBED, 3 COMPARTMENT SHAFT, INCLINED AT 80 DEGREES EAST, KNOWN AS MAILYBURRY SILVER SHAFT. HISTORICAL DEPTH OF SHAFT NOT VERIFIED IN REPORT.
82468	03665	KEELEY	T10285	REHABILITATED	613292	5228113	2000 ASSESSMENT; POSSIBLE SHAFT LOCATION BACKFILLED, KNOWN AS KEELEY NO.1 SHAFT IN LITERATURE; THE SHAFT COLLAR WAS NOT IDENTIFIED, ACCORDING TO A HISTORICAL MAP, THE SHAFT IS LOCATED BETWEEN THE ADJACENT CONCRETE STRUCTURE AND THE ROCK PILE; THE SHAFT M
82493	03665	KEELEY	T10285	ACTIVE HAZARD	613360	5228022	2000 ASSESSMENT; KNOWN AS KEELEY NO.2 SHAFT IN LITERATURE, COVERED WITH WOOD OF 50 CENTIMETERS IN DIAMETER, THERE IS SOME REGROWTH ON TOP OF PLYWOOD, TWO OLD PIPES ARE STICKING OUT. HISTORICAL DEPTH OF SHAFT UNSPECIFIED IN REPORT.
82495	03665	KEELEY	T10359	ACTIVE HAZARD	613208	5228197	2000 ASSESSMENT; KNOWN AS CROMPTON SHAFT, TIMBER, PARTIALLY FILLED-IN. HISTORICAL DEPTH OF SHAFT UNSPECIFIED IN REPORT.
82496	03665	KEELEY	10365	ACTIVE HAZARD	613459	5228469	2000 ASSESSMENT; WATER FILLED TO 2 METERS BELOW GRADE SURFACE. DEPTH UNSPECIFIED BUT >2 METERS.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74522	03667	FORNERI	T46400	REHABILITATED	613111	5229089	2000 ASSESSMENT; BACKFILLED (KNOWN AS FORMER NO. 1 SHAFT IN LITERATURE). HISTORICAL DEPTH OF SHAFT UNSPECIFIED IN REPORT
74524	03667	FORNERI	T46400	NOT A HAZARD	613093	5229085	2000 ASSESSMENT; ROCK PILE, REPORT DOES NOT SPECIFY IF ROCK PILE IS WASTE.
82283	03680	PRICE, J.A.	T46400	ACTIVE HAZARD	613340	5228970	2000 ASSESSMENT; FULL OF WATER - LOG COVERED - FENCE DOWN, COORDINATES TAKEN FROM SITE MAP(APPROXIMATE).
82284	03680	PRICE, J.A.	T46400	ACTIVE HAZARD	613331	5228961	2000 ASSESSMENT; INCLINED SHAFT #3: KNOWN AS HARRIS NO.2 SHAFT - TIMBERED CRIBBED FENCED NEEDS TO BE FIXED - NOT SOLID. HAZARD DIMENSIONS UNSPECIFIED IN REPORT, DEPTH UNDETERMINED IN REPORT.
74640	03712	ARGENTITE	T24029	REHABILITATED	597543	5248532	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE IN MODERATE CONDITION.
74652	03715	AIRGIOD	T45331	ACTIVE HAZARD	601323	5248933	1993 ASSESSMENT; (AIRGIOD SHAFT) PROSPECT SHAFT WITH VERTICAL SIDES OF UNKNOWN DEPTH. COVERED WITH A REMOVEABLE CONCRETE SLAB IN GOOD CONDITION.
74653	03715	AIRGIOD	T45331	NOT AVAILABLE	601323	5248933	FEATURE NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74667	03718	COBALT MERGER		NOT A HAZARD	601698	5247202	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. LOCATED 5M WEST OF HYDRO LINE.
74821	03840	SILVERFIELDS	395	ACTIVE HAZARD	600018	5247603	1993 ASSESSMENT; (ALEXANDRA SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DEPTH. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN MODERATE TO GOOD CONDITION. CLEAN UP OF DEBRIS FROM SITE.
74822	03840	SILVERFIELDS	1385	REHABILITATED	599903	5247407	1993 ASSESSMENT; (CLAIM 1385 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. SURROUNDED BY A CHAIN LINK FENCE IN POOR CONDITION. SHAFT LOCATED WITHIN 10M W OF ROAD. MUCK PILE SUGGEST A DEPTH OF LESS THAN 30M.
74823	03840	SILVERFIELDS	1511	ACTIVE HAZARD	599708	5248027	1993 ASSESSMENT; (METEOR ADIT NO.1) ADIT COLLARED IN BEDROCK AND NOT SCREENED. PROTECTED BY A WOODEN

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
							DOOR IN GOOD CONDITION. MONITORED AND USED BY THE HAILEYBURY SCHOOL OF MINES.
74824	03840	SILVERFIELDS	395	NOT AVAILABLE	600018	5247603	FEATURE NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74825	03840	SILVERFIELDS	395	NOT AVAILABLE	600018	5247603	PLANS INDICATE WORKINGS ON 36 AND 45M LEVELS
74829	03840	SILVERFIELDS	1385	ACTIVE HAZARD	599958	5247457	1993 ASSESSMENT; RAISE TO SURFACE OF UNKNOWN DEPTH. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN GOOD CONDITION. CONCRETE BLOCKS OUTLINE PERIMETER OF CAP AND RAISE.
74854	03844	CONISIL	JB27	ACTIVE HAZARD	600993	5247022	1993 ASSESSMENT; (ISLAND 22 SHAFT) PROSPECT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN. LOCATED ON ISLAND. MINOR SLOUGHING/CONING.
74856	03844	CONISIL	JB27	ACTIVE HAZARD	601108	5247138	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. CONTAINED WITHIN A SECURE STRUCTURE IN GOOD CONDITION.
74857	03844	CONISIL	JB27	ACTIVE HAZARD	601108	5247077	1993 ASSESSMENT; (ADIT NO.2) ADIT WHICH HAS NOW BEEN FILLED IN AND REMDIATED. FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION. ADIT LOCATED AT SOUTHEAST END OF MUCK PILE.
74858	03844	CONISIL	JB27	ACTIVE HAZARD	601098	5247122	1993 ASSESSMENT; ADIT WHICH HAS NOW BEEN FILLED IN AND REMDIATED. FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION. ADIT LOCATED AT SOUTHWEST END OF MUCK PILE.
74861	03844	CONISIL	JB27	ACTIVE HAZARD	601203	5247112	1993 ASSESSMENT; (EAST ADIT) ADIT COLLARED IN BEDROCK AND NOT SCREENED. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE. MINOR CAVING AT SIDE OF HILL.
74862	03844	CONISIL	JB27	NOT AVAILABLE	601108	5247138	PLANS INDICATE WORKINGS ON 94, 141, 163 AND 186M LEVELS.
74863	03844	CONISIL	JB27	ACTIVE HAZARD	601108	5247138	1993 ASSESSMENT; (CONISIL HEADFRAME) CONSTRUCTED WITH TIMBER FRAME AND WOOD AND METAL CLADDING. PROTECTED WITH A

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
							LOCKED AND SECURE WOODEN DOOR IN GOOD CONDITION.
74869	03844	CONISIL	JB27	NOT AVAILABLE	601108	5247138	FEATURE NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
81904	10065	RUBY	T174	ACTIVE HAZARD	603978	5251997	1993 ASSESSMENT; FOUNDATION. FUNCTION UNKNOWN, CONSTRUCTED OF CONCRETE ON GRADE. FEATURE IS CLEARLY VISIBLE. *MAY POSSIBLY BE A CAPPED SHAFT?
81906	10065	RUBY	T174	NOT A HAZARD	603983	5252032	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. FEATURE IS CLEARLY VISIBLE.
81907	10065	RUBY	T174	NOT A HAZARD	603983	5251822	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. SURROUNDED BY A BARBED WIRE FENCE (3-4 STRANDS) WITH POSTS SET IN CONCRETE IN POOR CONDITION.

APPENDIX II – AMIS Features in Unpatented Claims

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
81814	00344	UNKNOWN	4282450	NOT AVAILABLE	609509	5231096	
82065	01004	MONTROSE	4200044	NOT A HAZARD	613762	5228162	2000 ASSESSMENT; WELL: THE WALLS OF THE HOLE ARE MADE OF BOULDERS COVERED WITH A PLANK OF WOOD. THERE IS AN OLD PIPE IN THE HOLE - NOT A MINING FEATURE SO PROBABLY DOES NOT NEED TO BE REHABILITATED.
82483	01004	MONTROSE	4200044	REHABILITATED	613747	5228093	2000 ASSESSMENT; SHAFT #1: REHABILITATED BY BACKFILLING WITH ROCK FROM ROCK PILE. HISTORICAL DOCUMENTS INDICATE SHAFT WITH 36 METER DEPTH
82913	01004	MONTROSE	4200044	NOT A HAZARD	613825	5228099	2000 ASSESSMENT; TRIANGULAR SHAPED PIT SUNK IN ROCK AND WATER FILLED TO 1.5 METERS BELOW GRADE SURFACE (BGS).
81396	01005	MINING CORPORATION	4280143	ACTIVE HAZARD	617009	5228576	2000 ASSESSMENT; TIMBERED SHAFT IS CAVED IN. NOW THERE IS A BIG HOLE, THERE IS AN OLD CAR IN THE HOLE. SITE MAP SHOWS SHAFT INSIDE A PIT. HISTORICAL DOCUMENTS INDICATE SHAFT IS 108 METERS DEEP.
82066	01005	MINING CORPORATION	4280143	NOT A HAZARD	616981	5228630	2000 ASSESSMENT; THE DIMENSIONS FOR THIS PIT ARE UNSPECIFIED.
82067	01006	GORE, J.	4280143	ACTIVE HAZARD	616749	5228029	2000 ASSESSMENT; LOCATED AT THE END OF TRENCH THAT ONE CAN SEE FROM THE TRAIL - TIMBER WALLS. UNSPECIFIED TOTAL DEPTH
73084	02263	LATOUR LAKE MINES LTD.	4280163	ACTIVE HAZARD	609588	5234412	1993 ASSESSMENT; PIT (1M DEEP) IN BEDROCK WITH SLOPED SIDES. NOT REPORTED AS A SHAFT.
80807	02263	LATOUR LAKE MINES LTD.	4280163	NOT AVAILABLE	609588	5234412	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
73103	02274	LORRAIN 12 UNKNOWN	4280161	ACTIVE HAZARD	606543	5235227	1993 ASSESSMENT; PIT (4M DEEP) IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT, FEATURE IS PARTIALLY HIDDEN.
73104	02275	PRICE, J.	4280177	NOT AVAILABLE	606738	5234267	1993 ASSESSMENT; FIELD INVESTIGATION WAS NOT CONDUCTED ON THIS FEATURE SINCE AN EXTENSIVE LITERATURE SEARCH INDICATED THAT THIS FEATURE WAS NOT A HAZARD.
73107	02276	MCINLEY DARRAH OPTION	4280177	ACTIVE HAZARD	606273	5234282	1993 ASSESSMENT; ONE COMPARTMENT SHAFT (15M DEEP) WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE.
73108	02276	MCINLEY DARRAH OPTION	4280177	ACTIVE HAZARD	606303	5234361	1993 ASSESSMENT; TRENCH (4M DEEP) IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION IS PRESENT. FEATURE IS PARTIALLY HIDDEN.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
73768	03408	CUMMINGS	4280157	NOT A HAZARD	599878	5245223	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. SURROUNDED BY BARBED WIRE (3-4 STRAND) FENCE WITH POSTS SET IN CONCRETE IN POOR CONDITION.
89557	03408	CUMMINGS	4280157	NOT A HAZARD	599848	5245225	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. SURROUNDED BY BARBED WIRE (3-4 STRAND) FENCE WITH POSTS SET IN CONCRETE IN POOR CONDITION.
73769	03409	SLOAN-OLSEN	4280130	ACTIVE HAZARD	600543	5244293	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE. IN A BEAVER MEADOW, WATER LEVEL TO GRADE. DEPTH SOUNDED TO 9M. NO MUCK EVIDENT IN AREA.
73770	03410	GAUTHIER	4282379	ACTIVE HAZARD	600303	5244463	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
73771	03410	GAUTHIER	4282379	NOT A HAZARD	600283	5244452	1993 ASSESSMENT; PIT IN BEDROCK WITH SLOPED SIDES.
73778	03413	GRAY, J.J.	4275043	ACTIVE HAZARD	598753	5248008	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. SURROUNDED BY A LUNDY TYPE FENCE WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION.
89562	03413	GRAY, J.J.	4275043	NOT A HAZARD	598768	5247902	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
73871	03424	O'BRIAN	4280183	ACTIVE HAZARD	600808	5240277	1993 ASSESSMENT; GLORY HOLE WITH VERTICAL SIDES AND VERTICAL WALLS EXHIBITING A LITTLE SLOUGHING. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN MODERATE TO GOOD CONDITION.
73872	03424	O'BRIAN	4280184	ACTIVE HAZARD	600638	5240527	1993 ASSESSMENT; STOPE, OPEN TO SURFACE, NO SUPPORT EVIDENT. SURROUNDED BY LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN GOOD CONDITION. POSSIBLE SUBSIDENCE. LAGGING MAY COVER STOPE LOCATED ADJACENT TO SHAFT.
73914	03431	NIPISSING 406	4275043	ACTIVE HAZARD	598638	5248002	1993 ASSESSMENT; (NO. 105 STOPE) OPEN TO SURFACE, SUPPORTED USING TIMBERED STULLS. SURROUNDED BY BARBED WIRE FENCE IN POOR CONDITION. SHAFT HAS BEEN STOPED OUT, SOME LOOSE SCALE, OPEN CUT OBSCURRED BY VEGETATION.
74012	03446	EAST MICHIGAN	4277084	ACTIVE HAZARD	601423	5248287	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
89831	03446	EAST MICHIGAN	4277084	ACTIVE HAZARD	601258	5248177	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74072	03470	KIRK BUDD	4280200	REHABILITATED	599533	5244327	1993 ASSESSMENT; ADIT COLLARED IN BEDROCK AND NOT SCREENED. FEATURE IS CLEARLY VISIBLE. ADIT WAS BACKFILLED IN DEC 2000 UNDER THE ABANDONED MINES REHABILITATION FUND
74073	03470	KIRK BUDD	4280200	REHABILITATED	599573	5244372	1993 ASSESSMENT; ADIT COLLARED IN BEDROCK AND NOT SCREENED. ADIT BACFILLED UNDER THE ABANDONED MINES REHABILITATION FUND IN DEC 1999
74074	03470	KIRK BUDD	4280200	REHABILITATED	599411	5244188	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
82616	03470	KIRK BUDD	4280200	NOT A HAZARD	599411	5244188	1993 ASSESSMENT; WASTE ROCK PILE LOCATED NORTH AND SOUTH OF SHAFT. NO FURTHER INFORMATION.
89564	03470	KIRK BUDD	4280200	REHABILITATED	599410	5244185	1993 ASSESSMENT; HEADFRAME CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE.
74086	03485	NANEEK	4281662	NOT AVAILABLE	603025	5236032	1993 ASSESSMENT; THE FEATURE COULD NOT BE LOCATED.
74087	03486	BOTHA LAKE	4280133	NOT AVAILABLE	603025	5238402	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74088	03486	BOTHA LAKE	4280132	ACTIVE HAZARD	601643	5238237	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE.
74089	03486	BOTHA LAKE	4280133	ACTIVE HAZARD	603025	5238402	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74090	03486	BOTHA LAKE	4280132	ACTIVE HAZARD	601873	5238422	1993 ASSESSMENT; OPEN CUT WHICH IS UNSUPPORTED. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74091	03486	BOTHA LAKE	4280133	ACTIVE HAZARD	602373	5237812	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. COVERED WITH A REMOVEABLE TIMBER CAP IN POOR TO MODERATE CONDITION.
74092	03486	BOTHA LAKE	4280133	NOT A HAZARD	602343	5238112	1993 ASSESSMENT; PIT IN BEDROCK WITH SLOPED SIDES.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74098	03489	BULLDOG	4280178	ACTIVE HAZARD	615895	5225344	2000 ASSESSMENT; SHAFT #2: LOCATED AT THE END OF A TRENCH - SUNK IN ROCK AND WATER FILLED TO 7 METERS BELOW GRADE SURFACE (BGS). HISTORICAL SHAFT DEPTH OF 14 METERS
82075	03489	BULLDOG	4280178	NOT A HAZARD	615630	5225149	2000 ASSESSMENT; SOUTH EAST SHORE OF UNNAMED LAKE; FILLED IN WITH MUD, SUNK IN ROCK
82076	03489	BULLDOG	4280158	NOT A HAZARD	616029	5224957	2000 ASSESSMENT; LONG TRENCH.
82486	03489	BULLDOG	4280178	ACTIVE HAZARD	615953	5225278	2000 ASSESSMENT; SHAFT #1: TIMBER 2 COMPARTMENT SHAFT - COVERED WITH FALLEN TREES; THE SHAFT IS AT THE END OF A TRENCH - THERE IS A ROCK DUMP NEXT TO SHAFT; SHAFT IS FILLED WITH WATER TO 10 METER BELOW GRADE SURFACE (BGS). HISTORICAL DEPTH OF SHAFT IS 3
74211	03519	MAYFAIR	4283320	ACTIVE HAZARD	602533	5244422	1993 ASSESSMENT; HOIST ROOM CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING.
74212	03519	MAYFAIR	4283320	ACTIVE HAZARD	602538	5244402	1993 ASSESSMENT; BUILDING, FUNCTION UNKNOWN, CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74250	03529	ROWELL	4275175	ACTIVE HAZARD	598968	5245453	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. EXTENSIVE SHALLOW TRENCHES IN VICINITY OF SHAFT. WATER LEVEL AT GRADE. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74251	03530	CLAIM T20321	4277086	ACTIVE HAZARD	599598	5245498	1993 ASSESSMENT; ADIT, COLLARED IN BEDROCK AND NOT SCREENED. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE.
74252	03531	BOMONT	4280199	ACTIVE HAZARD	599483	5243828	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. SURROUNDED BY A LUNDY TYPE FENCE TOPPED WITH THREE BARBED WIRE STRANDS IN POOR CONDITION.
74253	03531	BOMONT	4280199	NOT AVAILABLE	599483	5243828	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74254	03531	BOMONT	4280199	NOT AVAILABLE	599483	5243828	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
89573	03531	BOMONT	4280199	ACTIVE HAZARD	599488	5243732	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. SURROUNDED BY BARBED WIRE FENCE (3-4 STRANDS) WITH POSTS SET IN CONCRETE IN POOR CONDITION.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
89574	03531	BOMONT	4280199	ACTIVE HAZARD	599508	5243707	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
89575	03531	BOMONT	4280199	NOT A HAZARD	599623	5243887	1993 ASSESSMENT; TRENCH IN OVERBURDEN WITH SLOPED SIDES.
74264	03534	MCANDREW, J.J.	4280157	ACTIVE HAZARD	599963	5244958	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. ROTTING TIMBERS AND SOME CAVING AT COLLAR. WATER LEVEL 3M BELOW GRADE. SURROUNDED BY BARBED WIRE FENCE (3-4 STRANDS) WITH POSTS SET IN CONCRETE IN POOR
74265	03534	MCANDREW, J.J.	4280157	NOT AVAILABLE	599963	5244958	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74266	03534	MCANDREW, J.J.	4280157	NOT AVAILABLE	599963	5244958	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
89576	03534	MCANDREW, J.J.	4280157	ACTIVE HAZARD	599958	5244907	1993 ASSESSMENT; ADIT COLLARED IN BEDROCK AND NOT SCREENED. FEATURE IS CLEARLY VISIBLE.
74280	03541	GLEN	4275790	ACTIVE HAZARD	600728	5246148	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74282	03542	FLEMING	4280144	ACTIVE HAZARD	602683	5241903	1993 ASSESSMENT; OPEN CUT WHICH IS UNSUPPORTED. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
82083	03654	RAMARDO HR56	4264322	NOT A HAZARD	615478	5227577	2000 ASSESSMENT; SHALLOW TRENCH.
82084	03654	RAMARDO HR56	4264322	NOT A HAZARD	615447	5227539	2000 ASSESSMENT; LONG SHALLOW TRENCH
82085	03655	COO, C.W.	4200044	ACTIVE HAZARD	613985	5228178	2000 ASSESSMENT; TIMBER CRIBBED - REGROWTH WATER FILLED TO 0.5M BELOW GROUND SURFACE (BGS). HISTORICAL DOCUMENTS INDICATE SHAFT DEPTH OF 20M.
82086	03655	COO, C.W.	4200044	ACTIVE HAZARD	613892	5228098	2000 ASSESSMENT; CAPPED/BACKFILLED-THERE IS A PIPE IN THE GROUND-THE PIPE INDICATED THAT THE SHAFT HAS BEEN CAPPED (PRESSURE EQUALIZATION PIPE)-THE CAP WAS THEN (PRESUMABLE)COVERED WITH ROCK. WATER LEVEL 10M BGS.
82087	03655	COO, C.W.	4200044	NOT A HAZARD	613893	5228105	2000 ASSESSMENT; WASTE ROCK - EXTENDS INTO SWAMP. COORDINATE IS FROM MAP APPROX.
82116	03656	MINING	4280142	ACTIVE HAZARD	616540	5228116	2000 ASSESSMENT; THE SHAFT IS FENCED. THE FENCE IS DAMAGED AT ONE PLACE BY A BIRCH THAT A BEAVER CUT. HISTORICAL DOCUMENTS INDICATE SHAFT DEPTH OF 128 METERS
74489	03658	NORBAY	4282448	NOT A HAZARD	607970	5229814	2000 ASSESSMENT; SHALLOW TRENCH.

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82167	03668	TAYLOR	4275020	REHABILITATED	613543	5229397	2000 ASSESSMENT; SHAFT #1: BACKFILLED IN THE NORTH EAST TRENDING TRENCH, THERE IS A SMALL METAL PIPE IN THE WIDER PART OF THE TRENCH. THE AREA LOOKS LIKE IT WAS FILLED A LONG TIME AGO. ORIGINAL DEPTH UNSPECIFIED, SLUMPED TO 1 METER.
82168	03668	TAYLOR	4275020	NOT A HAZARD	613543	5229389	2000 ASSESSMENT; SHALLOW TRENCH LIES DIRECTLY SOUTH OF SHAFT #1.
82169	03668	TAYLOR	4275020	NOT A HAZARD	613514	5229388	2000 ASSESSMENT; LONG SHALLOW TRENCH CLOSE TO POND, SHAFT #2 INSIDE TRENCH ON SOUTH END.
82170	03668	TAYLOR	4275020	NOT A HAZARD	613533	5229417	2000 ASSESSMENT; SHALLOW TRENCH CURVES TO THE WEST.
82473	03668	TAYLOR	4275020	REHABILITATED	613502	5229370	2000 ASSESSMENT; SHAFT #2: REHABILITATED, BACKFILLED.
82108	03670	MILLER, H.G.	4280140	REHABILITATED	615498	5228399	2000 ASSSESSMENT; PROSPECT ADIT WHICH HAS BEEN BACKFILLED. HISTORICAL INFORMATION INDICATE 18 METER ADIT NOW BACKFILLED
74526	03672	OSLUND-HERMISTON	4280178	NOT A HAZARD	615003	5224969	2000 ASSESSMENT; TRENCH #1: SHALLOW, MUDDY AND BESIDE A SWAMP
82110	03672	OSLUND-HERMISTON	4280178	NOT A HAZARD	615041	5224960	2000 ASSESSMENT; PIT #1: SHALLOW PIT SUNK IN OUTCROP.
82111	03672	OSLUND-HERMISTON	4281664	NOT A HAZARD	614916	5224889	2000 ASSESSMENT; PIT #2: SHALLOW PIT.
82112	03672	OSLUND-HERMISTON	4281664	NOT A HAZARD	614852	5224855	2000 ASSESSMENT; PIT #3.
74527	03673	CLIFTON	4282703	REHABILITATED	614027	5224710	2000 ASSESSMENT; BACKFILLED USING ROCK DUMP MATERIAL (TRUE DEPTH UNSPECIFIED).
74528	03673	CLIFTON	4281640	ACTIVE HAZARD	614412	5224944	2000 ASSESSMENT; SHAFT #2: 2 COMPARTMENT, TIMBER CRIBBED, FENCED WITH YELLOW TAPE. ROCK DUMP, WATER FILLED TO 6 METERS BELOW GRADE SURFACE (TRUE DEPTH UNSPECIFIED).
82113	03673	CLIFTON	4281640	NOT A HAZARD	614449	5224909	2000 ASSESSMENT; WOOD STRUCTURE: TIMBER WALLS, UNDER WATER IN BEAVER POND. NO ROCK PILE AROUND SO THIS IS PROBABLY NOT A SHAFT.
82114	03673	CLIFTON	4281640	NOT A HAZARD	614410	5224872	2000 ASSESSMENT; LONG TRENCH.
82115	03673	CLIFTON	4281640	NOT A HAZARD	614289	5224810	2000 ASSESSMENT; SHALLOW TRENCH.
74534	03678	GILGREER	4280171	NOT A HAZARD	615834	5230312	2000 ASSESSMENT; SHALLOW PIT - WITH SMALL ROCK DUMP.
74535	03678	GILGREER	4280171	NOT A HAZARD	615897	5230326	2000 ASSESSMENT; SHALLOW TRENCH.

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82117	03678	GILGREER	4280171	NOT A HAZARD	615846	5230379	2000 ASSESSMENT; LONG SHALLOW TRENCH.
82118	03678	GILGREER	4280171	NOT A HAZARD	615942	5230435	2000 ASSESSMENT; LONG SHALLOW TRENCH.
74537	03680	PRICE, J.A.	4275044	ACTIVE HAZARD	613373	5228933	2000 ASSESSMENT; SHAFT #1: PARTIALLY FILLED-IN, BACKFILL MATERIAL MAY HAVE SUBSIDED.
74538	03680	PRICE, J.A.	4275044	ACTIVE HAZARD	613392	5228867	2000 ASSESSMENT; SHAFT #4: WATER FILLED TO 1 METER BELOW GRADE SURFACE (BGS), HISTORICAL DEPTH NOT SPECIFIED.
74539	03680	PRICE, J.A.	4275044	ACTIVE HAZARD	613576	5229158	2000 ASSESSMENT; SHAFT #5: HISTORICAL DEPTH UNSPECIFIED.
82285	03680	PRICE, J.A.	4275044	REHABILITATED	613374	5228947	2000 ASSESSMENT; RAISE: SUSPECTED RAISE - FILLED IN OR CAPPED, ALTHOUGH UNCERTAIN, 2 OLD PIPES STICKING OUT (PRESSURE EQUALIZATION) SUGGEST CAPPING, HISTORICAL DEPTH UNSPECIFIED IN REPORT.
82504	03680	PRICE, J.A.	4275044	ACTIVE HAZARD	613364	5228976	2000 ASSESSMENT; SHAFT #2: KNOWN AS HARRIS NO. 1 SHAFT - LOG COVERED - LOGS ARE PARTIALLY ROTTED INITIALLY FENCED BUT FENCE IS DOWN, WATER FILLED TO 2.5 METERS BELOW GRADE SURFACE. HISTORICAL DEPTH OF SHAFT IS UNSPECIFIED.
81815	10070	WOLVERINE	4282406	NOT AVAILABLE	608680	5229500	
81816	10071	UNKNOWN	4282450	NOT AVAILABLE	608710	5231268	
81919	10078	BARTH LAKE WEST	4280197	ACTIVE HAZARD	599753	5243258	1993 ASSESSMENT; ONE COMPARMTNET SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS PARTIALLY HIDDEN.
81941	10110	G. L. CLAIM A8	4275173	NOT A HAZARD	598413	5247457	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
81960	10123	BARTH LAKE	4280198	NOT A HAZARD	600033	5243297	1993 ASSESSMENT; TRENCH IN OVERBURDEN WITH SLOPED SIDES.
81961	10123	BARTH LAKE	4280198	ACTIVE HAZARD	600038	5243303	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
81963	10125	G. L. CLAIM 1118400	4280195	NOT A HAZARD	598913	5241773	1993 ASSESSMENT; PIT IN OVERBURDEN WITH SLOPED SIDES.
81976	10135	G. L. CLAIM L266361	4280195	NOT A HAZARD	598498	5243793	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
82034	10215	G. L. CLAIM T31051	4280198	NOT A HAZARD	600323	5243398	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NUMEROUS SHALLOW PITS AND TRENCHES IN THE AREA.
82038	10218	G. L. CLAIM T28127	4280145	NOT AVAILABLE	600308	5242228	THE YEAR 1993 SURVEY REPORTS A PIT OF UNKNOWN DIMENSION AND FORM. THE FEATURE WAS NOT LOCATED.

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82342	01007	UNKNOWN	4280142	ACTIVE HAZARD	616845	5228148	2000 ASSESSMENT; LOCATED IN THE CREEK FILLED WITH MUD - TIMBER WALLS. SHAFT FILLED WITH STREAM SEDIMENT - UNKNOWN STABILITY, APPEARS POTENTIALLY UNSTABLE. INFILLING SEDIMENT MAY BE LIKE 'QUICKSAND'.
73085	02264	TAYLOR PIPE	4276645	ACTIVE HAZARD	609583	5233557	1993 ASSESSMENT; TWO COMPARTMENT SHAFT (35.4M DEEP) WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
73086	02264	TAYLOR PIPE	4276645	ACTIVE HAZARD	609683	5233806	1993 ASSESSMENT; PROSPECT SHAFT (4M DEEP) WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
73087	02264	TAYLOR PIPE	4276645	NOT A HAZARD	609798	5234076	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN. LOCATED 2M WEST OF TRAIL.
73088	02264	TAYLOR PIPE	4276645	NOT AVAILABLE	609583	5233557	
82576	02277	CHUKUNI GOLD MINES L	4280159	ACTIVE HAZARD	606903	5234777	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS CLEARLY VISIBLE.
89622	02277	CHUKUNI GOLD MINES L	4280159	NOT A HAZARD	606833	5234826	1993 ASSESSMENT; PIT.
89623	02277	CHUKUNI GOLD MINES L	4280159	NOT A HAZARD	606838	5234731	1993 ASSESSMENT; TRENCH IN BEDROCK WITH SLOPED SIDES.
89624	02277	CHUKUNI GOLD MINES L	4280159	ACTIVE HAZARD	606983	5234771	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION IS PRESENT. FEATURE IS PARTIALLY HIDDEN.
73837	03420	NERLIP	4283634	NOT A HAZARD	601638	5250467	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
73998	03444	RED JACKET	4276136	ACTIVE HAZARD	597733	5247803	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH TIMBER CRIBBED COLLAR. FILLED WITH RUN OF MINE (DUMP) WASTE. SHAFT PARTIALLY BACKFILLED BY SLOUGHING/CONING OF WASTE ROCK. REPORTED DEPTH IN EXCESS OF 100 FT WITH UNDERGROUND WORKINGS
73999	03444	RED JACKET	4276136	ACTIVE HAZARD	597683	5247887	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. WATER LEVEL 4M BELOW GRADE. REPORTED TO BE 15M DEEP.
74000	03444	RED JACKET	4276136	NOT AVAILABLE	597733	5247803	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74001	03444	RED JACKET	4276136	NOT AVAILABLE	597733	5247803	THIS FEATURE WAS NOT REPORTED BY THE 1993 SURVEY TEAM.

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74002	03444	RED JACKET	4276136	ACTIVE HAZARD	597733	5247803	PLANS INDICATE WORKINGS ON 23 AND 30M LEVELS.
74003	03444	RED JACKET	4276136	NOT AVAILABLE	597733	5247803	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
82612	03444	RED JACKET	4276136	NOT AVAILABLE	597733	5247803	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
89828	03444	RED JACKET	4276136	ACTIVE HAZARD	597687	5247902	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. WATER LEVEL 1.5M BELOW GRADE.
89832	03447	BELMONT	4242323	ACTIVE HAZARD	602233	5247842	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. LOCATED 35M SW OF TRAIL. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74027	03457	ONTARIO DEVELOPMENT	4280144	ACTIVE HAZARD	603133	5242903	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE.
89836	03457	ONTARIO DEVELOPMENT	4280144	NOT A HAZARD	603098	5242997	1993 ASSESSMENT; PIT IN OVERBURDEN WITH SLOPED SIDES.
74112	03499	SILVER CROSS	4276121	ACTIVE HAZARD	602098	5248452	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES, IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION IS PRESENT. FEATURE IS PARTIALLY HIDDEN.
74113	03499	SILVER CROSS	4276121	NOT AVAILABLE	602208	5248428	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74114	03499	SILVER CROSS	4276121	ACTIVE HAZARD	602208	5248428	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DEPTH. COVERED WITH A REMOVEABLE CONCRETE SLAB IN GOOD CONDITION.
74115	03499	SILVER CROSS	4276121	ACTIVE HAZARD	602068	5248337	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH ROCK COLLAR. SURROUNDED BY A BARBED WIRE FENCE IN POOR TO MODERATE CONDITION.
74116	03499	SILVER CROSS	4276121	NOT AVAILABLE	602208	5248428	MINE PLANS INDICATE WORKINGS ON 20M LEVEL.
74122	03500	JUNO	4217615	ACTIVE HAZARD	601048	5248563	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN. UNSTABLE SIDES.
74123	03500	JUNO	4217615	ACTIVE HAZARD	600983	5248657	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE.
74125	03500	JUNO	4217615	NOT AVAILABLE	601048	5248563	MINE PLANS INDICATE WORKINGS ON 25 AND 44M LEVELS.

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74126	03500	JUNO	4217615	ACTIVE HAZARD	600988	5248637	1993 ASSESSMENT; HOIST ROOM CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74128	03500	JUNO	4217615	ACTIVE HAZARD	601093	5248552	1993 ASSESSMENT; RAISE TO SURFACE IN BEDROCK WITH TIMBERED COLLAR. NO PROTECTION PRESENT, FEATURE IS PARTIALLY HIDDEN. UNSTABLE SIDES.
74129	03500	JUNO	4217615	ACTIVE HAZARD	600988	5248637	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNONW DIMENSION AND FORM FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION.
74202	03518	OPHIR	4283320	ACTIVE HAZARD	602458	5244548	1993 ASSESSMENT; (OPHIR NO.2 SHAFT) ONE COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNONWN DEPTH. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN MODERATE TO GOOD CONDITION.
74203	03518	OPHIR	4283320	ACTIVE HAZARD	602433	5244747	1993 ASSESSMENT; (OPHIR NO.1 SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. COVERED WITH A PERMANENT, RECESSED CONCRETE SLAB (VENTED) IN MODERATE CONDITION.
74204	03518	OPHIR	4283320	ACTIVE HAZARD	602473	5244497	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. WATER LEVEL 1.5M BELOW GRADE.
74206	03518	OPHIR	4283320	ACTIVE HAZARD	602455	5244495	1993 ASSESSMENT; PLANS INDICATE WORKINGS ON 30, 61 AND 91M LEVELS.
74207	03518	OPHIR	4283320	NOT AVAILABLE	602458	5244548	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74214	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602503	5245043	1993 ASSESSMENT; (VICTORY SHAFT) TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
74215	03520	SILVER BANNER	4283320	ACTIVE HAZARD	602638	5245217	1993 ASSESSMENT; (BANNER NO.2 SHAFT) ONE COMPARTMENT SHAFT WITH VERTICAL SIDES, IN BEDROCK WITH TIMBERED COLLAR. SURROUNDED BY A BARBED WIRE FENCE (3-4 STRAND) WITH POSTS SET IN CONCRETE IN POOR CONDITION.
74216	03520	SILVER BANNER	4275430	NOT AVAILABLE	602503	5245043	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74217	03520	SILVER BANNER	4283320	NOT A HAZARD	602668	5245177	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
74218	03520	SILVER BANNER	4283320	NOT A HAZARD	602678	5245202	1993 ASSESSMENT; TRENCH IN BEDROCK WITH SLOPED SIDES.
74219	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602503	5245043	1993 ASSESSMENT; HEADFRAME CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74220	03520	SILVER BANNER	4283320	ACTIVE HAZARD	602510	5244805	1993 ASSESSMENT; HOIST ROOM CONSTRUCTED WITH TIMBER FRAME AND WOOD CLADDING.
74221	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602508	5245027	1993 ASSESSMENT; BUILDING, FUNCTION UNKNOWN, CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING.
74222	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602538	5245047	1993 ASSESSMENT; CORE SHACK CONSTRUCTED WITH A TIMBER FRAME AND WOOD CLADDING.
74223	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602408	5245047	1993 ASSESSMENT; ROCK PILE OR DUMP, RAISED PILE WITH MODERATE SLOPES (15-45).
89881	03520	SILVER BANNER	4275430	ACTIVE HAZARD	602538	5245207	1993 ASSESSMENT; ROCK PILE OR DUMP, RAISED PILE WITH MODERATE SLOPES (15-45).
74487	03653	PENNAQUE	4282451	ACTIVE HAZARD	613910	5230567	2000 ASSESSMENT; SUNK IN ROCK AT THE EDGE OF A HUGE OUTCROP, WATER FILLED TO 0.5 METERS BELOW GRADE SURFACE (BGS). ARCHIVES INDICATE SHAFT DEPTH OF 15M.
74603	03703	PONTIAC	4276121	ACTIVE HAZARD	602338	5248557	1993 ASSESSMENT; ADIT COLLARED IN BEDROCK AND NOT SCREENED. NO PROTECTION PRESENT. FEATURE IS CLEARLY VISIBLE.
74604	03703	PONTIAC	4276121	ACTIVE HAZARD	602193	5248527	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN OVERBURDEN WITH A TIMBER CRIBBED COLLAR. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN. WATER LEVEL AT GRADE. WASTE ROCK PILE SUGGESTS A DEPTHS OF LESS THAN 30M.
74605	03703	PONTIAC	4276121	ACTIVE HAZARD	602083	5248747	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITH A TIMBERED COLLAR. SURROUNDED BY A BARBED WIRE FENCE (3-4 STRANDS) WITH POSTS SET IN CONCRETE IN POOR CONDITION.
74606	03703	PONTIAC	4276121	NOT AVAILABLE	602133	5248638	FEATURE NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
74607	03703	PONTIAC	4276121	ACTIVE HAZARD	602308	5248537	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. SURROUNDED BY BARBED WIRE FENCE (3-4 STRANDS) WITH POSTS SET IN CONCRETE IN POOR CONDITION.
82638	03703	PONTIAC	4276121	REHABILITATED	602133	5248638	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH CRUSHED MINE WASTE <10CM IN GOOD CONDITION.
74608	03704	CAMPBELL-CRAWFORD	4283636	ACTIVE HAZARD	601818	5248878	1993 ASSESSMENT; (EAST SHAFT) ONE COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION.

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
74609	03704	CAMPBELL-CRAWFORD	4283636	ACTIVE HAZARD	601673	5248857	1993 ASSESSMENT; ONE COMPARTMENT SHAFT WITH VERTICAL SIDES OF UNKNOWN DIMENSION AND FORM. FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION.
74610	03704	CAMPBELL-CRAWFORD	4283636	ACTIVE HAZARD	601923	5248967	1993 ASSESSMENT; ADIT WHICH HAS BEEN FILLED WITH RUN OF MINE (DUMP) WASTE IN GOOD CONDITION.
74611	03704	CAMPBELL-CRAWFORD	4283636	NOT AVAILABLE	601818	5248878	THIS FEATURE WAS NOT REPORTED BY THE YEAR 1993 SURVEY TEAM.
91063	03721	ARMEX	4275169	ACTIVE HAZARD	591320	5249472	2008 ASSESSMENT; APPEARS TO BE A DEEP TRENCH OR OPEN STOPE OF UNKNOWN DEPTH WITH TREES AND BRUSH GROWING AROUND IT. AT THE DEEPEST END OF THE TRENCH, THERE IS A SHAFT.
78036	06571	CLARK	4280163	NOT AVAILABLE	609918	5234207	NO FEATURES WERE LOCATED DURING THE YEAR 1993 SURVEY.
78037	06571	CLARK	4280163	NOT AVAILABLE	609918	5234207	NO FEATURES WERE LOCATED DURING THE YEAR 1993 SURVEY.
81835	10008	PAT 445	4275168	ACTIVE HAZARD	590873	5249297	1993 ASSESSMENT; PIT OF UNKNOWN DIMENSION AND FORM FILLED WITH RUN OF MINE (DUMP) WASTE.
81836	10008	PAT 445	4275168	ACTIVE HAZARD	590873	5249312	1993 ASSESSMENT; 1993 ASSESSMENT; PIT OF UNKNOWN DIMENSION AND FORM FILLED WITH RUN OF MINE (DUMP) WASTE.
81837	10008	PAT 445	4275168	ACTIVE HAZARD	590901	5249270	2008 ASSESSMENT; REPORTS A TRENCH WITH A SHAFT AT ONE END. NO DIMENSIONS PROVIDED AND SHAFT IS A FEATURE OF AMIS 10010. 1993 ASSESSMENT; PIT MEASURING 2M X 2M X 3M IN OVERBURDEN WITH TIMBER CRIBBING. NO PROTECTION EVIDENT. UTM 17 5249262N 590873E
81838	10008	PAT 445	4275168	ACTIVE HAZARD	590878	5249232	1993 ASSESSMENT; PIT MEASURES 2.5M X 2.5M X 3M IN OVERBURDEN WITH SLOPED SIDES. FEATURE IS OPEN AND UNPROTECTED.
81839	10008	PAT 445	4275168	ACTIVE HAZARD	590848	5249232	1993 ASSESSMENT; PIT MEASURES 2.5M X3M X 3M IN BEDROCK WITH VERTICAL WALLS. FEATURE IS OPEN AND UNPROTECTED.
81840	10009	PAT 1683	4275169	ACTIVE HAZARD	591208	5249148	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
81841	10009	PAT 1683	4275169	ACTIVE HAZARD	591213	5249152	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION PRESENT. FEATURE IS PARTIALLY HIDDEN.
81842	10009	PAT 1683	4275169	ACTIVE HAZARD	591213	5249148	1993 ASSESSMENT; TWO COMPARTMENT SHAFT WITH VERTICAL SIDES, IN BEDROCK WITH A TIMBERED COLLAR. NO PROTECTION

Mine Feature ID	AMIS site ID	Official Name	Claim ID	Mine Hazard Status	Easting	Northing	Mine feature condition description
							PRESENT. FEATURE IS PARTIALLY HIDDEN. DEPTH SOUNDING NOT POSSIBLE. WASTE ROCK PILE SUGGEST DEPTH <30M.
81843	10010	CROWN 02	4275168	REHABILITATED	590838	5249307	1993 ASSESSMENT; TRENCH MEASURES 4M X 1M X 2M DEEP AND IS IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION EVIDENT AND FEATURE IS CLEARLY VISIBLE.
81844	10010	CROWN 02	4275168	REHABILITATED	590907	5249265	2008 ASSESSMENT; MINE SHAFT LOCATED AT ONE END OF THE CONNECTING STOPE/TRENCH (AMIS 1008). 1993 ASSESSMENT; SHAFT MEASURES 3M X 2M X 8M DEEP. IT IS A TWO COMPARTMENT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. NO PROTECTION PRE
81879	10050	COLEMAN (LT 9 CON V) SW	4281651	ACTIVE HAZARD	596178	5248152	1993 SITE ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. OPEN AND UNPROTECTED. PARTIALLY HIDDEN.
88922	10050	COLEMAN (LT 9 CON V) SW	4281651	ACTIVE HAZARD	596113	5248208	1993 SITE ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES TO A DEPTH OF 7M. SHAFT IS OPEN AND UNPROTECTED. PARTIALLY HIDDEN.
81964	10126	GILLIES LIMIT CROWN	4280195	NOT A HAZARD	599753	5242578	1993 ASSESSMENT; PIT IN OVERBURDEN WITH SLOPED SIDES.
82019	10162	BUCKE (LOT 12 CON I S1/2 SHAFT)	4280179	ACTIVE HAZARD	602718	5252002	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS. NO PROTECTION EVIDENT. FEATURE IS PARTIALLY HIDDEN.
82020	10162	BUCKE (LOT 12 CON I S1/2 SHAFT)	4280179	ACTIVE HAZARD	602403	5252013	1993 ASSESSMENT; PROSPECT SHAFT WITH VERTICAL SIDES IN BEDROCK WITHOUT A CONSTRUCTED COLLAR. SURROUNDED BY A BARBED WIRE FENCE (3-4 STRAND) WITH POSTS SET IN CONCRETE IN POOR CONDITION.
82033	10214	G. L. CLAIM T35838	4280195	NOT A HAZARD	599283	5242698	1993 ASSESSMENT; PIT IN BEDROCK WITH VERTICAL WALLS.
82035	10216	G. L. CLAIM T21884	4280120	NOT AVAILABLE	600438	5243468	1993 ASSESSMENT; PIT OF UNKNOWN DIMENSIONS AND FORM. FEATURE WAS NOT LOCATED DURING THE YEAR 1993 SURVEY.

APPENDIX III – Yukon Refinery Process Overview

Yukon Refinery Process Overview

Canmine processed 'dry tailings' material from Agnico Eagle. Material was stockpiled at the refinery then fed by FEL into an open circuit rubber lined ball mill mixed with process water and lime addition to form a slurry. The material was then fed directly into a premix tank where the tailings slurry is charged with steam, sulphuric acid and ferric iron in an acid-brick steel lined tank before being pumped to the pressure oxidisation process – otherwise known as an autoclave.

The auotclave was fed in 2 tonne batches with each batch taking 4 hours to process. This process included the heating, processing and cooling down stages. Steam and oxygen is injected to bring the contents to the required temperature to commence the oxidisation as an exothermic reaction. This dissolves the copper, cobalt, zinc, manganese and nickel into a pregnant leach solution.

The contents are then discharged into flash and conditioning stage tanks, before passing through a series of plate heat exchangers cooling to approximately 65 degrees Celsius before passing through a cake filter press to remove the solids. The solids are discharged to the cyanide circuit for silver recovery and the cake is washed and blown to recover as much of the cobalt and nickel in solution as possible.

Solvent purification is then performed by adding sodium hydrosulphide to the first reactor for copper removal and lime and air for iron and arsenic removal by passing through a series of three cascade stirred reactors by sparging.

The pregnated liquor solution is then pumped into the solvent extraction feed tanks for pH adjustment before addition to the SX process. Here, Cyanex is added and the liquor passes through 3 stages of contact and separation transferring as much cobalt as possible to the organic phase.

Manganese is then removed by oxidisation in a series of reactors using oxygen sparge addition, captured by a series of sand filters with the filtrate then advancing to cobalt precipitation.

Cobalt is then precipitated from the liquor at 60 degrees Celcius by adding steam and adding soda ash. The reaction is aided by being agitated through a series of three reactors. The overflow is thickened with the overflow being sent to the treatment ponds and the underflow to the final product filter press for formation of cake, that is discharged into bulker bags as a saleable cobalt carbonate product.

The final stage relevant to the process is the silver extraction process, which is started from the solids removed from the first filtration process and sent to the Merrill Crowe circuit. In the Merrill Crowe circuit, the solution is passed through filtration, with the solids being captured and the filtrate then washed through a series of flotation cells and aerated to remove the cyanide (cyanide destruction) by also adding copper sulphate and sodium metabisulphite, sending the remnants to the Autoclave catchment ponds.

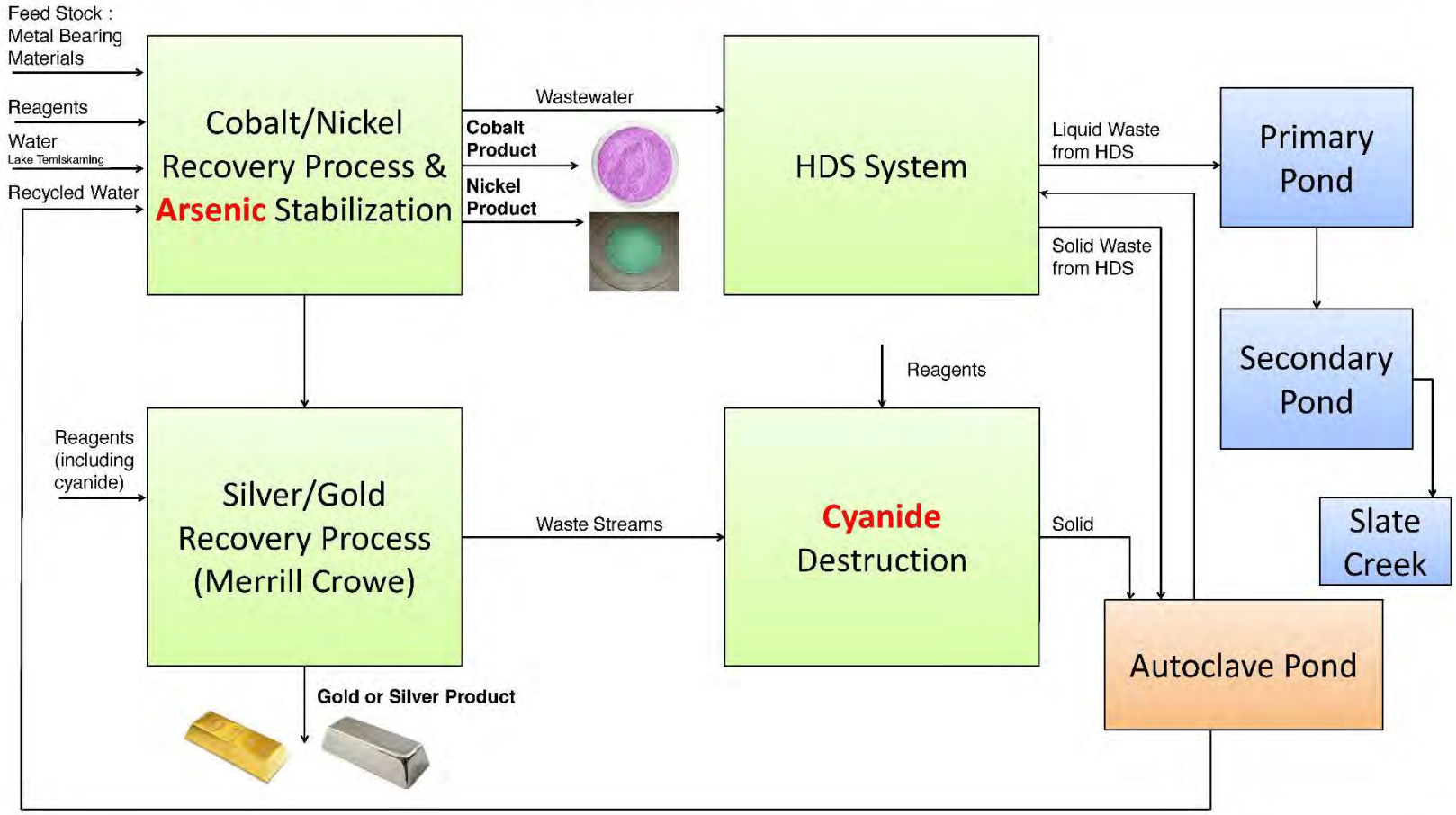
There are other stages in the refinery for the further treatment of the effluents and stages for the reagents control dosage.

The tailings are stabilized through the autoclave prior to being sent to the Autoclave Pond. Water from the Autoclave Pond is sent back to the facility for reuse or treatment in the high-density sludge treatment system prior to discharge, in accordance with the existing Industrial Sewage Works Environmental Compliance Approval ("ISW ECA").

Operating at 24 tpd, the Autoclave Pond would reach capacity after 8 years of operation. The Autoclave Pond can be expanded to an estimated 40,000 m^3 (approximately 70,000 t assuming a specific gravity of 1.74 t/m^3). The Primary Settling Pond can also be further expanded. Constructing the Primary Settling Pond to full capacity would improve discharge water quality through additional retention time and increased capacity for water storage.

The following pages contains the refinery process diagram:

Yukon Refinery Process Diagram



United Commodity Yukon Refinery

Water and Wastewater

Current Sewage *Environmental Compliance Approval* ("ECA") No. 4-0036-85-979 (2001)
Current Permit to Take Water ("PTTW") No. 4752-6CRRK3 (2005) (maximum 3000 L/min)

Downstream Surface Water Site

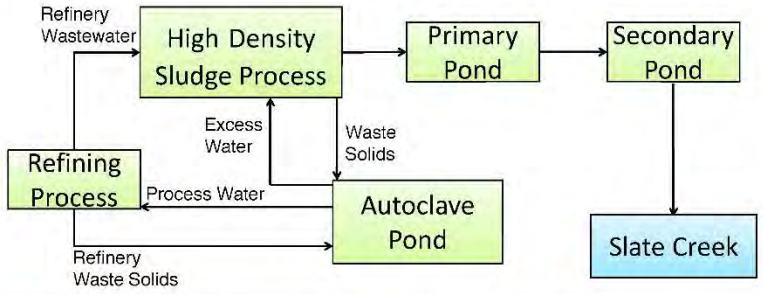
Upstream Surface Water Site

Groundwater Parameters:

- alkalinity
- pH
- TSS
- sulphate
- ammonia (pH and temp)
- conductivity
- metals (arsenic, cadmium, calcium, cobalt, copper, lead, nickel, mercury, silver, aluminum, iron molybdenum, zinc)

ECA Amendment Required:

1. Address ownership change



Monitored Effluent Parameters from Secondary Pond (Surface Water)

Frequency	Provincial Requirements	Federal Requirements
3 times per week	TSS, pH, total cyanide	-
Weekly	Alkalinity, conductivity, pH, temperature, un-ionized ammonia, metals (copper, lead, nickel, zinc, arsenic, cobalt, cadmium, silver)	TSS, pH, total cyanide, dissolved oxygen, metals (copper, lead, nickel, zinc, arsenic, radium-226)
Monthly	mercury, sulphates, oil and grease, acute toxicity	Acute toxicity
Quarterly	-	Hardness, nitrate, and metals (aluminum, iron, molybdenum, selenium) Upstream and Downstream above plus: conductivity, alkalinity, un-ionized ammonia, pH, temperature, dissolved oxygen, TSS, total cyanide, metals (arsenic, copper, lead, nickel, zinc, radium-226)
Semi Annual	Chronic toxicity	-

United Commodity Yukon Refinery

Air

Current Air *Environmental Compliance Approval* ("ECA") No. 5071-4XTKLB (2001)

Approved Emissions:

- autoclave pressure relief
- lime silo
- natural gas boiler
- 15 natural gas space heaters
- 2 natural gas make-up air units
- laboratory exhaust systems
- 7 roof exhausts

Approved due to insignificant emissions:

- Silver and gold recovery (Merrill Crowe Process)
- Scrubbers for solution purification, solvent extraction, manganese removal, Co & Ni precipitation, high density sludge system
- Cyanide destruction using SO_2

ECA Amendment Required:

1. Add two space heaters in Merrill Crowe Building
2. Address ownership change

United Commodity Yukon Refinery

Chemical Stabilization

Arsenic

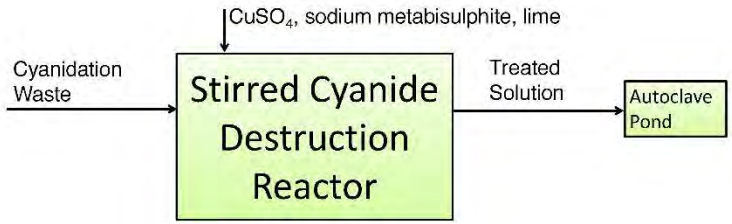
- Crystalline scorodite ($FeAsO_4 \cdot 2H_2O$) is formed with Fe:As ratio is 1:1 at high temperatures (more than 150 degrees Celsius) in an autoclave.

Crystalline Scorodite

- Crystalline scorodite is widely accepted as one of the most stable arsenic minerals.
- This material passes the "Toxicity Characteristic Leaching Procedure" used to determine waste disposal.

Cyanide

- Uses the *INCO Sulphur Dioxide/Air Process* to remove cyanide



- Copper is a catalyst
- Sulphuric acid and cyanate (CNO^-) are formed with optimal pH of 8-10
- Cyanate naturally hydrolyzes in the Autoclave Pond to carbonate (CO_3^{2-}) and ammonium (NH_4^+)