

We are committed to providing <u>accessible customer service</u>. If you need accessible formats or communications supports, please <u>contact us</u>.

Nous tenons à améliorer <u>l'accessibilité des services à la clientèle</u>. Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez <u>nous contacter</u>. TECHNICAL REPORT ON THE GERMAN AMERICAN PROPERTY LORRAIN TOWNSHIP LARDER LAKE MINING DIVISION, NORTHEASTERN ONTARIO FOR COBALT INDUSTRIES OF CANADA INC. January 22, 2019



Matthew Halliday, P.Geo. Project Geologist

First Cobalt Corp. 140 Yonge St. Suite 201 Toronto, ON M5C 1X6 Canada Main +1 416 900 3891 | info@firstcobalt.com

Contents

Summary
2 – Introduction and Property Location
3 - Regional Geology
4 - Property Geology
5 – History
6 – Work Program
Purpose and Work11
Site Visits13
Accessibility14
Sampling and Testing14
Equipment14
Vanta XRF14
Magnetic susceptibility reader15
7. Interpretations and Conclusions
8. Recommendations
9. Personnel
10. References
APPENDIX A – XRF Data
APPENDIX B – XRF Specifications
Vanta Specifications

Table of Figures

Figure 1: Location of the Silverside property	5
Figure 2: Land Tenure of the German-American Property (blue rectangle)	6
Figure 3: Regional Geology	9

Figure 4: Traverse Paths and XRF Sample Locations	12
Figure 5: Field Photos – German American site and sampling	14
Figure 6: Vanta Workstation	15
Figure 7: MPP-EM2S+. Magnetic Susceptibility Reader	15
Figure 8: Stereonet of fracture orientations	16
Figure 9: Cobalt XRF map	18

List of Tables

Table 1: Tenure List for German-American Property	6
Table 2: Cobalt Embayment Stratigraphy	8
Table 3: History of the German-American Property	11
Table 4: Correlation Matrix, XRF Data	16



Summary

This Technical Report has been prepared for the purpose of fulfilling the Technical Standards for Reporting Assessment Work, under the provisions of the Mining Act.

The German-American property is in Lorrain township, bisected by highway 567 (Silver Centre Rd.). The site is about 3.6 km from North Cobalt (Figure 1).

In the summer of 2018 First Cobalt employees examined the German American property for old workings, drill collars and confirmation of government mapping in the area. The property geology appears to be entirely Nipissing diabase. The area was highly jointed, and First Cobalt management recommended geochemical fracture analysis with the handheld XRF.

A fracture analysis survey was conducted, with some promising results, and additional work needs to be completed to validate the methods.

2 – Introduction and Property Location

A contiguous block of 2 cells, referred to as the Germain-American property, are held by Cobalt Industries of Canada Inc., a subsidiary of First Cobalt Corp (See Figure 2 and Table 1). These cells were previously legacy claim 4275034. This Technical Report provides a summary and description of results from the exploration work carried out by First Cobalt personnel.

The German-American property is located 3 km east of North Cobalt on Hwy 567 (Silver Center Rd.).

Two days (July 5th - 6th) were spent in 2018 prospecting and ground truthing the property. Emphasis was placed on confirming previously mapped lithology and finding old workings or drill holes. After the initial visit there was follow-up visits to use handheld XRF as a vectoring tool by analysing fractures in the diabase.

For geographical reference purposes, all UTM locations used in this Technical Report are using NAD83 Zone 17N projection. Tenure information presented in this Technical Report was valid on the MNDM website on 2019-01-28.

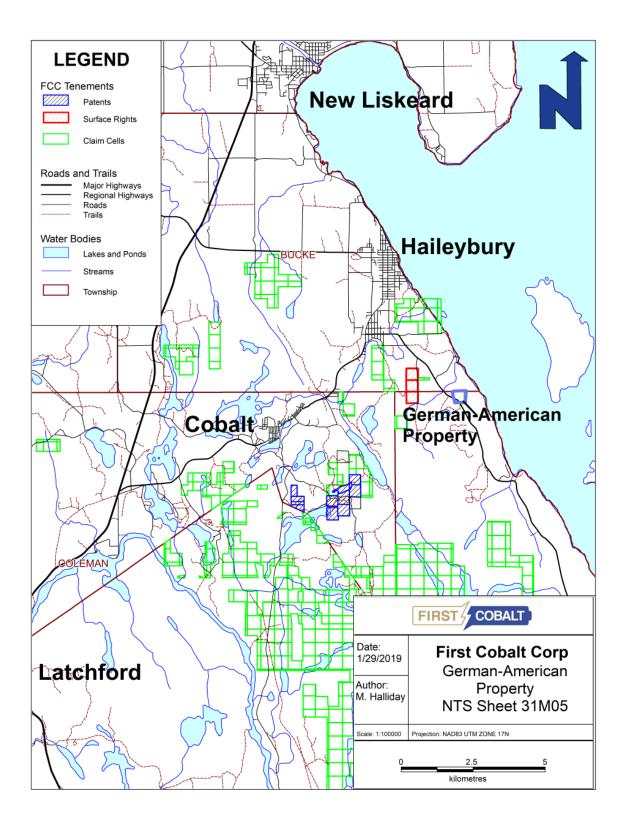


Figure 1: Location of the Silverside property



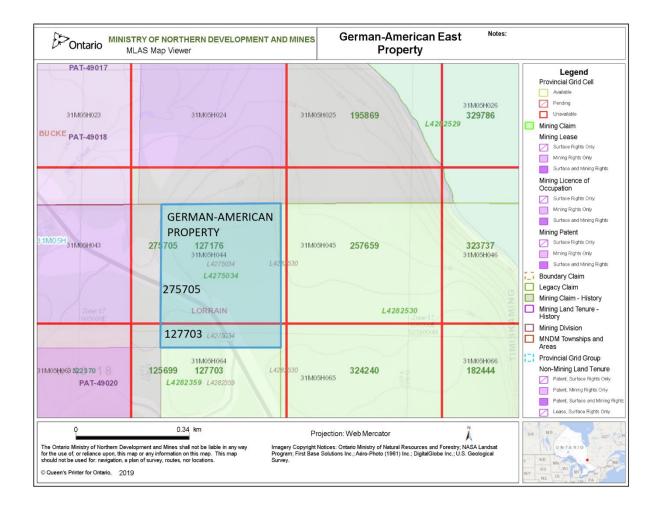


Figure 2: Land Tenure of the German-American Property (blue rectangle)

Table 1: Tenure List for German-American Property

Legacy Claim ID	Township / Area	Tenure ID	Tenure Type	Anniversary Date
4275034	Lorrain	275705	Boundary Cell Mining Claim	Feb 2, 2019
4275034	Lorrain	127703	Boundary Cell Mining Claim	Feb 2, 2019

3 - Regional Geology

The claim block is located within the geological domain known as the Cobalt Embayment, a circular Proterozoic-age sedimentary basin. The basin is underlain by Archean volcanic, sedimentary, mafic intrusive, and granitoid units related to the southern extent of the Abitibi Subprovince. The Archean units are unconformably overlain by relatively flat-lying to openly-folded early Proterozoic Huronian Supergroup sedimentary rocks. In the Cobalt Embayment (Table 2), the Huronian Supergroup consists



solely of the Cobalt Group (lacking the underlying Elliot Lake, Hough Lake and Quirke Lake groups), and it comprises the Gowganda Formation and overlying Lorrain Formation. The Gowganda Formation consists (from bottom to top) of the glaciogenic Coleman Member (conglomeratic diamictite, rhythmite, and sandstone), and the overlying Firstbrook Member (basinal mudstone, argillite, siltstone, and sandstone). The Lorrain Formation is an unsubdivided sandstone, arenite and greywacke (Legun, 1986). The sedimentary rocks are intruded by diabase and gabbroic intrusions of the 2219-2209 Ma Nipissing sills and dykes (Corfu and Andrews, 1986; Noble and Lightfoot, 1992). Economic mineralization of the Cobalt area includes extensive historic mining of silver-bearing polymetallic (Ag-Ni-Co-Cu-Bi) carbonate and quartz veins, which occur in faults and fractures all rock types, but notably proximal to Nipissing sills and the Archean/Proterozoic unconformity. See Figure 3 for a reference map of the regional geology.

Table 2: Cobalt Embayment Stratigraphy

			Cobalt Embayment Strati	graphy	
		Recent		Fluvial and lacustrine deposits	
		Pleistocene		Glacial Sand, gravel, and varved clay	
			Unconformity		
<u>.</u>	154-140	Jura-Cretaceous	Kimberlites, lamprophyres		
ozoi			Unconformity Thornloe Formation	Dolomite, limestone	
iero		Silurian	Wabi Formation	Limestone, shale	
Phanerozoic			Disconformity	Linestone, shale	
			Dawson Point Formation	Shale	
		Ordovician	Farr Formation	Limestone	
		Ordovician	Bucke Formation	Shale	
			Guigues Formation	Sandstone	
			Unconformity		
	1235-1238 Ma	Sudbury Dykes	Olivine and quartz diabase		
			Intrusive Contact		
				gabbro, quartz gabbro, hornblende	
	2220-		Nipissing Diabase	gabbro, quartz diabase, hypersthene	Co-Ag-As-Ni-Bi
U	2210Ma			diabase, varied-texture diabase,	Mineralization
zoi			Intrusive Contact	granophyric diabase	
Proterozoic			Cobalt Group		
rot			Lorrain Formation	Quartz arenite, arkose	
<u>ц</u>			Gowganda Formation		
		Huronian		Laminated siltstone (grading upward from	
		Supergroup	Firstbrook Member	green to red), minor sandstone at upper	
				part	
			Colomon Manshan	Polymictic conglomerate, diamictite,	
			Coleman Member	sandstone, laminated siltstone.	
	~2454 Ma	Matachewan	Unconformity Diabase, minor lamprophyre		
	2434 Ivia	Matachewan	Intrusive Contact		
		Algoman	Granite, granodiorite, syenite		
			Intrusive Contact		
	2667 ± 27	Haileyburian	Dykes and sills of mafic and ultramafic rocks; lamprophyre		
			Intrusive Contact		
an			Lithic and feldspathic arenites and		
Archean		Timiskaming	wackes; conglomerate		
Are			Unconformity		
			Minor interflow sediments (mainly black		
			shale, chert); iron formation		
	2766 (?) -	Volcanic Rocks	Felsic to intermediate volcanics (flows and		Cu-Zn-Pb
	2682(?) Ma		pyroclastics), volcaniclastics		Mineralization
			Mafic to intermediate mafic flows and		
			tuffs, volcaniclastics		

Compiled by: M.Hewton, 2017.



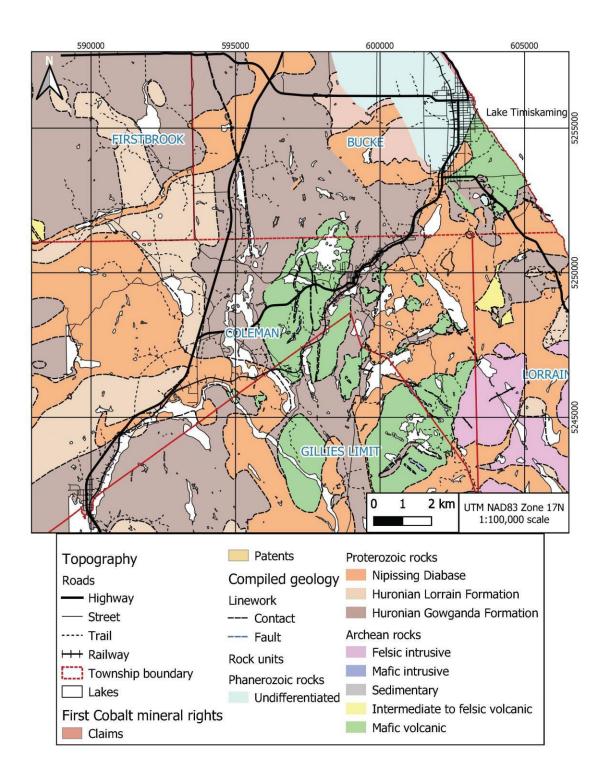


Figure 3: Regional Geology

FIRST COBALT

4 - Property Geology

The German-American property consisting of cells 275705 and 127703 (See Figure 2) is covered by a Nipissing diabase sill. Topographically the highway is an overburden filled topographic low, but away from the road there are two ridges where abundant Nipissing diabase outcrops. It is assumed that beneath the sill is the underlying sedimentary rock of the Coleman Formation of the Huronian Supergroup. This formation is relatively flat lying. The basement is made up of steeply dipping, northeasterly trending, Keewatin volcanic and sedimentary rocks. These are mostly mafic to intermediate metavolcanics, with some bands of felsic metavolcanics and metasediments. (Hill 1986, p.6)

The property lies between the northwesterly trending Mackenzie Fault and the Lake Temiskaming fault, with minor east-northeast, and north trending faults in the vicinity. (Thomson 1964, Map)

5 – History

The property is approximately 155m east from the old German American Mine (Abandoned Mine id: 02232) additionally the property is approximately 250m east from an old Big Agaunico Mines Shaft (Abandoned Mine Id: 02231) both of which were silver-cobalt occurrences. The German-American mine workings consisted of 2 exploratory shafts 60' deep sunk on NNW striking quartz-calcite veins. Co-Fe-Ni arsenides with chalcopyrite was observed. (AMIS database; Sergiades, 1968)

In 1980 a 200 foot long drillhole collared near the north-western corner of the property intersected minor quartz-carbonate veining and minor sulphides, including chalcopyrite.

There is also a shaft to the east of the property, however at the time of writing this report it is uncertain who sank the shaft. The shaft location is presented on a 2002 Cabo report as being east of the property and on the M2050 mapping as dating from 1963. It is possible that NASCO Cobalt Silver Mines Inc. who were working in the area during the 1950's developed the shaft.

Brixton completed a high-resolution magnetic airborne survey flown in 2017, unfortunately the images available are limited to the German-American property and thus of limited use.



Year	Assessment File	Operator	Description
	Reference		
1980	31M05NE0110	J.E. Armstrong	Diamond drilling report
2008	20005000*	International	Geochemical Report on An MMI Soil
		Millennium Mining	Geochemistry Survey with Grid
		Corp.	Preparation
2017	2.57484.10	Brixton Metals	Report - Airborne high-resolution
		Corporation	quad magnetic survey
2017	2.57484.11	Brixton Metals	Maps - Airborne high-resolution
		Corporation	quad magnetic survey

Table 3: History of the German-American Property

*May not be entirely on the property, the MMI report appears to accompany a geophysical survey which was not located at this time that may intersect the property.

The northern-western corner of the German-American property is about 800m from the Teledyne Mine and 1.2km from the Agaunico Mine using the AMIS database reference points.

6 – Work Program

Purpose and Work

The German-American property was prospected and ground truthed by Matthew Halliday and Gerhard Kiessling, in an effort to confirm previous mapped lithologies, and locate historic trenching or drill casings. The property has been previously mapped as entirely Nipissing diabase on surface.

Figure 4 shows traverses and sample locations; the base geology map is from the regional compilation map P3581 (Ayer, 2006).

Based on the initial site visit it was recommended that an XRF fracture analysis on the joints/fractures in the diabase at the German-American property be done. This led to another day at German-American where XRF reading were taken at 40 stations within the claim. The traverse locations are presented in figure 4, with the results of the XRF analysis (for cobalt in ppm) presented in figure 8.



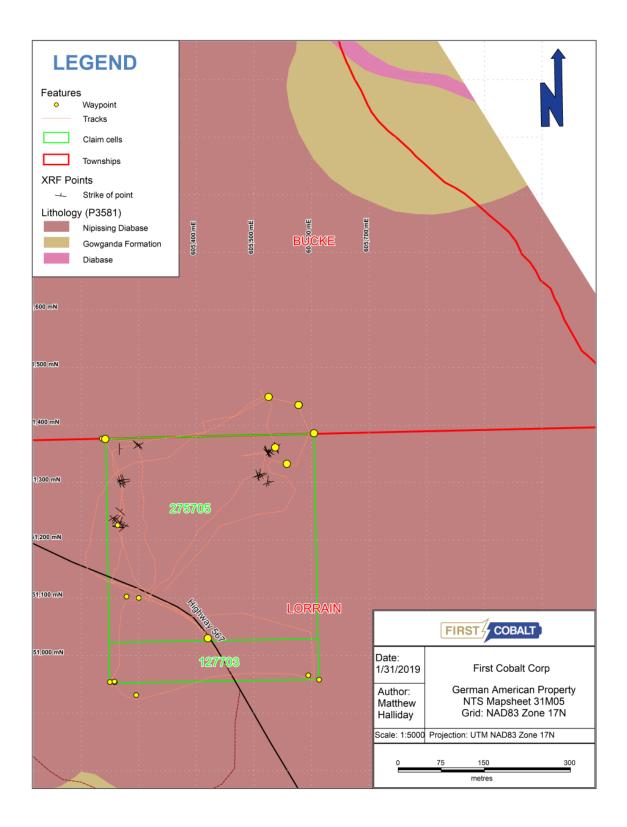


Figure 4: Traverse Paths and XRF Sample Locations



Site Visits

July 5th - July 6th

Matthew Halliday with Gerhard Kiessling

Goal: Identify outcrops and workings on the German-American Property and confirm previously mapped lithology.

Starting Conditions: Approximately 29° Celsius, no precipitation.

Access:

1. Parked on HWY 567 at the edge of the claim.

Observations:

Bedrock is diabase. Some sections are more exposed than originally shown on geologic map to the northern part of the claim. Areas with high relief and variously fractured and moderately rhombohedral jointed. One potential fault structure. A couple small boulders and floats of sedimentary rocks, including one (possibly) Coleman conglomerate near the western side of the claim. The jointing and faulting could possibly be an area of interest if it's near a fold hinge. One shaft to the east of the claim noted, near a hiking trail. Northwest claim post and nearby drill hole not found, but there was a pile of logs that could have been some sort of drill pad.

Recommendations:

Use XRF along various joints, fractures, and potential fault; a few GPS points of interested noted. Based on the success of the XRF, following up with David Lewis to map the foliation within the diabase. If the XRF and mapping is fruitful, further investigating west of the claim near the German-American mine shaft.





Diabase outcrop

Old claimpost



Matthew Halliday P.Geo



Conglomerate float Figure 5: Field Photos – German American site and sampling



Old drillpad?

July 5th - July 6th

Gerhard Kiessling and Matthew Brown

Goal: To find fracture surfaces in the diabase and take measurements with the portable XRF, also to record the strike and dip of the fracture.

Starting Conditions: Approximately 24° Celsius, no precipitation.

Gerhard and Matthew took 40 measurements within the claim block all on the north side of the highway where there is a large outcrop of diabase. The locations are represented by strike and dip symbols in Figure 4, a tabulated list of data is in Appendix

Accessibility

The property is accessible from HWY 567.

Sampling and Testing

We conducted handheld XRF testing on rock fracture surface to detect potential cobalt anomalies.

Equipment

Vanta XRF

We used a Vanta handheld XRF gun. The Vanta is manufactured by Olympus. We are using the VMR model with a 50kV and 0.2mA tube rating. We use the XRF 31655 Standard disk to calibrate the machine each day and when instructed. We have an OREAS 902 standard that we run periodically.

Each of the samples were placed in the contained portable workstation. The XRF is setup to scan for 1 minute and the results are tabulated.



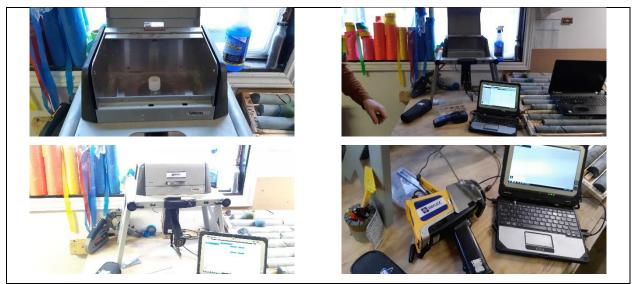


Figure 6: Vanta Workstation

Magnetic susceptibility reader

Our magnetic susceptibility reader is manufactured by Instrumentation GDD Inc. We use the Multi-Parameter Probe, mode: MPP-EM2S+. The MPP probe measures the magnetic susceptibility (10-3 SI) as well as the relative and absolute EM conductivity (MHOS/M) values of small and large objects such as drill cores, samples, outcrops, etc. (https://www.gddinstrumentation.com/mpp-probe)



Figure 7: MPP-EM2S+. Magnetic Susceptibility Reader.

7. Interpretations and Conclusions

The property is entirely Nipissing diabase sill, which makes it difficult to determine the silver-cobalt potential of the underlying favourable Huronian/Archean unconformity.



The fracture analysis was an interesting test, and within the claim there was only 2 potential cobalt anomalies out of 40 sample locations. This seems to be a reasonable ratio to try and delineate potential targets. The 2 cobalt anomalies in the northeast corner of the claim should be followed-up with a similar sampling protocol on a grid of 10×10m spacing over the north half of the claim.

The data for base metals, silver and arsenic appear to be less useful than cobalt in terms of pathfinders for buried silver-cobalt mineralization, however with additional sampling a multi-element approach may prove effective.

With the current sample population (n=40) there are no major correlations between the strike and dip of the fractures and elemental responses. Additionally, there are no major correlations between cobalt and silver or the other base metals. However, there is a correlation as expected within the base metals Nickel, Copper and Zinc. (See *Table 4*)

Table 4: Correlation Matrix, XRF Data

	Str	r ike l	Dip	(Co p	opm	Ag	ppm	Ni	ppm	Cu	ppm	As	ppm	Zn	ppm
Strike		100%		-4%		9%		-21%		-6%		-11%		31%		-3%
Dip		-4%		100%		-13%		19%		-11%		-39%		5%		-33%
Co ppm		9%		-13%		100%		-11%		-17%		-2%		-6%		-6%
Ag ppm		-21%		19%		-11%		100%		-16%		-10%		1%		-16%
Ni ppm		-6%		-11%		-17%		-16%		100%		48%		3%		76%
Cu ppm		-11%		-39%		-2%		-10%		48%		100%		18%		75 %
As ppm		31%		5%		-6%		1%		3%		18%		100%		14%
Zn ppm		-3%		-33%		-6%		-16%		76%		75%		14%		100%

There are no dominant orientations of the fractures, see them plotted on stereonet in Figure 8.

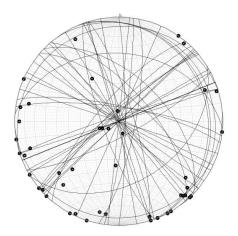


Figure 8: Stereonet of fracture orientations.



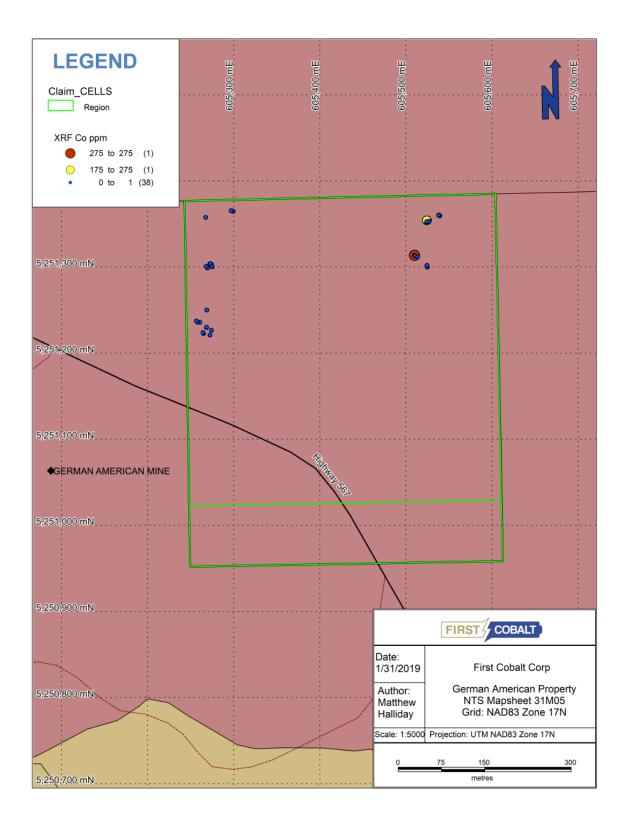




Figure 9: Cobalt XRF map

8. Recommendations

- Conduct additional XRF fracture analysis on a grid basis to get a good spatial spread of the data (less, but more equally spaced samples over a larger area) There are two good locations to find abundant outcrop, one is the north end of the claim. Three lines of 10m spacing for about 300m (90 samples) would be sufficient, along with an irregular grid on the east and southeast corner with similar 10m spacing for approximately another 50 samples. A total of 140 samples would give a good test case in terms of anomalies patterns and grid spacing.
- 2. Where there is soil cover conduct a selective leach soil geochemistry survey to determine any correlation with the XRF study, and provide geochemical coverage where outcrop is limited.
- 3. Potentially conduct an IP survey over the property if there are favorable results.

9. Personnel

Matthew Halliday	Project Geologist
	First Cobalt Corp.
Gerhard Kiessling	Junior Geologist
	First Cobalt Corp.
Matthew Brown	Junior Geologist
	First Cobalt Corp.



10. References

- Ayer, J.A. et al. 2006. Geological Compilation of the Cobalt-Temagami Area, Abitibi Greenstone Belt. Ministry of Energy, Northern Development and Mines, Map P3581, scale: 1:100,000.
- Corfu, F., and Andrews, A.J. 1986. A U-Pb age for mineralized Nipissing diabase, Gowganda, Ontario. Canadian Journal of Earth Sciences, 23: 107-109.
- Cyril W. Knight, 1924. Thirty-First Annual Report of the Ontario Department of Mines, being Vol. XXXI, Part II, 1992. Geology of the Mine Workings of Cobalt and South Lorrain Silver Areas. ARV31-02.
- Ethier, Martin. 2017. Assessment Report on airborne high-resolution quad magnetic survey Conducted on the "Cobalt North Claims". 2_57484_10 Report.
- Ethier, Martin. 2017. Assessment Report on airborne high-resolution quad magnetic survey Conducted on the "Cobalt North Claims". 2_57484_11 Maps.
- Hill, George W.R. 1986. A report on the diamond drilling programme on the Silverside Resources Inc. -Silver Lake resources Inc. property. 31M05NE0009.
- Legun, A. 1986. Huronian Stratigraphy and Sedimentation in the Cobalt Area. Ontario Geological Survey Miscellaneous Paper 124, 24p. Accompanied by 3 charts.
- Noble, S.R., and Lightfoot, P.C. 1992. U-Pb baddeleyite ages of the Kerns and Triangle Mountain intrusions, Nipissing Diabase, Ontario. Canadian Journal of Earth Sciences, 29: 1424-1429.
- Sergiades, A. O. 1968. Silver Cobalt Calcite Vein Deposits of Ontario; Mineral Resources Circular No. 10, Ontario Department of Mines: 192-193.
- Thompson, R. 1960: Preliminary Report on the Geology of the North part of Lorrain Twp., District of Timiskaming; O.D.M. Preliminary Report.
- Thomson, R. 1964. Cobalt Silver Area, Northern Sheet, Timiskaming District. Ontario Department of Mines, Map M2050, scale 1:12,000.



CERTIFICATE OF QUALIFICATION

I, Matthew Halliday do hereby certify that:

- 1. I am a Professional Geoscientist in the Province of Ontario with an office at 335 Niven St, Haileybury Ontario.
- 2. I graduated with the degree of Bachelor of Science from the University of Dalhousie (2007).
- 3. This certificate is to accompany the report titles "TECHNICAL REPORT ON THE GERMAN-AMERICAN PROPERTY LORRAIN TOWNSHIP LARDER LAKE MINING DIVISION, NORTHEASTERN ONTARIO FOR COBALT INDUSTRIES OF CANADA INC."
- 4. I am a registered Professional Geoscientist with the Association of Professional Geoscientists of Ontario (APGO #2605)
- 5. I have worked as a geologist for 11 years since my graduation from university, on a wide variety of gold, base metal, lithium and iron exploration properties, including project management.

Dated the 12th of December 2018



Matthew Halliday, P.Geo.



APPENDIX A – XRF Data



Reading #	x	У	z	Strike	Dip	Litho	Instrument Serial Num	Co ppm	Ag ppm	Ni ppm	Cu ppm	As ppm	Bi ppm	Zn ppm	Pb ppm
DFA-001	604068.2	5251649	276.4991	186	90	DIA	VANTA803061	0	0	328	78	0	0	459	12
DFA-002	605264.9	5251223	263.5045	278	79	DIA	VANTA803061	0	0	11	16	13	0	42	22
DFA-003	605264.3	5251224	263.7119	282	78	DIA	VANTA803061	0	3	12	33	14	0	57	16
DFA-004	605272.6	5251222	258.85	230	82	DIA	VANTA803061	0	5	30	30	35	0	93	45
DFA-005	605274.2	5251227	262.9196	288	90	DIA	VANTA803061	0	0	23	5	19	0	53	55
DFA-006	605268.5	5251230	260.5128	320	90	DIA	VANTA803061	0	0	28	27	22	0	110	58
DFA-007	605268.5	5251231	261.016	24	90	DIA	VANTA803061	0	0	0	0	11	0	25	25
DFA-008	605260.9	5251236	261.735	224	81	DIA	VANTA803061	0	0	16	14	24	0	50	21
DFA-009	605258.1	5251237	259.6497	314	90	DIA	VANTA803061	0	0	28	13	27	0	47	41
DFA-010	605256.7	5251238	260.0414	58	40	DIA	VANTA803061	0	0	26	5	34	0	82	54
DFA-011	605268.7	5251251	261.7055	311	70	DIA	VANTA803061	0	0	31	0	53	0	74	51
DFA-012	605269.7	5251299	255.9662	318	88	DIA	VANTA803061	0	0	111	12	28	0	89	45
DFA-013	605268.1	5251301	258.9618	350	90	DIA	VANTA803061	0	5	10	27	28	0	71	38
DFA-014	605272.3	5251304	259.5694	342	90	DIA	VANTA803061	0	0	52	99	29	0	120	41
DFA-015	605274.2	5251304	261.1278	85	8	DIA	VANTA803061	0	0	126	380	9	0	401	7
DFA-016	605272.9	5251305	258.0127	163	88	DIA	VANTA803061	0	0	98	54	18	0	173	33
DFA-017	605275.1	5251301	257.1921	252	86	DIA	VANTA803061	0	3	70	26	26	0	84	34
DFA-018	605267.4	5251358	247.7019	360	85	DIA	VANTA803061	0	0	145	210	112	0	461	180
DFA-019	602152.1	5253318	261.8656	125	90	DIA	VANTA803061	0	0	16	18	6	0	50	9
DFA-020	605519.9	5251444	273.3807	274	35	DIA	VANTA803061	0	3	24	20	16	0	94	32
DFA-021	605299.4	5251365	254.2442	240	90	DIA	VANTA803061	0	0	46	22	18	0	99	33
DFA-022	605299.4	5251365	254.2442	314	54	DIA	VANTA803061	0	0	44	28	43	0	104	54
DFA-023	605297.1	5251366	256.028	130	87	DIA	VANTA803061	0	5	28	38	22	0	63	40
DFA-024	605506.9	5251313	260.5809	252	10	DIA	VANTA803061	0	0	135	166	4	0	633	9
DFA-025	605507.3	5251313	261.5255	343	78	DIA	VANTA803061	0	0	71	26	14	0	72	28
DFA-026A	605509.8	5251314	266.7896	248	90	DIA	VANTA803061	275	0	0	53	23	0	83	68
DFA-026B	605509.8	5251314	266.7896	248	90	DIA	VANTA803061	0	0	57	45	17	0	167	48
DFA-026C	605509.8	5251314	266.7896	248	90	DIA	VANTA803061	0	0	63	52	19	0	135	62



DFA-027	605510.5	5251314	267.3426	11	77	DIA	VANTA803061	0	3	65	34	15	0	125	36
DFA-028	605513.8	5251312	271.2416	242	90	DIA	VANTA803061	0	3	56	22	13	0	119	38
DFA-029	605524.9	5251300	270.1173	252	90	DIA	VANTA803061	0	0	49	7	10	0	68	23
DFA-030	605524.6	5251303	266.7031	8	85	DIA	VANTA803061	0	3	30	9	19	0	65	35
DFA-031	605527.5	5251355	268.9046	226	90	DIA	VANTA803061	0	0	80	5	29	0	135	26
DFA-032	605523	5251355	269.0368	340	86	DIA	VANTA803061	0	0	0	0	10	0	57	26
DFA-033	605524.3	5251355	271.7043	324	10	DIA	VANTA803061	175	0	26	12	9	0	101	25
DFA-034	605524	5251352	270.9259	319	65	DIA	VANTA803061	0	0	13	24	41	0	122	70
DFA-035	605527.3	5251354	260.1268	298	90	DIA	VANTA803061	0	0	24	13	8	0	64	23
DFA-036	605524.2	5251354	264.715	340	16	DIA	VANTA803061	0	0	49	7	15	0	70	28
DFA-037	605539.5	5251360	272.3258	337	14	DIA	VANTA803061	0	0	61	38	34	0	62	37
DFA-038	605538.6	5251361	273.3253	160	77	DIA	VANTA803061	0	0	73	46	18	0	51	42
DFA-039	605537.9	5251361	273.5622	227	90	DIA	VANTA803061	0	0	20	20	10	0	117	31
DFA-040	605525.7	5251442	273.4548	295	88	DIA	VANTA803061	55	0	11	17	23	0	70	37
DFA-041	605525.7	5251442	273.4548	228	85	DIA	VANTA803061	0	0	16	8	11	0	46	34
DFA-042	605522.8	5251442	271.7161	62	78	DIA	VANTA803061	0	8	63	29	16	0	78	31
DFA-044	605519.9	5251445	273.3987	220	73	DIA	VANTA803061	0	0	101	89	35	0	118	53
DFA-044	605517.9	5251446	273.0769	329	90	DIA	VANTA803061	0	0	55	36	33	0	126	32
DFA-045	605512.1	5251458	273.2411	229	84	DIA	VANTA803061	0	0	23	41	23	0	79	40



APPENDIX B – XRF Specifications



We used a Vanta handheld XRF gun. The Vanta is manufactured by Olympus. We are using the VMR model with a 50kV and 0.2mA tube rating. For the following specs we have the M Series, without camera.

Vanta Specifications

Dimensions (W x H x D)	8.3 x 28.9 x 24.2 cm (3.25 x 11.4 x 9.5 in.)
Weight	1.70 kg (3.75 lbs) with battery, 1.48 kg (3.25 lbs) without battery
Excitation Source	4-Watt X-ray tube with application optimized anode material (rhodium (Rh), silver (Ag), or tungsten (W)) M Series (Rh & W) and C Series (Ag): 8-50 kV C Series (Rh & W): 8-40 kV
Detector	M Series: Large area Silicon Drift Detector C Series: Silicon Drift Detector
Power	Removable 14.4 V Li-Ion battery or 18 V power transformer 100-240 VAC, 50-60 Hz, 70 W max
Display	800 x 480 (WVGA) LCD with capacitive touch-screen supporting gesture control
Operating Environment	Temperature: -10 °C to 50 °C (continuous duty cycle with optional fan) Humidity: 10% to 90% relative humidity non-condensing
Drop Test	Military Standard 810-G 4-foot (1.3 M) drop test
IP Rating	IP65*: dust tight and protected against water jets from all directions
Pressure Correction	Built-in barometer for automatic altitude and air density correction



GPS	Embedded GPS/GLONASS receiver
Operating System	Linux
Data Storage	4 GB embedded storage, micro SD slot for expandable storage
	(2) USB 2.0 type A host ports for accessories such as Wireless LAN
USB	Bluetooth [®] , and USB flash drives.
	(1) USB 2.0 type mini-B port for connection to computer
Wireless LAN	Supports 802.11 b/g/n (2.4 GHz) via optional USB adapter
Bluetooth	Supports Bluetooth and Bluetooth Low-Energy via optional USB adapter
Aiming Camera	Full VGA CMOS camera
Panorama Camera	5-megapixel CMOS camera with autofocus lens
* M Series analyzers are	e IP64 rated.

M Series analyzers are IP64 rated.

Additional details on the Vanta can be found at the manufacturers website: <u>https://www.olympus-</u> ims.com/en/vanta/





German-American Property Expense Verification

						COST CAT	ATEGORIES					
WORK TYPE	PERSONNEL	ROLE	DATES OF FIELD WORK	Days/Man-days	Rate/unit	\$Supervision & Labour	\$Contractors & Consultants	\$Supplies & Rental Equipment	\$Food and Lodging	\$Transport personnel/equip to work site (Ontario only)	\$Assaying	\$Shipping
Project Planning	Matthew Halliday	Project Geologist	July 3	1.0	\$ 400.00	\$ 400.00						
Supervising & XRF	Matthew Halliday	Project Geologist	July 12	1.0	\$ 400	\$ 400.00						
Fracture Analysis Surveying	Gerhard Kiessling	Geologist	July 5,6,12	3.0	\$ 350.00	\$ 1,050.00						
Fracture Analysis Surveying	Matthew Brown	Geologist	July 12	1.0	\$ 350.00	\$ 350.00						
Fracture Analysis Surveying	Matthew Halliday	Project Geologist	July 5,6	2.0	\$ 400	\$ 800.00						
Map making & Reporting	Matthew Halliday	Project Geologist	Jan 30,31	1.5	\$ 400.00	\$ 600.00						
Geochem	Reflex	Portable XRF Rental (\$7290/month)		2.0	\$ 243.00			\$ 486.00				
Truck Rental	\$100/day in incl. truck rental, fuel, insurance, repairs			3	\$ 100.00					\$ 300.00		
Accom/Meals	\$100/day incl. house rental, heat, hydro, groceries, restaurant meals (3 people)			6	\$ 100.00				\$ 600.00			
	-	•	•	•		\$ 3,600.00	\$ -	\$ 486.00	\$ 600.00	\$ 300.00	\$-	\$-

SUM = \$ 4,986.00

Cost Allocation								
Claim Cells	Claim Holder	% of traverses =	Total value of					
275705	Cobalt Industries	0.8	\$	3,988.80				
127703	Cobalt Industries	0.2	\$	997.20				
		1.0	\$	4,986.00				