xstrata zinc

2010-2011 Assessment Report on Diamond Drilling

Bell Lake, Sixmile Lake, and Valora Lake Townships, Ontario

NTS Sheet 52G14 & 52G15

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Prepared for

The government of Ontario

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1. Summary

Exploration work was conducted by Xstrata Zinc in 2010 and 2011 on mining claims in Bell Lake, Sixmile Lake, and Valora Lake townships. The work was conducted on the Sturgeon Lake property, located in the Kenora Mining district of northern Ontario. Activities consisted of diamond drilling, core sampling, and surface and downhole geophysical surveying.

The objective of the exploration program was to evaluate the economic base metal potential of the area by drill testing previously identified areas of Zn-Cu mineralization as well as new geophysical and stratigraphic targets.

Exploration work carried out comprised of 15 holes diamond drillholes totalling 7,002.65 m, and 11,310m of downhole geophysical surveys in 17 holes (including re-surveyed historical drillholes). Assays and lithogeochemical samples were also collected from 13 of the 15 drillholes.

Anomalous base metal values were identified in several holes, in particular those drilled in the Abitibi Zone, an area of VMS-style mineralization discovered by Abitibi Price in 1981. Additional drilling is recommended in the Abitibi Zone to determine if the mineralization extends at depth and to the east.

2. Introduction

This technical report was prepared for filing of assessment work with the government of Ontario by Xstrata Zinc Canada. The work program was designed to follow-up previously identified areas of Zn-Cu mineralization and to test new geophysical and stratigraphic targets. The work was carried of by various contractors, under supervision of Xstrata Zinc geoscientists. A diamond drilling and geophysical survey program was carried out on the property in between September 24th, 2010 and April 12th, 2011. The program consisted of 7,002.65 m of drilling in 15 holes, and 11,310 m of geophysical surveys in 17 holes (including re-surveyed historical holes).

3. Reliance on Experts

The drill program was carried out by independent contractors, under the supervision of Xstrata Zinc geological staff. The following contractors performed work during the exploration program:

- Geological consulting was performed by Clark Exploration Inc. of Thunder Bay, Ontario (line-cutting, core logging and sampling, drill management).
- Ice road construction was carried out by Machinerie St-Pierre, Val D’Or, Québec.
- Diamond drilling was conducted by Major Drilling of Winnipeg, Manitoba and Val D’Or, Québec.
- Assay and lithogeochemical analysis were performed by ALS Chemex at their lab in Thunder Bay, Ontario, and also by Techni-Lab in Ste-Germaine-Boulé, Québec.
- Geophysical surveys were conducted by TMC, Val D’Or, Québec.

Geological results and data from the program were compiled by Lucy Potter, geologist for Xstrata Zinc Canada in Saint-Laurent, Québec.

4. Property Description and Location

The property is located approximately 70 km north of the town of Ignace, Ontario, and approximately 250 km northwest of Thunder Bay. Access to the property is readily available via Highway 599 and a number of small regional roads.

The property is comprised of a package of claims in the Bell Lake, Sixmile Lake and Valora Lake Townships. The property occurs on NTS sheet 52G14 and 52G15, in UTM zone 15, and covers a large portion of the Sturgeon Lake VMS camp. The Sturgeon Lake camp is host to five past-producing base metal mines having a total combined production of 19.8Mt @ 8.50% Zn, 1.06% Cu, 0.91% Pb and 119.7g/t Ag. Claim and disposition details are listed in Appendix 1.

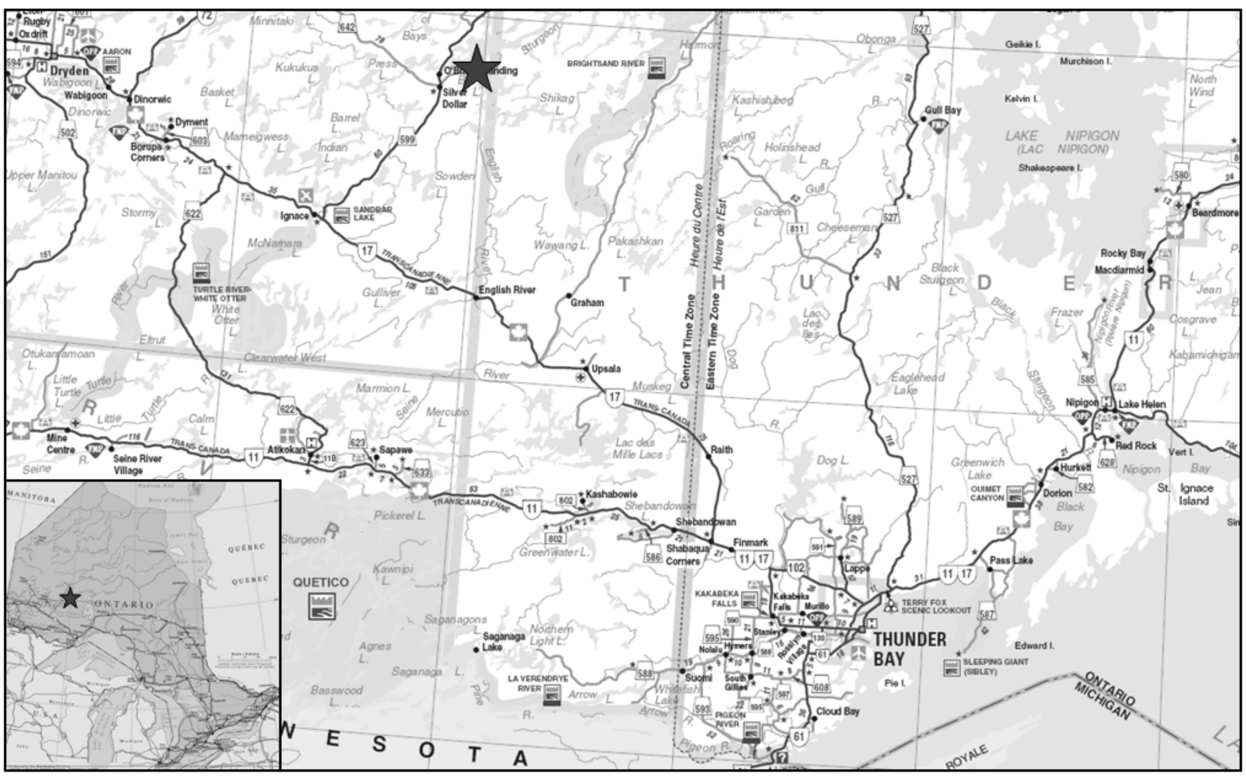

Figure 1: Location Map – Sturgeon Lake Project Area

5. Accessibility, Local Resources, Infrastructure and Physiography

Access to the property is very good via Highway 599 from Ignace, and along the paved, gated mine road. The nearby Silver Dollar Inn and Campground provides a suitable base of operations.

The physiography of the property is dominated by conifers typical of boreal forest vegetation.

6. Geological Setting

The Sturgeon Lake greenstone belt is located in the Wabigoon subprovince of Ontario's Superior province. The Sturgeon Lake caldera is a northward-younging pile of felsic to mafic volcanics rocks, with intermixed volcaniclastic and chemical sediments, locally intruded by syn- to post-volcanic plutons sills and dykes (Figure 2).

Laterally extensive mappable units within the submarine caldera are grouped into volcanic cycles comprised of, from base to top, mafic to intermediate volcanic flows, felsic pyroclastics, and a thin sedimentary layer. Within the 4500m thick package of caldera in-fill material, 5 major ash-flow tuff units are interpreted to represent 5 separate caldera-collapse events (Figure 3).

The pre-caldera mafic volcanic rocks at base of the caldera are intruded by the sill-like synvolcanic Beidelman Bay Intrusive Complex.

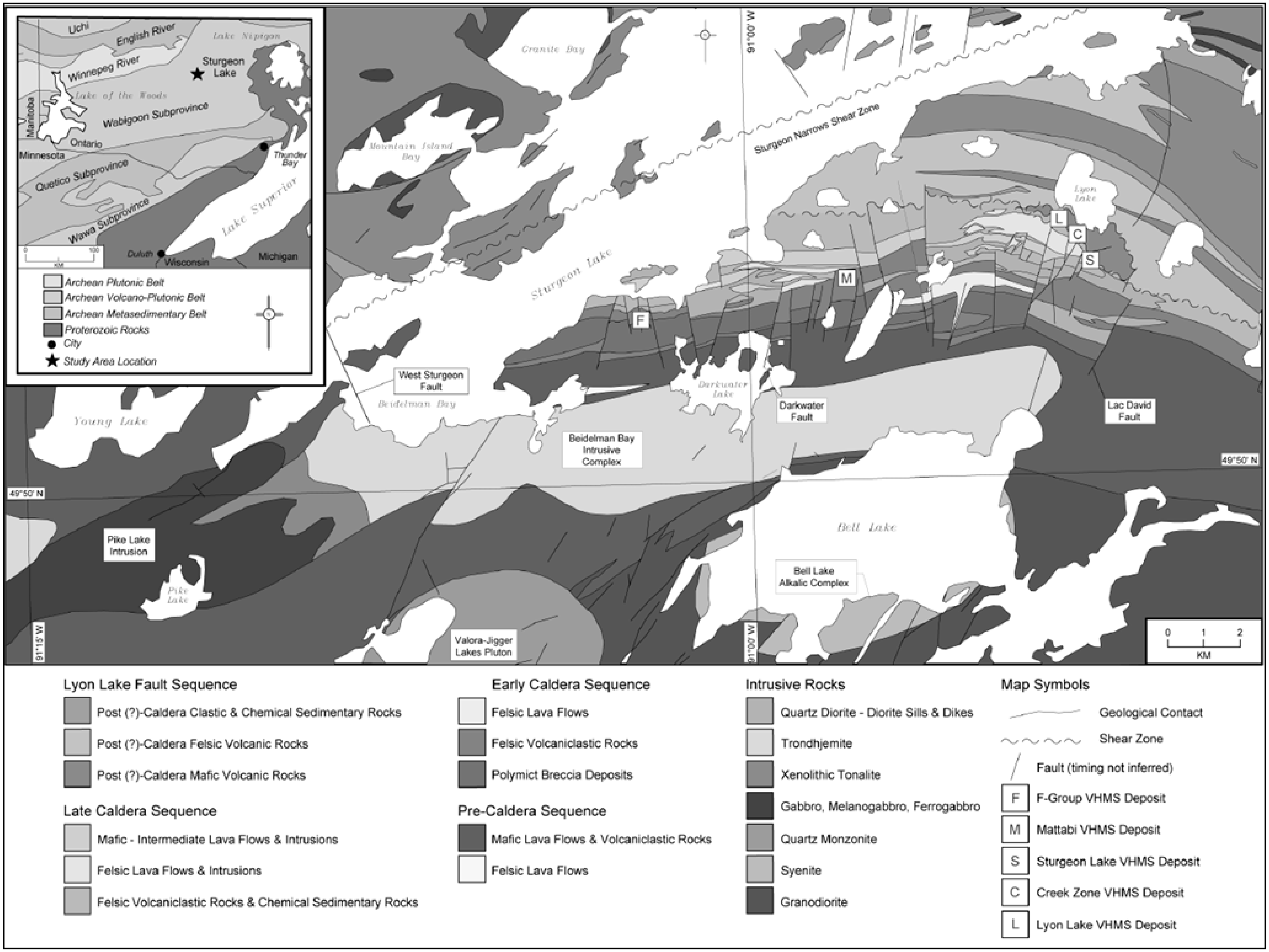

Figure 2: Geology of the Sturgeon Lake caldera (Morton et al., 1991; Hudak et al., 2003)

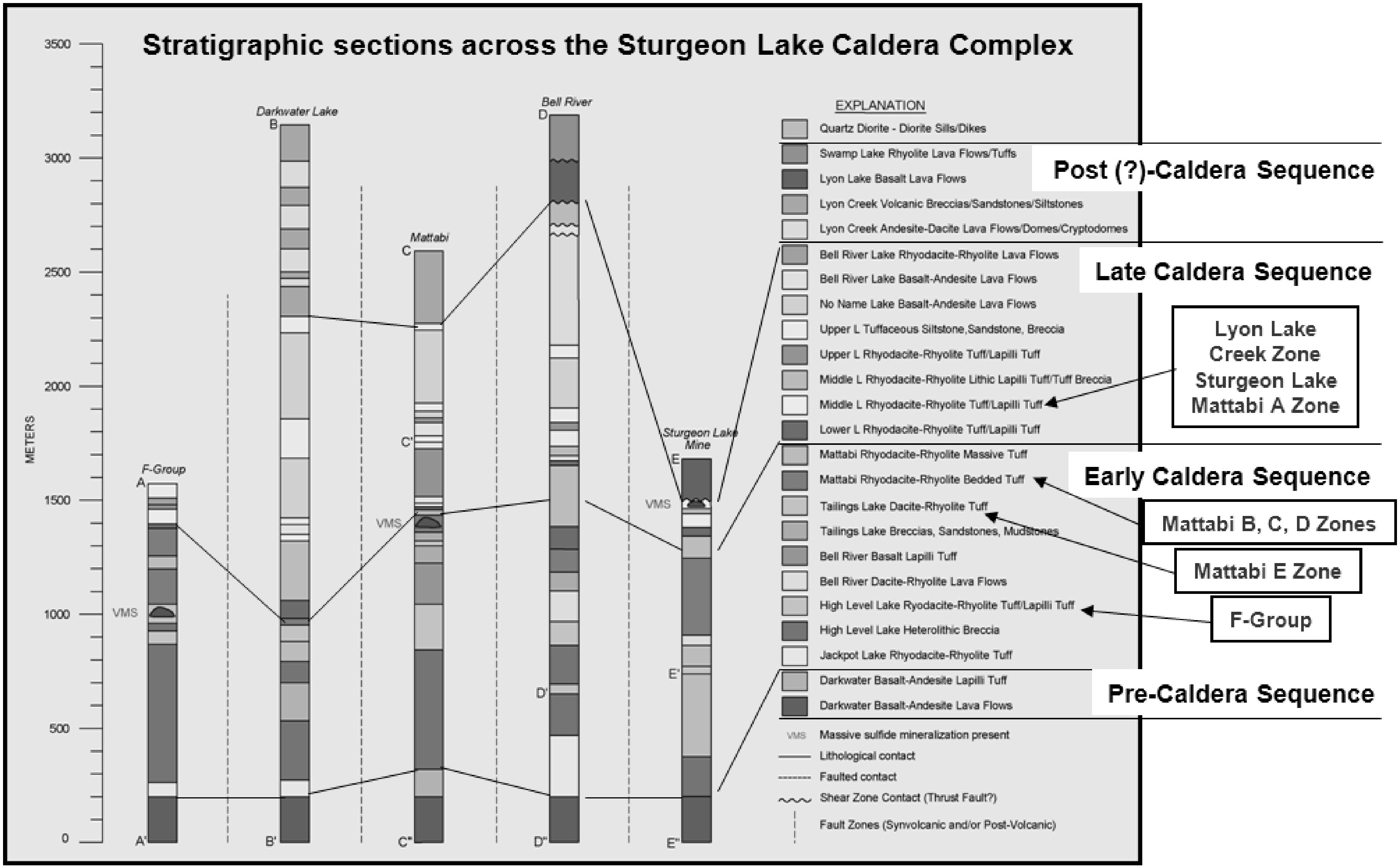

Figure 3: Stratigraphic sections across the Sturgeon Lake Caldera Complex (modified after Hudak et al, 2003)

7. Deposit Types

The objective was to discover an economic volcanogenic massive sulphide (VMS) deposit in the Sturgeon Lake camp. Mineralization is likely to occur within felsic volcanic units, at the upper contact of the pyroclastic felsic units with the volcaniclastic sediments.

8. Drilling

Fifteen BQ-sized exploration drillholes were completed by Major Drilling on the property between September 27 to November 1, 2010 and February 24 to 6 and June 30th, 2006. Fall drilling was completed using two drills from Major's Winnipeg branch while the winter drilling used only one drill from the Val d'Or branch. Drillhole locations are summarized in Table 1 and presented in Maps 1, 2 and 3.

Drillholes were surveyed for changes in dip and direction using a Reflex instrument. Readings were taken every 30 m down the hole.

9. Program Logistics

Drill program management was carried out by geologists registered with the Association of Professional Geoscientists of Ontario and employed by Clark Exploration Consulting. Procedures were elaborated and supervised by Xstrata geologists and all analytical results were supplied directly to Xstrata by ALS Minerals.

Drill core logging and sampling was carried out in two trailers rented from Secure Store Thunder Bay. All drill core is stored in racks located near the Mattabi water treatment plant, 500m north of the Mattabi open pit.

Winter drilling of the Abitibi Zone was intended to be conducted from Portage Island, located 200m offshore on Sturgeon Lake. This location provides the best drill access to the mineralized trend, but necessitates mobilizing the diamond drill across Sturgeon Lake. To this end, Machinerie St-Pierre, of Val d'Or, Québec, was contracted to build an ice road bridging the 150m distance from land to the island. The crew began by clearing a thick snow and slush from the top of the ice, and subsequently sprayed the ice with water to thicken the surface. Due to the heavy machinery to be transported, a minimum ice thickness of 28" to 34" was required. Unfortunately, rain and warm weather forced the abandonment of the ice road construction, and the planned were modified to be started on land.

Hole Number	Easting (m)	Northing (m)	Elevation (m)	Length (m)	Azimuth (°)	Dip (°)	Township	Year	NTS Zone	Date Start	Date End	Logged By	Core Size	Claim/ Disposition
17-82	650,016	5,527,582	434.83	452	175	-60	Sixmile Lake	2010	52G15	9/28/2010	10/6/2010	Ryan Tuomi	BQ	CLS 115819
17-83	650,594	5,527,612	439.68	593.25	190	-65	Sixmile Lake	2010	52G15	10/7/2010	10/18/2010	Ryan Tuomi	BQ	CLS 115819
17-84	649,668	5,526,582	439.30	563	174	-60	Sixmile Lake	2010	52G15	10/15/2010	10/24/2010	Doug Parker	BQ	GTP NO 7
17-85	649,434	5,527,460	436.91	701	174	-65	Sixmile Lake	2010	52G15	19/19/2010	10/30/2010	Steve Siemieniuk	BQ	CLS 115819
16-512	648,871	5,527,494	433.52	875	176	-66	Sixmile Lake	2010	52G15	9/27/2010	10/14/2010	Des Cullen	BQ	CLS 115819
16-513	648,955	5,526,906	435.71	1020	170	-75	Sixmile Lake	2011	52G14	3/17/2011	4/1/2011	D. Cullen, S. Siemieniuk, D. Parker	BQ	CLS 115819
23-331	653,118	5,526,178	447.57	251	180	-50	Bell Lake	2010	52G15	10/25/2010	10/28/2010	Des Cullen	BQ	CLM 171
23-332	654,140	5,527,965	450.12	201	180	-50	Sixmile Lake	2011	52G15	3/20/2011	3/24/2011	Des Cullen	BQ	4258008
23-333	654,170	5,527,743	445.10	201	180	-50	Sixmile Lake	2011	52G15	2/24/2011	2/26/2011	Des Cullen	BQ	CLM 170
WS-32	638,940	5,525,280	424.25	402.4	360	-55	Valora Lake	2011	52G14	4/6/2011	4/2/2011	Des Cullen	BQ	4241547
F-139	640,770	5,526,320	409.37	45	130	-78	Valora Lake	2011	52G14	2/27/2011	2/27/2011	Des Cullen	BQ	PA312567
F-139A	640,770	5,526,320	409.37	600	125	-78	Valora Lake	2011	52G14	2/28/2011	3/7/2011	Des Cullen	BQ	PA312567
F-140	641,020	5,526,350	408.79	555	104	-81	Valora Lake	2011	52G14	3/8/2011	3/16/2011	Des Cullen	BQ	PA361479
F-141	641,123	5,526,191	421.98	129	345	-50	Valora Lake	2011	52G14	4/8/2011	4/7/2011	Des Cullen	BQ	PA312564
F-141A	641,123	5,526,191	421.98	414	345	-55	Valora Lake	2011	52G14	4/11/2011	4/8/2011	Des Cullen	BQ	PA312564
			Total drilling (m):	***7002.65***										

Table 1: Diamond Drillhole Summary, Sturgeon Lake 2010 and 2011

All coordinates plotted using projection NAD83, Zone 15.

10. Sampling, Sample Preparation, Analysis and Security

Samples were collected and prepared according to the procedure outlined in Appendix 6 (Xstrata Zinc Highlights of Work Procedure) and shipped to ALS Chemex at their facilities in Thunder Bay, Ontario.

A total of 975 analyses were performed by ALS Chemex, including 757 assays and 218 whole rock samples.

In addition, 82 samples from holes F-139A and F-140 were shipped to Techni-Lab for re-analysis.

Hole Number	Assays	Standards	Blanks	Total Assay Samples	Whole Rock Assays	Total Whole Rock Samples
17-82	I599501 to I599502	0	0	2	I106101 to I106115	15
17-83	I599503 to I599511	0	0	9	I106116 to I106134	19
17-84	E460541 to E460545	0	0	5	I106029 to I106046	18
17-85	I599512 to I599636	6	3	125	I106135 to I106162	28
16-512	E460501 to E460629	2	1	85	I106001 to I106028	28
16-513	J529397 to J529440	2	1	44	J531840 to J531876	37
23-331	E460546 to E460584	2	1	39	I106047 to I106054	8
23-332	J529000 to J529059	2	2	60	J531800 to J531804	5
23-333	J529060 to J529093	1	0	34	J531805 to J531808	4
WS-32	J529443 to J529453	1	0	11	J531897 to J531888	10
F-139	J529094 tp J529102	1	1	9	J531809	1
F-139A	J529103 to J529286	7	3	183	J531810 to J531825	16
F-140	J529287 to J529396 and J529441 to	4	3	112	J531826 to J531878	16
F-141	no samples taken					
F-141A	J529454 to J529492	1	1	39	J531889 to J531899 and I106163 to I106164	13
Total		***29***	***16***	***757***		***218***

Table 2: Assay and Lithogeochemical Sample Summary

Throughout the drill program, all drill core was kept in a secure facility. Sealed sample bags were transported from the work site directly to ALS Chemex in Thunder Bay, and assay results were provided directly and exclusively to authorized Xstrata Zinc personnel. There was little or no opportunity for anyone to interfere with or corrupt the samples, or to access or alter the analytical results.

Complete assay certificates are given in Appendix 4.

11. Quality Control and Quality of Results

A total of 29 standards and 16 blanks were analysed for quality control purposes. The standards returned values satisfactory to ensure confidence in the results obtained from ALS Chemex. In addition, internal standards, duplicates and blanks make up part of the laboratory's standard procedures, and were included in each sample batch.

The results obtained from ALS Chemex represent a level of quality satisfactory to Xstrata's internal requirements for a diamond drill program. Samples results were representative of the material submitted to the lab. No factors are known to Xstrata which may have resulted in sample biases.

Field Standards

Reference standard material was obtained from Xstrata's mine operations in Matagami, Québec. Standard samples were inserted approximately every 25 samples (4% insertion rate). Only two standard assay samples (I599568 and J529050) returned a value greater than 2 standard deviations for copper. The performance of the standard samples was otherwise good, and is shown in Figures 4 to 13.

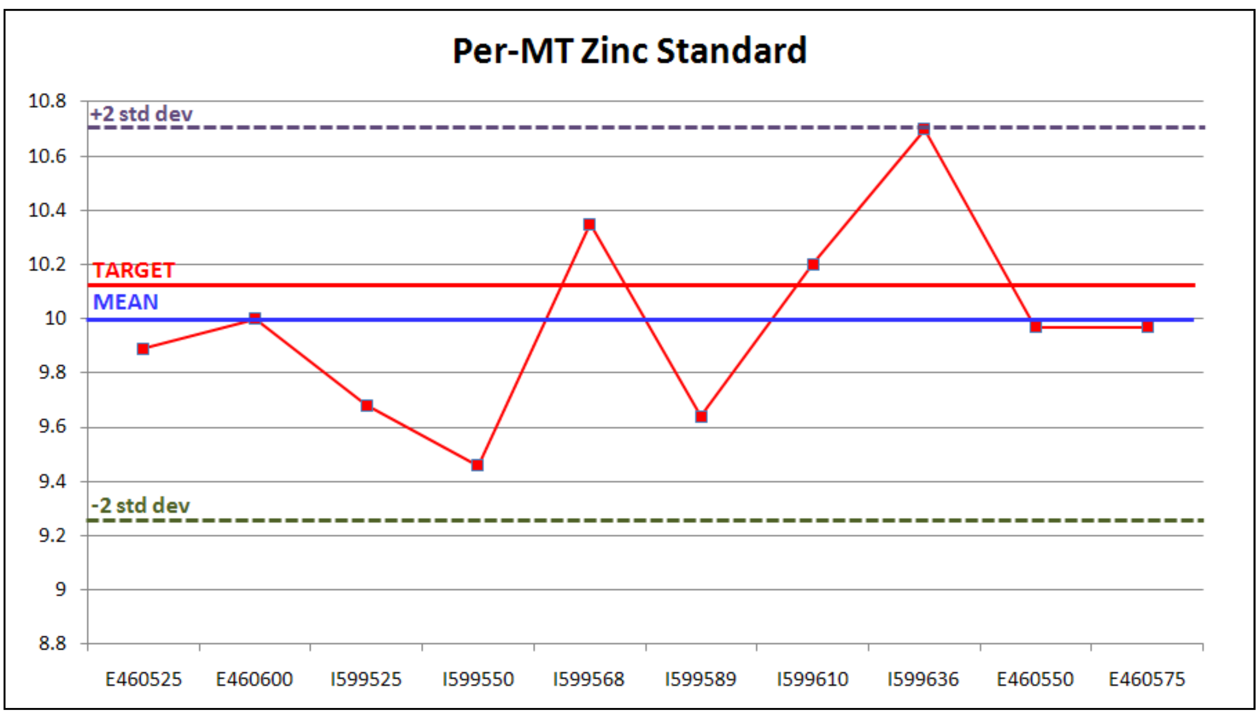

Figure 4: Per-MT standard control samples - Zinc

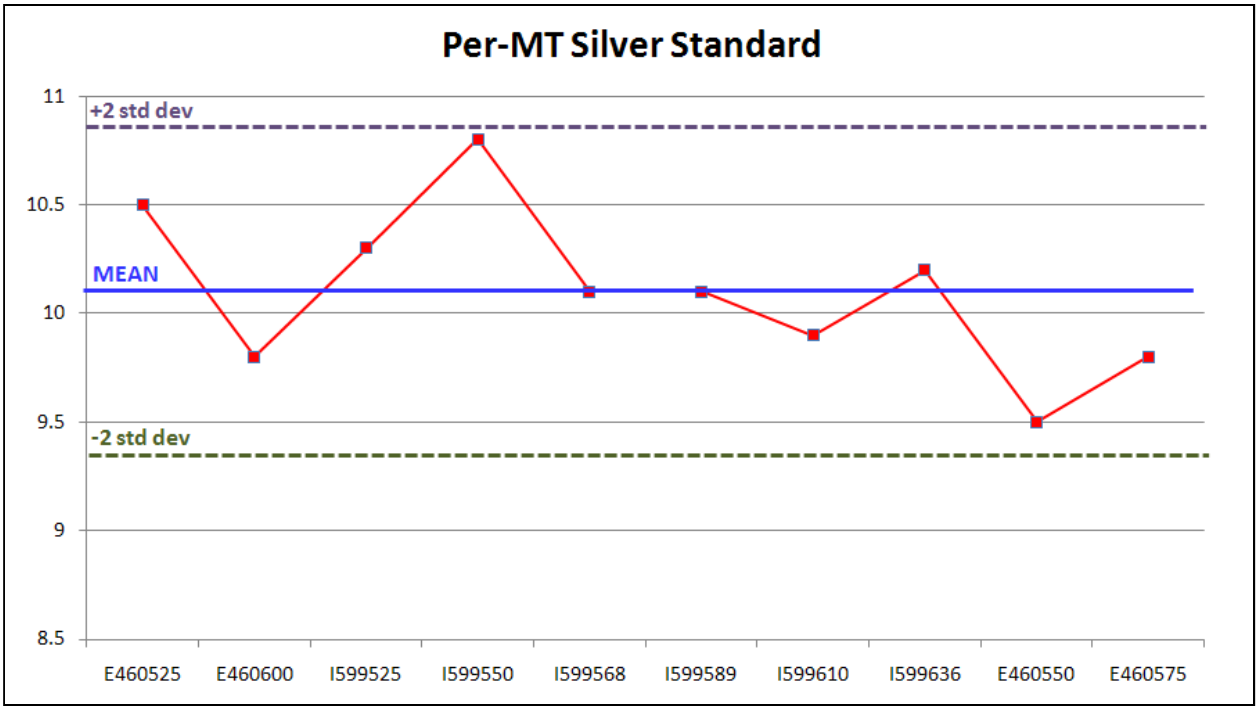

Figure 5: Per-MT standard control samples - Silver

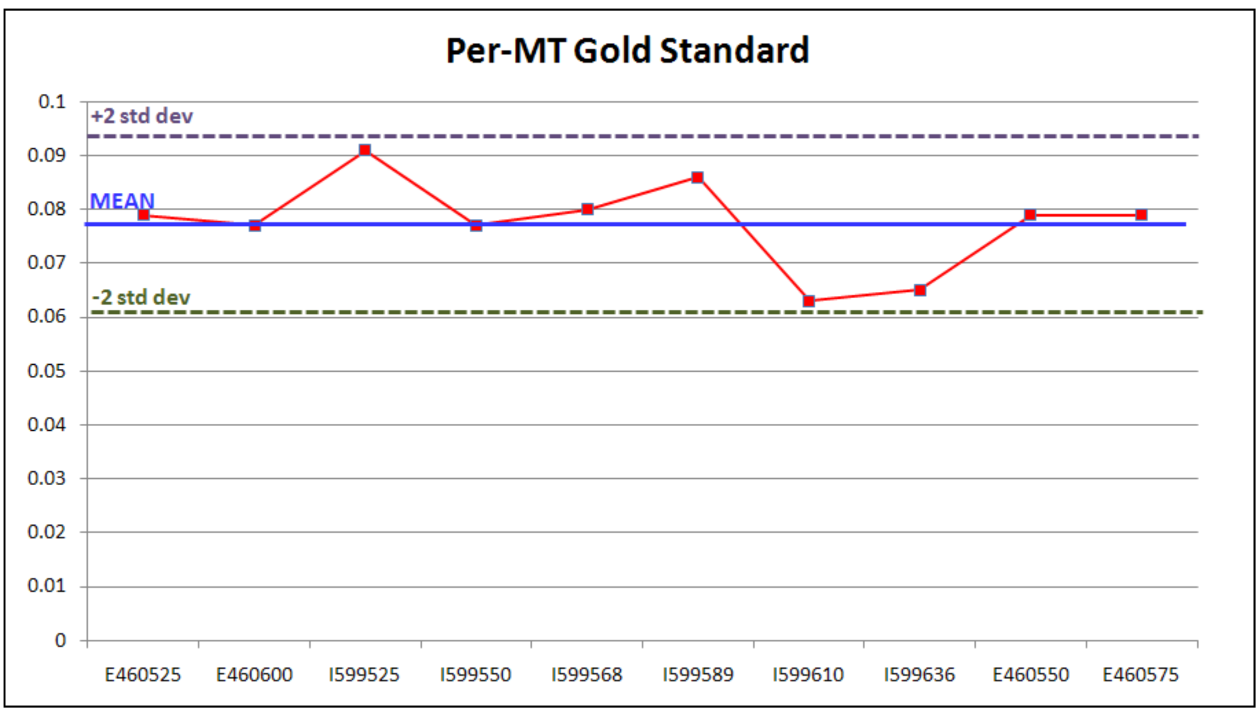

Figure 6: Per-MT standard control samples - Gold

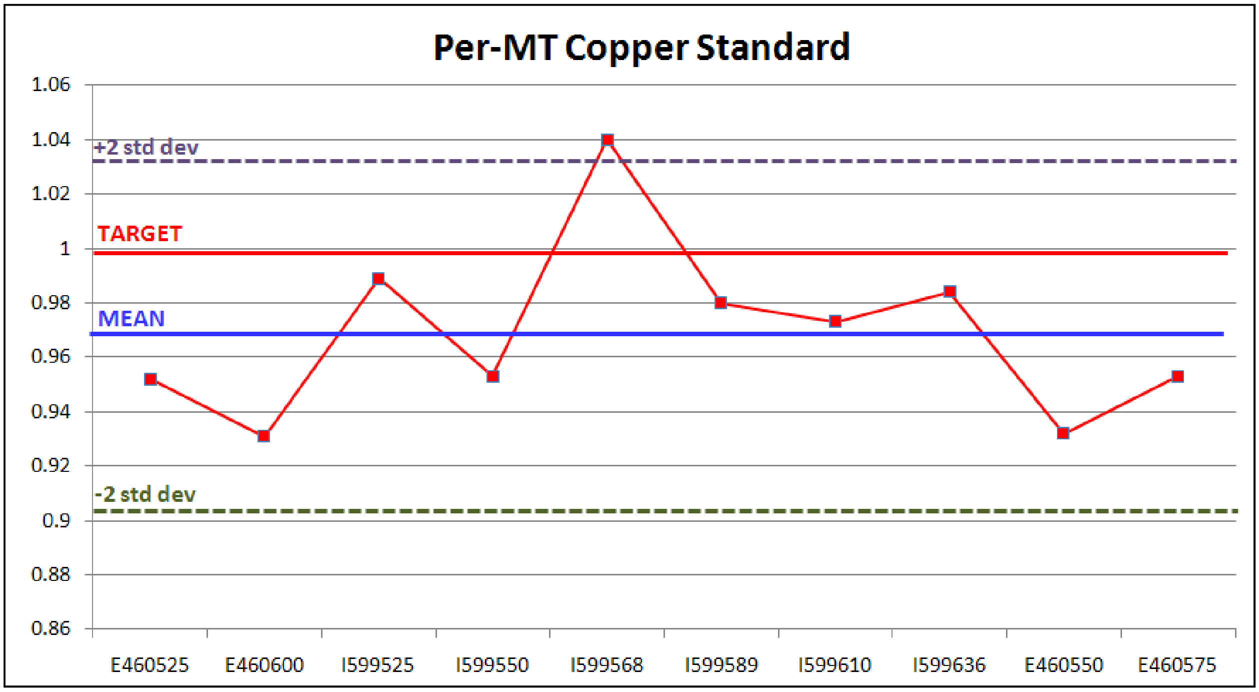

Figure 7: Per-MT standard control samples - Copper

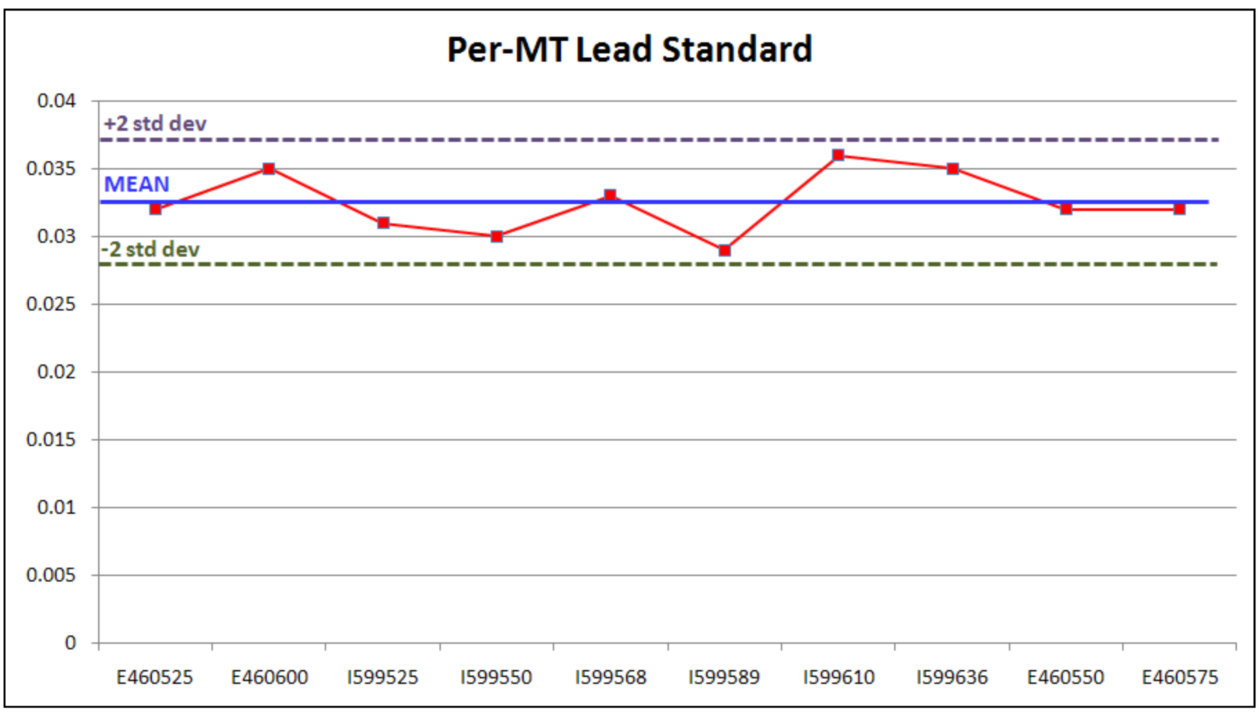

Figure 8: Per-MT standard control samples - Lead

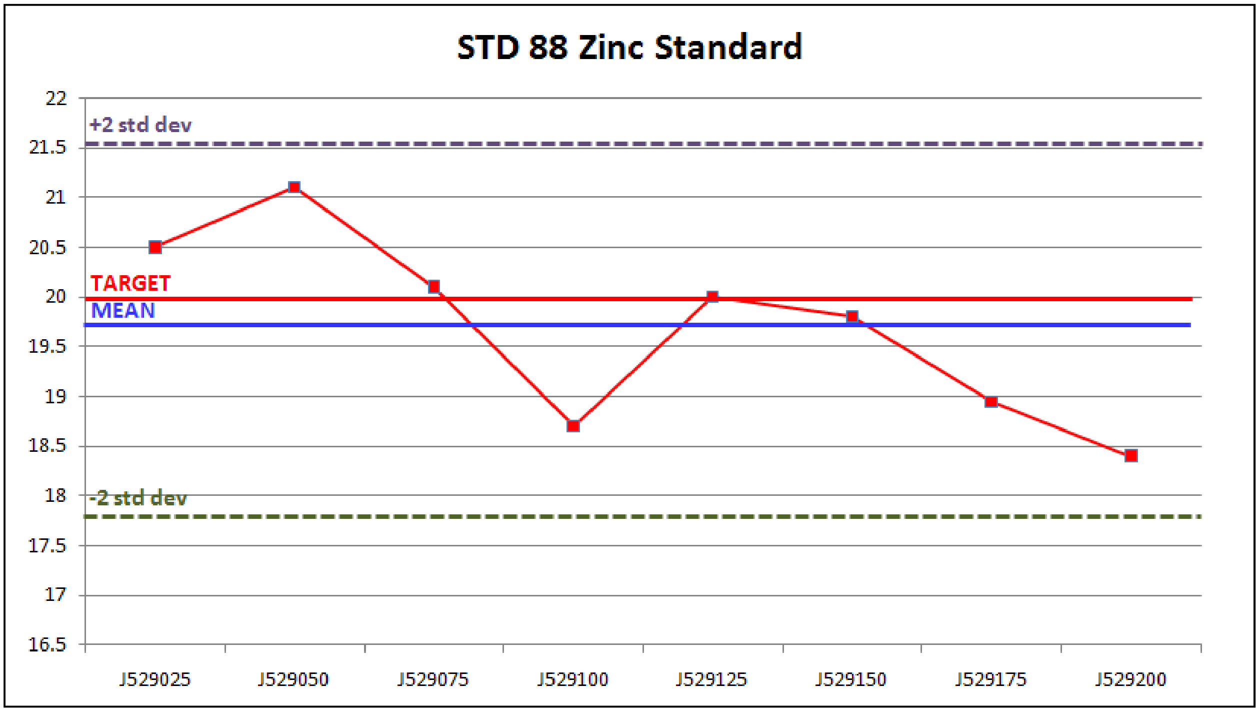

Figure 9: STD 88 standard control samples - Zinc

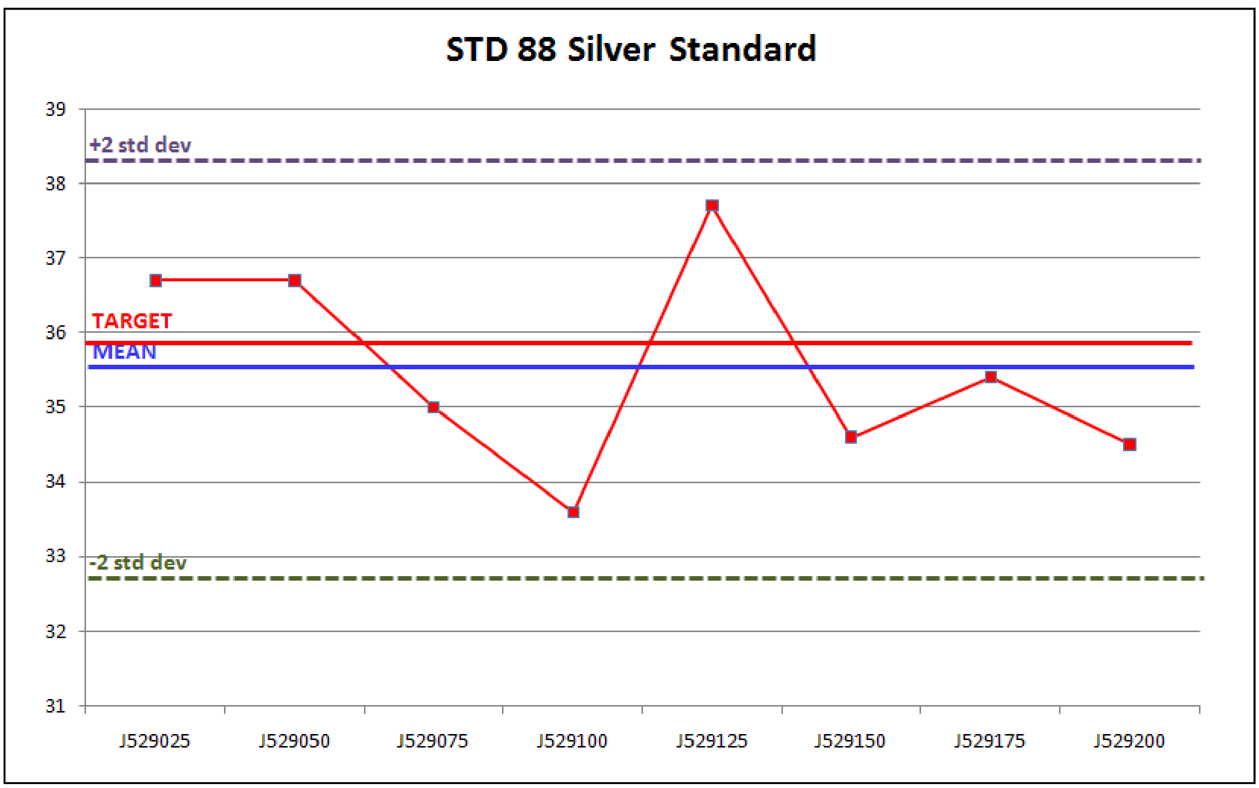

Figure 10: STD 88 standard control samples - Silver

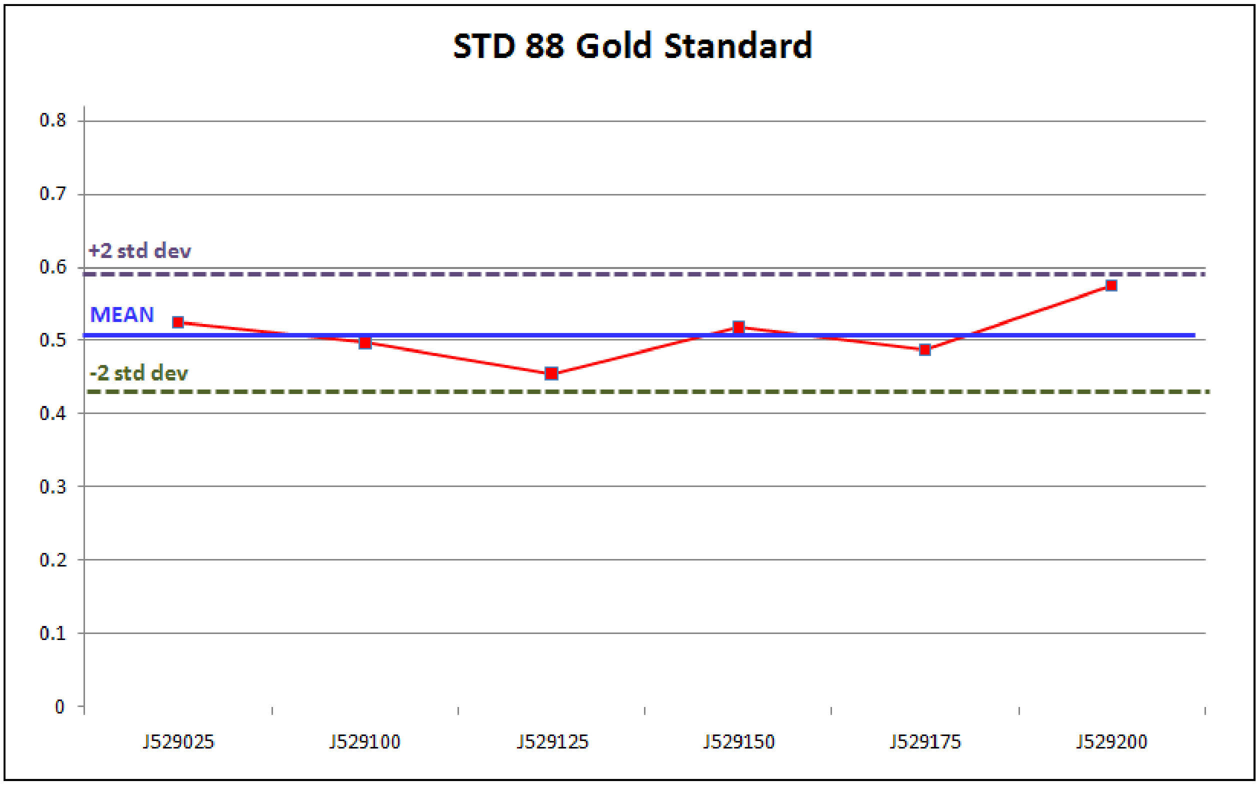

Figure 11: STD 88 standard control samples - Gold

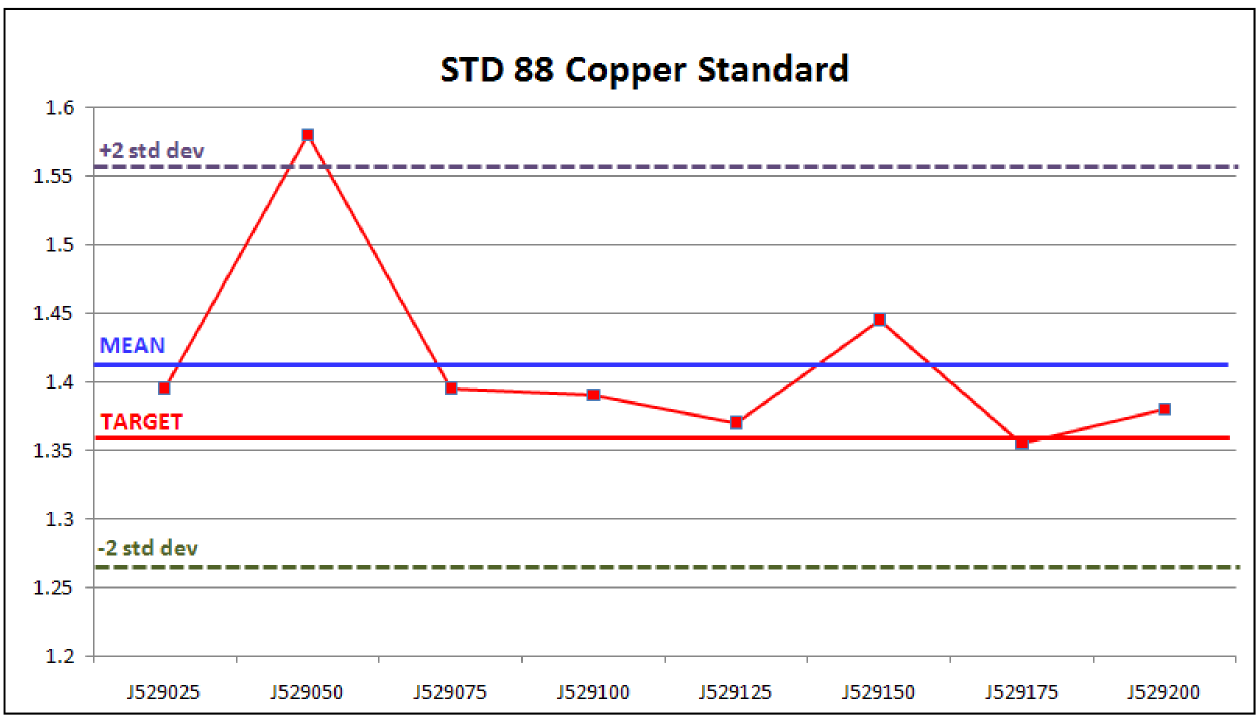

Figure 12: STD 88 standard control samples - Copper

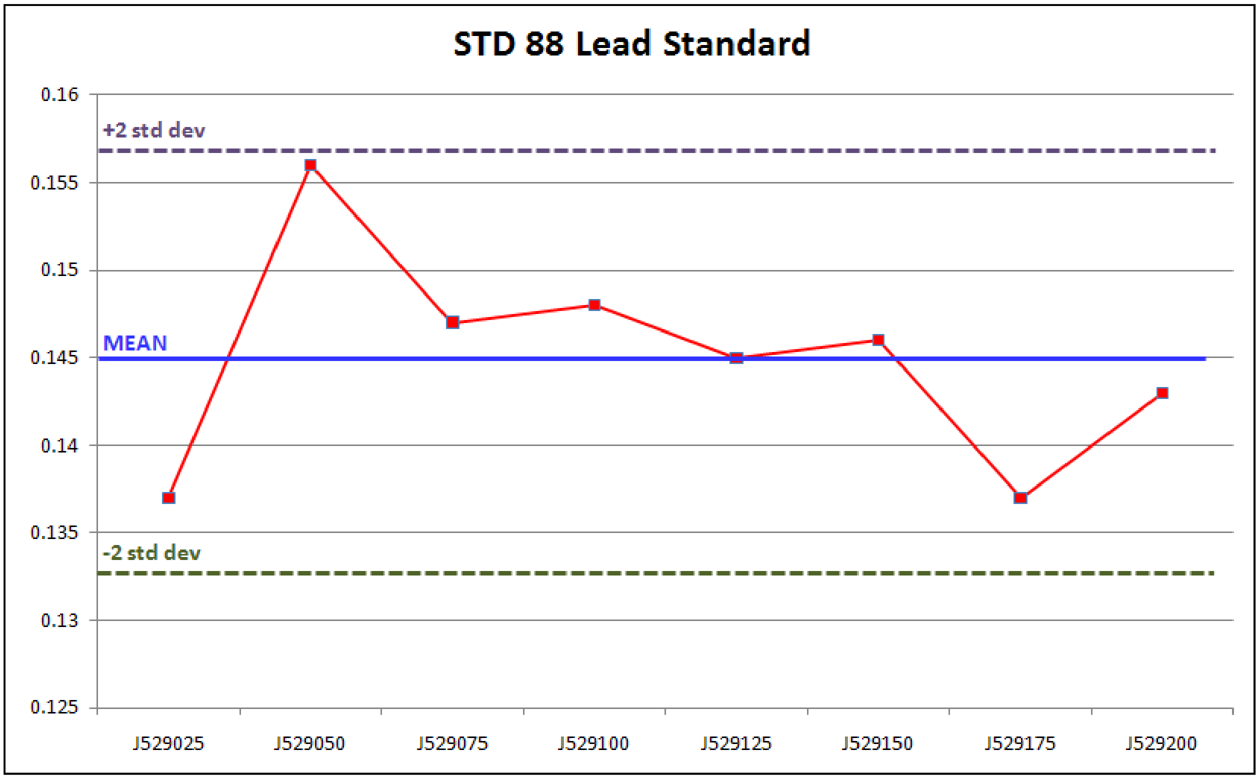

Figure 13: STD 88 standard control samples - Lead

Field Blanks

Barren material from a diorite dyke in hole 16-512 was used as blank material and inserted every 25 samples. The performance of the blank samples did not fare as well as the standards (Figure 14 to 17). In particular, the zinc and copper results were well above the detection limits of 0.001%. This can either be attributed to batch contamination or to blank material selection. Since the results were consistently elevated for nearly every sample (only one copper blank was below the failure limit of 2X the detection limit) it is most likely that the blank material selected was in fact enriched in copper and zinc. A more suitable source of blank material will be identified and used for future exploration programs.

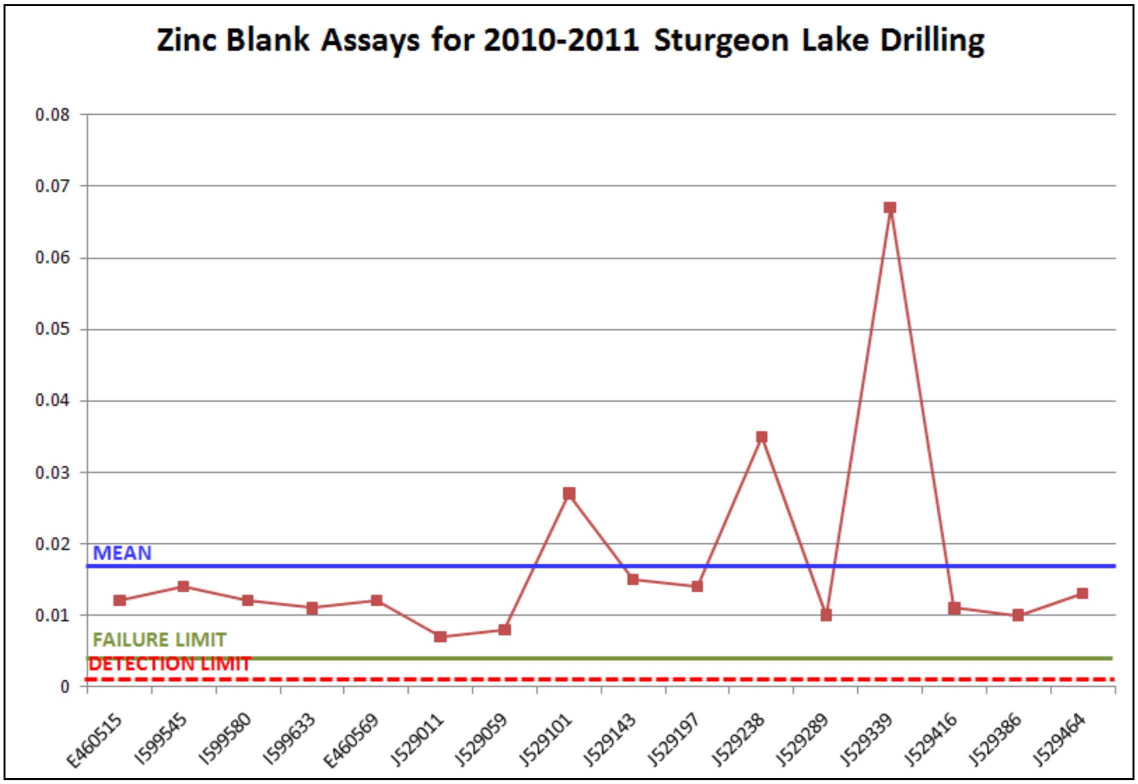

Figure 14: Blank control samples - Zinc

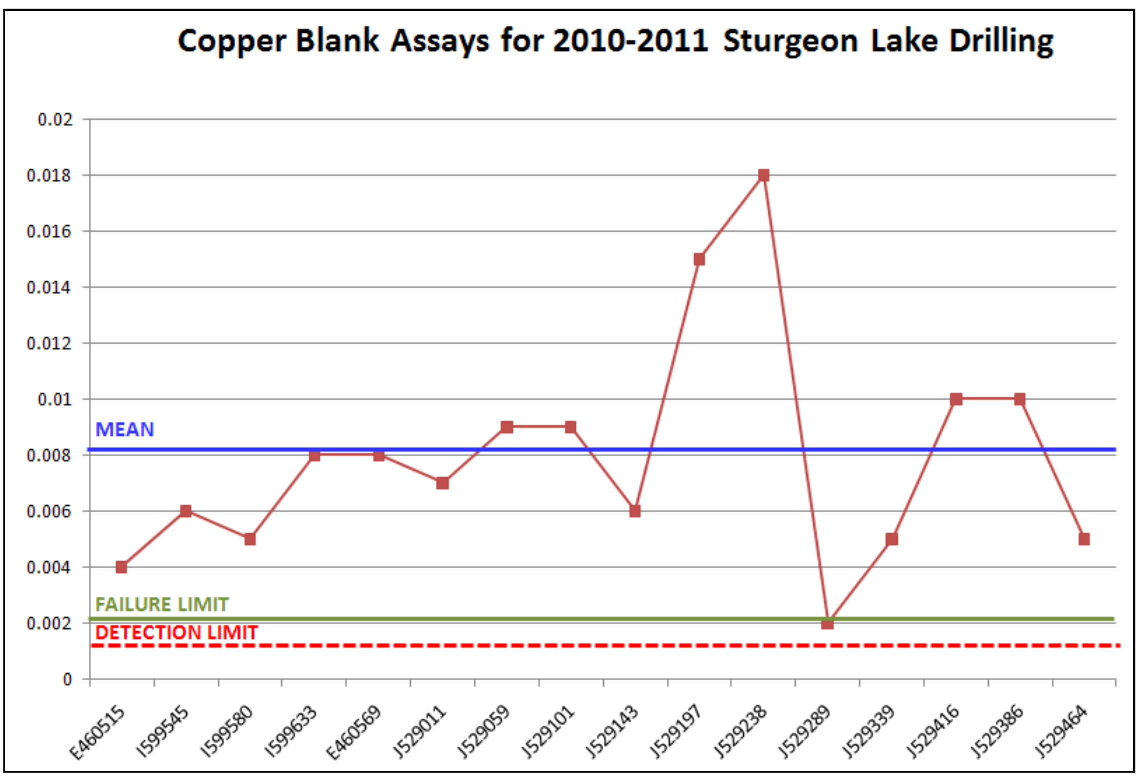

Figure 15: Blank control samples – Copper

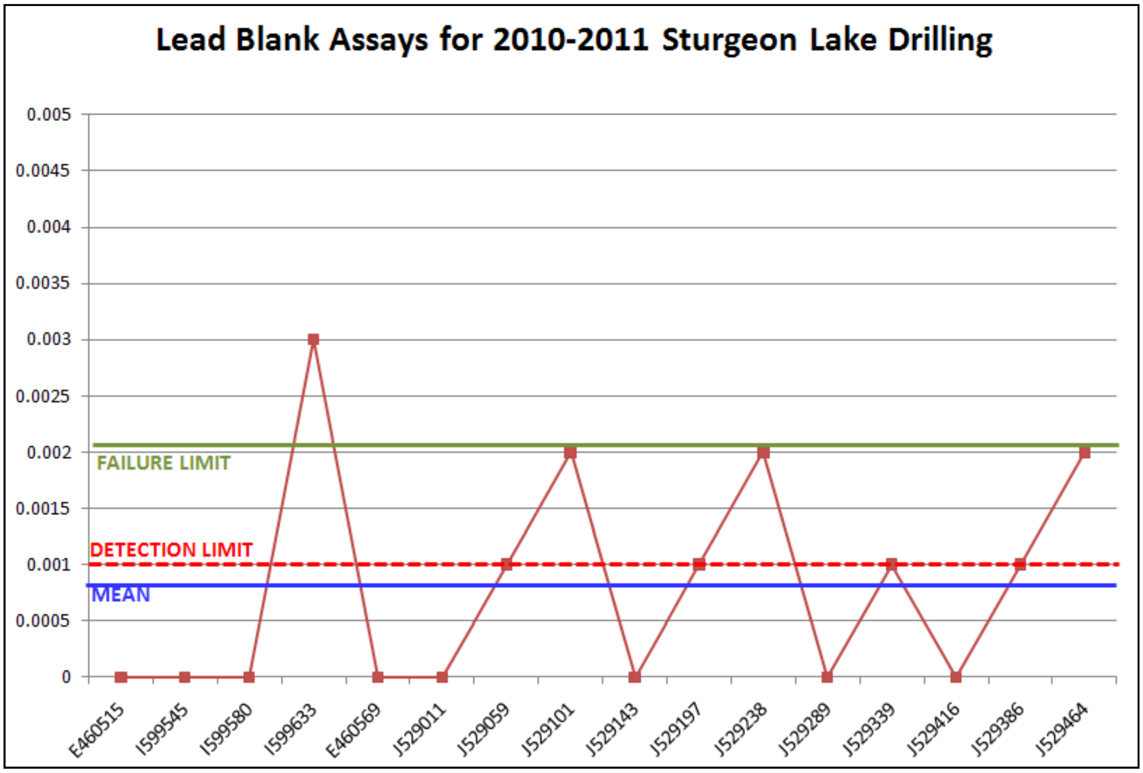

Figure 16: Blank control samples – Lead

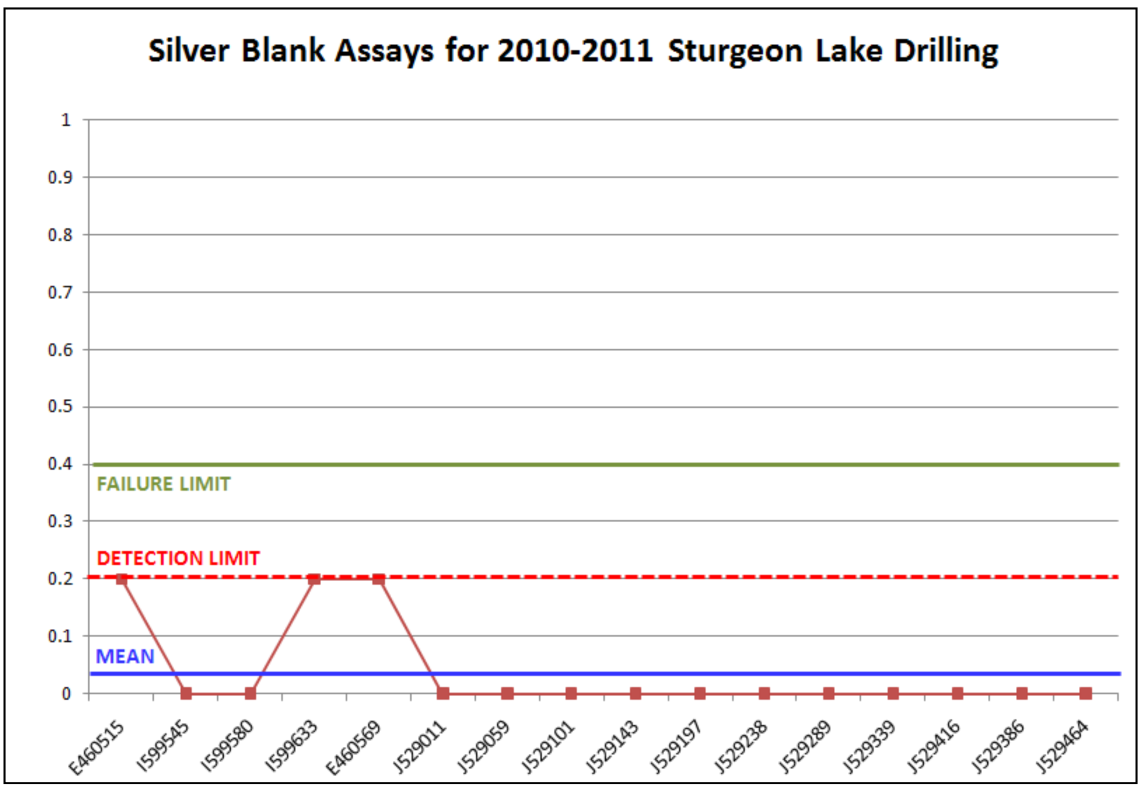

Figure 17: Blank control samples – Silver

Sample Replicates

In addition to the primary sample assay, samples having > 1% copper, lead, and/or zinc were re-assayed by an alternate method, and a gold assay was added to the package. The result of these replicates are shown in Figure 18 and 19. Nearly all replicate analyses for copper and zinc fell within the +/-10% range. Only one lead assay was repeated, and the second assay was also within 10% of the first analysis.

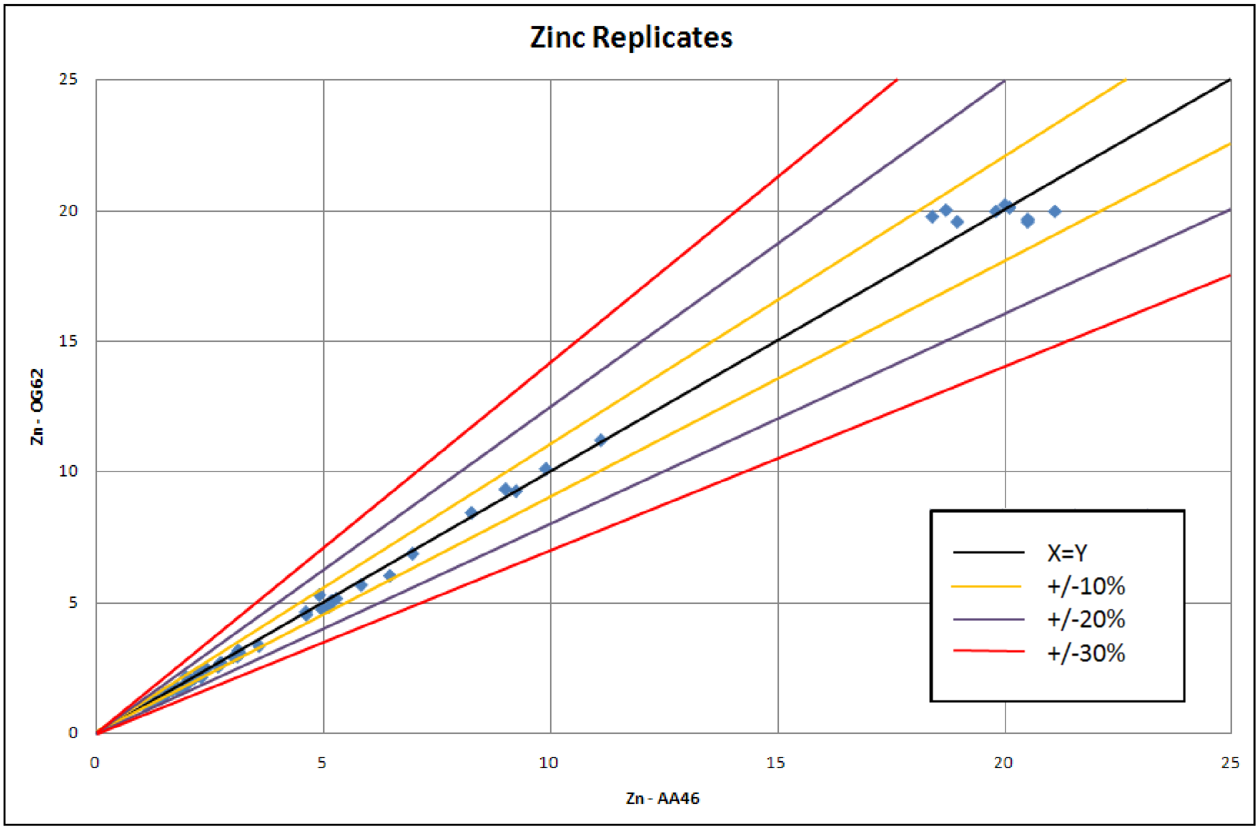

Figure 18: Zinc replicate samples (AA46: original assay method; OG62: replicate assay method)

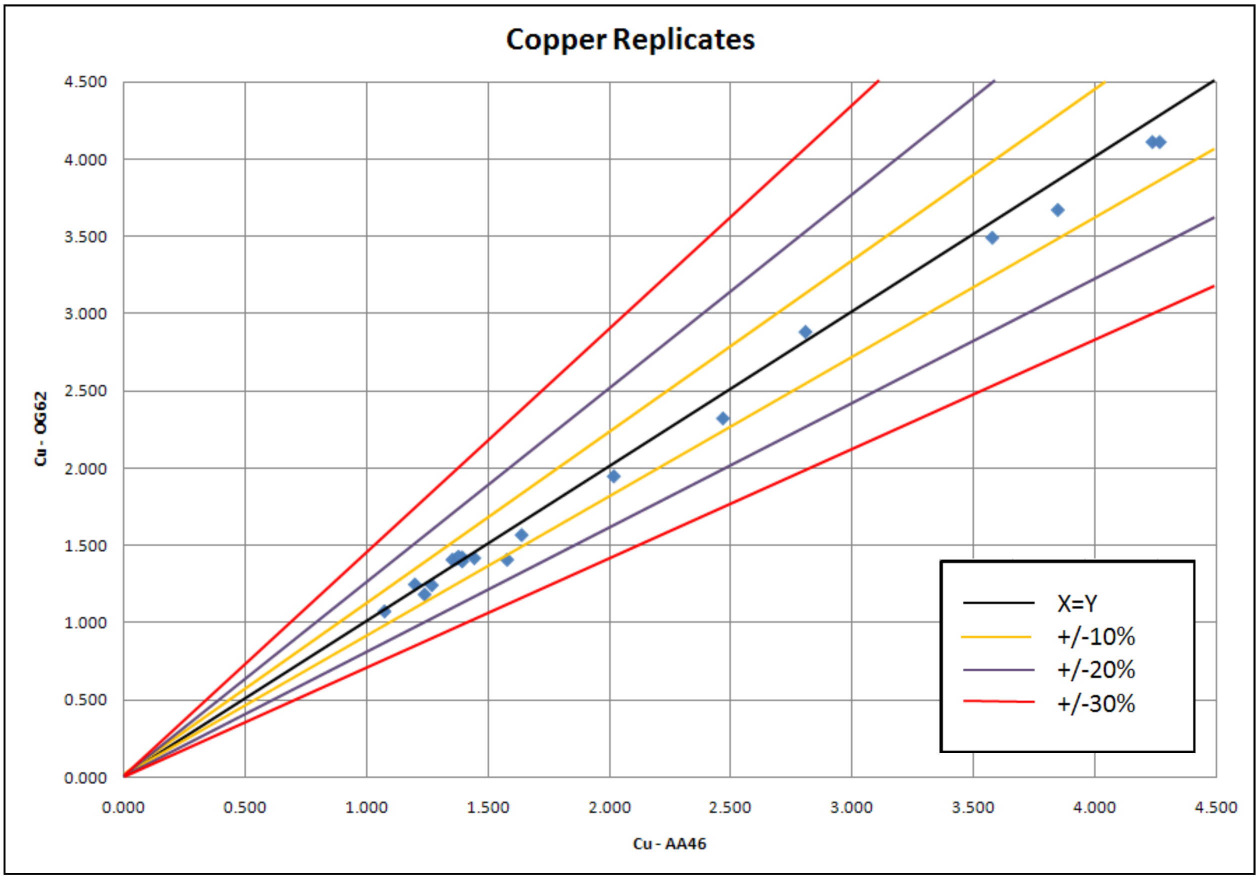

Figure 19: Copper replicate samples (AA46: original assay method; OG62: replicate assay method)

Lab Standards

ALS Minerals inserts quality control samples into each analytical run. The results of one such standard are illustrated below as an example (Figures 20 to 23), and the entire QC dataset is given in the assay sample certificates (Appendix 4)

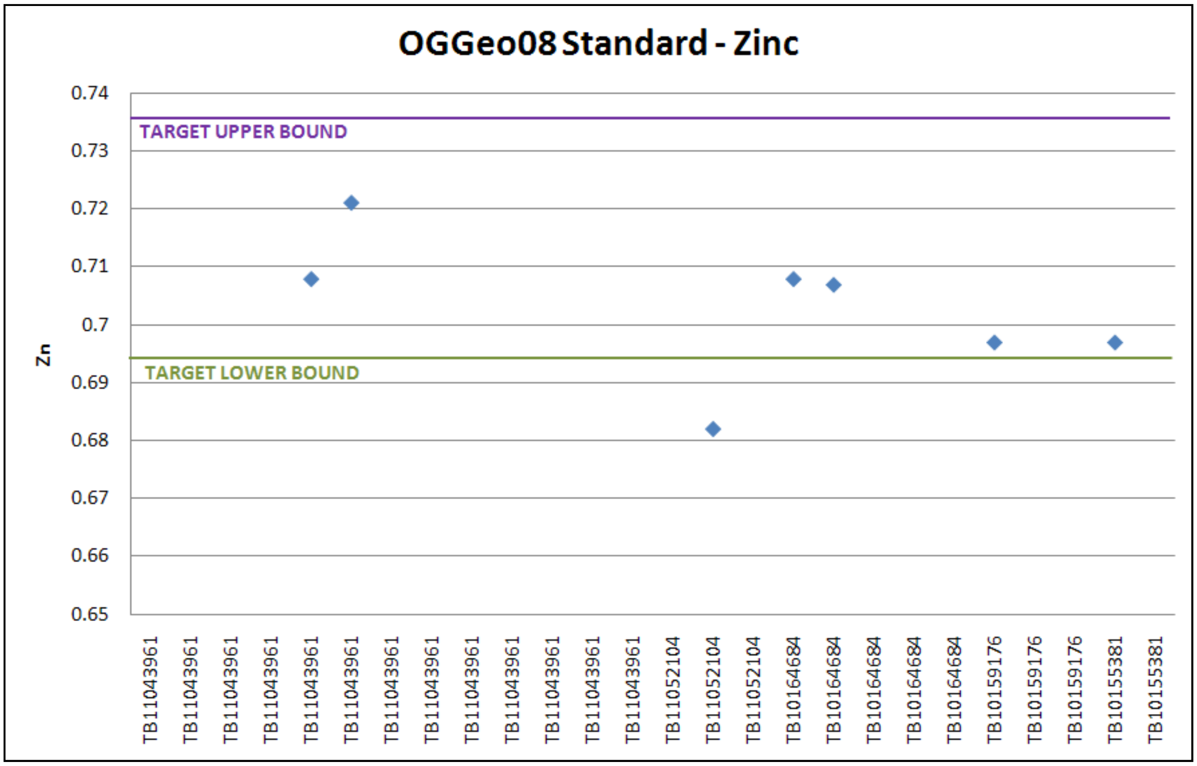

Figure 20: OGGeo08 standard control samples - Zinc

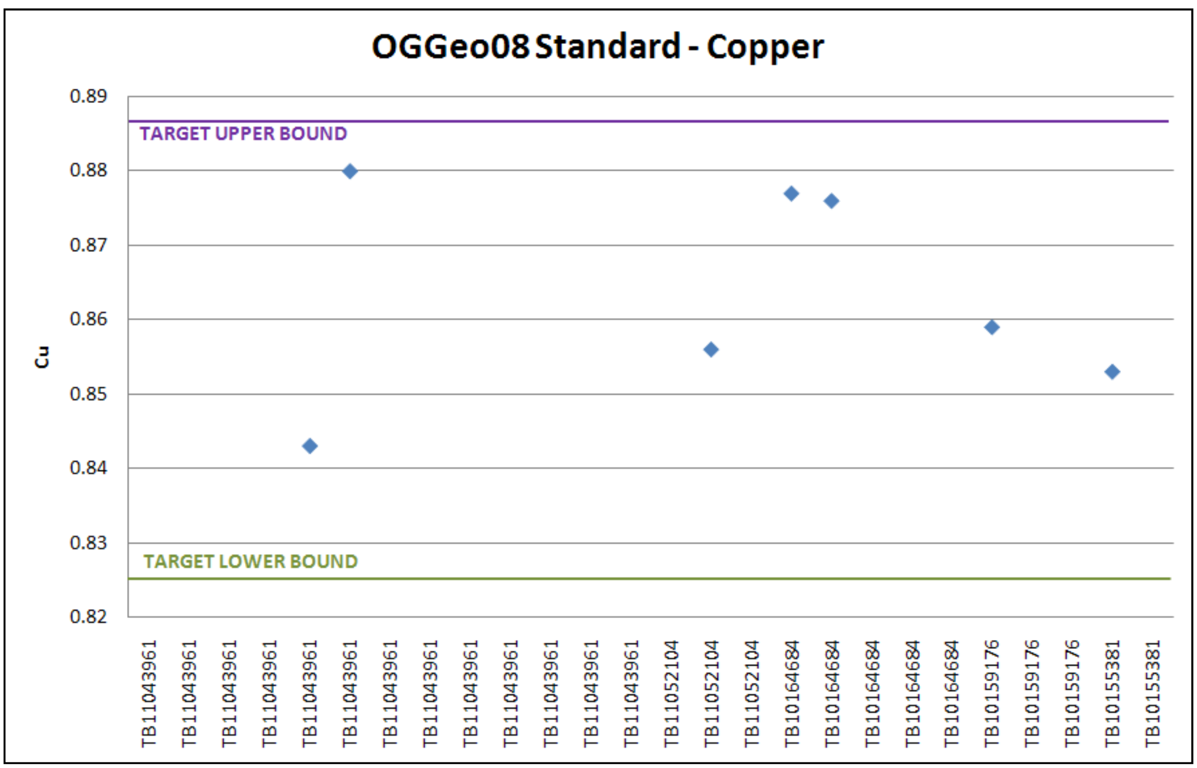

Figure 21: OGGeo08 standard control samples - Copper

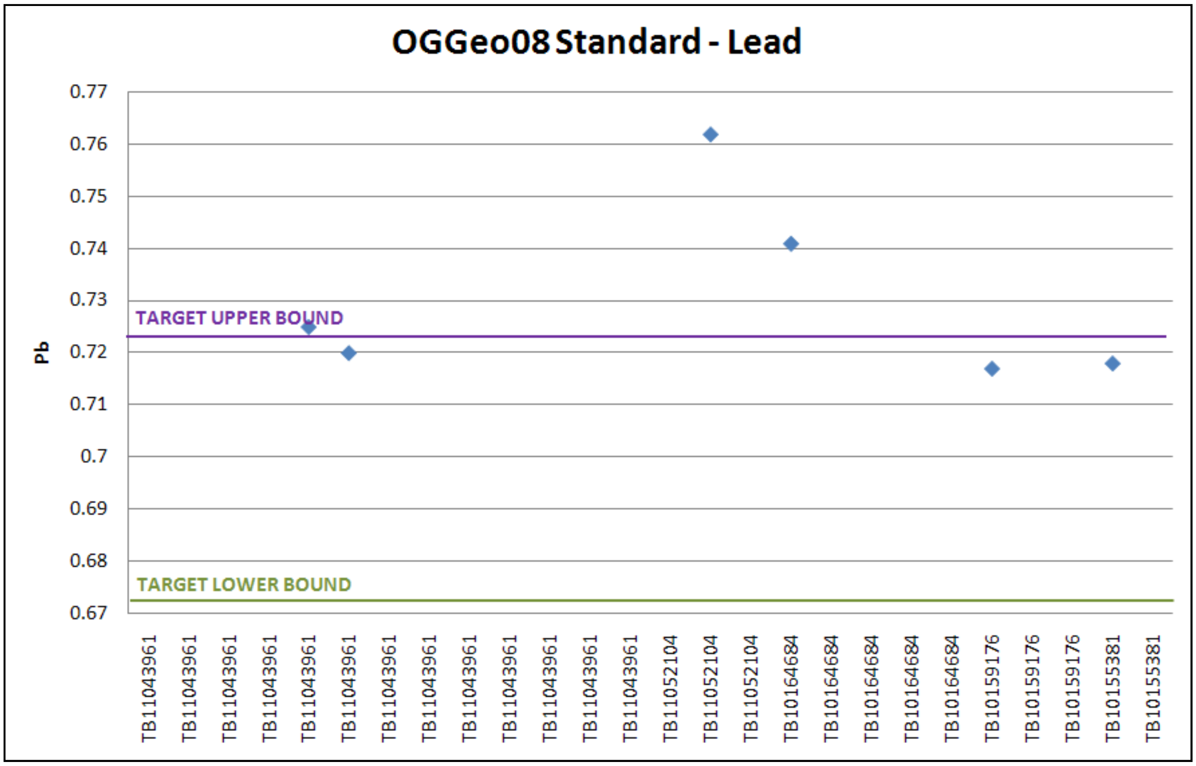

Figure 22: OGGeo08 standard control samples - Lead

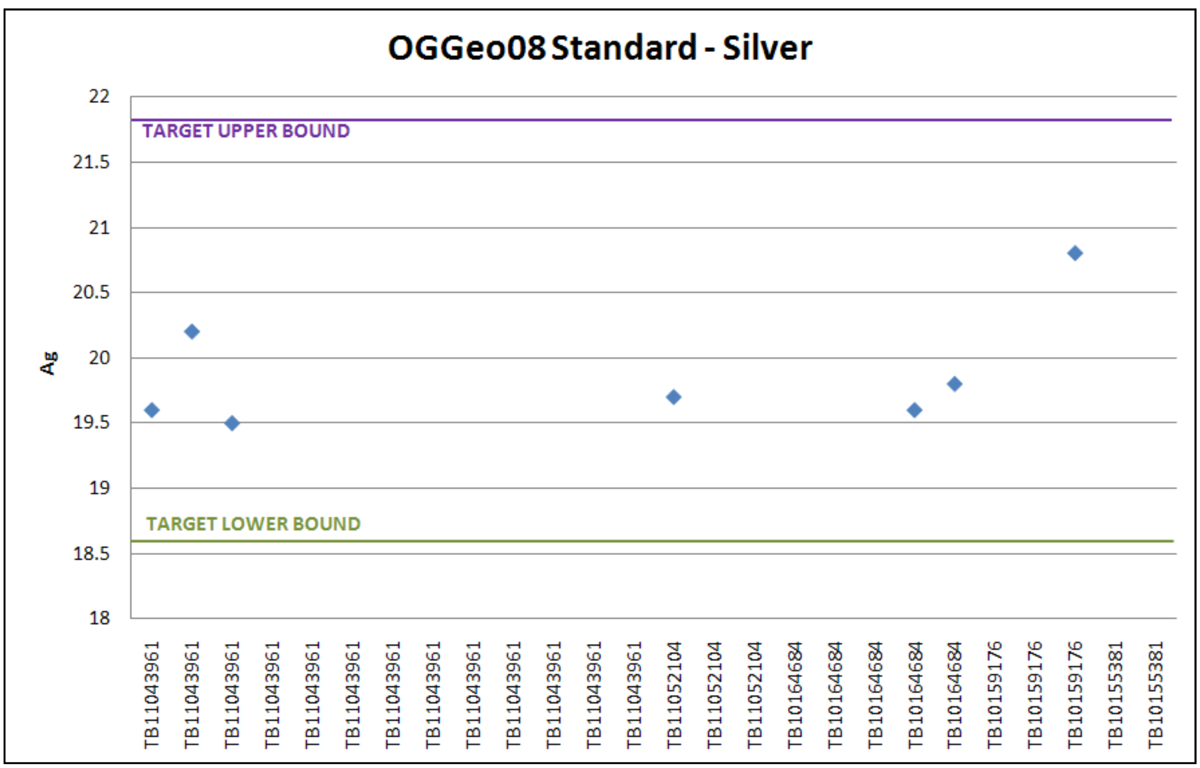

Figure 23: OGGeo08 standard control samples - Lead

Lab Blanks

The results of the lab generated blank material are shown in Figure 24 to 28. The performance of the blanks was typically good, save a few samples for zinc content.

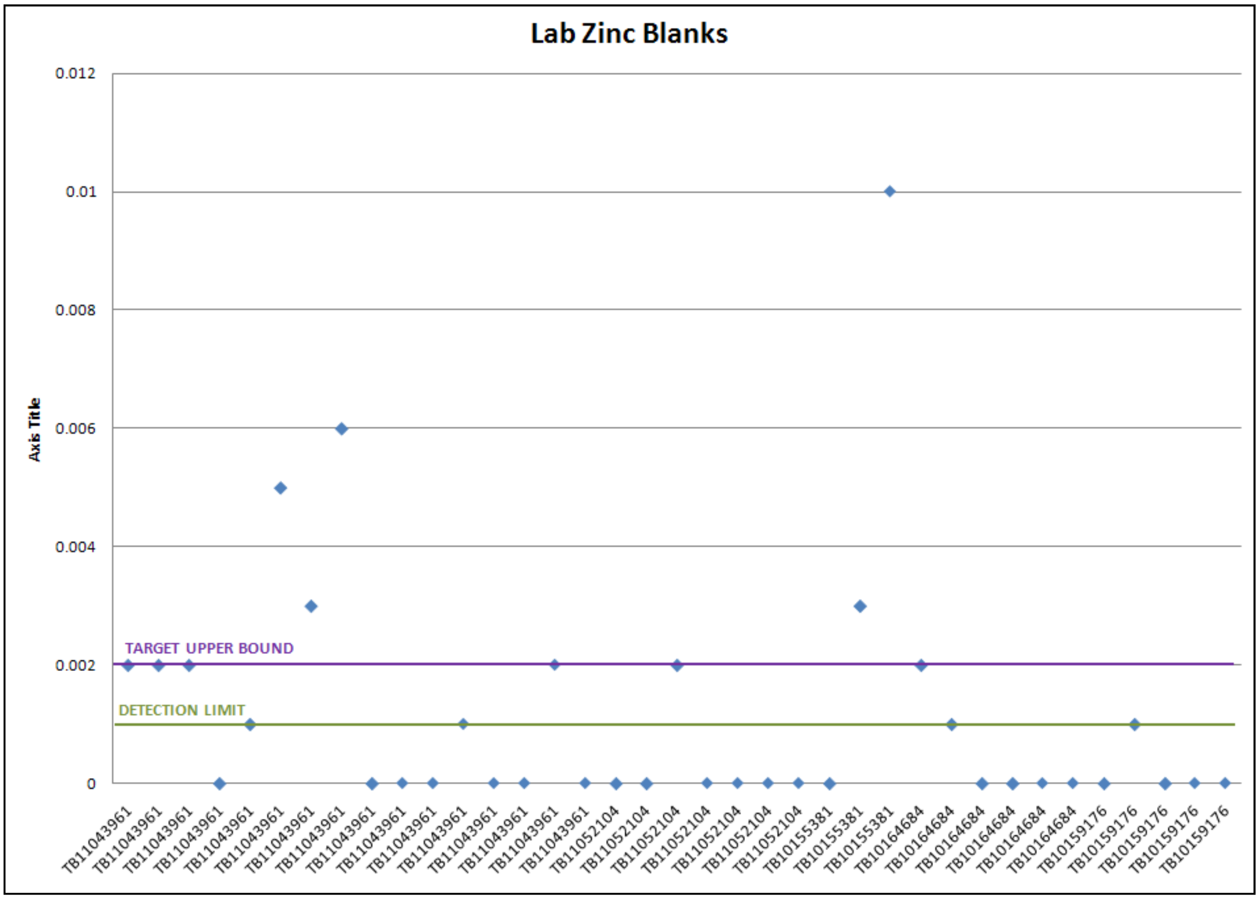

Figure 24: ALS Minerals blank samples – Zinc

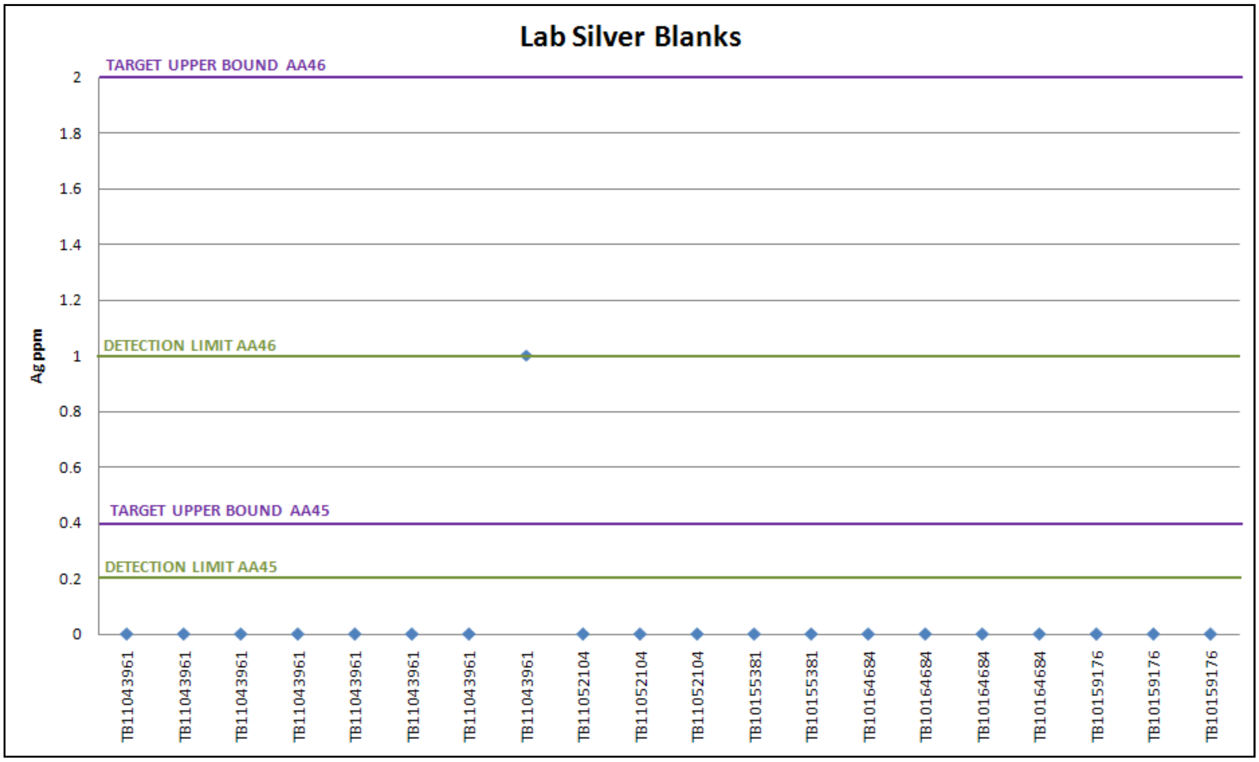

Figure 25: ALS Minerals blank samples – Silver

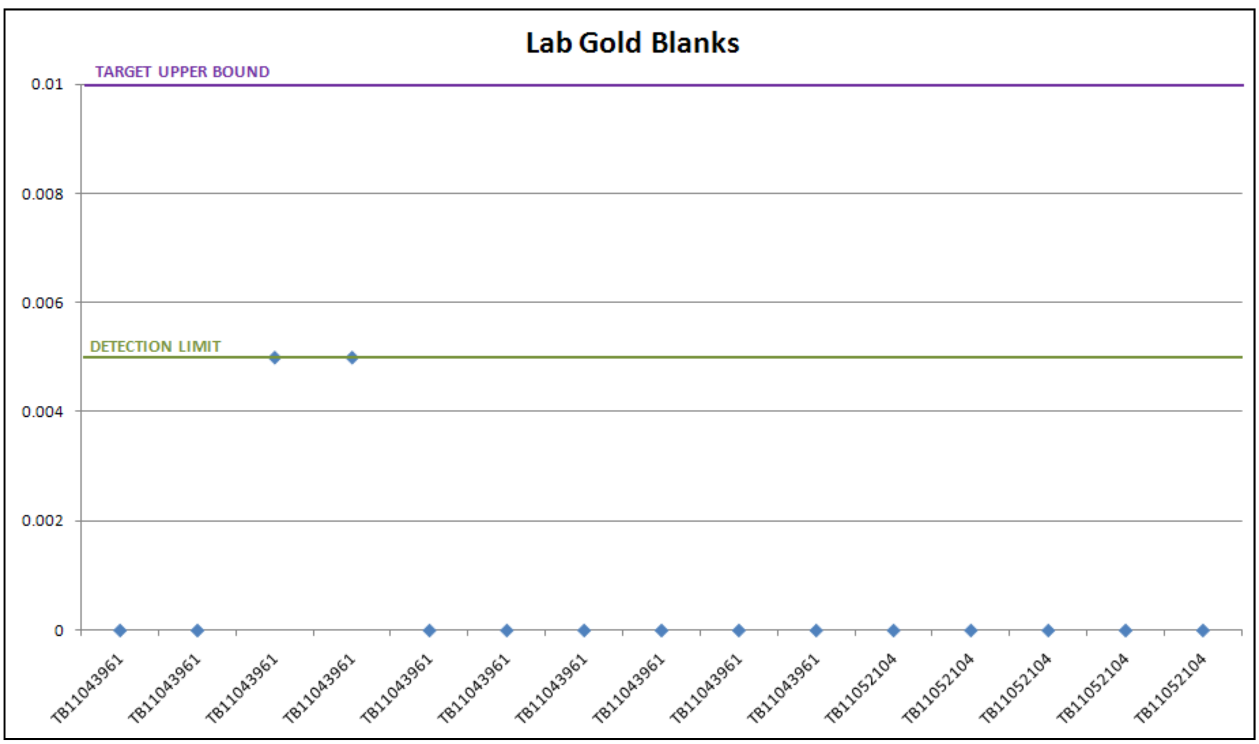

Figure 26: ALS Minerals blank samples – Gold

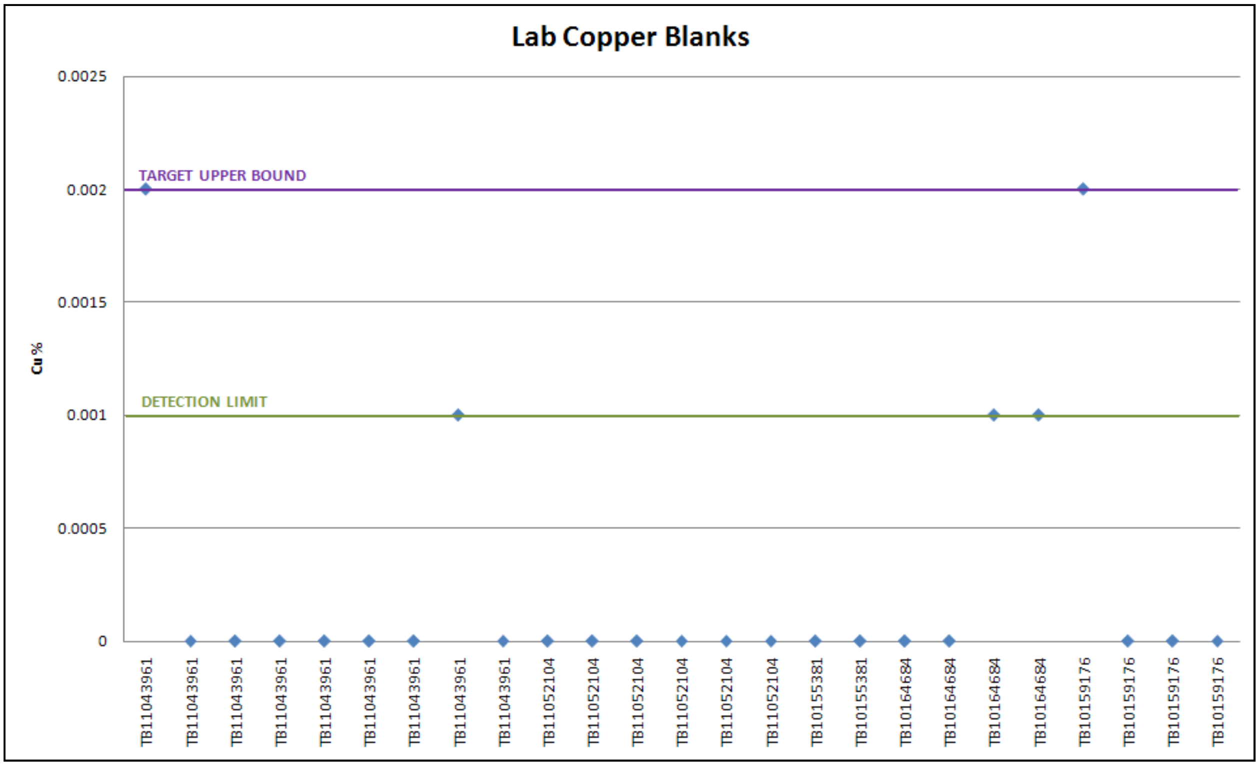

Figure 27: ALS Minerals blank samples – Copper

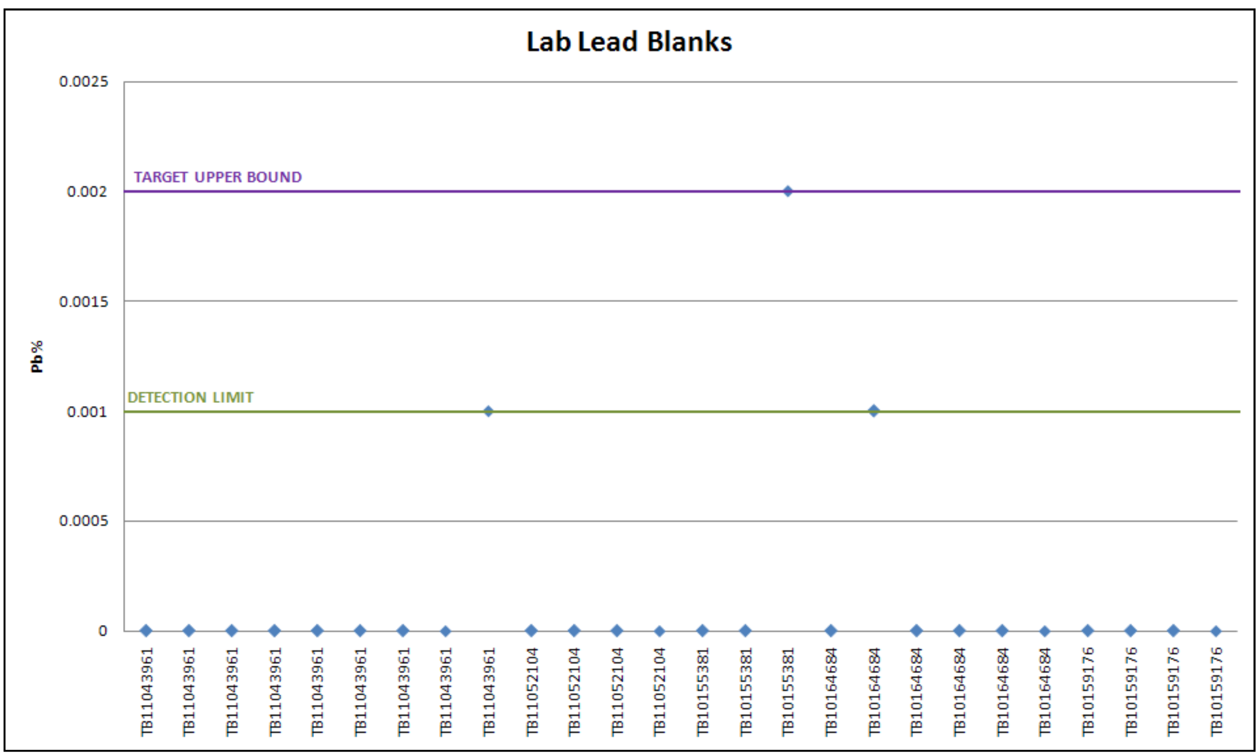

Figure 28: ALS Minerals blank samples – Lead

Lab Duplicates

The results of the lab generated duplicate samples are shown in Figures 29 to 33. The performance of the blanks was typically within +/-10%.

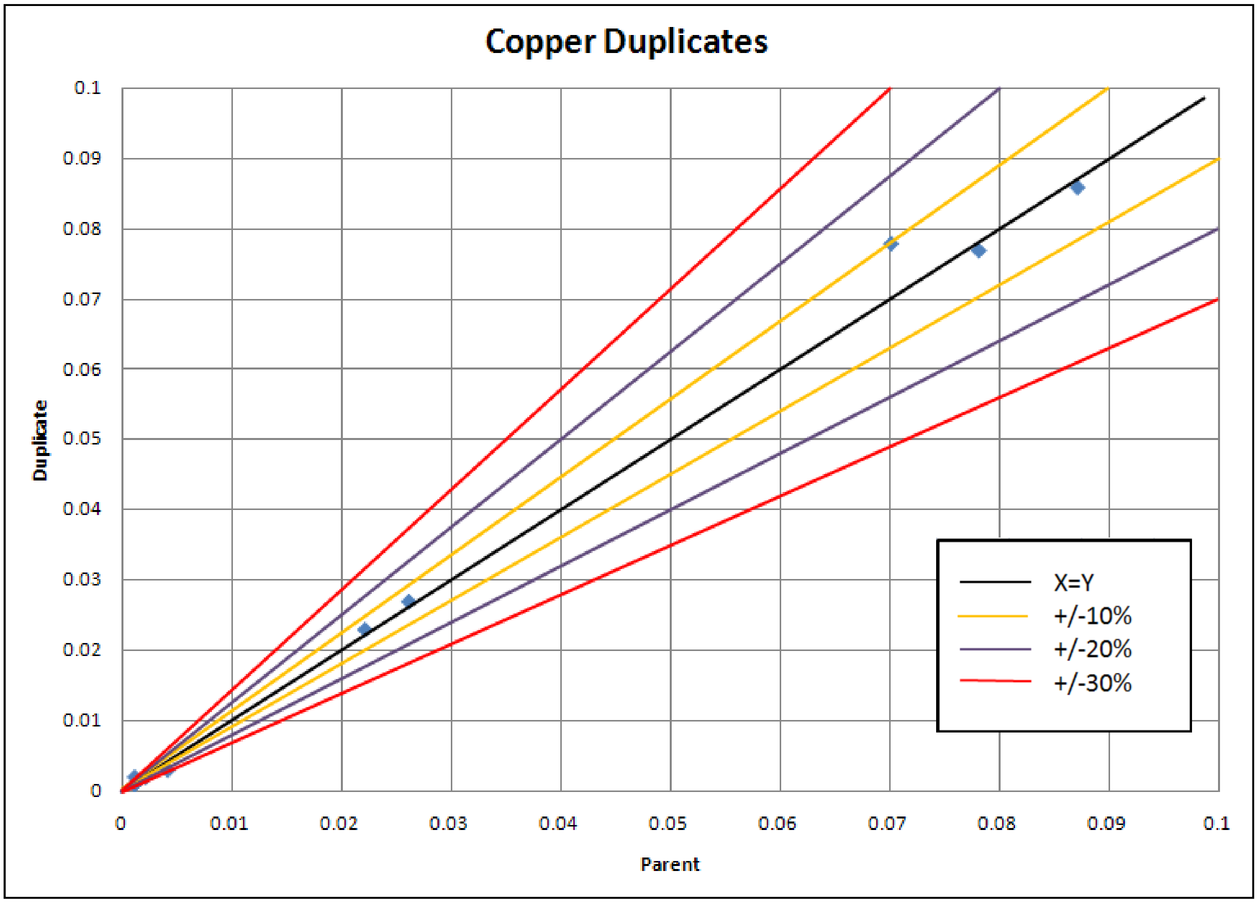

Figure 29: ALS Minerals duplicate samples – Copper

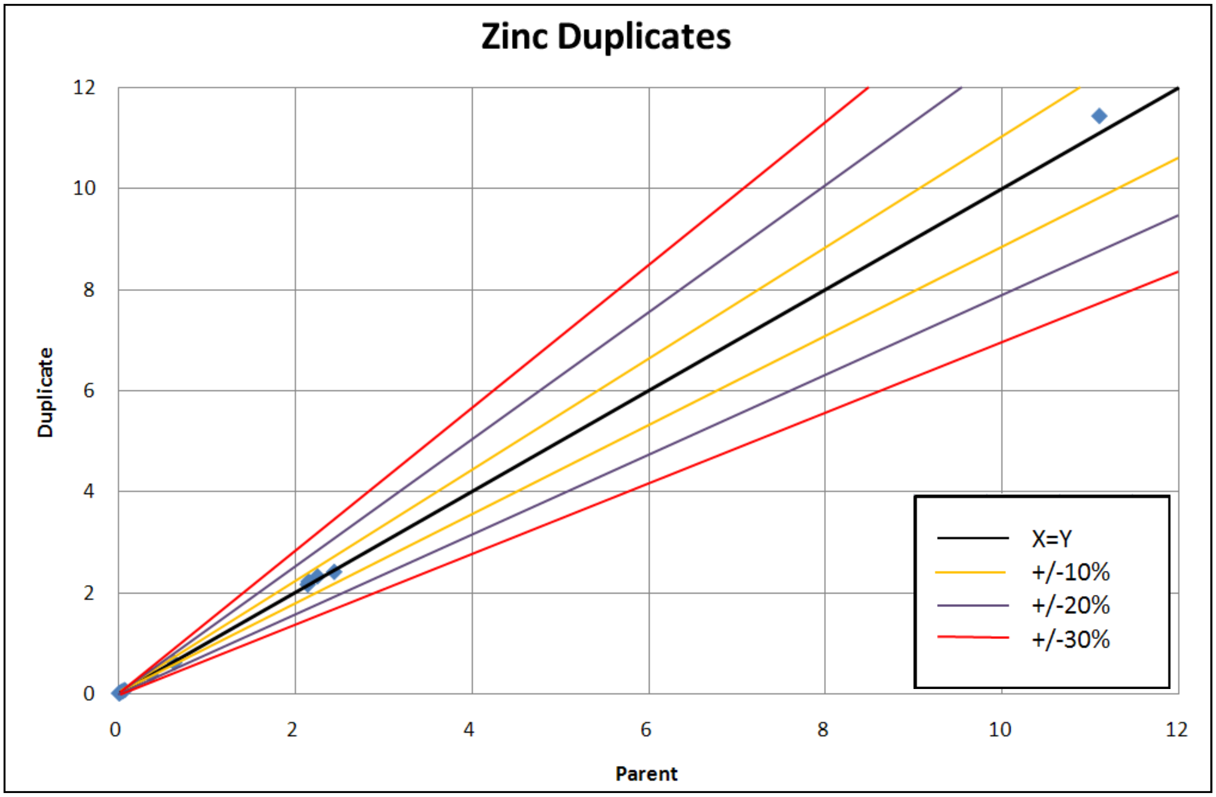

Figure 30: ALS Minerals duplicate samples – Lead

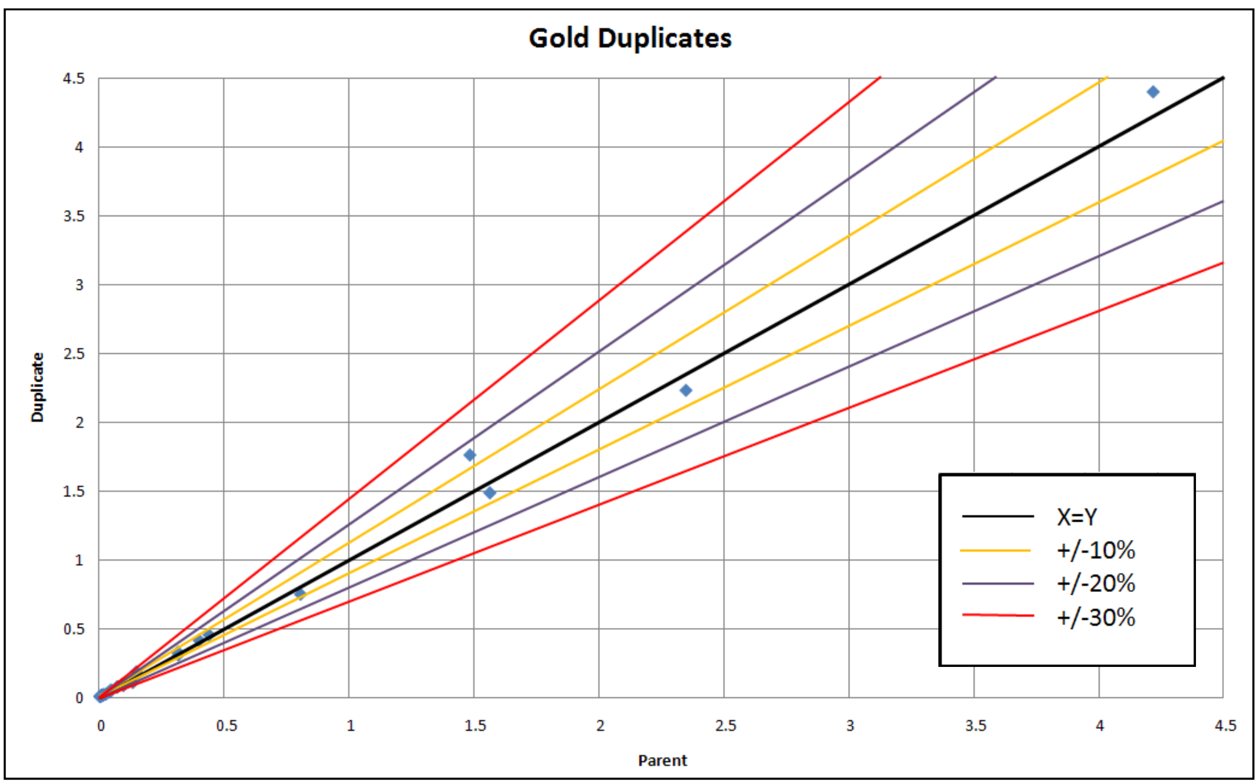

Figure 31: ALS Minerals duplicate samples – Gold

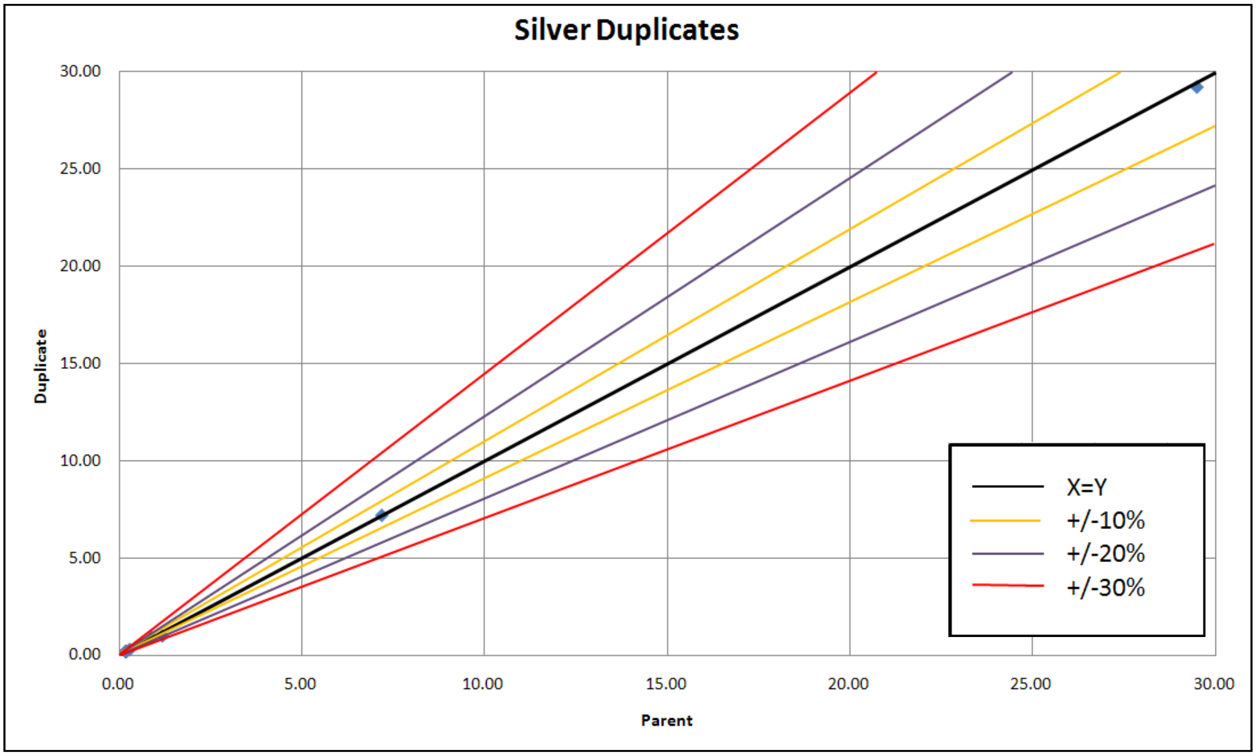

Figure 32: ALS Minerals duplicate samples – Lead

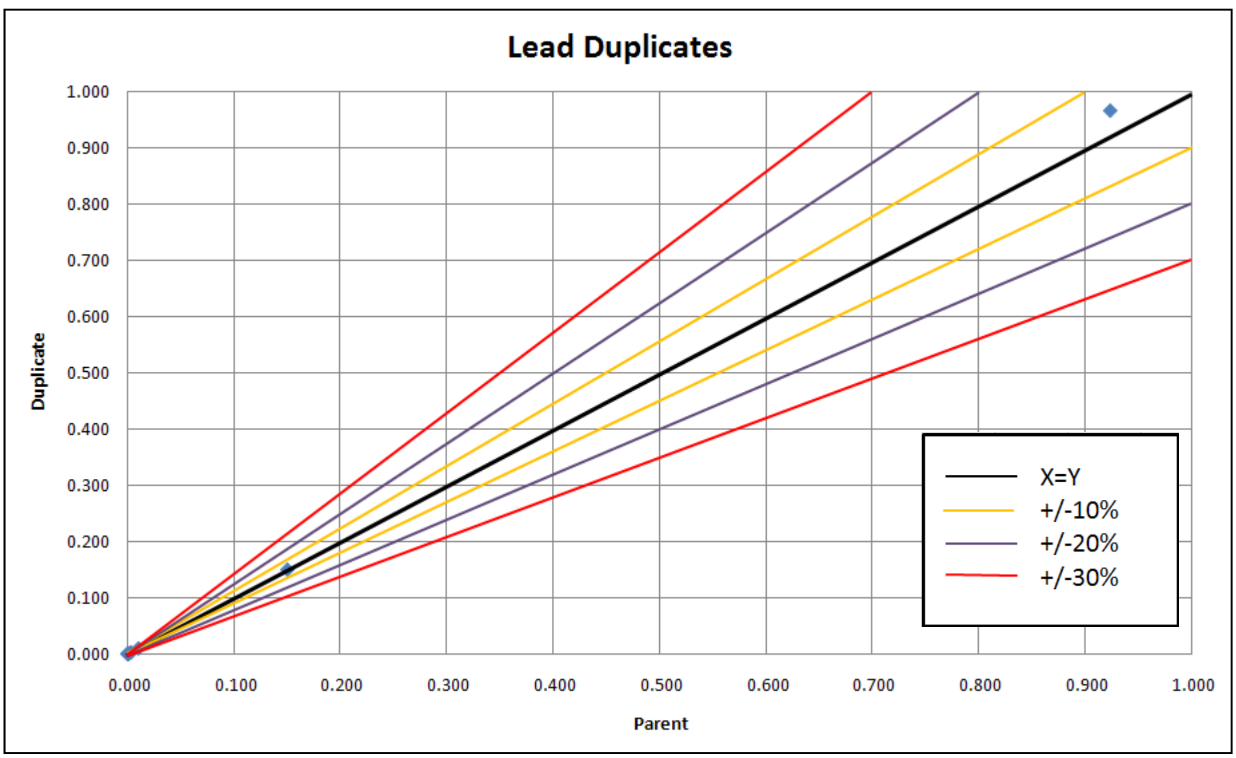

Figure 33: ALS Minerals duplicate samples – Copper

Re-Assays

A total of 82 samples from the mineralized zones in F-139A and F-140 were sent to Techni-Lab S.G.B. Abitibi inc. for re-analysis. Values returned confirm previous assay results obtained from ALS Minerals and validate the mineralized zones (Cu and Zn shown illustrated below as examples).

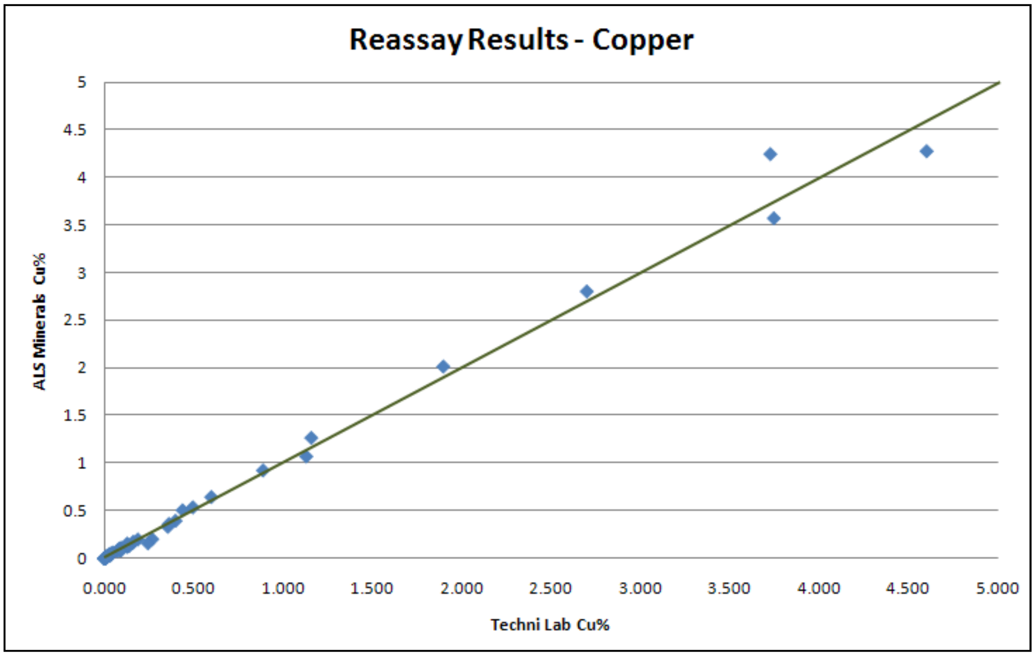

Figure 34: Copper re-assay results

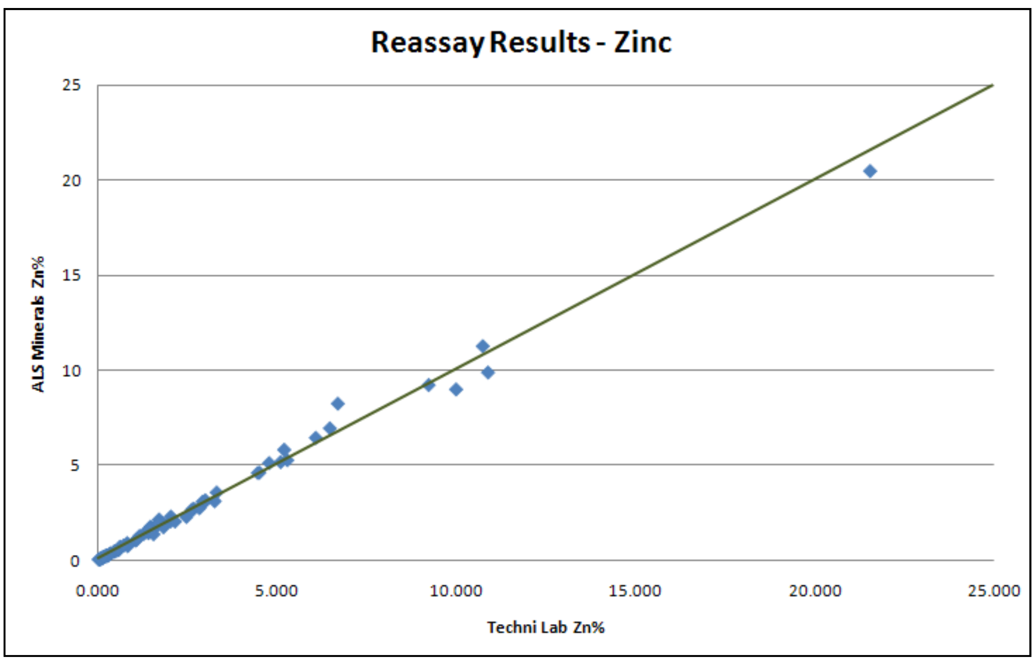

Figure 35: Zinc re-assay results

In addition, the 40 samples comprising the entire mineralized zone from F-140 were analyzed for density. (Appendix 4)

12. Geophysics

Borehole Geophysics

Thirteen of the new drillholes, and four historical drillholes were surveyed using the Crone 3D fixed-loop borehole EM system by Géophysique TMC. A total of 11,310m of surveys were completed over the period between October 2010 and May 2011, the results of which are presented in Appendix 5, and summarized in Table 3 below.

Hole Number	Meter's surveyed	Anomaly Depth	Interpretation
2010-2011 drillholes surveyed			
17-82	450	440m	Possible weak, long-distance off-hole at end of hole
17-83	590	40m	Off-hole anomaly 10-20m to the right
		150m	Off-hole anomaly, fast decaying - 25m to 50m down-dip
17-84	560	215m	Weak off-hole
		260m	Weak off-hole
17-85	700	270m	In-hole anomaly, to the right
		415m	Small off-hole
		470m	In-hole anomaly, to the right
16-512	870	510m	Off-hole 40-50m above hole
		570m	In-hole/edge. Core below and to the west
16-513	1,020	-	No anomalies
23-331	250	50m	Small near off-hole
23-332	450	120m	In-hole anomaly
23-333	440		Small, low conductance off-hole
WS-32	400	-	No anomalies
F-139	not surveyed		
F-139A	600	-	No anomalies
F-140	750	160m	Off-hole anomaly, 40m to northeast of hole
F-141	not surveyed		
F-141A	410	335m	In-hole/edge, asymmetric anomaly, good conductance
Historical drillholes surveyed			
17-81	500	-	No anomalies
16-243	1,200	670m	Long distance off-hole (150m) up-dip and slightly east
16-262	1,200	400m	Long distance off-hole
		800m	Near off-hole, good build up, fair size conductor
16-263	920	160m	Small, low conductance off-hole, 30 away, below hole
		380m	Fair size relateively high conductance off-hole zone, 15m away, below hole
Total m's surveyed:	***11,310***		

Table 3: Borehole EM Survey Results

Surface Geophysics

A surface DEEPEM survey was carried out over a small grid located 2.5 km northeast of the Mattabi pit (Figure 3). The purpose of the survey was to delineate and identify a series of previously untested airborne EM conductors.

Prior to surveying, Clark Exploration Consulting was contracted to carry out 7.1 km of line-cutting, consisting of access trail, loop layout area and survey lines. The grid was then surveyed along the 100m spaced grid-lines (Figure 4). The results of the survey indicate the identification of a large, low conductance anomaly at an approximate depth of 450m. The anomaly is interpreted to represent the down-dip extension of a shallower graphite-related conductor intersected in drilling to the east. No follow-up work was recommended in this area. (Appendix 9)

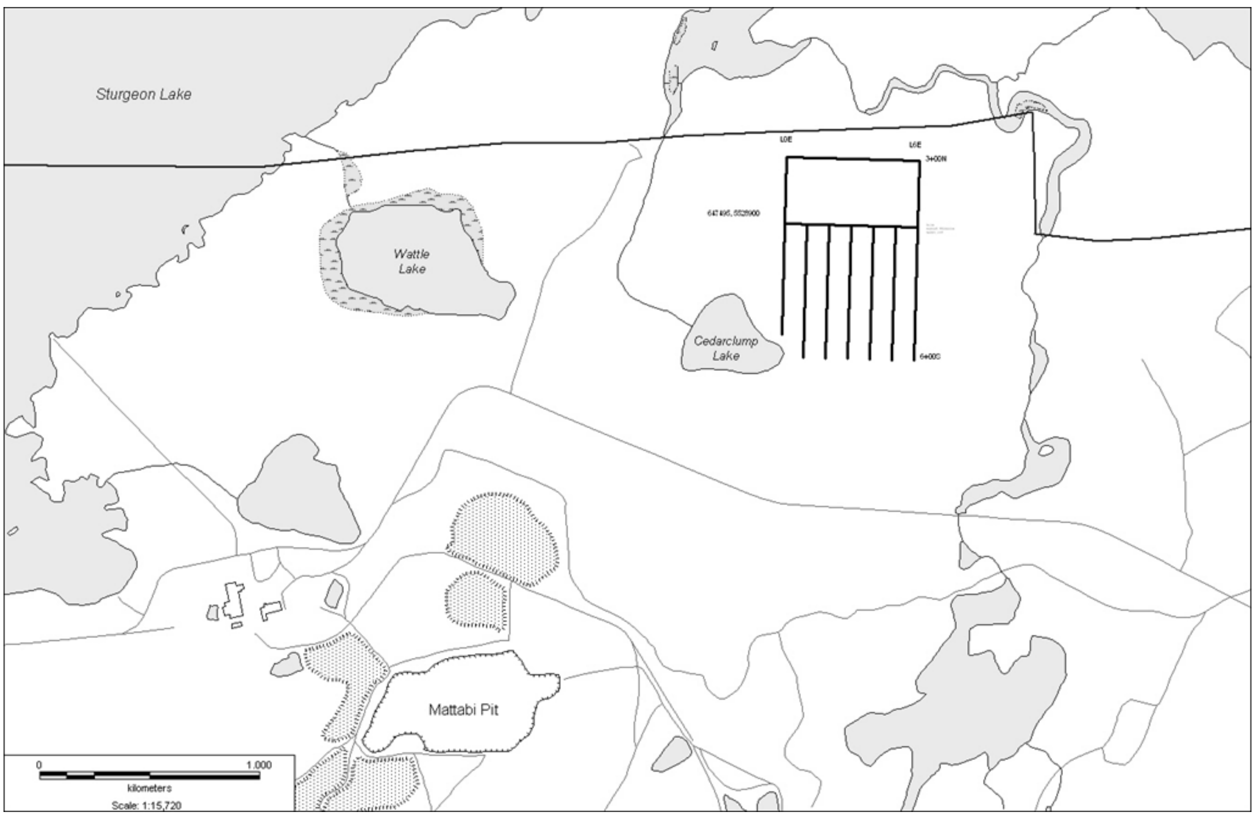

Figure 36: DEEPEM Grid location

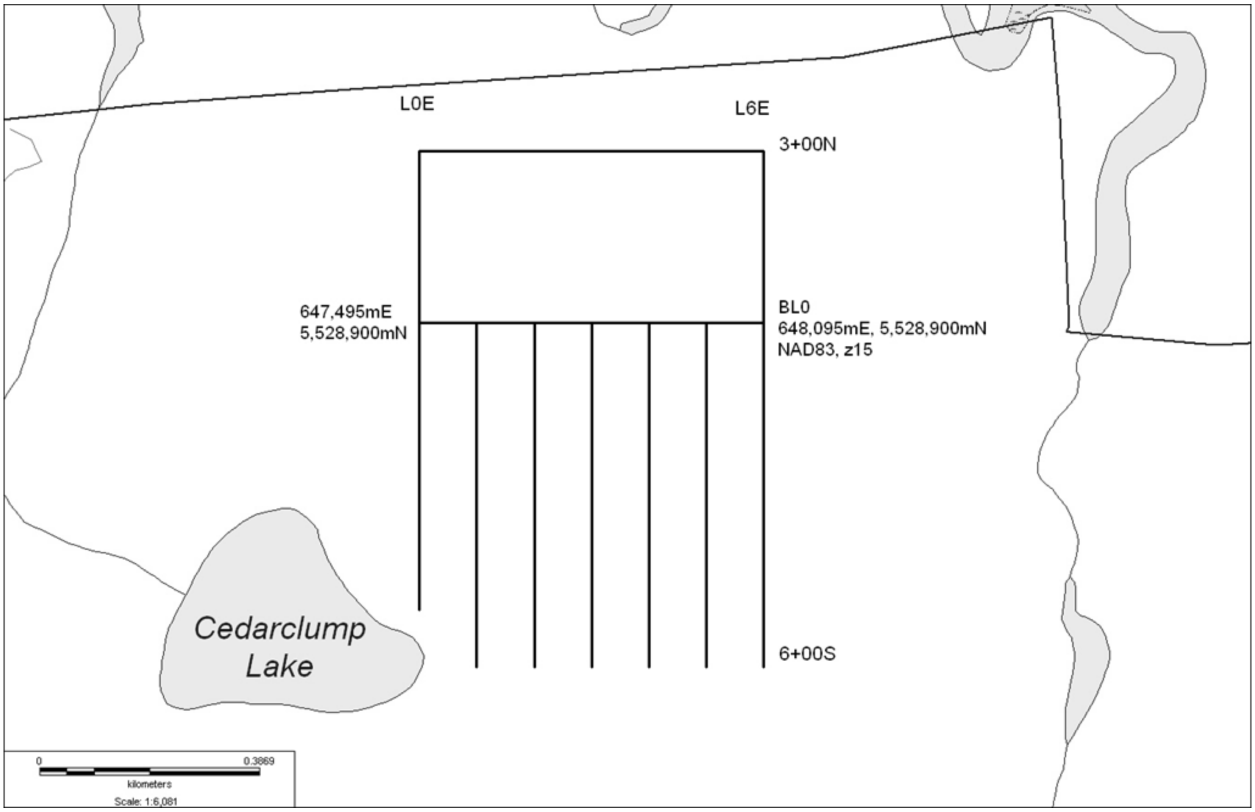

Figure 37: DEEPEM Grid layout

13. Health, Safety and Environment

There were no incidents throughout the duration of the Sturgeon Lake drilling and geophysics programs. Each drill site was inspected for safety during the course of the active drilling (Appendix 7).

Once the drill was removed from the set-up and the site cleared by the drill contractor, each site was inspected for debris and environmental concerns. All sites were left in good condition, and drill casings were clearly identified by a casing cap stamped with the hole number or metal post bearing the number of the hole. (Appendix 8)

14. Interpretation and Conclusions

Drilling at the Sturgeon Lake property yielded a number of encouraging results which warrant follow-up work. Felsic rocks, pyroclastic textures and alteration types were identified in several holes which require further analysis to position the lithologies within the Sturgeon Lake stratigraphic package. The most significant results were obtained in follow-up drilling of the Abitibi Zone, where zinc and copper mineralization was intersected in two holes and extends the known mineralized horizon down-dip and to the west of the previously identified zone.

Hole F-139A

Interval	Zn %	Cu %	Pb %	Ag (g/t)	Au (g/t)	Length	Rock Type	Description
219.0-221.0m	1.55	0.23	0.01	6.8	0.08	2.00m	Rhyolite / Semi-massive sulphides	15-20% semi-massive and stringer pyrite and trace chalcopyrite
369.5-382.5	**2.30**	0.04	0.01	2.54		**13.00m**	Rhyodacite – Rhyolite	1-5% disseminated and stringer pyrite
Including:								
373.0-376.05	*5.62*	*0.09*	*0.00*	*5.16*	*0.05*	*3.05m*	*Rhyodacite – Rhyolite*	*2-3% stringer and disseminated pyrite and trace chalcopyrite*
449.8-460.0m	**2.02**	0.04	0.00	1.44		**10.20m**	Rhyolite	1-2% sphalerite stringers and patches, locally up to 10%. Trace to 0.5% and trace chalcopyrite
Including:								
456.0-458.0m	***6.32***	*0.13*	*0.00*	*4.2*	*0.03*	*2.00m*	*Rhyolite*	*10% stringer and patchy sphalerite*

Hole F-140

Interval	Zn %	Cu %	Pb %	Ag (g/t)	Au (g/t)	Length	Rock Type	Description
Zinc-rich Zone								
401.0-435.0m	**3.98**	0.29	0.11	26.93	0.08	**34.00m**	Rhyolite	7-10% stringer to sms pyrite, 2-3% sphalerite, 1-2% net-textured chalcopyrite, locally up to 1% galena
Including:								
409.0-418.0m	***8.74***	*0.32*	*0.03*	*34.64*	*0.15*	*9.00m*	*Semi Massive to Massive sulphides*	*90% pyrite, 5% sphalerite, trace chalcopyrite, 5% rock fragments*
Copper-rich Zone								
440.0-445.0m	0.21	**2.90**	0.00	20.58	0.06	**5.00m**	Dacite - Rhyodacite	Up to 5-7% net-textured chalcopyrite, trace pyrite

15. Recommendations

Further drill testing of the Abitibi Zone is warranted in light of the mineralization encountered in holes F-139A and F-140. Additional sampling, 3D modelling and compilation of lithogeochemical data is recommended to evaluate stratigraphic relationships in the new drilling. This work will assist in the decision on whether to conduct additional drilling on other areas of Xstrata's Sturgeon Lake property.

16. Date and Signature

Signature: ____________________________ Date: September 2, 2011

17. References

Hudak G.J., Morton R.L., Franklin J.M., Peterson D.M., 2003, Morphology, distribution, and estimated eruption volumes for intracaldera tuffs associated with volcanic-hosted massive sulphide deposits in the Archean Sturgeon Lake Caldera Complex, NW Ontario: Explosive subaqueous volcanics: American Geophysical Union Monograph, V. 140, p. 345-360.

Morton R.L., Waler J.S., Hudak J.G., and Franklin J.M., 1991, The early development of an Archean submarine caldera complex with emphasis on the Mattabi ash-flow tuff and its relationship to the Mattabi massive sulphide deposit: Economic Geology, V. 86, p. 1002-1011.

Sturgeon Lake Project Land Tenure - Claims

Claim Number	Township	Units	Recording Date
1145072	Valora Lake/Penassi Lake	1	5/22/1991
4241547	Valora Lake	15	7/23/2010
4242923	Valora Lake	10	7/23/2010
4242860	Valora Lake	10	7/23/2010
1195743	Bell Lake	4	6/25/1992
1195858	Bell Lake	1	8/10/1992
4256557	Valora Lake	12	9/24/2010
4256556	Valora Lake	10	9/24/2010
4256558	Valora Lake	12	9/24/2010
4256551	Valora Lake	8	9/24/2010
4256552	Valora Lake	16	9/24/2010
4256553	Valora Lake	16	9/27/2010
4256554	Valora Lake	16	9/24/2010
4256555	Valora Lake	16	9/24/2010
4258009	Sixmile Lake	6	9/24/2010
4258008	Sixmile Lake	12	9/24/2010

Geco Project Land Tenure – Dispositions

Lease	Expiry Date	Disposition	Township
107408	30-06-2023	CLM170	Sixmile Lake
107405	31-05-2023	CLM171	Sixmile Lake
107405	31-05-2023	CLM171	Bell Lake
107453	30-09-2024	CLM184	Sixmile Lake
107462	30-09-2024	CLM185	Sixmile Lake
107407	30-06-2023	CLM201	Sixmile Lake/Bell Lake
107406	31-05-2023	CLM202	Bell Lake
		CLS 115819	Sixmile Lake
		GTP BLOCK NO 7	Penassi Lake
		GTP NO 7	Bell Lake
106958	30-09-2015	PA211905	Valora Lake
106958	30-09-2015	PA211906	Valora Lake
106958	30-09-2015	PA211907	Valora Lake
106682	31-10-2013	PA212610	Sixmile Lake
106682	31-10-2013	PA212611	Sixmile Lake
106682	31-10-2013	PA212612	Sixmile Lake
106682	31-10-2013	PA212613	Sixmile Lake
106682	31-10-2013	PA212614	Sixmile Lake
106682	31-10-2013	PA212615	Sixmile Lake
106682	31-10-2013	PA212616	Sixmile Lake
106682	31-10-2013	PA212617	Sixmile Lake
106681	31-10-2013	PA212735	Sixmile Lake
106682	31-10-2013	PA212736	Sixmile Lake
106683	31-10-2013	PA212741	Sixmile Lake
106683	31-10-2013	PA212742	Sixmile Lake
107160	31-03-2019	PA226437	Penassi Lake
107160	31-03-2019	PA226438	Penassi Lake
107160	31-03-2019	PA226439	Penassi Lake
106994	30-11-2016	PA226440	Valora Lake
106994	30-11-2016	PA226441	Valora Lake
107160	31-03-2019	PA226442	Valora Lake
107161	31-03-2019	PA226443	Valora Lake
106994	30-11-2016	PA226444	Valora Lake
106994	30-11-2016	PA226445	Valora Lake
106994	30-11-2016	PA226446	Valora Lake
106994	30-11-2016	PA226447	Valora Lake
106994	30-11-2016	PA226448	Valora Lake
107161	31-03-2019	PA226449	Valora Lake
107161	31-03-2019	PA226450	Valora Lake
107161	31-03-2019	PA226451	Valora Lake
107161	31-03-2019	PA226452	Valora Lake

Lease	Expiry Date	Disposition	Township
107161	31-03-2019	PA226453	Valora Lake
107161	31-03-2019	PA226454	Valora Lake
107161	31-03-2019	PA226455	Valora Lake
107161	31-03-2019	PA226456	Valora Lake
107161	31-03-2019	PA226457	Valora Lake
106994	30-11-2016	PA226490	Valora Lake
106994	30-11-2016	PA226491	Valora Lake
106994	30-11-2016	PA226496	Valora Lake
107161	31-03-2019	PA226497	Valora Lake
107161	31-03-2019	PA226498	Valora Lake
107161	31-03-2019	PA226499	Valora Lake
107161	31-03-2019	PA226500	Valora Lake
107161	31-03-2019	PA226501	Valora Lake
107161	31-03-2019	PA226502	Valora Lake
107161	31-03-2019	PA226503	Valora Lake
107161	31-03-2019	PA226504	Valora Lake
107161	31-03-2019	PA226505	Valora Lake
106678	28-02-2014	PA312563	Sixmile Lake
106958	30-09-2015	PA312564	Valora Lake
106958	30-09-2015	PA312565	Valora Lake
106958	30-09-2015	PA312566	Valora Lake
106958	30-09-2015	PA312567	Valora Lake
106958	30-09-2015	PA312568	Valora Lake
106958	30-09-2015	PA312569	Valora Lake
107333	30-04-2021	PA325202	Sixmile Lake
107332	30-04-2021	PA325203	Sixmile Lake
107332	30-04-2021	PA325204	Sixmile Lake
107332	30-04-2021	PA325205	Sixmile Lake
107332	30-04-2021	PA325206	Sixmile Lake
107332	30-04-2021	PA325207	Sixmile Lake
107333	30-04-2021	PA325208	Sixmile Lake
107333	30-04-2021	PA325209	Sixmile Lake
106677	28-02-2014	PA325230	Sixmile Lake
107333	30-04-2021	PA325232	Sixmile Lake
107333	30-04-2021	PA325233	Sixmile Lake
107333	30-04-2021	PA325234	Sixmile Lake
107333	30-04-2021	PA325235	Sixmile Lake
106680	30-04-2014	PA325236	Sixmile Lake
106679	30-04-2014	PA325409	Sixmile Lake
108283	31-08-2029	PA355939	Sixmile Lake
108283	31-08-2029	PA355940	Penassi Lake/Sixmile Lake

Lease	Expiry Date	Disposition	Township
108283	31-08-2029	PA355941	Penassi Lake
108283	31-08-2029	PA355942	Penassi Lake
108283	31-08-2029	PA355943	Penassi Lake
108283	31-08-2029	PA355955	Penassi Lake
108283	31-08-2029	PA355956	Penassi Lake
108284	31-08-2029	PA355957	Penassi Lake
108284	31-08-2029	PA355958	Penassi Lake
108284	31-08-2029	PA355959	Penassi Lake
108284	31-08-2029	PA355960	Penassi Lake
108284	31-08-2029	PA355961	Penassi Lake
108284	31-08-2029	PA355962	Penassi Lake
108284	31-08-2029	PA361473	Penassi Lake
108284	31-08-2029	PA361474	Penassi Lake
108284	31-08-2029	PA361475	Penassi Lake
108284	31-08-2029	PA361476	Penassi Lake
108284	31-08-2029	PA361476	Valora Lake
108285	31-08-2029	PA361477	Penassi Lake
108284	31-08-2029	PA361478	Valora Lake/Penassi Lake
108284	31-08-2029	PA361479	Valora Lake/Penassi Lake
108285	31-08-2029	PA361480	Penassi Lake
108284	31-08-2029	PA361829	Penassi Lake
108284	31-08-2029	PA361830	Penassi Lake
108284	31-08-2029	PA361831	Penassi Lake
108284	31-08-2029	PA361832	Penassi Lake
108284	31-08-2029	PA361833	Penassi Lake
108284	31-08-2029	PA361834	Penassi Lake
108284	31-08-2029	PA361839	Penassi Lake
108284	31-08-2029	PA361840	Penassi Lake
108284	31-08-2029	PA361841	Penassi Lake
108284	31-08-2029	PA361842	Penassi Lake
108284	31-08-2029	PA436775	Penassi Lake
108284	31-08-2029	PA436776	Penassi Lake
108284	31-08-2029	PA436777	Penassi Lake
108284	31-08-2029	PA436778	Penassi Lake
		Mattabi Mine patent	Sixmile Lake

Drilling Summary

2010 Drilling

16-512 Drillhole 16-512 was drilled to a depth of 875m. The hole targeted two mineralized horizons identified along the Lower – Middle L succession. The hole intersected a thick package of felsic to intermediate volcanics, with local weak calcite, quartz and/or chlorite alteration. A mineralized rhyodacite-dacite horizon was intersected from 682.83m to 689.14m. This interval consisted of 5-7% stringer, net-textured and semi-massive Py>Po. A second similar such interval was intersected from 706.93m to 712.60m.

Most significant assay result: 0.35% Zn, 0.17% Cu, 1.5 ppm Ag / 0.50m

17-82 Drillhole 17-82 was drilled to a depth of 452m. This hole targeted an off-hole BHEM anomaly identified in hole 17-32, which was drilled in 1975. The hole encountered intercalated felsic tuffs and intermediate volcanic rocks throughout its entire length. As well, sericite, chloritoid and carbonate alteration were noted, particularly near the bottom of the hole. No significant sulphide mineralization was intersected.

17-83 Drillhole 17-83 was drilled to a depth of 593m. The hole intersected a thick package of intermixed dacites and rhyodacites, which are locally weakly to moderately chloritized and/or carbonatized. Strong quartz alteration also occurred locally. No significant sulphide mineralization was intersected.

17-84 Drillhole 17-84 was drilled to a depth of 563m. The hole intersected dominantly felsic volcanics with weak chlorite ± carbonate ± garnet alteration throughout. Localized sulphides (2-5% po-cp-sph) were encountered in the interval from 46.6m to 89.0m.

Most significant assay result: 0.20% Zn, 0.57% Cu, 8.2 ppm Ag / 0.60m

17-85 Drillhole 17-85 was drilled to a depth of 701m. This hole targeted the intersection of two mineralized trends which extend eastward from the Mattabi mine. The hole collared in a diorite followed by mafic to intermediate volcanics showing weak to moderate quartz ± chlorite ± carbonate alteration. Minor sulphides were encountered throughout much of the hole drilled to date. These consist of trace to 5% py-po±sph, and local 10cm intervals of banded semi-massive sph-py±cpy.

Most significant assay result: 1.69% Zn, 0.12% Cu 6.4 ppm Ag / 1.00m from 273.4-274.m and 2.69% Zn, 0.23% Cu, 0.23% Pb, 23.9 ppm Ag / 0.75m from 427.29-428.04m (Figure 2)

23-331 Drillhole 23-331 was drilled to a depth of 251m. This hole tested a shallow MEGATEM anomaly along the southeast extension of the Lyon Lake South mineralized trend. The hole intersected unmineralized felsic to intermediate volcanics throughout and minor po-py stringers at a depth of 48m.

Most significant assay result: 0.70% Zn, 0.05% Cu / 1.10m from 177.4-178.5m.

2011 Drilling

23-332 Drillhole 23-332 was drilled to a depth of 201m, and tested a coincident mag and EM anomaly along a perturbed magnetic trend northeast of the Lyon Lake and Sturgeon Lake mines. The hole collared in fine grained intermediate rocks followed by a 13m interval of semi-massive to massive sheared pyrite > pyrrhotite sulphides hosted in felsic volcanics (96.17m – 107.90m). The remainder of the hole consisted of fine-grained rhyolite/ rhyodacite rocks bearing trace to locally 15% pyrite and pyrrhotite. The hole was stopped in fine grained mafic rocks at a depth of 201m.

23-333 Drillhole 23-333 was drilled to a depth of 201m, and tested a target similar to that of hole 23-332, on the southern margin of the magnetic anomaly. The hole intersected mixed andesites and quartz-eye rhyolites, with local intervals of 1-5% pyrite and pyrrhotite stringers and blebs.

F-139 & F-139A Drillhole F-139 was abandoned at a depth of 45m, when the hole was thought to be deviating excessively and that the intended target would not be obtained. In fact, the Reflex instrument used was defective, and the tests were not valid. As a result, the hole was re-collared as F-139A and was drilled to test the westward extension of the previously identified Abitibi Zone. The rocks encountered in the hole were dominantly rhyolitic with minor dacite and volcaniclastic sediments. A wide mineralized zone of disseminated pyrite was crossed, including two sphalerite-bearing intervals from 449.8 to 462.50m (1-10% sph) and 488.95m to 489.27m. Hole F-139A was completed at a final depth of 600m.

The most significant result obtained was 2.30% Zn / 13.00m from 369.50 to 382.50m.

F-140 Drillhole F-140 was drilled to test the westward extension of the Abitibi Zone west of an interpreted late fault. The rocks intersected were primarily rhyolitic to dacitic, with one interval of graphitic sediments near the top of the hole. Several mineralized horizons were noted, including 15.65m of strongly disseminated to semi-massive sulphides (398.24m to 414.35m) and 3.0m of massive sulphides (414.48m to 417.48m). The hole was completed at a final depth of 555m.

The most significant result obtained were 3.98% Zn, 0.29% Cu, 0.11% Pb, 26.93 g/t Ag / 34.00m from 401.00 to 435.00m and 0.21% Zn, 2.9% Cu, 20.58 g/t Ag / 5.00m from 440.00 to 445.00m.

16-513 Drillhole 16-513 was completed a depth of 1,020m and tested a seismic anomaly originally identified in 1997. It crossed andesitic to rhyolitic volcanic rocks. One small zone of anomalous mineralization was intersected about 150m above the seismic anomaly. The hole was also surveyed by the borehole EM crew but did not detect any conductors in the 150m radius around the hole, leaving the seismic anomaly targeted unexplained but most likely related to a major lithological contact.

WS-32 Drillhole WS-32 was completed at a final depth of 402m. The hole was testing the eastward extension of stringer mineralization identified in the west end of the Sturgeon Lake caldera. The hole intersected mixed felsic and intermediate volcanics with minor chlorite and sericite alteration. No significant mineralization.

F-141 & F-141A Drillhole F-141A was drilled to a depth of 129m and abandoned, since the dip of the hole drastically changed from -50° to -35°over a distance of 120m. The hole was re-collared as F-141A and was drilled to a final depth of 414m. This hole tested an off-hole anomaly identified during the BHPEM survey of hole F-140 and coincident with a previously untested MEGATEM anomaly. The hole intersected mixed tuffaceous quartz-eye rhyolite and rhyodacites. A conductive graphitic sediment was intersected from 328.80m to 341.32m, which contained 2-10% stringers, disseminations and net-textured py-po>sph. Weak to moderate sericite, chlorite, and quartz-carbonate alteration was evident throughout much of the hole.

Most significant assay result: 0.46% Zn, 0.02% Cu / 0.70m from 337.40-338.10m

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	F-141A	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	345.0
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-55.0
START DATE:	8-Apr-11	EASTING:	NA	UTM Northing:	5526191	FINAL DEPTH (m):	414.00
FINISH DATE:	11-Apr-11	ELEVATION:	NA	UTM Easting:	641123	CORE SIZE:	7
		Casing (m):	4.00	UTM Elevation:		Magnetic Declination:	N/A

Target:

Township: **NTS:** 52G15

Drill Contractor: Major Drilling, Val D'Or branch **Cement:** No **Casing:** 4m

Material Left in Hole: Casing. Cap. **Plug:** No

Core Recovery and Ground Conditions:

Core Storage: Mattabi core yard.

Downhole Survey:

Comments:

Depth			Rock Type		Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name				
0.00	4.00	4.00	**OVB**	Casing/overburden	7a			
4.00	20.00	16.00	**V1B**	Quartz Eye Rhyolite Tuff	7a			
20.00	27.90	7.90	**V1C**	Rhyodacite (Dyke?)	7a			
27.90	90.90	63.00	**V1B**	Quartz Eye Rhyolite Tuff	7a			
90.90	98.25	7.35	**V1C**	Rhyodacite (Dyke?)	7a			
98.25	137.10	38.85	**V1B**	Quartz Eye Rhyolite Tuff	7a			
137.10	142.75	5.65	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	7a			
142.75	145.68	2.93	**V1B**	Quartz Eye Rhyolite Tuff	7a			
145.68	209.88	64.20	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	7a			
209.88	261.45	51.57	**V1B**	Quartz Eye Rhyolite Tuff	7a			
261.45	291.55	30.10	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	7a			
291.55	328.80	37.25	**V1B**	Quartz Eye Rhyolite Tuff	7a			
328.80	341.32	12.52	**S5**	Graphitic Sediment (Tuff?)	7a			
341.32	355.95	14.63	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	7a			
355.95	361.33	5.38	**V1B**	Rhyolite	7a			
361.33	381.60	20.27	**V1C**	Rhyodacite	7a			
381.60	386.05	4.45	**V1B**	Rhyolite	7a			
386.05	394.73	8.68	**V1C**	Rhyodacite	7a			
394.73	398.20	3.47	**V1B**	Rhyolite	7a			
398.20	412.20	14.00	**V1C**	Rhyodacite	7a			
412.20	414.00	1.80	**V1B**	Rhyolite	7a			
	-	EOH	**EOH**			EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
F-141A	0.00	4.00	4.00	**OVB**	Casing/overburden			
F-141A	4.00	20.00	16.00	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	Light to medium grey; fine grained with 5-10% sub-rounded to sub-angular grey to blue quartz eyes, generally 1-3mm in size; moderate foliation at 40-50 degrees to c.a. defined by chlorite/sericite seams; occasional quartz-carbonate (ankerite? has an iron-oxide colour that may just be staining) parallel to foliation and cross-cutting, up to 30-40cm at top of hole; common FeOx fractures (surface weathering) - vuggy; trace fine grained stringer and disseminated pyrite - mainly toward lower contact; lower contact obscured by strongly oxidized core
F-141A	20.00	27.90	7.90	**V1C**	Rhyodacite (Dyke?)	Mass	Fol	Medium grey to rusty red-brown; fine to medium grained - equigranular/homogeneous; massive to weakly foliated at 10-20 degrees to c.a.; common moderate to strong FeOx and very rotted/decayed/vuggy core - surface weathering; trace disseminated pyrite; lower contact sharp and regular at 10 degrees to c.a.
F-141A	27.90	90.90	63.00	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	Colour varies from light to medium grey to light to medium red-grey (due to hematite); fine grained matrix with ~5% coarse (up to 5mm) rounded to angular, clear to grey quartz eyes; common hematite alteration and seams/fractures; occasional irregular quartz-carb veins up to 20cm; moderate foliation at 45 degrees to c.a.; trace stringer pyrite; lower contact sharp and regular at 15 degrees to c.a.
F-141A	90.90	98.25	7.35	**V1C**	Rhyodacite (Dyke?)	Mass	Fol	Medium grey; fine to medium grained - equigranular/homogeneous; massive to weakly foliated at 45 degrees to c.a.; occasional quartz-carb veinlets with hematite staining, parallel to foliation; lower contact sharp and regular at 20 degrees to c.a.
F-141A	98.25	137.10	38.85	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	As from 27.90 to 90.90m, becoming less reddish and more light grey-green downhole (due to sericite alteration); lower contact somewhat gradational at 35 degrees to c.a.
F-141A	137.10	142.75	5.65	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	Por	Fol	Medium to dark green-grey; moderate chlorite throughout, as well as a fine (<1mm) dark green mineral - possibly chloritoid? appears to grade into the rhyolite above and still exhibits grey to blue quartz eyes; local feldspar phenocrysts; local hematite alteration; local magnetite; moderate foliation at 45 degrees to c.a.; trace fine grained disseminated pyrite; lower contact gradational, irregular
F-141A	142.75	145.68	2.93	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	Light grey-green; fine grained with quartz phenocrysts up to 5mm; moderately sericitic; weak foliation at 45 degrees c.a.; lower contact gradational
F-141A	145.68	209.88	64.20	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	Por	Fol	As from 137.10 to 142.75, with quartz eyes becoming less common - disappearing in the first few metres and re-appearing in the last 8-9m; colour varies from lighter to darker grey-green according to variations in the fine grained, dark green mineral (chloritoid?); local chloritic wisps/clots; local quartz-carbonate (+chlorite+tourmaline?) veining
F-141A	209.88	261.45	51.57	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	Light to medium grey; foliation becoming weaker (at 45 degrees) to massive; moderate sericite; lower contact gradational
F-141A	261.45	291.55	30.10	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	Por	Fol	Medium to dark green-grey; moderate chlorite throughout - predominantly as seams and fractures parallel to moderate to strong foliation at 60 degrees to c.a.; common grey-blue quartz eyes/phenocrysts throughout; occasional stringer and disseminated pyrite throughout - trace to 0.5%; lower contact gradational
F-141A	291.55	328.80	37.25	**V1B**	Quartz Eye Rhyolite Tuff	Por	Fol	Medium grey; becoming less porphyritic, with sections exhibiting few or no quartz eyes/phenocrysts - looks more like an ash tuff than a crystal/lapilli tuff; massive to weakly foliated at 50-60 degrees to c.a.; fault zone from 317.1 to 321.9m; trace disseminated and stringer pyrite overall; lower contact gradational at 50 degrees to c.a.
F-141A	328.80	341.32	12.52	**S5**	Graphitic Sediment (Tuff?)	Bed	Fol	Dark grey to black; grades into the units above and below, with some quartz eyes/phenocrysts in the sediment/tuff unit; fine to locally medium grained (~1mm grains with some quartz phenocrysts up to 3-4mm); common thin graphitic beds - bedding commonly at 40 degrees to c.a.; possibly also moderate chlorite/biotite (dark coloured mica seams); 3-5% stringer, net-textured and disseminated pyrite, pyrrhotite and sphalerite overall, locally up to 7-10% over 1.2m; lower contactr gradational at 45 degrees to c.a.
F-141A	341.32	355.95	14.63	**V1B, V1C**	Rhyodacite-Rhyolite Tuff	Por	Fol	As from 261.45 to 291.55m; foliation at 45 to 50 degrees to c.a.; locally up to 1-2% stringer and disseminated py, po and sphal; lower contact at 50 degrees to c.a.
F-141A	355.95	361.33	5.38	**V1B**	Rhyolite	Fol		Medium to light grey-green; fine grained; weak to moderate foliation at 45 degrees to c.a.; homogeneous; weak chlorite alteration; occasional clear quartz-tourmaline(?) veins; trace pyrite; lower contact sharp and regular at 45 degrees to c.a.
F-141A	361.33	381.60	20.27	**V1C**	Rhyodacite	Bed	Fol	Similar to previous rhyodacite-rhyolite units but not as chloritic, and has more distinct bedding at 45-55 degrees to c.a.; quartz eyes/phenocrysts becoming rare; looks like an ash-crystal tuff; lower contact sharp and regular at 45 degrees to c.a.
F-141A	381.60	386.05	4.45	**V1B**	Rhyolite	Fol		Very light grey-green; fine grained, homogeneous; moderate foliation at 50 degrees to c.a.; moderate sericite; occasional (~1%) clear-grey quartz eyes; no sulphides observed; lower contact sharp and regular at 45 degrees to c.a.

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
F-141A	386.05	394.73	8.68	**V1C**	Rhyodacite	Bed	Fol	As from 361.33 to 381.60, looking more like an ash-lapilli tuff, with occasional elongated/strained lapilli up to 5cm elongated parallel to moderate foliation at 45-50 degrees to c.a.; last couple metres of unit exhibits amygdules of quartz +/- carb - often zoned, up to 2-3mm; trace stringer pyrite; lower contact sharp and regular at 45 degrees to c.a.
F-141A	394.73	398.20	3.47	**V1B**	Rhyolite	Fol		Similar to 381.60 to 386.05 but more chloritic, with common chlorite seams defining foliation at 45 degrees to c.a.; moderate chlorite and sericite overall; no sulphides; lower contact sharp and regular at 45 degrees to c.a.
F-141A	398.20	412.20	14.00	**V1C**	Rhyodacite	Bed	Fol	Medium grey; fine grained; lapilli have disappeared - looks like an ash tuff with occasional amygdules and/or phenocrysts up to 2-3mm; common bedding (foliation?) at 45 degrees to c.a.; common thin (3-4mm) quartz-carb veinlets parallel to bedding/foliation; trace pyrite; lower contact sharp and regular at 45 degrees to c.a.
F-141A	412.20	414.00	1.80	**V1B**	Rhyolite	Fol		As from 394.73 to 398.20, but chlorite seams appear to have been replaced by hematite seams; no sulphides
F-141A	414.00			**E.O.H.**				

Xstrata Zinc Canada				Mineralization Log
HoleID	From_m	To_m	Length	Description
F-141A	261.45	291.55	30.10	trace to 0.5% stringer and disseminated pyrite
F-141A	325.75	328.80	3.05	1-2% disseminated and stringer pyrite and pyrrhotite
F-141A	328.80	333.93	5.13	2-3% stringer and disseminated py, po and trace sphalerite
F-141A	333.93	334.26	0.33	2-3% stringers, blebs of sphalerite and 5-7% py, po stringers
F-141A	334.26	337.60	3.34	3-5% stringer po, py and trace sphalerite
F-141A	337.60	338.77	1.17	2-3% stringer sphalerite and 5-7% net-textured and stringer po, py
F-141A	338.77	341.52	2.75	2-3% stringer and disseminated py, po and sphalerite
F-141A	341.52	342.50	0.98	1-2% stringer and disseminated py, po
F-141A	342.50	347.80	5.30	0.5% stringer and disseminated py, po
F-141A	347.80	355.95	8.15	1-2% stringer and disseminated py, po, and sphal
F-141A	366.00	378.80	12.80	1-2% bands of disseminated pyrite

Xstrata Zinc Canada				Minor Lithological Log
HoleID	**From_m**	**To_m**	**Length**	**Description**
F-141A	4.00	20.00	16.00	weak chlorite/sericite
F-141A	20.00	23.00	3.00	strong FeOx; vuggy and locally soft, crumbly core
F-141A	26.50	27.70	1.20	as above
F-141A	27.70	90.90	63.20	moderate hematite alteration
F-141A	52.50	53.10	0.60	rhyodacite as from 20.00 to 27.90; contacts at 45 degrees to c.a.
F-141A	98.25	107.10	8.85	moderate hematite alteration
F-141A	113.00	137.10	24.10	weak to moderate sericite alteration
F-141A	123.70	125.90	2.20	rhyodacite as from 20.00 to 27.90; upper contact at 55 degrees to c.a., lower contact irregular
F-141A	138.00	139.70	1.70	weak hematite alteration
F-141A	169.15	170.55	1.40	moderate silicification and carbonatization, with tourmaline(?) and chlorite; patchy, folded and contorted quartz-carb with dark green-black veining (tourmaline?) and green translucent alteration throughout the quartz-carb; trace blebs of pyrite
F-141A	216.10	221.70	5.60	weak to moderate hematite alteration in seams and fractures
F-141A	261.45	291.55	30.10	moderate chlorite seams and fractures
F-141A	317.10	321.90	4.80	Fault Zone? strong quartz flooding/veining with carbonate (dolomite - doesn't effervesce) and tourmaline (dark green-black, fine grained veining); moderate brecciation and folding; strong chlorite; trace sulphides; local blocky, ground core - about a metre of core missing from this interval
F-141A	341.32	355.95	14.63	moderate chlorite seams and fractures
F-141A	381.60	386.05	4.45	moderate sericite
F-141A	394.73	398.20	3.47	moderate sericite and chlorite
F-141A	412.20	414.00	1.80	weak to moderate hematite and sericite
F-141A		E.O.H.		

Xstrata Zinc Canada — Lithogeochem Sampling

Hole ID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m	Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Lu	Mo	Nb	Nd
F-141A	J531889	ALS Minerals; Thunder Bay lab	TB11061671	24.00	24.30	0.30	<1	318	86.6	15.2	510	0.43	7	2.34	1.02	1.8	14.3	4.32	2.9	0.42	43.7	0.13	<2	4.7	40.4
F-141A	J531890	ALS Minerals; Thunder Bay lab	TB11061671	69.00	69.30	0.30	<1	315	59.2	5.4	<10	0.91	<5	4.95	2.94	1.12	16.4	5.39	7.9	1	28.8	0.42	<2	15.9	27.3
F-141A	J531891	ALS Minerals; Thunder Bay lab	TB11061671	96.00	96.33	0.33	<1	773	101	15.7	330	1.1	<5	2.63	1.09	1.92	16.4	4.59	3.6	0.44	51.4	0.14	<2	5.5	46.2
F-141A	J531892	ALS Minerals; Thunder Bay lab	TB11061671	135.00	135.30	0.30	<1	251	57	2.9	<10	0.93	<5	5.48	3.32	1.6	16.7	5.96	7.9	1.14	26.9	0.49	<2	14.9	28
F-141A	J531893	ALS Minerals; Thunder Bay lab	TB11061671	177.00	177.30	0.30	<1	325	36	13.7	10	1.16	37	1.89	1.07	0.82	19	2.42	3.1	0.37	20	0.18	<2	3.9	13.9
F-141A	J531894	ALS Minerals; Thunder Bay lab	TB11061671	219.00	219.30	0.30	<1	43.3	60.9	4.7	<10	0.99	<5	5.87	3.6	1.62	19.2	6.3	8.8	1.2	29.1	0.56	<2	16.5	29.7
F-141A	J531895	ALS Minerals; Thunder Bay lab	TB11061671	252.00	252.30	0.30	<1	448	59.7	4	<10	1.2	14	6.06	3.78	1.77	19.7	6.67	9.4	1.3	28.4	0.59	<2	17	29
F-141A	J531896	ALS Minerals; Thunder Bay lab	TB11061671	282.00	282.30	0.30	<1	30.6	62.8	7.3	<10	1.38	20	5.03	2.93	1.52	17.1	5.53	9.2	1.01	30.1	0.43	<2	14.8	29.1
F-141A	J531897	ALS Minerals; Thunder Bay lab	TB11061671	315.00	315.30	0.30	<1	221	56.5	6.6	<10	0.77	12	6.6	4.17	1.5	17.2	6.72	10.1	1.39	27.2	0.6	<2	16.1	26.8
F-141A	J531898	ALS Minerals; Thunder Bay lab	TB11061671	336.70	337.00	0.30	<1	106	41.2	4	10	1.46	56	2.3	1.3	0.89	19.2	3.33	4.5	0.45	20.1	0.21	7	6.5	19.5
F-141A	J531899	ALS Minerals; Thunder Bay lab	TB11061671	375.00	375.30	0.30	<1	166.5	35.2	48.8	20	1.12	48	3.73	2.25	1	15	4.3	3.9	0.74	16.4	0.33	<2	5.6	17.4
F-141A	I106163	ALS Minerals; Thunder Bay lab	TB11061671	385.00	385.30	0.30	<1	215	24.6	8	10	1.37	9	1.82	1.04	0.71	18.5	1.83	2.8	0.37	11.9	0.15	<2	3	9.9
F-141A	I106164	ALS Minerals; Thunder Bay lab	TB11061671	408.00	408.30	0.30	<1	241	31.6	24.6	40	1.36	101	3.31	2	1.02	17.1	3.13	4.5	0.65	14.4	0.29	<2	5.7	15

Hole: ___________________

Xstrata Zinc

Hole ID	Sample Number	Ni	Pb	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	Cr2O3	TiO2
F-141A	J531889	197	12	10.05	21	6.75	1	258	0.3	0.49	8.28	<0.5	0.15	1.69	87	2	11.7	0.87	212	112	46	10.8	7.26	9.34	8.25	0.64	0.69	0.08	0.56
F-141A	J531890	8	14	6.89	54.4	5.6	3	179	1.1	0.87	6.95	0.5	0.41	1.63	<5	3	27.4	2.75	23	261	75.6	11.25	1.56	1.7	0.92	0.95	1.65	<0.01	0.25
F-141A	J531891	125	11	11.7	51.3	7.55	1	275	0.3	0.56	9.2	<0.5	0.16	1.62	104	1	12.8	0.95	203	141	47.8	12.6	6.91	7.91	6.31	0.56	1.7	0.05	0.62
F-141A	J531892	9	14	6.83	39.1	5.91	2	237	0.9	0.94	5.11	<0.5	0.48	1.14	13	<1	30.8	3.24	30	307	70.9	11.15	2.06	3.48	1.7	1.17	1.32	<0.01	0.41
F-141A	J531893	18	15	3.77	53.6	2.63	1	237	0.4	0.35	4.94	<0.5	0.17	0.46	54	<1	10.2	1.12	92	113	67.3	15.25	4.52	1.04	2.4	1.08	1.62	<0.01	0.44
F-141A	J531894	11	7	7.36	5.1	6.23	2	81.8	1	0.99	5.64	<0.5	0.52	1.23	17	2	33.2	3.53	77	345	71.7	13.05	4.44	3.12	1.61	0.54	0.19	<0.01	0.5
F-141A	J531895	7	10	7.17	59.5	6.35	2	121	1	1.04	5.94	0.5	0.56	1.35	15	<1	36.3	3.66	43	373	69.5	13.2	3.34	3.16	0.74	0.64	2.06	<0.01	0.51
F-141A	J531896	11	7	7.45	4	5.93	2	53.7	1	0.89	6.48	<0.5	0.42	1.42	6	3	27.1	2.89	66	324	74.5	11.85	2.12	3.98	1.9	0.44	0.15	<0.01	0.34
F-141A	J531897	19	12	6.72	26.1	5.81	2	178.5	1	1.1	5.94	0.6	0.61	1.56	15	2	38.8	3.93	129	409	70.3	11.65	4.88	2.39	2.24	0.71	0.81	<0.01	0.39
F-141A	J531898	28	17	4.9	13.9	3.93	3	189	0.5	0.45	5.41	0.5	0.2	1.29	67	1	11.5	1.34	71	167	75.7	12.2	4.21	1.06	0.78	0.95	0.42	<0.01	0.46
F-141A	J531899	63	11	4.26	35.4	3.86	2	101.5	0.4	0.63	2.7	<0.5	0.32	0.57	170	<1	20.8	2.14	68	138	69	12.15	6.43	2.78	1.47	0.93	1.26	<0.01	0.62
F-141A	I106163	9	11	2.78	30.5	1.99	1	177	0.3	0.29	2.71	<0.5	0.15	0.75	42	1	10.6	0.96	24	100	62.8	14.45	4.1	4.61	1.25	2.14	1.2	<0.01	0.33
F-141A	I106164	37	5	3.53	39	3.17	1	216	0.4	0.52	2.3	<0.5	0.29	0.52	135	1	20.9	1.94	63	194	50.9	15.2	7.83	6.76	2.48	2.25	1.28	0.01	0.85

Xstrata Zinc

Hole ID	Sample Number	MnO	P2O5	SrO	BaO	LOI	Total
F-141A	J531889	0.18	0.29	0.03	0.04	16.05	100
F-141A	J531890	0.03	0.03	0.02	0.04	4.09	98.1
F-141A	J531891	0.13	0.34	0.03	0.09	14.1	99.2
F-141A	J531892	0.06	0.11	0.03	0.03	6.57	99
F-141A	J531893	0.03	0.07	0.03	0.04	4.38	98.2
F-141A	J531894	0.09	0.1	0.01	0.01	4.49	99.9
F-141A	J531895	0.06	0.1	0.01	0.05	4.38	97.8
F-141A	J531896	0.03	0.06	0.01	<0.01	4.99	100.5
F-141A	J531897	0.07	0.07	0.02	0.03	4.98	98.5
F-141A	J531898	0.02	0.1	0.02	0.01	2.3	98.2
F-141A	J531899	0.11	0.15	0.01	0.02	4.84	99.8
F-141A	I106163	0.08	0.08	0.02	0.02	9.08	100
F-141A	I106164	0.14	0.19	0.03	0.03	11.7	99.7

Xstrata Zinc Canada — Assays

HoleID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag_ppm	Zn%_2	Au_ppm	Comments
F-141A	J529454	ALS Minerals; Thunder Bay lab	TB11061670	325.00	325.75	0.75	J529454	0.002	<0.001	0.008	<0.2			
F-141A	J529455	ALS Minerals; Thunder Bay lab	TB11061670	325.75	326.75	1.00	J529455	0.004	0.001	0.025	0.2			
F-141A	J529456	ALS Minerals; Thunder Bay lab	TB11061670	326.75	327.80	1.05	J529456	0.005	0.002	0.016	0.2			
F-141A	J529457	ALS Minerals; Thunder Bay lab	TB11061670	327.80	328.80	1.00	J529457	0.008	0.001	0.011	<0.2			
F-141A	J529458	ALS Minerals; Thunder Bay lab	TB11061670	328.80	329.80	1.00	J529458	0.005	0.001	0.008	0.3			
F-141A	J529459	ALS Minerals; Thunder Bay lab	TB11061670	329.80	330.80	1.00	J529459	0.012	<0.001	0.058	0.4			
F-141A	J529460	ALS Minerals; Thunder Bay lab	TB11061670	330.80	331.80	1.00	J529460	0.011	0.002	0.016	0.5			
F-141A	J529461	ALS Minerals; Thunder Bay lab	TB11061670	331.80	332.80	1.00	J529461	0.009	0.002	0.033	0.4			
F-141A	J529462	ALS Minerals; Thunder Bay lab	TB11061670	332.80	333.80	1.00	J529462	0.008	0.002	0.042	0.3			
F-141A	J529463	ALS Minerals; Thunder Bay lab	TB11061670	333.80	334.40	0.60	J529463	0.015	0.001	0.379	0.7			
F-141A	*J529464*	ALS Minerals; Thunder Bay lab	TB11061670		*Blank*		*J529464*	*0.005*	*0.002*	*0.013*	*<0.2*			
F-141A	J529465	ALS Minerals; Thunder Bay lab	TB11061670	334.40	335.40	1.00	J529465	0.009	0.002	0.111	0.6			
F-141A	J529466	ALS Minerals; Thunder Bay lab	TB11061670	335.40	336.40	1.00	J529466	0.009	0.002	0.069	0.8			
F-141A	J529467	ALS Minerals; Thunder Bay lab	TB11061670	336.40	337.40	1.00	J529467	0.008	0.002	0.015	0.6			
F-141A	J529468	ALS Minerals; Thunder Bay lab	TB11061670	337.40	338.10	0.70	J529468	0.022	0.004	0.458	2			
F-141A	J529469	ALS Minerals; Thunder Bay lab	TB11061670	338.10	339.00	0.90	J529469	0.007	0.002	0.237	0.8			
F-141A	J529470	ALS Minerals; Thunder Bay lab	TB11061670	339.00	340.00	1.00	J529470	0.008	0.002	0.353	0.6			
F-141A	J529471	ALS Minerals; Thunder Bay lab	TB11061670	340.00	341.00	1.00	J529471	0.011	0.001	0.077	0.5			
F-141A	J529472	ALS Minerals; Thunder Bay lab	TB11061670	341.00	342.50	1.50	J529472	0.005	0.001	0.014	0.3			
F-141A	*J529473*	ALS Minerals; Thunder Bay lab	TB11061670		*Standard*		*J529473*	*0.173*	*0.008*	*4.96*	*3.1*	*4.73*	*0.05*	
F-141A	J529474	ALS Minerals; Thunder Bay lab	TB11061670	342.50	344.00	1.50	J529474	0.004	0.002	0.015	<0.2			
F-141A	J529475	ALS Minerals; Thunder Bay lab	TB11061670	344.00	345.50	1.50	J529475	0.004	0.001	0.016	0.2			
F-141A	J529476	ALS Minerals; Thunder Bay lab	TB11061670	345.50	347.00	1.50	J529476	0.002	0.001	0.012	<0.2			
F-141A	J529477	ALS Minerals; Thunder Bay lab	TB11061670	347.00	348.00	1.00	J529477	0.002	0.001	0.029	<0.2			
F-141A	J529478	ALS Minerals; Thunder Bay lab	TB11061670	348.00	349.50	1.50	J529478	0.003	0.002	0.065	<0.2			
F-141A	J529479	ALS Minerals; Thunder Bay lab	TB11061670	349.50	351.00	1.50	J529479	0.005	0.001	0.062	0.3			
F-141A	J529480	ALS Minerals; Thunder Bay lab	TB11061670	351.00	352.50	1.50	J529480	0.007	0.002	0.068	0.6			
F-141A	J529481	ALS Minerals; Thunder Bay lab	TB11061670	352.50	354.00	1.50	J529481	0.015	0.001	0.199	0.8			
F-141A	J529482	ALS Minerals; Thunder Bay lab	TB11061670	354.00	355.00	1.00	J529482	0.002	<0.001	0.007	<0.2			
F-141A	J529483	ALS Minerals; Thunder Bay lab	TB11061670	355.00	355.95	0.95	J529483	<0.001	0.001	0.005	<0.2			
F-141A	J529484	ALS Minerals; Thunder Bay lab	TB11061670	366.00	367.50	1.50	J529484	0.005	<0.001	0.005	0.2			
F-141A	J529485	ALS Minerals; Thunder Bay lab	TB11061670	367.50	369.00	1.50	J529485	0.01	0.001	0.011	0.3			
F-141A	J529486	ALS Minerals; Thunder Bay lab	TB11061670	369.00	370.50	1.50	J529486	0.003	<0.001	0.005	0.2			

HoleID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag_ppm	Zn%_2	Au_ppm	Comments
F-141A	J529487	ALS Minerals; Thunder Bay lab	TB11061670	370.50	372.00	1.50	J529487	0.009	0.001	0.011	0.6			
F-141A	J529488	ALS Minerals; Thunder Bay lab	TB11061670	372.00	373.50	1.50	J529488	0.004	0.001	0.01	0.2			
F-141A	J529489	ALS Minerals; Thunder Bay lab	TB11061670	373.50	375.00	1.50	J529489	0.008	0.001	0.007	0.2			
F-141A	J529490	ALS Minerals; Thunder Bay lab	TB11061670	375.00	376.50	1.5	J529490	0.005	0.001	0.024	0.2			
F-141A	J529491	ALS Minerals; Thunder Bay lab	TB11061670	376.50	378.00	1.5	J529491	0.005	0.001	0.021	0.4			
F-141A	J529492	ALS Minerals; Thunder Bay lab	TB11061670	378.00	379.50	1.5	J529492	0.012	0.002	0.025	0.5			

Zinc Canada								Downhole Deviation
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**
F-141A	Reflex	8-Apr-11	18	-54.6	348.5	59458	no correction	
F-141A	Reflex	8-Apr-11	30	-53.9	348.6	58910		
F-141A	Reflex	8-Apr-11	60	-52.9	348.7	58804		
F-141A	Reflex	8-Apr-11	90	-51.8	347.8	58368		
F-141A	Reflex	9-Apr-11	120	-50.3	347.7	58114		
F-141A	Reflex	9-Apr-11	150	-48.7	347.2	58009		
F-141A	Reflex	9-Apr-11	180	-47.5	347.4	58264		
F-141A	Reflex	9-Apr-11	210	-46.7	347.3	58320		
F-141A	Reflex	9-Apr-11	240	-45.6	347.5	58278		
F-141A	Reflex	10-Apr-11	270	-44.5	347.6	58041		
F-141A	Reflex	10-Apr-11	300	-43.5	347.6	58018		
F-141A	Reflex	10-Apr-11	330	-42.8	346.7	58018		
F-141A	Reflex	11-Apr-11	360	-42.0	347.8	58171		
F-141A	Reflex	11-Apr-11	390	-41.8	346.6	58182		
F-141A	Reflex	11-Apr-11	414	-41.7	346.4	57699		E.O.H.

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
F-141A	4.50	0.005	
F-141A	6.00	0.036	
F-141A	7.50	0.082	
F-141A	9.00	0.063	
F-141A	10.50	0.045	
F-141A	12.00	0.069	
F-141A	13.50	0.138	
F-141A	15.00	0.155	
F-141A	16.50	0.13	
F-141A	18.00	0.132	
F-141A	19.50	0.011	
F-141A	21.00	0.118	
F-141A	22.50	0.383	
F-141A	24.00	0.456	
F-141A	25.50	0.289	
F-141A	27.00	0.337	
F-141A	28.50	0.103	
F-141A	30.00	0.106	
F-141A	31.50	0.089	
F-141A	33.00	0.077	
F-141A	34.50	0.127	
F-141A	36.00	0.126	
F-141A	37.50	0.264	
F-141A	39.00	0.04	
F-141A	40.50	0.038	
F-141A	42.00	0.089	
F-141A	43.50	0.005	
F-141A	45.00	0.009	
F-141A	46.50	0	
F-141A	48.00	0.014	
F-141A	49.50	0.031	
F-141A	51.00	0.021	
F-141A	52.50	0.015	
F-141A	54.00	0.095	
F-141A	55.50	0.008	
F-141A	57.00	0.014	
F-141A	58.50	0.038	
F-141A	60.00	0.015	
F-141A	61.50	0.021	
F-141A	63.00	0.011	
F-141A	64.50	0.046	
F-141A	66.00	0.027	
F-141A	67.50	0.028	
F-141A	69.00	0.028	
F-141A	70.50	0.051	
F-141A	72.00	0.003	
F-141A	73.50	0.047	
F-141A	75.00	0.028	
F-141A	76.50	0.064	
F-141A	78.00	0.108	
F-141A	79.50	0.007	
F-141A	81.00	0.042	
F-141A	82.50	0.058	
F-141A	84.00	0.058	
F-141A	85.50	0.015	
F-141A	87.00	0.007	
F-141A	88.50	0.001	
F-141A	90.00	0.074	
F-141A	91.50	0.356	
F-141A	93.00	0.367	
F-141A	94.50	0.472	
F-141A	96.00	0.371	
F-141A	97.50	0.341	
F-141A	99.00	0.09	
F-141A	100.50	0.099	
F-141A	102.00	0.084	
F-141A	103.50	0.029	
F-141A	105.00	0.046	
F-141A	106.50	0.008	
F-141A	108.00	0.037	
F-141A	109.50	0.059	
F-141A	111.00	0.068	
F-141A	112.50	0.045	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-141A	114.00	0.03	
F-141A	115.50	0.044	
F-141A	117.00	0.116	
F-141A	118.50	0.078	
F-141A	120.00	0.036	
F-141A	121.50	0.015	
F-141A	123.00	0.082	
F-141A	124.50	0.106	
F-141A	126.00	0.075	
F-141A	127.50	0	
F-141A	129.00	0.034	
F-141A	130.50	0.027	
F-141A	132.00	0.004	
F-141A	133.50	0.02	
F-141A	135.00	0.044	
F-141A	136.50	0.316	
F-141A	138.00	11.6	
F-141A	139.50	49	
F-141A	141.00	1.072	
F-141A	142.50	0.023	
F-141A	144.00	-0.018	
F-141A	145.50	-0.011	
F-141A	147.00	-0.014	
F-141A	148.50	-0.029	
F-141A	150.00	0.058	
F-141A	151.50	0.06	
F-141A	153.00	0.128	
F-141A	154.50	0.022	
F-141A	156.00	0.138	
F-141A	157.50	0.051	
F-141A	159.00	0.037	
F-141A	160.50	0.364	
F-141A	162.00	0.092	
F-141A	163.50	0.31	
F-141A	165.00	0.131	
F-141A	166.50	0.096	
F-141A	168.00	0.035	
F-141A	169.50	0.074	
F-141A	171.00	0.066	
F-141A	172.50	0.055	
F-141A	174.00	0.128	
F-141A	175.50	0.14	
F-141A	177.00	0.091	
F-141A	178.50	0.426	
F-141A	180.00	0.244	
F-141A	181.50	0.564	
F-141A	183.00	0.397	
F-141A	184.50	0.459	
F-141A	186.00	0.302	
F-141A	187.50	0.074	
F-141A	189.00	0.108	
F-141A	190.50	0.171	
F-141A	192.00	0.054	
F-141A	193.50	0.002	
F-141A	195.00	0.039	
F-141A	196.50	0.033	
F-141A	198.00	0.13	
F-141A	199.50	0.085	
F-141A	201.00	0.025	
F-141A	202.50	0.143	
F-141A	204.00	0.022	
F-141A	205.50	0.156	
F-141A	207.00	0.145	
F-141A	208.50	0.121	
F-141A	210.00	-0.01	
F-141A	211.50	-0.029	
F-141A	213.00	-0.008	
F-141A	214.50	-0.369	
F-141A	216.00	0.097	
F-141A	217.50	-0.023	
F-141A	219.00	0.043	
F-141A	220.50	0.062	
F-141A	222.00	0.046	
F-141A	223.50	0.106	
F-141A	225.00	0.048	
F-141A	226.50	0.113	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-141A	228.00	0.053	
F-141A	229.50	0.094	
F-141A	231.00	0.071	
F-141A	232.50	0.097	
F-141A	234.00	0.063	
F-141A	235.50	0.162	
F-141A	237.00	0.068	
F-141A	238.50	0.013	
F-141A	240.00	0.036	
F-141A	241.50	0.071	
F-141A	243.00	0.018	
F-141A	244.50	0.004	
F-141A	246.00	0.118	
F-141A	247.50	0.11	
F-141A	249.00	0.122	
F-141A	250.50	0.098	
F-141A	252.00	0.033	
F-141A	253.50	0.043	
F-141A	255.00	0.075	
F-141A	256.50	0.102	
F-141A	258.00	0.074	
F-141A	259.50	0.072	
F-141A	261.00	0.11	
F-141A	262.50	0.095	
F-141A	264.00	0.083	
F-141A	265.50	0.051	
F-141A	267.00	0.058	
F-141A	268.50	0.06	
F-141A	270.00	0.014	
F-141A	271.50	0.02	
F-141A	273.00	0.17	
F-141A	274.50	0.061	
F-141A	276.00	0.037	
F-141A	277.50	-0.3	
F-141A	279.00	-0.014	
F-141A	280.50	0.054	
F-141A	282.00	0.073	
F-141A	283.50	0.042	
F-141A	285.00	0.016	
F-141A	286.50	-0.007	
F-141A	288.00	-0.025	
F-141A	289.50	-0.061	
F-141A	291.00	0.031	
F-141A	292.50	0.087	
F-141A	294.00	0.033	
F-141A	295.50	-0.007	
F-141A	297.00	1.004	
F-141A	298.50	0.374	
F-141A	300.00	0.126	
F-141A	301.50	0.102	
F-141A	303.00	0.022	
F-141A	304.50	0.046	
F-141A	306.00	0.072	
F-141A	307.50	0.061	
F-141A	309.00	0.028	
F-141A	310.50	0.027	
F-141A	312.00	0.013	
F-141A	313.50	0.062	
F-141A	315.00	0.111	
F-141A	316.50	0.129	
F-141A	318.00	0.024	
F-141A	319.50	0.165	
F-141A	321.00	0.011	
F-141A	322.50	0.505	
F-141A	324.00	0.339	
F-141A	325.50	0.051	
F-141A	327.00	0.332	
F-141A	328.50	0.053	
F-141A	330.00	1.605	
F-141A	331.50	0.337	
F-141A	333.00	0.494	
F-141A	334.50	0.989	
F-141A	336.00	6.545	
F-141A	337.50	48.16	
F-141A	339.00	2.066	
F-141A	340.50	0.377	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-141A	342.00	0.393	
F-141A	343.50	0.039	
F-141A	345.00	0.126	
F-141A	346.50	0.06	
F-141A	348.00	0.11	
F-141A	349.50	0.128	
F-141A	351.00	0.392	
F-141A	352.50	0.08	
F-141A	354.00	0.105	
F-141A	355.50	0.161	
F-141A	357.00	0.082	
F-141A	358.50	0.067	
F-141A	360.00	0.281	
F-141A	361.50	0.144	
F-141A	363.00	0.032	
F-141A	364.50	0.054	
F-141A	366.00	0.027	
F-141A	367.50	0.02	
F-141A	369.00	0.075	
F-141A	370.50	0.261	
F-141A	372.00	0.358	
F-141A	373.50	0.261	
F-141A	375.00	0.291	
F-141A	376.50	0.373	
F-141A	378.00	0.509	
F-141A	379.50	0.262	
F-141A	381.00	0.376	
F-141A	382.50	0.067	
F-141A	384.00	0.04	
F-141A	385.50	0.098	
F-141A	387.00	0.621	
F-141A	388.50	0.48	
F-141A	390.00	0.468	
F-141A	391.50	1.933	
F-141A	393.00	22.15	
F-141A	394.50	0.37	
F-141A	396.00	0.181	
F-141A	397.50	0.259	
F-141A	399.00	0.095	
F-141A	400.50	1.158	
F-141A	402.00	1.33	
F-141A	403.50	3.715	
F-141A	405.00	0.572	
F-141A	406.50	0.628	
F-141A	408.00	5.785	
F-141A	409.50	32.23	
F-141A	411.00	10.87	
F-141A	412.50	12.89	
F-141A	414.00	17.2	E.O.H.

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	F-141	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	345.0
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-50.0
START DATE:	7-Apr-11	EASTING:	NA	UTM Northing:	5526191	FINAL DEPTH (m):	129.00
FINISH DATE:	8-Apr-11	ELEVATION:	NA	UTM Easting:	641123	CORE SIZE:	BQ
		Casing (m):	4.00	UTM Elevation:		Magnetic Declination:	N/A

Target:

Township: **NTS:** 52G15

Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:** **3m**

Material Left in Hole: **Casing. Cap.** **Plug:** **No**

Core Recovery and Ground Conditions:

Core Storage: **Mattabi core yard.**

Downhole Survey:

Comments: **Hole stopped due to excessive deviation at top**

Depth			Rock Type		Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name				
0.00	4.00	4.00	**OVB**	Casing/overburden				
4.00	27.90	23.90	**V1B**	Quartz Eye Rhyolite				
27.90	42.75	14.85	**V1C**	Rhyodacite				
42.75	45.00	2.25	**V1B**	Quartz Eye Rhyolite				
45.00	129.00	84.00	**V1B**	Quartz Eye Rhyolite				
	-	EOH	**EOH**			EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
F-141	0.00	4.00	4.00	**OVB**	Casing/overburden			
F-141	4.00	27.90	23.90	**V1B**	Quartz Eye Rhyolite			Light to medium grey - gets darker toward lower contact; fine grained with 5-10% sub-rounded to sub-angular grey to blue quartz eyes, generally 1-3mm in size; moderate foliation at 40-50 degrees to c.a. defined by chlorite/sericite seams; occasional quartz-carbonate (ankerite? has an iron-oxide colour that may just be staining) parallel to foliation and cross-cutting, up to 20cm; common FeOx fractures (surface weathering) - vuggy; trace fine grained stringer and disseminated pyrite - mainly toward lower contact; lower contact obscured by strongly oxidized core
F-141	27.90	42.75	14.85	**V1C**	Rhyodacite			Medium grey-green; fine to medium grained - equigranular/homogeneous; moderate foliation at 30-40 degrees to c.a.; common moderate to strong FeOx and very rotted/decayed/vuggy core; local strong sericite and hematite alteration; trace disseminated pyrite; lower contact sharp and regular at 20 degrees to c.a.
F-141	42.75	45.00	2.25	**V1B**	Quartz Eye Rhyolite	Por	Fol	Colour varies from light to medium grey to light to medium red (due to hematite); fine grained matrix with ~5% coarse (up to 5mm) rounded to angular, clear to grey quartz eyes; common hematite alteration and seams/fractures; moderate foliation at 45 degrees to c.a.; no sulphides seen;
F-141	45.00	129.00	84.00	V1B	Quartz Eye Rhyolite	Por	Fol	Colour varies from light to medium grey to light to medium red (due to hematite); fine grained matrix with ~5% coarse (up to 5mm) rounded to angular, clear to grey quartz eyes; common hematite alteration and seams/fractures; moderate foliation at 45 degrees to c.a.; no sulphides seen

Xstrata Zinc Canada				Mineralization Log
HoleID	From_m	To_m	Length	Description
				No mineralization noted.

Xstrata Zinc Canada				Minor Lithological Log
HoleID	**From_m**	**To_m**	**Length**	**Description**
F-141	4.00	27.90	23.90	weak to moderate chlorite/sericite
F-141	27.90	31.30	3.40	strong FeOx; vuggy and locally soft, crumbly core
F-141	34.20	35.20	1.00	strong sericite and hematite alteration; 15 cm vuggy quartz-carb (ankerite?) vein; moderate FeOx fractures
F-141	74.55	75.30	0.75	Rhyodacite as from 27.90 to 42.75; contacts at 30 degrees to c.a.
F-141	112.60	113.65	1.05	Rhyodacite; contacts at 45 degrees to c.a.
F-141	116.10	118.30	2.20	As above

Xstrata Zinc Canada					Lithogeochem Sampling											
Hole ID	Sample Number	Lab	Certificate Number	AnalytyicalMethod	From_ m	To_m	Length_ m									
		No samples collected.														

Hole: ____________________

Xstrata Zinc																					
Hole ID	Sample Number	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm

Xstrata Zinc																						
Hole ID	Sample Number	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%

Xstrata Zinc

Hole ID	Sample Number	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%

Hole: ____________________

Xstrata Zinc Canada													**Assays**
HoleID	**Sample Number**	**Certificate Number**	**From_m**	**To_m**	**Length_m**	**RockCode**	**Cu %**	**Pb%**	**Zn %**	**Ag_ppm**	**Zn%_2**	**Au_ppm**	**Comments**
		No samples collected											

ı Zinc Canada								Downhole Deviation
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**
F-141	Reflex	7-Apr-11	18	-49.8	347.2	58351	no correction	
F-141	Reflex	7-Apr-11	30	-49.0	347.6	58029		
F-141	Reflex	7-Apr-11	60	-42.5	345.6	58126		
F-141	Reflex	7-Apr-11	90	-38.3	346.1	58045		
F-141	Reflex	7-Apr-11	120	-35.0	345.6	57987		

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	Depth_m	Mag. Sus. Reading	Comments
			No readings taken.

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	F-140	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	104.0
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-81.0
START DATE:	8-Mar-11	EASTING:	NA	UTM Northing:	5526350	FINAL DEPTH (m):	555.00
FINISH DATE:	16-Mar-11	ELEVATION:	NA	UTM Easting:	641020	CORE SIZE:	BQ
		Casing (m):	1.00	UTM Elevation:		Magnetic Declination:	N/A

Target:
Township: **NTS:** 52G15
Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:** **1m**
Material Left in Hole: **Casing. Cap.** **Plug:** **No**
Core Recovery and Ground Conditions:
Core Storage: **Mattabi core yard.**
Downhole Survey:
Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name					
0.00	1.00	1.00	OVB		casing/overburden				
1.00	52.68	51.68	V1C		Rhyodacite				
52.68	98.90	46.22	V1B		Rhyolite				
98.90	105.80	6.90	S5		Graphitic Sediment (Tuff?)				
105.80	120.19	14.39	V1C/V1D		Rhyodactie - Dacite				
120.19	213.30	93.11	V1B/V1C		Rhyolite - Rhyodacite				
213.30	234.60	21.30	V1B		Rhyolite				
234.60	322.22	87.62	V1D		Dacite				
322.22	352.70	30.48	V1B		Rhyolite				
352.70	357.38	4.68	V1C/V1B		Rhyodacite - Rhyolite				Mineralized Zone
357.38	360.00	2.62	V1B		Rhyolite				
360.00	363.20	3.20	V1C/V1D		Rhyodacite - Dacite				
363.20	368.85	5.65	V1B		Rhyolite				
368.85	379.43	10.58	V1B		Rhyolite				Mineralized Zone
379.43	398.24	18.81	V1B		Rhyolite				
398.24	414.35	16.11	V1B		Rhyolite				Mineralized Zone
414.35	417.48	3.13	MS		Massive Sulphides				90% pyrite; 5% sphalerite; trace chalcopyrite; 5% rock fragments
417.48	436.90	19.42	V1B		Rhyolite				Mineralized Zone
436.90	458.53	21.63	V1D/V1C		Dacite - Rhyodacite				
458.53	555.00	96.47	V1B		Rhyolite				
	-	EOH	EOH				EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
F-140	0.00	1.00	1.00	OVB	casing/overburden			
F-140	1.00	52.68	51.68	V1C (V1C?)	Rhyodacite (to Dacite?)	Pyr	Lap	Lappili tuff; medium grey; fine grained with local lapilli up to several centimetres, occasionally cherty; weakly to moderately foliated at 10-35 degrees to c.a.; moderately chloritic throughout; occasionally bedded; 0.5-1% disseminated fine to coarse grained pyrite; lower contact gradational
F-140	52.68	98.90	46.22	V1B	Rhyolite	Mass		Light to medium grey; medium grained; massive; local quartz eyes; weak chlorite and sericite; trace pyrite; lower contact sharp and regular at 60 degrees to c.a.
F-140	98.90	105.80	6.90	S5	Graphitic Sediment (Tuff?)	Bed	Fol	Dark grey to black; very fine grained; common carbonate seams/fractures usually parallel to bedding; bedding/foliation at 30 degrees to c.a.; 0.5-1% fine grained fracture-controlled and disseminated pyrite, often in pods up to 2cm; lower contact gradational
F-140	105.80	120.19	14.39	V1C/V1D	Rhyodactie - Dacite	Pyr	Bed	Looks like a crystal/lapilli tuff, interbedded near the top with the graphitic sediment above; medium to locally dark grey; fine to coarse grained; variable foliation/bedding from sub-parallel to c.a. to ~30 degrees to c.a.; trace to 0.5% pyrite blebs and patches; lower contact sharp and irregular
F-140	120.19	213.30	93.11	V1B/V1C	Rhyolite - Rhyodacite	Mass		Light to medium grey; medium grained; massive to weakly foliated at 15-25 degrees to c.a.; common chlorite (+chloritoid?) grains and wisps up to 10%; occasional quartz veins; trace disseminated and vein-hosted pyrite
F-140	213.30	234.60	21.30	V1B	Rhyolite	Por		Quartz eye rhyolite; light to locally medium grey; medium to fine grained; massive to weakly foliated at 15-25 degrees to c.a.; variable quartz content up to ~10%; grey to locally bluish, up to 3mm; local coarse grained chloritoid(?); occasional andesitic sills/layers as seen near lower contact of the unit above; trace pyrite; lower contact sharp and regular at 20 degrees to c.a.
F-140	234.60	322.22	87.62	V1D	Dacite	Mass		Intermediate flow; medium grey to occasionally lighter grey (possibly rhyodacite units - gradational contacts); medium grained; massive homogeneous texture locally foliated at 10-20 degrees to c.a.; exhibits a speckled, or salt and pepper appearance due to disseminated chlorite/chloritoid; occasional quartz veins, barren or with carbonate or saussuritized feldspar(?) - light, pale green in colour and micaceous; quartz veins up to ~20 cm and irregular; trace disseminated fine to coarse grained pyrite; lower contact sharp and regular
F-140	322.22	352.70	30.48	V1B	Rhyolite	Por		Quartz eye rhyolite as from 213.30 to 234.60m; lower contact gradational
F-140	352.70	357.38	4.68	V1C/V1B	Rhyodacite - Rhyolite	Bed	Bx	Darker grey; generally fine grained, with occasional coarser crystals over narrow intervals (10-20 cm); abundant chlorite seams - strongly chloritic; common cherty beds, occasionally disrupted/brecciated; bedding commonly at 30 degrees to c.a.; local quartz eyes; 10-15% patches and stringers of pyrite, trace chalcopyrite; lower contact sharp and regular at 30 degrees to c.a.
F-140	357.38	360.00	2.62	V1B	Rhyolite	Bed	Fol	More homogeneous than previous rhyolite, with rare quartz eyes; moderate bedding/foliation at 30-40 degrees to c.a.; 0.5% stringer and disseminated pyrite; lower contact sharp and regular at 40 degrees to c.a.
F-140	360.00	363.20	3.20	V1C/V1D	Rhyodacite - Dacite	Fol		Looks like an altered intermediate volcanis; medium grained; medium to light green-grey; moderate to strong foliation at 45 degrees to c.a.; pervasive moderate chlorite-chloritoid-sericite; lower contact sharp and regular at 45 degrees to c.a.
F-140	363.20	368.85	5.65	V1B	Rhyolite	Bed	Fol	As from 357.38 to 360.00; lower contact gradational
F-140	368.85	379.43	10.58	V1B	Rhyolite	Por	Fol / Bx	Mineralized Zone; quartz eye rhyolite; medium grey; fine to medium grained with variable quartz eye content - quartz eyes often confined to specific intervals; local narrow brecciated intervals; moderate foliation at 30-40 degrees to c.a.; moderate chlorite; 7-10% pyrite in patches and stringers
F-140	379.43	398.24	18.81	V1B	Rhyolite	Por	Fol / Bx	Rhyolite as above without the strong mineralization; lower contact gradational
F-140	398.24	414.35	16.11	V1B	Rhyolite	Por	Fol / Bx	Mineralized Zone; rhyolite as above, with up to 15-20% pyrite, 2-3% sphalerite and 1% galena
F-140	414.35	417.48	3.13	MS	Massive Sulphides	Mass		Massive sulphides; 90% pyrite; 5% sphalerite; trace chalcopyrite; 5% rock fragments
F-140	417.48	436.90	19.42	V1B	Rhyolite	Por	Fol / Bx	Mineralized Zone; rhyolite as from 398.24 to 414.35, with up to 15-20% pyrite, 2-3% sphalerite; 1-2% chalcopyrite and 1% galena
F-140	436.90	458.53	21.63	V1D/V1C	Dacite - Rhyodacite	Por	Bx	Darker than the rhyolite above - medium to dark green-grey; medium grained; quartz eyes rare; commonly looks like lapilli or crystal tuff; local moderate brecciation; locally up to 7-10% net-textured chalcopyrite
F-140	458.53	555.00	96.47	V1B	Rhyolite	Bx	Lap	Lapilli tuff; light grey at top of unit, becoming medium grey downhole; fine grained, unit looks more chaotic, with increase in lapilli and brecciation; occasional ash-crystal tuff intervals - finer grained; local quartz eyes and occasional feldspar phenocrysts(? possibly breccia clasts?); moderate chlorite and local moderate sericite throughout; trace pyrite and chalcopyrite overall
F-140	555.00			EOH	End of Hole			

Xstrata Zinc Canada				**Mineralization Log**
HoleID	**From_m**	**To_m**	**Length**	**Description**
F-140	2.00	52.68	50.68	0.5-1% fine to coarse grained disseminated pyrite
F-140	98.90	105.80	6.9	0.5-1% fine grained fracture-controlled and disseminated pyrite; often in pods up to 2 cm
F-140	105.80	120.19	14.39	trace to 0.5% pyrite blebs and patches
F-140	352.70	357.38	4.68	10-15% patches and stringers of pyrite, trace chalcopyrite
F-140	357.38	360.00	2.62	0.5% stringer and disseminated pyrite
F-140	363.20	368.85	5.65	As above
F-140	368.85	379.43	10.58	7-10% pyrite patches and stringers
F-140	382.44	398.24	15.8	1-2% stringer pyrite and trace chalcopyrite
F-140	398.24	401.04	2.8	~10% pyrite stringers and patches
F-140	401.50	414.35	12.85	15-20% pyrite, 2-3% sphalerite, 1% galena
F-140	414.35	417.48	3.13	Massive sulphides; 90% pyrite; 5% sphalerite; trace chalcopyrite; 5% rock fragments
F-140	417.48	423.30	5.82	15-20% semi-massive and stringer pyrite; 1-2% net-textured chalcopyrite; 0.5% sphalerite
F-140	425.10	430.45	5.35	7-10% stringer pyrite; 1-2% sphalerite; trace chalcopyrite
F-140	430.45	440.28	9.83	Trace to 0.5% pyrite, sphalerite and chalcopyrite
F-140	440.28	444.30	4.02	5-7% net-textured chalcopyrite; trace pyrite and sphalerite
F-140	447.80	448.88	1.08	7-10% net-textured chalcopyrite; trace pyrite
F-140	448.88	450.00	1.12	trace chalcopyrite
F-140	495.76	498.10	2.34	1% chalcopyrite stringers, 1% pyrite
F-140	541.94	543.10	1.16	2% chalcopyrite, 2% pyrite
F-140	551.00	551.50	0.5	1-2% chalcopyrite, 1-2% pyrite
			0	
			0	
			0	

Hole: ____________________

Xstrata Zinc Canada				Minor Lithological Log
HoleID	From_m	To_m	Length	Description
F-140	26.80	40.25	13.45	Fine grained massive to weakly foliated at 10-30 degrees to c.a.
F-140	65.30	68.00	2.7	fault Zone; moderate iron oxide staining throughout matrix and stronger along fractures
F-140				includes: 65.30 to 65.85: strongly broken core with moderate brecciation and vuggy quartz-carb breccia-filling
F-140	102.66	103.06	0.4	fault zone; broken/blocky core
F-140	108.60	109.10	0.5	fault zone; broken/blocky core; weak breccia with vuggy quartz-carb
F-140	110.30	110.60	0.3	fault zone; broken/blocky core; moderate brecciation with 3-5% pyrite over 10cm with weak-moderate conductivity
F-140	111.40	111.57	0.17	fault zone; broken/blocky core
F-140	112.30	112.65	0.35	fault zone; broken/blocky core
F-140	140.30	144.30	4	Moderate oxide staining of fractures and vuggy quartz-carbonate-hematite veining
F-140	202.55	203.05	0.5	Andesite? Medium green-grey; fine to medium grained with 10-15% chlorite/chloritoid grains often oriented parallel to foliation at 30 degrees to c.a.; trace disseminated pyrite
F-140	204.30	204.60	0.3	As above
F-140	206.50	207.40	0.9	As above
F-140	209.35	211.80	2.45	As above
F-140	221.20	221.77	0.57	Andesite; fine grained; lighter grey-green; contacts sharp at 10-20 degrees to c.a.
F-140	229.50	229.92	0.42	As above
F-140	256.40	263.20	6.8	Numerous irregular quartz veins up to 20 cm wide, barren or with carbonate or possibly saussuritized feldspar (micaceous, pale green in colour)
F-140	311.70	312.80	1.1	Felsic volcanic? Very light grey; siliceous (silicified?); very fine grained homogeneous
F-140	312.80	357.38	44.58	Strong chlorite - abundant chloritic seams
F-140	360.00	363.20	3.2	Pervasive moderate chlorite-chloritoid-sericite
F-140	368.85	379.43	10.58	moderate chlorite
F-140	423.30	425.10	1.8	Dacite or rhyodacite? Fairly massive, no mineralization
F-140	436.90	458.53	21.63	moderate chlorite
F-140	458.53	555.00	96.47	Moderate chlorite, local moderate sericite

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Xstrata Zinc Canada

Lithogeochem Sampling

Hole ID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m		Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Lu	Mo	Nb
F-140	J531826	ALS Minerals; Thunder Bay lab	TB11043962	39.00	39.30	0.30	J531826	<1	278	39.8	11.8	20	1.55	46	2.88	1.5	0.97	19.7	3.17	4.6	0.56	20.6	0.23	<2	8.3
F-140	J531827	ALS Minerals; Thunder Bay lab	TB11043962	80.00	80.30	0.30	J531827	<1	343	30.4	24.9	60	1.27	213	2.99	1.78	0.97	16.7	3.17	3.1	0.61	14.1	0.26	<2	5.5
F-140	J531828	ALS Minerals; Thunder Bay lab	TB11043962	117.00	117.30	0.30	J531828	<1	83.3	29.6	13.5	20	0.63	154	1.96	1.15	0.66	18.6	2.37	4.1	0.39	15.4	0.16	3	5.9
F-140	J531829	ALS Minerals; Thunder Bay lab	TB11043962	150.00	150.30	0.30	J531829	<1	271	34.7	14.5	10	1.3	13	1.99	1.22	0.76	17.6	2.23	3.1	0.4	19.1	0.18	<2	3.7
F-140	J531830	ALS Minerals; Thunder Bay lab	TB11043962	190.00	190.30	0.30	J531830	<1	279	34.8	2.6	10	1.48	<5	2.46	1.47	0.79	18.6	2.59	3.1	0.5	18.8	0.22	<2	3.9
F-140	J531831	ALS Minerals; Thunder Bay lab	TB11043962	231.00	231.30	0.30	J531831	<1	272	45.8	<0.5	10	1.06	<5	5.44	3.4	1.24	18.2	4.82	8.5	1.13	20.8	0.49	<2	15.1
F-140	J531832	ALS Minerals; Thunder Bay lab	TB11043962	270.00	270.30	0.30	J531832	<1	186.5	28.4	6.2	20	0.92	<5	1.75	1.06	0.53	19.4	1.81	3.5	0.34	15.4	0.18	<2	4.1
F-140	J531833	ALS Minerals; Thunder Bay lab	TB11043962	315.00	315.30	0.30	J531833	<1	95.5	29.4	14.2	10	0.99	<5	2.2	1.33	0.73	20.6	2.28	3.4	0.46	16.6	0.22	<2	4.1
F-140	J531834	ALS Minerals; Thunder Bay lab	TB11043962	350.00	350.30	0.30	J531834	<1	140	68.1	4.9	10	0.44	<5	8.63	5.22	1.31	13.6	7.96	6.8	1.74	32.4	0.75	3	12.8
F-140	J531835	ALS Minerals; Thunder Bay lab	TB11043962	387.00	387.30	0.30	J531835	<1	81.6	58.8	<0.5	<10	0.43	<5	3.82	2.13	1.28	12.9	4.44	5.1	0.76	27.7	0.29	<2	14.1
F-140	J531836	ALS Minerals; Thunder Bay lab	TB11043962	424.30	424.60	0.30	J531836	<1	320	113	23.5	70	0.91	35	3.32	1.41	2.94	18.7	6.35	4.1	0.56	54.2	0.17	<2	6.3
F-140	J531837	ALS Minerals; Thunder Bay lab	TB11043962	468.00	468.30	0.30	J531837	<1	203	94.2	2.9	<10	0.31	<5	8.08	4.65	1.29	18.7	8.87	10.6	1.61	43	0.66	<2	21.8
F-140	J531838	ALS Minerals; Thunder Bay lab	TB11043962	507.00	507.30	0.30	J531838	<1	482	99.9	4.1	<10	0.52	95	9.57	5.92	1.2	20.1	9.43	10.9	1.95	45.8	0.86	2	22.1
F-140	J531839	ALS Minerals; Thunder Bay lab	TB11043962	546.00	546.30	0.30	J531839	<1	796	52.5	28.7	20	0.58	122	4.65	2.86	1.01	21.9	5.21	5.1	0.96	23.7	0.43	<2	10
F-140	J531877	ALS Minerals; Thunder Bay lab	TB11061671	105.00	105.30	0.30	J531877	<1	103.5	79.6	15.2	<10	0.73	72	7.28	4.55	1.47	17.9	6.83	7.3	1.45	36.5	0.69	<2	15.7
F-140	J531878	ALS Minerals; Thunder Bay lab	TB11061671	111.00	111.30	0.30	J531878	<1	65.4	34.5	9.5	<10	0.47	66	4.79	3.27	0.82	9.2	3.61	4.1	1	15.4	0.5	2	8.8

Xstrata Zinc

Hole ID	Sample Number	Nd	Ni	Pb	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	Cr2O3
F-140	J531826	17.2	31	13	4.47	51.8	3.58	2	181.5	0.6	0.5	3.78	<0.5	0.24	0.88	39	1	15.1	1.55	80	190	64.2	15	3.45	3.73	1.31	1.6	1.7	<0.01
F-140	J531827	16.1	50	12	3.67	48.6	3.34	1	197	0.4	0.49	2.3	0.6	0.26	0.6	137	<1	17.4	1.71	86	110	52.9	14.75	7.81	6.67	2.01	1.26	1.64	0.01
F-140	J531828	13.4	8	8	3.29	13.6	2.67	1	77.1	0.5	0.34	2.71	<0.5	0.16	1.08	39	<1	11.7	1.06	102	150	71.1	14.05	6.55	0.56	1.48	0.74	0.48	<0.01
F-140	J531829	14.1	12	9	3.63	57.9	2.62	1	93	0.4	0.32	4.25	0.7	0.18	0.93	63	<1	11.6	1.21	43	100	61.4	14.1	4.98	4.79	2.24	0.69	1.93	<0.01
F-140	J531830	14.3	12	12	3.65	57.2	2.68	1	146	0.4	0.39	4.6	0.5	0.22	0.77	67	1	14.5	1.43	48	99	64.1	15.5	3.86	3.64	2.03	0.96	1.93	<0.01
F-140	J531831	24.5	<5	10	5.59	56.6	5.08	2	83.6	1.1	0.79	5.45	0.8	0.5	1.99	30	1	32.2	3.32	7	324	78.3	11.4	0.6	0.36	0.08	0.48	1.91	<0.01
F-140	J531832	11.6	9	11	3.01	42.9	2.14	1	110.5	0.5	0.27	4.56	1	0.16	0.84	46	1	9.9	1.13	58	110	72.4	15.8	3.46	0.69	0.68	0.48	1.47	<0.01
F-140	J531833	12	13	10	3.06	24.3	2.28	2	81.8	0.5	0.36	4.5	0.8	0.19	0.96	73	1	12.9	1.36	123	107	68.2	16.25	5.66	1.95	1.98	0.36	0.82	<0.01
F-140	J531834	34.3	8	11	8.07	26.3	7.52	2	57.1	1.1	1.33	6.25	2.3	0.76	1.32	12	1	48.5	4.92	66	231	72.5	9.7	5.24	3.65	2.08	0.17	0.93	<0.01
F-140	J531835	27.9	<5	22	6.83	16.1	5.35	3	35.4	1.1	0.62	5.38	9.9	0.3	0.75	<5	1	20.3	1.95	24	142	88.2	8.03	1.24	0.86	0.38	0.26	0.58	<0.01
F-140	J531836	56.3	57	35	13.25	70.5	9.7	4	209	0.5	0.7	9.05	9.5	0.19	2.03	112	1	15.8	1.23	222	146	51	15.35	6.25	6.54	4.46	0.5	3	0.01
F-140	J531837	48.8	<5	<5	11.55	26.2	9.96	1	22.1	1.5	1.31	7.89	<0.5	0.66	1.8	<5	1	42.8	4.38	245	382	67.6	11.55	5.14	1.18	5.9	0.15	1.19	<0.01
F-140	J531838	51.1	<5	6	12.1	52.5	10.45	3	29.6	1.6	1.48	7.93	<0.5	0.87	1.87	<5	1	56.3	5.76	104	398	73.5	12.25	3.07	0.07	1.98	0.22	2.46	<0.01
F-140	J531839	27.3	25	7	6.35	58.3	5.65	3	37.8	0.7	0.76	4.04	<0.5	0.4	0.94	172	1	26.4	2.7	356	177	56.5	16.75	7.93	0.76	5.06	0.23	2.57	<0.01
F-140	J531877	36.1	31	15	8.7	20.9	6.86	3	159	1.1	1.14	8.76	<0.5	0.67	1.86	27	1	43.1	4.63	94	259	74.3	11.85	2.48	1.77	0.78	1.43	0.73	<0.01
F-140	J531878	15.2	16	7	3.76	12.6	2.99	2	84.3	0.6	0.68	4.3	<0.5	0.48	1.31	12	2	30.8	3.26	13	176	85.3	7.03	1.74	0.35	0.13	0.81	0.46	<0.01

Xstrata Zinc

Hole ID	Sample Number	TiO2	MnO	P2O5	SrO	BaO	LOI	Total
F-140	J531826	0.39	0.06	0.09	0.02	0.03	6.67	98.3
F-140	J531827	0.86	0.12	0.15	0.03	0.04	11.1	99.4
F-140	J531828	0.4	0.05	0.09	0.01	0.01	2.88	98.4
F-140	J531829	0.43	0.1	0.05	0.01	0.03	8.68	99.4
F-140	J531830	0.49	0.07	0.07	0.02	0.03	7.08	99.8
F-140	J531831	0.46	<0.01	0.08	0.01	0.03	1.46	95.2
F-140	J531832	0.49	0.03	0.05	0.01	0.02	2.5	98.1
F-140	J531833	0.5	0.06	0.09	0.01	0.02	3.7	99.6
F-140	J531834	0.2	0.16	0.03	0.01	0.02	6.67	101.5
F-140	J531835	0.16	0.02	<0.01	<0.01	0.01	1.19	101
F-140	J531836	0.65	0.17	0.36	0.03	0.04	11.6	100
F-140	J531837	0.22	0.05	0.01	<0.01	0.02	5.57	98.6
F-140	J531838	0.26	0.02	0.03	0.01	0.06	2.69	96.6
F-140	J531839	1.08	0.09	0.14	0.01	0.09	5.39	96.6
F-140	J531877	0.3	0.03	0.03	0.02	0.01	4.26	98
F-140	J531878	0.22	0.01	0.09	0.01	0.01	2.18	98.3

Xstrata Zinc Canada

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Sample Number	Cu%	Pb%	Zn%	Ag ppm	Cu%	Pb %	Zn %	Au ppm	Ag ppm
F-140	J529287	TB11043961	351.70	352.70	1.00	J529287	0.004	<0.001	0.028	0.3					
F-140	J529288	TB11043961	352.70	353.70	1.00	J529288	0.035	0.001	0.239	2.7					
F-140	*J529289*	*TB11043961*	*Blank*			*J529289*	*0.002*	*<0.001*	*0.01*	*<0.2*					
F-140	J529290	TB11043961	353.70	354.70	1.00	J529290	0.078	0.011	0.631	7.7					
F-140	J529291	TB11043961	354.70	355.70	1.00	J529291	0.177	0.083	1.125	27.2			1.09	0.049	
F-140	J529292	TB11043961	355.70	356.70	1.00	J529292	0.184	0.09	0.649	20.7					
F-140	J529293	TB11043961	356.70	357.50	0.80	J529293	0.296	0.095	1.505	37.2			1.45	0.034	
F-140	J529294	TB11043961	357.50	359.00	1.50	J529294	0.025	0.019	0.237	4.1					
F-140	J529295	TB11043961	359.00	360.00	1.00	J529295	0.024	0.005	0.127	1.1					
F-140	J529296	TB11043961	360.00	361.60	1.60	J529296	<0.001	<0.001	0.047	<0.2					
F-140	J529297	TB11043961	361.60	363.20	1.60	J529297	<0.001	<0.001	0.035	<0.2					
F-140	J529298	TB11043961	363.20	364.50	1.30	J529298	0.013	<0.001	0.013	3.2					
F-140	J529299	TB11043961	364.50	366.00	1.50	J529299	0.036	0.02	0.33	3.9					
F-140	*J529300*	*TB11043961*	*Standard*			*J529300*									
F-140	J529301	TB11043961	366.00	367.50	1.50	J529301	0.026	0.019	0.188	5.1					
F-140	J529302	TB11043961	367.50	368.85	1.35	J529302	0.007	0.009	0.068	5.2					
F-140	J529303	TB11043961	368.85	370.00	1.15	J529303	0.077	0.023	0.782	9.5					
F-140	J529304	TB11043961	370.00	371.00	1.00	J529304	0.01	0.021	0.145	6.8					
F-140	J529305	TB11043961	371.00	372.00	1.00	J529305	0.01	0.019	0.07	4.1					
F-140	J529306	TB11043961	372.00	373.00	1.00	J529306	0.007	0.013	0.153	4.1					
F-140	J529307	TB11043961	373.00	374.00	1.00	J529307	0.012	0.007	0.08	5.1					
F-140	J529308	TB11043961	374.00	375.00	1.00	J529308	0.005	0.011	0.054	3.5					
F-140	J529309	TB11043961	375.00	376.00	1.00	J529309	0.002	0.006	0.054	1.8					
F-140	J529310	TB11043961	376.00	377.00	1.00	J529310	0.003	0.009	0.034	3.8					
F-140	J529311	TB11043961	377.00	378.00	1.00	J529311	0.004	0.038	0.041	6.4					
F-140	J529312	TB11043961	378.00	379.43	1.43	J529312	0.002	0.021	0.03	4.1					
F-140	J529313	TB11043961	379.43	381.00	1.57	J529313	<0.001	0.002	0.014	<0.2					
F-140	J529314	TB11043961	381.00	382.44	1.44	J529314	<0.001	0.003	0.009	0.4					
F-140	J529315	TB11043961	382.44	384.00	1.56	J529315	0.028	0.002	0.022	22.4					
F-140	J529316	TB11043961	384.00	385.50	1.50	J529316	0.033	0.003	0.029	4.1					
F-140	J529317	TB11043961	385.50	387.00	1.50	J529317	<0.001	0.003	0.016	0.4					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_ m	Sample Number	Cu%	Pb%	Zn%	Ag ppm	Cu%	Pb %	Zn %	Au ppm	Ag ppm
F-140	J529318	TB11043961	387.00	388.50	1.50	J529318	0.006	0.011	0.028	3.5					
F-140	J529319	TB11043961	388.50	390.00	1.50	J529319	0.011	0.005	0.099	3					
F-140	J529320	TB11043961	390.00	391.50	1.50	J529320	0.001	0.011	0.016	2.1					
F-140	J529321	TB11043961	391.50	393.00	1.50	J529321	<0.001	0.005	0.019	2					
F-140	J529322	TB11043961	393.00	394.50	1.50	J529322	<0.001	0.006	0.014	2.4					
F-140	J529323	TB11043961	394.50	396.00	1.50	J529323	0.002	0.031	0.012	7.3					
F-140	J529324	TB11043961	396.00	397.00	1.00	J529324	0.006	0.107	0.022	29.5					
F-140	J529325	TB11043961	397.00	398.00	1.00	J529325	<0.001	0.012	0.009	1.1					
F-140	J529326	TB11043961	398.00	399.00	1.00	J529326	<0.001	0.045	0.014	3.7					
F-140	J529327	TB11043961	399.00	400.00	1.00	J529327	0.001	0.151	0.069	11.6					
F-140	J529328	TB11043961	400.00	401.00	1.00	J529328	0.001	0.169	0.033	14					
F-140	J529329	TB11043961	401.00	402.00	1.00	J529329	0.029	0.962	4.61	77.9			4.52	0.131	
F-140	*J529330*	*TB11043961*	*Standard*			*J529330*									
F-140	J529331	TB11043961	402.00	403.00	1.00	J529331	0.008	0.382	4.6	68.1			4.62	0.113	
F-140	J529332	TB11043961	403.00	404.00	1.00	J529332	0.011	1.235	1.8	>100		1.155	1.625	0.093	135
F-140	J529333	TB11043961	404.00	405.00	1.00	J529333	0.01	0.439	1.43	49.1			1.355	0.072	
F-140	J529334	TB11043961	405.00	406.00	1.00	J529334	0.013	0.064	1.965	5.5			1.83	0.027	
F-140	J529335	TB11043961	406.00	407.00	1.00	J529335	0.022	0.053	3.57	6.2			3.33	0.07	
F-140	J529336	TB11043961	407.00	408.00	1.00	J529336	0.046	0.021	3.09	4.1			2.93	0.058	
F-140	J529337	TB11043961	408.00	409.00	1.00	J529337	0.124	0.016	5.17	8.3			5.06	0.062	
F-140	J529338	TB11043961	409.00	410.00	1.00	J529338	0.509	0.006	20.5	18.5			19.65	0.125	
F-140	*J529339*	*TB11043961*	*Blank*			*J529339*	*0.005*	*0.001*	*0.067*	*<0.2*					
F-140	J529340	TB11043961	410.00	411.00	1.00	J529340	0.111	0.006	11.1	10.3			11.2	0.069	
F-140	J529341	TB11043961	411.00	412.00	1.00	J529341	0.201	0.003	9.89	11.9			10.1	0.091	
F-140	J529342	TB11043961	412.00	413.00	1.00	J529342	0.111	0.011	2.71	9.4			2.66	0.064	
F-140	J529343	TB11043961	413.00	414.00	1.00	J529343	0.144	0.016	2.67	23.1			2.54	0.076	
F-140	J529344	TB11043961	414.00	415.00	1.00	J529344	0.177	0.07	5.27	39			5.14	0.216	
F-140	J529345	TB11043961	415.00	416.00	1.00	J529345	0.648	0.052	8.25	55.6			8.42	0.32	
F-140	J529346	TB11043961	416.00	417.00	1.00	J529346	0.398	0.072	9	74.9			9.32	0.211	
F-140	J529347	TB11043961	417.00	418.00	1.00	J529347	0.54	0.044	9.23	69.1			9.25	0.187	
F-140	J529348	TB11043961	418.00	419.00	1.00	J529348	2.81	0.053	3.11	>100	2.88		3.15	0.212	124
F-140	J529349	TB11043961	419.00	420.00	1.00	J529349	0.928	0.054	3	58.9			2.91	0.115	
F-140	*J529350*	*TB11043961*	*Standard*			*J529350*									

Hole: ______________

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_ m	Sample Number	Cu%	Pb%	Zn%	Ag ppm	Cu%	Pb %	Zn %	Au ppm	Ag ppm
F-140	J529351	TB11043961	420.00	421.00	1.00	J529351	0.047	0.008	2.41	7.2			2.46	0.03	
F-140	J529352	TB11043961	421.00	422.00	1.00	J529352	0.065	0.004	2.74	4.9			2.67	0.032	
F-140	J529353	TB11043961	422.00	423.30	1.30	J529353	0.032	0.003	0.781	3.4					
F-140	J529354	TB11043961	423.30	425.00	1.70	J529354	0.005	0.006	0.049	0.3					
F-140	J529355	TB11043961	425.00	426.00	1.00	J529355	0.05	0.003	1.655	4.5			1.625	0.088	
F-140	J529356	TB11043961	426.00	427.00	1.00	J529356	0.053	0.003	1.955	4.4			1.89	0.046	
F-140	J529357	TB11043961	427.00	428.00	1.00	J529357	0.018	0.001	0.125	5.1					
F-140	J529358	TB11043961	428.00	429.00	1.00	J529358	0.089	0.004	1.37	4			1.37	0.066	
F-140	J529359	TB11043961	429.00	430.00	1.00	J529359	0.087	0.004	2.25	4.3			2.33	0.082	
F-140	J529360	TB11052104	430.00	431.00	1.00	J529360	0.132	0.002	3.16	1.3			3.04	0.029	
F-140	J529361	TB11052104	431.00	432.00	1.00	J529361	0.204	0.001	2.04	3			2.05	0.019	
F-140	J529362	TB11052104	432.00	433.50	1.50	J529362	0.136	0.002	1.96	3.1			2.14	0.016	
F-140	J529363	TB11052104	433.50	435.00	1.50	J529363	1.27	0.002	1.74	12.2	1.24		1.745	0.077	
F-140	J529364	TB11052104	435.00	436.50	1.50	J529364	0.335	0.002	0.092	6.6					
F-140	J529365	TB11052104	436.50	438.00	1.50	J529365	1.075	0.006	0.143	15.2	1.07			0.043	
F-140	J529366	TB11052104	438.00	439.00	1.00	J529366	0.161	0.002	0.082	1.5					
F-140	J529367	TB11052104	439.00	440.00	1.00	J529367	0.158	<0.001	0.11	1.5					
F-140	J529368	TB11052104	440.00	441.00	1.00	J529368	3.58	0.002	0.315	25.3	3.49			0.067	
F-140	J529369	TB11052104	441.00	442.00	1.00	J529369	4.24	0.004	0.259	31.7	4.11			0.088	
F-140	J529370	TB11052104	442.00	443.00	1.00	J529370	0.365	0.001	0.064	2.2					
F-140	J529371	TB11052104	443.00	444.00	1.00	J529371	4.27	0.002	0.233	23.9	4.11			0.117	
F-140	J529372	TB11052104	444.00	445.00	1.00	J529372	2.02	0.004	0.178	19.8	1.945			0.047	
F-140	J529373	TB11052104	445.00	446.00	1.00	J529373	0.021	<0.001	0.049	<0.2					
F-140	J529374	TB11052104	446.00	447.00	1.00	J529374	0.011	<0.001	0.044	<0.2					
F-140	*J529375*	*TB11052104*	*Standard*			*J529375*									
F-140	J529376	TB11052104	447.00	447.80	0.80	J529376	0.02	0.001	0.039	0.5					
F-140	J529377	TB11052104	447.80	448.90	1.10	J529377	**3.85**	0.005	0.157	30.2	3.67			0.248	
F-140	J529378	TB11052104	448.90	450.00	1.10	J529378	0.115	<0.001	0.059	0.6					
F-140	J529379	TB11052104	450.00	451.50	1.50	J529379	0.018	<0.001	0.022	<0.2					
F-140	J529380	TB11052104	451.50	453.00	1.50	J529380	0.001	0.001	0.025	<0.2					
F-140	J529381	TB11052104	453.00	454.50	1.50	J529381	<0.001	<0.001	0.024	<0.2					
F-140	J529382	TB11052104	454.50	456.00	1.50	J529382	0.079	0.001	0.043	0.3					
F-140	J529383	TB11052104	456.00	457.45	1.45	J529383	0.005	<0.001	0.045	<0.2					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Sample Number	Cu%	Pb%	Zn%	Ag ppm	Cu%	Pb %	Zn %	Au ppm	Ag ppm
F-140	J529384	TB11052104	457.45	458.60	1.15	J529384	0.089	0.002	0.043	1.8					
F-140	J529385	TB11052104	458.60	460.00	1.40	J529385	<0.001	<0.001	0.012	<0.2					
F-140	*J529386*	*TB11052104*	*Blank*			*J529386*	*0.01*	*0.001*	*0.01*	*<0.2*					
F-140	J529387	TB11052104	494.75	495.75	1.00	J529387	0.063	0.002	0.025	0.5					
F-140	J529388	TB11052104	495.75	497.00	1.25	J529388	**1.64**	<0.001	0.214	12.5	1.565			0.041	
F-140	J529389	TB11052104	497.00	498.10	1.10	J529389	0.53	0.001	0.438	4					
F-140	J529390	TB11052104	498.10	499.10	1.00	J529390	0.015	0.002	0.114	<0.2					
F-140	J529391	TB11052104	541.00	541.94	0.94	J529391	0.165	0.001	0.046	2.4					
F-140	J529392	TB11052104	541.94	543.00	1.06	J529392	**2.47**	0.001	0.639	24.1	2.32			1.38	
F-140	J529393	TB11052104	543.00	544.00	1.00	J529393	0.022	0.001	0.082	0.2					
F-140	J529394	TB11052104	550.00	551.00	1.00	J529394	0.026	<0.001	0.149	0.5					
F-140	J529395	TB11052104	551.00	551.50	0.50	J529395	**1.24**	0.001	1.745	18.5	1.18		1.76	0.04	
F-140	J529396	TB11052104	551.50	552.50	1.00	J529396	0.039	0.002	0.048	0.3					
F-140	J529441		102.00	103.00	1.00	J529441	0.016	0.001	0.044	0.3					
F-140	J529442		109.00	110.00	1.00	J529442	0.006	<0.001	0.001	<0.2					

Techni Lab Re-assay

Échantillon #	Au g/t	Réanalyse Au g/t >3.0 g/t gravimétrie	Ag g/t	Cu %	Zn %	Pb %	Densité g/cm3
J529329	0.09		82.5	0.023	4.503	0.790	3.23
J529331	0.10		77.0	0.008	4.458	0.350	3.44
J529332	0.10		142.9	0.010	1.603	1.192	2.97
J529333	0.09		55.5	0.009	1.407	0.419	3.37
J529334	0.04		6.5	0.008	1.785	0.056	3.05
J529335	0.08		7.0	0.019	3.310	0.050	2.80
J529336	0.07		4.8	0.038	2.922	0.020	3.03
J529337	0.06		10.0	0.128	5.097	0.018	3.19
J529338	0.02		20.4	0.439	21.550	0.004	3.37
J529340	0.09		11.3	0.092	10.737	0.010	3.24
J529341	0.10		14.1	0.189	10.884	0.008	3.04
J529342	0.03		11.0	0.098	2.674	0.013	3.45
J529343	0.04		25.0	0.129	2.621	0.021	3.57
J529344	0.22		46.3	0.164	5.282	0.063	4.00
J529345	0.36		66.4	0.600	6.692	0.048	4.10
J529346	0.35		90.5	0.400	9.994	0.064	4.22
J529347	0.20		64.6	0.497	9.226	0.042	4.00
J529348	0.43		176.5	2.701	3.254	0.043	3.61
J529349	0.10		67.7	0.889	2.941	0.050	3.11
J529351	Sac vide						
J529352	0.04		6.4	0.048	2.828	0.005	3.60
J529353	0.06		4.1	0.030	0.714	0.007	3.23
J529354	0.01		<0.2	0.003	0.035	0.017	2.85
J529355	0.10		5.5	0.039	1.430	0.009	3.13
J529356	0.06		5.4	0.040	1.713	0.003	2.94
J529357	0.05		6.2	0.015	0.115	0.002	3.07
J529358	0.12		4.6	0.090	1.548	0.008	2.99
J529359	0.10		5.0	0.095	2.468	0.018	3.64
J529360	0.06		2.4	0.139	2.992	0.020	3.08
J529361	0.05		4.3	0.270	2.149	0.028	2.70
J529362	0.03		3.8	0.132	1.671	0.035	2.94
J529363	0.12		13.0	1.160	1.826	0.031	2.86
J529364	0.02		8.3	0.357	0.108	0.016	2.63
J529365	0.06		19.4	1.131	0.134	0.026	2.99
J529366	0.02		3.6	0.246	0.073	0.015	2.53
J529367	0.07		2.5	0.130	0.089	0.019	2.86
J529368	0.09		33.0	3.748	0.324	0.027	2.94
J529369	0.09		35.1	3.728	0.246	0.033	2.99
J529370	0.03		3.6	0.363	0.060	0.027	2.94
J529371	0.10		34.3	4.603	0.270	0.033	2.80
J529372	0.04		23.4	1.898	0.159	0.049	2.86
J529341-Dup			13.2	0.192	11.639	0.008	
J529364-Dup	0.02						
J529352-Dup	0.05						
J529364-Dup			8.6	0.350	0.109	0.016	
J529347-Dup	0.19						
J529346-Dup							4

Xstrata Zinc Canada								Downhole Deviation
Hole ID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
F-140	Reflex	8-Mar-11	15	-80.9	106.9	56372	No correction	
F-140	Reflex	8-Mar-11	30	-81.0	109.4	57326		
F-140	Reflex	8-Mar-11	63	-80.5	115.2	58016		
F-140	Reflex	8-Mar-11	90	-80.0	118.8	58190		
F-140	Reflex	9-Mar-11	120	-79.7	123.0	57661		
F-140	Reflex	9-Mar-11	150	-79.2	125.3	57584		
F-140	Reflex	9-Mar-11	180	-79.0	130.8	57631		
F-140	Reflex	9-Mar-11	210	-78.4	133.4	57502		
F-140	Reflex	10-Mar-11	240	-78.0	137.3	57491		
F-140	Reflex	10-Mar-11	270	-78.1	141.3	57335		
F-140	Reflex	10-Mar-11	300	-77.4	144.0	58312		
F-140	Reflex	10-Mar-11	330	-76.5	145.5	58303		
F-140	Reflex	11-Mar-11	360	-76.0	148.8	57401		
F-140	Reflex	11-Mar-11	390	-75.0	150.6	57324		
F-140	Reflex	12-Mar-11	420	-74.4	150.6	57361		
F-140	Reflex	12-Mar-11	450	-74.2	152.7	57228		
F-140	Reflex	14-Mar-11	480	-72.3	157.2	57369		
F-140	Reflex	15-Mar-11	510	-70.8	158.1	57211		
F-140	Reflex	15-Mar-11	540	-70.0	159.0	57076		

Hole: _____________

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
F-140	3.00	0.114	
F-140	4.50	0.332	
F-140	6.00	0.057	
F-140	7.50	0.031	
F-140	9.00	-0.018	
F-140	10.50	0.11	
F-140	12.00	1.13	
F-140	13.50	0.715	
F-140	15.00	0.824	
F-140	16.50	0.492	
F-140	18.00	3.84	
F-140	19.50	1.046	
F-140	21.00	1.787	
F-140	22.50	0.93	
F-140	24.00	1.492	
F-140	25.50	0.348	
F-140	27.00	0.25	
F-140	28.50	0.076	
F-140	30.00	-0.207	
F-140	31.50	-0.052	
F-140	33.00	0.01	
F-140	34.50	0.517	
F-140	36.00	0.841	
F-140	37.50	1.452	
F-140	39.00	2.652	
F-140	40.50	2.378	
F-140	42.00	5.32	
F-140	43.50	2.199	
F-140	45.00	1.898	
F-140	46.50	0.691	
F-140	48.00	0.125	
F-140	49.50	2.293	
F-140	51.00	6.73	
F-140	52.50	1.407	
F-140	54.00	1.065	
F-140	55.50	0.213	
F-140	57.00	0.221	
F-140	58.50	0.43	
F-140	60.00	0.431	
F-140	61.50	0.336	
F-140	63.00	0.353	
F-140	64.50	0.464	
F-140	66.00	0.433	
F-140	67.50	0.559	
F-140	69.00	0.45	
F-140	70.50	0.499	
F-140	72.00	0.439	
F-140	73.50	0.13	
F-140	75.00	0.151	
F-140	76.50	0.217	
F-140	78.00	0.314	
F-140	79.50	0.336	
F-140	81.00	0.319	
F-140	82.50	0.392	
F-140	84.00	0.49	
F-140	85.50	0.483	
F-140	87.00	0.438	
F-140	88.50	0.416	
F-140	90.00	0.497	
F-140	91.50	0.594	
F-140	93.00	0.492	
F-140	94.50	0.35	
F-140	96.00	0.45	
F-140	97.50	0.465	
F-140	99.00	0.574	
F-140	100.50	0.365	
F-140	102.00	0.337	
F-140	103.50	1.144	
F-140	105.00	0.02	
F-140	106.50	0.397	
F-140	108.00	0.013	
F-140	109.50	0.044	
F-140	111.00	0.074	
F-140	112.50	0.075	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-140	114.00	0.106	
F-140	115.50	0.084	
F-140	117.00	0.126	
F-140	118.50	-0.001	
F-140	120.00	-0.029	
F-140	121.50	-0.337	
F-140	123.00	0.061	
F-140	124.50	0.16	
F-140	126.00	0.017	
F-140	127.50	0.576	
F-140	129.00	0.161	
F-140	130.50	0.251	
F-140	132.00	0.111	
F-140	133.50	0.43	
F-140	135.00	0.163	
F-140	136.50	0.429	
F-140	138.00	0.106	
F-140	139.50	0.123	
F-140	141.00	0.019	
F-140	142.50	0.021	
F-140	144.00	0.258	
F-140	145.50	0.119	
F-140	147.00	0.075	
F-140	148.50	0.098	
F-140	150.00	0.085	
F-140	151.50	0.071	
F-140	153.00	0.086	
F-140	154.50	0.085	
F-140	156.00	0.085	
F-140	157.50	0.081	
F-140	159.00	0.146	
F-140	160.50	0.334	
F-140	162.00	0.398	
F-140	163.50	0.156	
F-140	165.00	0.055	
F-140	166.50	0.074	
F-140	168.00	0.153	
F-140	169.50	0.128	
F-140	171.00	0.073	
F-140	172.50	0.085	
F-140	174.00	0.074	
F-140	175.50	0.101	
F-140	177.00	0.123	
F-140	178.50	0.14	
F-140	180.00	0.117	
F-140	181.50	0.137	
F-140	183.00	0.139	
F-140	184.50	0.43	
F-140	186.00	0.182	
F-140	187.50	0.097	
F-140	189.00	0.13	
F-140	190.50	0.041	
F-140	192.00	0.024	
F-140	193.50	0.081	
F-140	195.00	0.089	
F-140	196.50	0.126	
F-140	198.00	0.055	
F-140	199.50	0.031	
F-140	201.00	0.07	
F-140	202.50	0.382	
F-140	204.00	0.106	
F-140	205.50	0.126	
F-140	207.00	0.332	
F-140	208.50	0.122	
F-140	210.00	0.348	
F-140	211.50	0.025	
F-140	213.00	0.022	
F-140	214.50	0.048	
F-140	216.00	0.038	
F-140	217.50	0.076	
F-140	219.00	0.05	
F-140	220.50	0.086	
F-140	222.00	0.16	
F-140	223.50	0.035	
F-140	225.00	0.036	
F-140	226.50	0.42	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-140	228.00	0.05	
F-140	229.50	0.443	
F-140	231.00	0.027	
F-140	232.50	-0.056	
F-140	234.00	-0.017	
F-140	235.50	0.005	
F-140	237.00	0.042	
F-140	238.50	-0.015	
F-140	240.00	0.066	
F-140	241.50	0.112	
F-140	243.00	0.081	
F-140	244.50	0.136	
F-140	246.00	0.193	
F-140	247.50	0.29	
F-140	249.00	0.1	
F-140	250.50	0.123	
F-140	252.00	0.253	
F-140	253.50	0.088	
F-140	255.00	0.089	
F-140	256.50	0.058	
F-140	258.00	0.34	
F-140	259.50	0.015	
F-140	261.00	-0.037	
F-140	262.50	-0.019	
F-140	264.00	0.01	
F-140	265.50	-0.02	
F-140	267.00	0.075	
F-140	268.50	0.128	
F-140	270.00	0.103	
F-140	271.50	0.389	
F-140	273.00	0.302	
F-140	274.50	0.324	
F-140	276.00	0.175	
F-140	277.50	0.068	
F-140	279.00	0.115	
F-140	280.50	0.035	
F-140	282.00	0.025	
F-140	283.50	0.03	
F-140	285.00	0.051	
F-140	286.50	0.122	
F-140	288.00	0.039	
F-140	289.50	0.072	
F-140	291.00	0.28	
F-140	292.50	0.107	
F-140	294.00	0.128	
F-140	295.50	0.13	
F-140	297.00	0.015	
F-140	298.50	0.034	
F-140	300.00	0.109	
F-140	301.50	0.056	
F-140	303.00	0.051	
F-140	304.50	0.036	
F-140	306.00	0.076	
F-140	307.50	0.063	
F-140	309.00	0.04	
F-140	310.50	0.075	
F-140	312.00	-0.057	
F-140	313.50	0.001	
F-140	315.00	0.112	
F-140	316.50	0.103	
F-140	318.00	0.092	
F-140	319.50	0.138	
F-140	321.00	0.177	
F-140	322.50	0.119	
F-140	324.00	0.046	
F-140	325.50	0.021	
F-140	327.00	-0.002	
F-140	328.50	0.016	
F-140	330.00	0.032	
F-140	331.50	0.144	
F-140	333.00	0.016	
F-140	334.50	0.182	
F-140	336.00	0.462	
F-140	337.50	0.081	
F-140	339.00	0.075	
F-140	340.50	0.323	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-140	342.00	0.013	
F-140	343.50	0.062	
F-140	345.00	0.591	
F-140	346.50	0.042	
F-140	348.00	0.095	
F-140	349.50	0.117	
F-140	351.00	0.298	
F-140	352.50	0.567	
F-140	354.00	0.271	
F-140	355.50	-0.018	
F-140	357.00	0.098	
F-140	358.50	0.259	
F-140	360.00	0.371	
F-140	361.50	0.384	
F-140	363.00	0.032	
F-140	364.50	0.129	
F-140	366.00	0.001	
F-140	367.50	0.026	
F-140	369.00	0.063	
F-140	370.50	0.021	
F-140	372.00	0.073	
F-140	373.50	0.138	
F-140	375.00	0.064	
F-140	376.50	0.023	
F-140	378.00	0.043	
F-140	379.50	0.03	
F-140	381.00	0.067	
F-140	382.50	0.124	
F-140	384.00	0.404	
F-140	385.50	0.069	
F-140	387.00	0.008	
F-140	388.50	0.044	
F-140	390.00	0.061	
F-140	391.50	0.001	
F-140	393.00	0.013	
F-140	394.50	-0.036	
F-140	396.00	0.018	
F-140	397.50	0.095	
F-140	399.00	0.106	
F-140	400.50	0.061	
F-140	402.00	0.503	
F-140	403.50	0.504	
F-140	405.00	0.783	
F-140	406.50	0.061	
F-140	408.00	0.057	
F-140	409.50	0.123	
F-140	411.00	0.066	
F-140	412.50	-0.004	
F-140	414.00	0.438	
F-140	415.50	0.793	
F-140	417.00	0.663	
F-140	418.50	0.723	
F-140	420.00	1.431	
F-140	421.50	0.78	
F-140	423.00	0.552	
F-140	424.50	0.322	
F-140	426.00	0.339	
F-140	427.50	0.065	
F-140	429.00	0.619	
F-140	430.50	0.347	
F-140	432.00	0.262	
F-140	433.50	0.424	
F-140	435.00	0.608	
F-140	436.50	0.088	
F-140	438.00	0.724	
F-140	439.50	0.126	
F-140	441.00	0.684	
F-140	442.50	0.825	
F-140	444.00	0.813	
F-140	445.50	1.002	
F-140	447.00	0.462	
F-140	448.50	0.824	
F-140	450.00	0.15	
F-140	451.50	0.407	
F-140	453.00	0.059	
F-140	454.50	0.351	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-140	456.00	0.496	
F-140	457.50	1.31	
F-140	459.00	0.008	
F-140	460.50	0.032	
F-140	462.00	0.155	
F-140	463.50	0.01	
F-140	465.00	0.203	
F-140	466.50	0.11	
F-140	468.00	0.128	
F-140	469.50	-0.003	
F-140	471.00	0.051	
F-140	472.50	0.048	
F-140	474.00	0.016	
F-140	475.50	0.072	
F-140	477.00	0.14	
F-140	478.50	0.125	
F-140	480.00	0.122	
F-140	481.50	0.132	
F-140	483.00	0.091	
F-140	484.50	0.067	
F-140	486.00	0.089	
F-140	487.50	0.151	
F-140	489.00	0.117	
F-140	490.50	0.075	
F-140	492.00	0.043	
F-140	493.50	0.009	
F-140	495.00	0.136	
F-140	496.50	0.967	
F-140	498.00	0.132	
F-140	499.50	0.313	
F-140	501.00	0.076	
F-140	502.50	0.05	
F-140	504.00	0.104	
F-140	505.50	0.062	
F-140	507.00	0.023	
F-140	508.50	0.008	
F-140	510.00	0.06	
F-140	511.50	0.084	
F-140	513.00	0.015	
F-140	514.50	0.088	
F-140	516.00	0.417	
F-140	517.50	0.57	
F-140	519.00	0.259	
F-140	520.50	0.09	
F-140	522.00	0.056	
F-140	523.50	0.319	
F-140	525.00	0.265	
F-140	526.50	0.046	
F-140	528.00	0.015	
F-140	529.50	0.0974	
F-140	531.00	0.075	
F-140	532.50	0.039	
F-140	534.00	0.047	
F-140	535.50	0.066	
F-140	537.00	0.107	
F-140	538.50	0.082	
F-140	540.00	0.059	
F-140	541.50	0.083	
F-140	543.00	0.398	
F-140	544.50	0.619	
F-140	546.00	0.472	
F-140	547.50	0.37	
F-140	549.00	0.327	
F-140	550.50	0.437	
F-140	552.00	0.554	
F-140	553.50	0.667	
F-140	555.00	0.572	E.O.H.

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	F-11-139A	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	125.0
LOGGED BY:	D. Cullen	NORTHING:	NA	ZONE:	15	DIP:	-78.0
START DATE:	28-Feb-11	EASTING:	NA	UTM Northing:	5526320	FINAL DEPTH (m):	600.00
FINISH DATE:	7-Mar-11	ELEVATION:	NA	UTM Easting:	640770	CORE SIZE:	BQ
		Casing (m):	7.00	UTM Elevation:		Magnetic Declination:	N/A

Target:
Township: **NTS:** 52G15
Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:**
Material Left in Hole: **Plug:** **No**
Core Recovery and Ground Conditions:
Core Storage: **Mattabi core yard.**
Downhole Survey:
Comments: Hole F-11-139 stopped due to excessive deviation at start; Turned drill to 125 degree azimuth and re-started as F-11-139A

Depth			Rock Type			Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name					
0.00	6.50	6.50	**OVB**		casing/overburden				
6.50	14.22	7.72	S1		Volcaniclastic Sediment				
14.22	52.66	38.44	V1B		Rhyolite				
52.66	93.70	41.04	V1B		Rhyolite				
93.70	104.60	10.90	V1C		Rhyodacite				
104.60	109.00	4.40	V2		Intermediate Volcanic				
109.00	125.46	16.46	V1C		Rhyodacite				
125.46	177.60	52.14	V2/V1		Intermediate to felsic Volcanic				
177.60	215.12	37.52	V1C		Rhyodacite				
215.12	221.90	6.78	V1B/SMS		Rhyolite - semi-massive sulphides				
221.90	247.23	25.33	V1B/V1C		Rhyolite-rhyodacite				
247.23	291.17	43.94	V1C		Rhyodacite				
291.17	330.40	39.23	V1C/V1B		Rhodacite-rhyolite				
330.40	340.25	9.85	V1C		Rhyodacite				
340.25	352.75	12.50	V1D		Dacite				
352.75	388.28	35.53	V1C/V1B		Rhyodacite-rhyolite				
388.28	406.10	17.82	V1D		Dacite				
406.10	436.10	30.00	V1C		Rhyodacite				
436.10	509.85	73.75	V1B		Rhyolite				
509.85	600.00	90.15	V1B		Rhyolite				
600.00		-600.00							
	-	EOH	**EOH**				EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Stratigraphy	Comments
F-139A	0.00	6.50	6.50	OVB	casing/overburden				
F-139A	6.50	14.22	7.72	S1	Volcaniclastic Sediment	Bed			Volcaniclastic sedminet or ash to crystal tuff(?) Colur varies from dark grey to medium-light grey; darker grey sections are generally very fine grained and well bedded with beds varying from tens of centimetres to millimetres in thickness; beds occasionally folded/crenulated and at variable core angles - predominantly 45-50 degrees to c.a.; lighter grey sections are generally coarser grained (up to 5mm) and more massive to weakly foliated, with occasional blebs/wisps of pyrite up to 4-5mm; trace to 0.5% stringer and disseminated pyrite overall; lower contact somewhat gradational - some bedded sediments appear to have been assimilated by the rhyolite below
F-139A	14.22	52.66	38.44	V1B	Rhyolite	Mass	Fol		Light grey; fine to medium grained; massive to weakly foliated (bedded?) at variable core angles; generally fine grained to locally medium grained; siliceous - hard; weakly sericitic throughout; occasional cherty fragments/clasts, often associated with sulphide mineralization; trace pyrite overall
F-139A	52.66	93.70	41.04	V1B	Rhyolite	Por			Quartz eye rhyolite; looks very similar to above unit in colour and texture, but exhibits up to ~5% sub-rounded grey-clear quartz eyes up to 5mm; somewhat darker in sulphide-mineralized zones; weak to moderate sericite throughout; top ten metres are well-mineralized (5-7% pyrite) - rest of unit has trace pyrite; lower contact sharp and irregular
F-139A	93.70	104.60	10.90	V1C	Rhyodacite	Mass	Fol		Light grey-tan; fine to medium grained; generally massive, to locally weakly foliated at 30-40 degrees to c.a.; varable intensity of chlorite/chloritoid alteration in grains up to 1mm; trace fine grained disseminated pyrite; lower contact sharp and regular at 30 degrees to c.a.
F-139A	104.60	109.00	4.40	V2	Intermediate Volcanic	Pyr	Lap		Intermediate (to felsic?) pyroclastic; medium grey; fine to coarse grained with lapilli up to 4-5cm; locally porphyritic with whitish sub-rounded feldspar phenocrysts up to 5mm; moderate foliation/bedding at 30-40 degrees to c.a.; ~1% stringer pyrite; lower contact gradational, with occasional xenoliths of the pyroclastic in the rhyodacite below
F-139A	109.00	125.46	16.46	V1C	Rhyodacite	Mass			As from 93.70 to 104.60; lower contact sharp, wavy at ~15 degrees to c.a.
F-139A	125.46	177.60	52.14	V2/V1	Intermediate to felsic Volcanic	Pyr	Lap	Por	As from 104.60 to 109.00; moderately chloritic throughout; ~1% pyrite overall, locally semi-massive patches; local moderate foliation at 40-60 degrees to c.a.; lower contact sharp and irregular
F-139A	177.60	215.12	37.52	V1C	Rhyodacite	Mass			As from 93.70 to 104.60, but more grey than tan in colour; weak sericite throughout; local moderate chlorite; massive; occasional intermediate pyroclastic beds or xenoliths up to ~2m; several white, bull quartz veins up to 1.5 m
F-139A	215.12	221.90	6.78	V1B/SMS	Rhyolite - semi-massive sulphides	Pyr			Appears to be a quartz eye rhyolite host with ~15-20% semi-massive and stringer pyrite and trace chalcopyrite; also local moderate sericite and moderate to strong chlorite/chloritoid; lower contact sharp and irregular
F-139A	221.90	247.23	25.33	V1B/V1C	Rhyolite-rhyodacite	Pyr	Mass		Varies from the rhyolite as from 14.22 to 52.66 and the rhyodacite as from 177.60 to 215.12; the more rhyolitic sections occasionally exhibit small (1-2mm) quartz eyes; weak to locally moderate chlorite/chloritoid throughout; occasional whire, milky quartz veins; trace pyrite blebs and stringers; lower contact sharp and irregular
F-139A	247.23	291.17	43.94	V1C	Rhyodacite	Mass	Fol		As from 177.6 to 215.12; medium grey; locally weakly foliated at 30-40 degrees to c.a.; occasional irregular quartz-carbonate veins (dolomite) up to 20 cm wide; weak sericite and moderate chlorite/chloritoid throughout; trace fracture-hosted pyrite; lower contact sharp and somewhat regular at 45 degrees to c.a.
F-139A	291.17	330.40	39.23	V1C/V1B	Rhyodacite-rhyolite	Pyr	Lap		As from 221.90 to 247.23; looks like a lapilli tuff with lapilli up to several stretched out parallel to low-angle foliation at 15-25 degrees to c.a.; occasional narrow (<1m) intervals of massive rhyodacite as above; weak sericite and weak to moderate chlorite throughout; 1-2% patches, blebs and stringers of pyrite throughout - locally up to 25% over 30-40 cm; lower contact gradational - with blocks/xenoliths of this unit in massive rhyodacite below
F-139A	330.40	340.25	9.85	V1C	Rhyodacite	Mass	Fol		As from 247.23 to 291.17; lower contact sharp and regular at 45 degrees to c.a.
F-139A	340.25	352.75	12.50	V1D	Dacite	Am	Fol		Amygdular dacite; similar to above but darker grey-green and exhibits ~1-2% rounded (sometimes strained/stretched) amygdules up to 5mm (~1cm long if strained); amygdules appear to be filled with quartz +/- carbonate +/- feldspar; one large irregular quartz-cdolomite vein 10-20cm sub-parallel to c.a.; weak foliation @30-40 degrees to c.a. to locally massive; trace fracture-controlled pyrite; lower contact sharp and regular at 40 degrees to c.a.
F-139A	352.75	388.28	35.53	V1C/V1B	Rhyodacite-rhyolite	Pyr	Lap		As from 291.17 to 330.40; pinkish-orange alteration (hematite becoming more pervasive, occurring periodically throughout unit; moderate sericite throughout; foliation variable from sub-parallel to c.a. to 45 degrees - often disrupted, wavy
F-139A	388.28	406.10	17.82	V1D	Dacite	Am	Mass		As from 340.25 to 352.75; generally more massive, with weak foliation at 30 degrees to c.a.; lower contact gradational with narrow interbedded dacite and rhyodacite from unit below

Xstrata Zinc Canada

Major Lithological Log

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Stratigraphy	Comments
F-139A	406.10	436.10	30.00	V1C	Rhyodacite	Mass			As from 247.23 to 291.17; locally moderately magnetic; commonly exhibits up to ~10% fine (<1mm) chlorite/chloritoid grains; occasional quartz-carb veinlets; trace vein-hosted pyrite; lower contact sharp and regular at 30 degrees to c.a.
F-139A	436.10	509.85	73.75	V1B	Rhyolite	Sh	Fol		Sheared rhyolite; medium grey; locally cherty - mainly at the top of the interval down to ~454 m; variable sericite-chlorite-chloritoid alteration, locally moderate to strong with strongest alteration in the upper/top portion of the unit; local blue/grey quartz eyes; moderate to locally strong foliation/sheraing at variable core angles from 20-60 degrees to c.a. - strongest foliation is closer to 20 degrees; ~1-2% disseminated and stringer pyrite overall, locally up to 3-5%; also up to 10% stringer sphalerite over ~1 m; trace chalcopyrite; lower contact sharp and regular at 60 degrees to c.a.
F-139A	509.85	600.00	90.15	V1B	Rhyolite	Pyr	Lap		Light to locally medium grey; fine to medium grained; texture looks like packed lapilli up to several centimetres in size, strained parallel to foliation at 35-45 degrees to c.a.; common anastomosing seams of chlorite (+/- chloritoid) around lapilli; weak to moderate sericite-chlorite-chloritoid throughout; generally siliceous; local fine quartz eyes (<1mm); trace pyrite overall, locally up to 5-7%

Xstrata Zinc Canada				**Mineralization Log**
HoleID	From_m	To_m	Length	Description
F-139A	39.90	41.00	1.10	3-5% stringer and disseminated pyrite > pyhrrotite with occasional medium grey cherty fragments
F-139A	44.13	46.70	2.57	2-3% stringer and disseminated pyrite and trace chalcopyrite - occasional cherty fragments
F-139A	49.50	49.75	0.25	3-5% fine grained stringer pyhrrotite
F-139A	51.17	52.66	1.49	1-2% stringer and disseminated pyrite
F-139A	52.66	62.00	9.34	5-7% stringer to semi-massive pyrite
F-139A	62.00	65.25	3.25	0.5-1% disseminated pyrite
F-139A	89.20	93.70	4.50	trace to 0.5% pyrite
F-139A	104.60	109.00	4.40	~1% stringer pyrite
F-139A	132.72	137.02	4.30	3-5% semi-massive patches up to 10 cm and stringers
F-139A	143.90	157.62	13.72	2-3% disseminated and blebs of pyrite
F-139A	170.66	175.87	5.21	2-3% stringers and local semi-massive pyrite
F-139A	182.19	183.60	1.41	3-5% patches and stringers of pyrite in an intermediate pyroclastic xenolith
F-139A	215.12	221.90	6.78	~15-20% semi-massive and stringer pyrite and trace chalcopyrite
F-139A	291.95	302.24	10.29	2-3% stringers, blebs and patches of fine to medium grained pyrite
F-139A	307.40	329.34	21.94	3-5% patches and stringers of pyrite - locally up to 25% over 30-40 cm
F-139A	353.46	359.48	6.02	trace to 0.5% disseminated and stringer pyrite
F-139A	359.48	362.30	2.82	2-3% patches, disseminated and stringer pyrite
F-139A	365.07	368.33	3.26	3-5% disseminated and stringer pyrite
F-139A	368.33	369.52	1.19	1% disseminated and stringer pyrite
F-139A	369.52	371.75	2.23	3-5% patchy and stringer pyrite
F-139A	371.75	376.05	4.30	2-3% stringer and disseminated pyrite and trace chalcopyrite
F-139A	378.33	384.90	6.57	2-3% stringers and patches of pyrite
F-139A	384.90	388.28	3.38	trace to 0.5% stringers and blebs of pyrite
F-139A	436.10	449.80	13.70	2-3% disseminated and stringer pyrite with possible trace sphalerite
F-139A	449.80	462.46	12.66	1-2% sphalerite stringers and patches, locally up to to 10% over ~1m; trace to 0.5% pyrite and trace chalcopyrite
F-139A				includes: 456.00 to 457.60: ~10% stringer and patchy sphalerite
F-139A	462.46	469.70	7.24	trace to 0.5% disseminated pyrite
F-139A	469.70	471.87	2.17	3-5% stringers and disseminated pyrite
F-139A	471.87	509.85	37.98	trace to 0.5% disseminated and stringer pyrite

Xstrata Zinc Canada				Mineralization Log
HoleID	**From_m**	**To_m**	**Length**	**Description**
F-139A	488.95	489.27	0.32	3-5% stringer sphalerite
F-139A	492.12	492.34	0.22	2-3% stringer sphalerite
F-139A	495.20	495.38	0.18	as above
F-139A	497.33	497.43	0.10	as above
F-139A	507.68	507.98	0.30	trace to 0.5% stringer sphalerite
F-139A	533.50	537.35	3.85	3-5% stringer pyrite
F-139A	559.83	572.82	12.99	3-5% stringer and patchy pyrite
F-139A	590.55	591.60	1.05	7-10% stringer and disseminated pyrite

Xstrata Zinc Canada				**Minor Lithological Log**
HoleID	**From_m**	**To_m**	**Length**	**Description**
F-139A	14.22	52.66	38.44	Weak to locally moderate sericite
F-139A	52.66	89.20	36.54	weak to moderate sericite throughout
F-139A	89.20	93.70	4.50	Moderate to strong chlorite (chloritoid?) alteration; appears to be the host quartz-eye rhyolite with fine grained (<1mm) dark green mineral - locally up to 20-25%; moderate sericite; andalusite seen at one location at 92.8m
F-139A	133.50			Fine grained andalusite(?)
F-139A	143.90	157.62	13.72	moderately silicieous - siicification?
F-139A	158.50	159.40	0.90	moderately to strongly broken/blocky core - fault zone?
F-139A	159.80	160.70	0.90	~1% andalusite(?) or hematite? - pinkish to orange-red seams parallel to foliation
F-139A	161.80	177.60	15.80	moderate to strong carbonate (dolomite - doesn't effervesce in HCL); moderate sericite and chlorite
F-139A	177.60	215.12	37.52	weak sericite and local moderate chlorite
F-139A	215.12	221.90	6.78	local moderate sericite and moderate to strong chlorite/chloritoid
F-139A	221.90	247.23	25.33	weak to locally moderate chlorite/chloritoid
F-139A	252.00	255.00	3.00	moderately blocky core with 1m ground/missing core from 254.00 to 255.00
F-139A	291.17	330.40	39.23	weak sericite and weak to moderate chlorite
F-139A	294.47	296.46	1.99	Pinkish-orange hue in quartz-carbonate-sericte seams - hematite or andalusite?
F-139A	352.75	388.28	35.53	hematite (? pinkish-orange hue in quartz-carb seams) throughout; pervasive moderate sericite
F-139A	426.70	431.40	4.70	diorite dyke/sill? Looks similar in composition to rhyodacite but is coarse grained; contacts sharp at 30 degrees - lower contact appears chilled
F-139A	436.10	453.40	17.30	moderate to strong sericite-chlorite-chloritoid with cherty fragments and shearing at 20-40 degrees to c.a.
F-139A	537.35	539.40	2.05	Dacite? Homogeneous; green-grey; fine to medium grained; moderate foliation at 40 degrees to c.a.; contacts sharp and regular at 30 degrees
F-139A	539.80	540.00	0.20	strongly broken core
F-139A	574.50	590.50	16.00	lighter in colour - stronger sericite alteration?
F-139A	596.30	597.80	1.50	strongly broken core - looks like dacite as from 537.35 to 539.40

Xstrata Zinc Canada

Lithogeochem Sampling

Hole ID	Sample Number	Lab	Certificate Number	From_ m	To_m	Length_ m	Sample Descript	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_pp m	Ho_ppm	La_ppm	Lu_pp m	Mo_ppm
F-139A	J531810	ALS Minerals; Thunder Bay lab	TB11038581	13.00	13.30	0.30	J531810	<1	245	29.2	6.2	10	1.11	48	2.23	1.12	0.75	18.8	2.36	3.7	0.43	14.7	0.17	<2
F-139A	J531811	ALS Minerals; Thunder Bay lab	TB11038581	50.00	50.30	0.30	J531811	<1	218	37.2	8.8	20	1.16	48	1.54	0.83	0.72	15.5	2.23	4	0.29	20.3	0.15	<2
F-139A	J531812	ALS Minerals; Thunder Bay lab	TB11038581	87.00	87.30	0.30	J531812	<1	297	47.5	3	10	0.82	7	4.07	2.57	1.21	13.8	4.86	7.6	0.88	23.2	0.4	<2
F-139A	J531813	ALS Minerals; Thunder Bay lab	TB11038581	120.00	120.30	0.30	J531813	<1	317	30.8	24.4	80	1.23	26	3.04	1.93	1.01	18.4	3.56	3.3	0.64	15.5	0.3	<2
F-139A	J531814	ALS Minerals; Thunder Bay lab	TB11038581	153.00	153.30	0.30	J531814	<1	261	80.8	1.5	10	1.07	11	6.78	4.34	1.89	18.6	7.45	8.7	1.47	41.3	0.71	2
F-139A	J531815	ALS Minerals; Thunder Bay lab	TB11038581	191.70	192.00	0.30	J531815	<1	110	40.6	22.7	90	1.06	6	3.31	2.31	1.1	26.2	4	3.9	0.71	19.8	0.32	<2
F-139A	J531816	ALS Minerals; Thunder Bay lab	TB11038581	237.00	237.30	0.30	J531816	<1	238	77.4	0.7	<10	1.04	<5	6.97	4.4	1.63	22.8	7.26	8.1	1.5	36.1	0.72	<2
F-139A	J531817	ALS Minerals; Thunder Bay lab	TB11038581	279.00	279.30	0.30	J531817	<1	146	38.4	23.4	30	0.79	101	3.58	2.18	1.02	21.2	3.83	3.4	0.72	18.6	0.39	4
F-139A	J531818	ALS Minerals; Thunder Bay lab	TB11038581	323.00	323.30	0.30	J531818	<1	53.4	86.4	1.5	<10	0.27	13	6.23	4.45	1.46	16.2	6.94	8.4	1.34	41.5	0.64	<2
F-139A	J531819	ALS Minerals; Thunder Bay lab	TB11038581	363.00	363.32	0.32	J531819	<1	76.1	32.4	13.1	10	0.25	7	4.06	2.8	0.99	8.8	3.79	4.8	0.95	15.2	0.5	<2
F-139A	J531820	ALS Minerals; Thunder Bay lab	TB11038581	400.00	400.30	0.30	J531820	<1	226	40.6	32.1	20	0.59	<5	3.84	2.6	1.17	18.5	4.52	3.5	0.8	19.8	0.37	<2
F-139A	J531821	ALS Minerals; Thunder Bay lab	TB11038581	434.00	434.30	0.30	J531821	<1	408	34	22	20	0.99	36	3.26	2.22	1.01	17.6	3.67	3.2	0.72	16.5	0.32	<2
F-139A	J531822	ALS Minerals; Thunder Bay lab	TB11038581	480.00	480.30	0.30	J531822	<1	209	88.7	2.9	10	0.61	23	7.73	5.42	1.07	19.2	8.26	9.5	1.61	42.2	0.75	2
F-139A	J531823	ALS Minerals; Thunder Bay lab	TB11038581	519.00	519.30	0.30	J531823	<1	406	81.1	<0.5	<10	0.48	5	7.16	5.28	1.38	17.6	7.78	9.1	1.57	38.4	0.75	2
F-139A	J531824	ALS Minerals; Thunder Bay lab	TB11038581	552.00	552.30	0.30	J531824	<1	157.5	113.5	2.7	<10	0.63	14	7.28	5.14	1.68	17.3	9.07	8.8	1.57	53.8	0.79	2
F-139A	J531825	ALS Minerals; Thunder Bay lab	TB11038581	585.00	585.30	0.30	J531825	<1	97.8	96.3	2.3	10	0.25	10	8.7	6.61	1.45	17.5	9.01	8.8	1.95	45	0.91	<2

Xstrata Zinc Ca

Hole ID	Sample Number	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%
F-139A	J531810	6.6	12.6	47	10	3.2	78.3	2.34	2	144	0.5	0.36	2.87	1	0.18	0.71	47	<1	11.9	1.27	54	130	64	15.3	5.93	3.35	1.13	1.26
F-139A	J531811	6.5	15.6	26	13	4.46	78.6	2.93	1	114	0.5	0.29	3.04	1.7	0.13	0.48	47	<1	8.5	0.84	53	154	67.6	10.85	5.06	3.61	1.06	0.95
F-139A	J531812	12.7	23.5	9	20	6.19	48.5	4.91	2	128.5	0.8	0.69	4.37	0.5	0.4	0.92	28	<1	25.6	2.46	41	294	70.5	9.73	3.86	4.57	0.57	1.98
F-139A	J531813	6.4	15.9	67	40	4.08	65.4	3.45	1	137	0.4	0.5	2.49	0.7	0.31	0.46	168	<1	19.2	1.87	92	124	50.8	15.95	9.27	6.29	1.69	2.28
F-139A	J531814	19.2	38.9	6	29	10.5	55	8.05	3	89.5	1.3	1.15	6.67	0.7	0.7	1.52	<5	<1	43.1	4.4	1760	319	76.8	10.05	4.72	0.15	0.82	0.64
F-139A	J531815	7.6	18.7	30	10	5.05	27.3	4.2	1	75.9	0.6	0.58	3.29	0.5	0.3	0.43	131	1	19.6	2.03	85	156	66.3	19.05	6.26	0.27	0.64	1.25
F-139A	J531816	19	35.4	<5	19	9.54	38.3	7.63	3	187.5	1.4	1.11	7.2	0.9	0.74	2.28	15	1	43	4.52	17	319	77.8	13.55	0.94	0.13	0.11	1.52
F-139A	J531817	7	17.6	56	14	4.77	30.7	3.93	1	86.6	0.5	0.61	3.18	0.5	0.37	0.54	181	1	22.2	2.21	209	145	54.5	16.1	11.15	2.56	2.25	0.87
F-139A	J531818	15.9	37.9	9	22	10.4	10.4	8.31	2	51.1	1.1	1.04	5.96	<0.5	0.67	1.71	<5	1	39.4	4.01	97	341	79.1	8.5	4.55	0.62	0.5	0.57
F-139A	J531819	8.5	14.9	32	95	3.97	14.6	3.47	1	33.5	0.6	0.63	3.35	<0.5	0.49	0.86	19	1	29.6	2.99	213	199	77.3	4.84	6.36	2.52	1.72	0.2
F-139A	J531820	6.8	19.6	85	33	5.02	33.6	4.67	1	164.5	0.5	0.69	3.22	<0.5	0.36	0.51	193	<1	23	2.29	338	139	41.5	15.25	14.1	7	3.52	2.27
F-139A	J531821	6.4	15.6	52	31	4.18	55.1	3.43	1	305	0.5	0.55	2.85	<0.5	0.35	0.6	161	1	20.9	2	140	132	49.5	14.65	8.74	7.77	2.87	1.37
F-139A	J531822	19.2	40	<5	8	10.7	57	8.84	4	21.4	1.4	1.28	7.42	<0.5	0.8	1.68	<5	1	47.4	4.64	200	368	79.3	10.3	4.14	0.17	1.42	0.23
F-139A	J531823	19.1	37.5	<5	7	10.1	32.8	8.2	3	44	1.3	1.23	7.53	<0.5	0.77	0.93	<5	1	44.6	4.56	68	351	74.5	10.3	2.91	3.21	1.86	0.3
F-139A	J531824	18.4	50.9	<5	7	13.9	26	11	3	38	1.3	1.29	7.19	<0.5	0.79	1.83	5	1	45.4	4.87	51	334	80.4	10.25	3.04	1.06	0.9	0.28
F-139A	J531825	21.8	44.2	<5	6	12.2	3	9.8	3	39.5	1.5	1.46	8.67	<0.5	0.94	2.16	<5	1	57.7	5.76	93	334	67.2	9.95	3.31	4.65	2.82	0.22

Xstrata Zinc Ca

Hole ID	Sample Number	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
F-139A	J531810	2.36	<0.01	0.38	0.11	0.09	0.02	0.03	6.74	100.5
F-139A	J531811	2	<0.01	0.3	0.11	0.03	0.01	0.02	7.75	99.4
F-139A	J531812	1.38	<0.01	0.37	0.11	0.06	0.02	0.03	6.55	99.7
F-139A	J531813	1.97	0.01	0.89	0.22	0.16	0.02	0.04	11.65	101
F-139A	J531814	1.6	<0.01	0.2	0.04	<0.01	0.01	0.03	2.78	97.8
F-139A	J531815	0.92	0.01	1.03	0.09	0.17	0.01	0.01	2.99	99
F-139A	J531816	1.35	<0.01	0.41	0.01	0.03	0.02	0.03	3.5	99.4
F-139A	J531817	0.98	<0.01	0.9	0.17	0.16	0.01	0.02	6.23	95.9
F-139A	J531818	0.36	<0.01	0.16	0.07	<0.01	0.01	0.01	2.55	97
F-139A	J531819	0.5	<0.01	0.09	0.24	<0.01	<0.01	0.01	5.02	98.8
F-139A	J531820	1.13	<0.01	0.86	0.32	0.17	0.02	0.03	13.55	99.7
F-139A	J531821	1.94	<0.01	0.81	0.23	0.16	0.04	0.05	13.25	101.5
F-139A	J531822	2.11	<0.01	0.19	0.03	0.01	<0.01	0.02	2.81	100.5
F-139A	J531823	0.99	<0.01	0.18	0.08	<0.01	0.01	0.05	4.62	99
F-139A	J531824	0.9	<0.01	0.2	0.01	0.01	<0.01	0.02	3.39	100.5
F-139A	J531825	0.11	<0.01	0.16	0.09	<0.01	<0.01	0.01	6.94	95.5

Xstrata Zinc Canada — Assays

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529103	TB11038592	39.80	41.10	1.30	ALS Minerals; Thunder Bay lab	TB11038592		J529103	0.052	0.003	0.117	1					
F-139A	J529104	TB11038592	44.00	45.50	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529104	0.022	0.004	0.026	0.8					
F-139A	J529105	TB11038592	45.50	47.00	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529105	0.02	0.004	0.021	0.5					
F-139A	J529106	TB11038592	49.40	49.80	0.40	ALS Minerals; Thunder Bay lab	TB11038592		J529106	0.024	0.003	0.009	0.6					
F-139A	J529107	TB11038592	49.80	51.10	1.30	ALS Minerals; Thunder Bay lab	TB11038592		J529107	0.005	0.002	0.002	0.3					
F-139A	J529108	TB11038592	51.10	52.60	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529108	0.014	0.002	0.053	0.8					
F-139A	J529109	TB11038592	52.60	53.70	1.10	ALS Minerals; Thunder Bay lab	TB11038592		J529109	0.007	0.002	0.057	0.8					
F-139A	J529110	TB11038592	53.70	54.80	1.10	ALS Minerals; Thunder Bay lab	TB11038592		J529110	0.005	0.002	0.017	0.3					
F-139A	J529111	TB11038592	54.80	55.90	1.10	ALS Minerals; Thunder Bay lab	TB11038592		J529111	0.004	0.002	0.036	0.3					
F-139A	J529112	TB11038592	55.90	57.00	1.10	ALS Minerals; Thunder Bay lab	TB11038592		J529112	0.006	0.002	0.032	0.4					
F-139A	J529113	TB11038592	57.00	58.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529113	0.005	0.001	0.01	0.2					
F-139A	J529114	TB11038592	58.00	59.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529114	0.008	0.003	0.014	0.6					
F-139A	J529115	TB11038592	59.00	60.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529115	0.004	<0.001	0.031	0.3					
F-139A	J529116	TB11038592	60.00	61.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529116	0.014	0.001	0.164	0.6					
F-139A	J529117	TB11038592	61.00	62.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529117	0.002	0.001	0.013	0.2					
F-139A	J529118	TB11038592	62.00	63.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529118	<0.001	0.001	0.004	<0.2					
F-139A	J529119	TB11038592	131.70	132.72	1.02	ALS Minerals; Thunder Bay lab	TB11038592		J529119	<0.001	0.019	0.133	0.7					
F-139A	J529120	TB11038592	132.72	134.00	1.28	ALS Minerals; Thunder Bay lab	TB11038592		J529120	0.006	0.034	0.438	2.3					
F-139A	J529121	TB11038592	134.00	135.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529121	0.02	0.009	0.203	2.4					
F-139A	J529122	TB11038592	135.00	136.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529122	0.012	0.012	1.355	3.1			1.315	0.041	
F-139A	J529123	TB11038592	136.00	137.02	1.02	ALS Minerals; Thunder Bay lab	TB11038592		J529123	0.008	0.006	0.913	1.6					
F-139A	J529124	TB11038592	137.02	138.00	0.98	ALS Minerals; Thunder Bay lab	TB11038592		J529124	0.004	0.007	0.292	0.8					
F-139A	*J529125*	*TB11038592*		*Standard*		ALS Minerals; Thunder Bay lab	TB11038592		*J529125*	*1.37*	*0.145*	*20*	*37.7*	*1.41*		*20.2*	*0.455*	
F-139A	J529126	TB11038592	143.00	143.90	0.90	ALS Minerals; Thunder Bay lab	TB11038592		J529126	0.004	0.002	0.072	0.2					
F-139A	J529127	TB11038592	143.90	145.00	1.10	ALS Minerals; Thunder Bay lab	TB11038592		J529127	0.004	0.003	0.23	0.7					
F-139A	J529128	TB11038592	145.00	146.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529128	0.002	0.002	0.499	0.3					
F-139A	J529129	TB11038592	146.00	147.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529129	0.002	0.002	0.215	0.4					
F-139A	J529131	TB11038592	147.00	148.50	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529131	0.002	0.002	0.262	0.4					No sample tag J529130 in book
F-139A	J529132	TB11038592	148.50	150.00	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529132	0.001	0.003	0.078	0.3					
F-139A	J529133	TB11038592	150.00	151.50	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529133	0.003	0.001	0.159	0.4					
F-139A	J529134	TB11038592	151.50	153.00	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529134	0.004	0.002	0.167	0.3					
F-139A	J529135	TB11038592	153.00	154.50	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529135	0.003	0.001	0.177	0.2					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529136	TB11038592	154.50	156.00	1.50	ALS Minerals; Thunder Bay lab	TB11038592		J529136	0.002	0.001	0.165	0.3					
F-139A	J529137	TB11038592	156.00	157.62	1.62	ALS Minerals; Thunder Bay lab	TB11038592		J529137	0.003	0.001	0.221	0.3					
F-139A	J529138	TB11038592	157.62	159.00	1.38	ALS Minerals; Thunder Bay lab	TB11038592		J529138	0.001	0.002	0.037	<0.2					
F-139A	J529139	TB11038592	169.50	170.66	1.16	ALS Minerals; Thunder Bay lab	TB11038592		J529139	0.015	0.001	0.54	0.4					
F-139A	J529140	TB11038592	170.66	171.50	0.84	ALS Minerals; Thunder Bay lab	TB11038592		J529140	0.009	0.002	1.475	0.4			1.53	0.016	
F-139A	J529141	TB11038592	171.50	172.50	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529141	0.006	0.002	0.33	0.5					
F-139A	J529142	TB11038592	172.50	173.50	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529142	0.006	0.001	0.475	0.4					
F-139A	*J529143*	*TB11038592*		*Blank*		ALS Minerals; Thunder Bay lab	TB11038592		*J529143*	*0.006*	*<0.001*	*0.015*	*<0.2*					
F-139A	J529144	TB11038592	173.50	174.50	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529144	0.003	0.002	0.036	0.6					
F-139A	J529145	TB11038592	174.50	175.50	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529145	0.003	0.002	0.017	0.2					
F-139A	J529146	TB11038592	175.50	176.50	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529146	0.005	<0.001	0.041	0.3					
F-139A	J529147	TB11038592	182.00	183.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529147	<0.001	0.001	0.008	0.6					
F-139A	J529148	TB11038592	183.00	184.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529148	<0.001	0.001	0.008	0.2					
F-139A	J529149	TB11038592	214.00	215.12	1.12	ALS Minerals; Thunder Bay lab	TB11038592		J529149	0.018	0.002	0.01	1					
F-139A	*J529150*	*TB11038592*		*Standard*		ALS Minerals; Thunder Bay lab	TB11038592		*J529150*	*1.445*	*0.146*	*19.8*	*34.6*	*1.415*		*19.95*	*0.518*	
F-139A	J529151	TB11038592	215.12	216.00	0.88	ALS Minerals; Thunder Bay lab	TB11038592		J529151	0.043	0.002	0.036	1.7					
F-139A	J529152	TB11038592	216.00	217.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529152	0.002	0.001	0.017	0.5					
F-139A	J529153	TB11038592	217.00	218.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529153	0.001	0.001	0.02	0.3					
F-139A	J529154	TB11038592	218.00	219.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529154	0.025	0.001	0.134	1.3					
F-139A	J529155	TB11038592	219.00	220.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529155	0.244	0.011	1.57	5.6			1.59	0.067	
F-139A	J529156	TB11038592	220.00	221.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529156	0.214	0.002	1.53	8			1.5	0.092	
F-139A	J529157	TB11038592	221.00	222.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529157	0.125	0.001	0.438	3.9					
F-139A	J529158	TB11038592	222.00	223.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529158	0.001	<0.001	0.01	<0.2					
F-139A	J529159	TB11038592	291.00	291.95	0.95	ALS Minerals; Thunder Bay lab	TB11038592		J529159	0.003	<0.001	0.015	<0.2					
F-139A	J529160	TB11038592	291.95	293.00	1.05	ALS Minerals; Thunder Bay lab	TB11038592		J529160	0.037	0.003	0.015	2.2					
F-139A	J529161	TB11038592	293.00	294.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529161	0.245	0.002	0.024	5.9					
F-139A	J529162	TB11038592	294.00	295.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529162	0.015	0.001	0.013	0.9					
F-139A	J529163	TB11038592	295.00	296.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529163	0.003	0.002	0.007	0.7					
F-139A	J529164	TB11038592	296.00	297.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529164	0.001	0.001	0.009	0.6					
F-139A	J529165	TB11038592	297.00	298.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529165	0.001	0.002	0.019	0.4					
F-139A	J529166	TB11038592	298.00	299.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529166	0.001	0.002	0.02	0.6					
F-139A	J529167	TB11038592	299.00	300.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529167	0.008	0.003	0.033	0.4					
F-139A	J529168	TB11038592	300.00	301.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529168	0.006	0.003	0.036	0.5					
F-139A	J529169	TB11038592	301.00	302.00	1.00	ALS Minerals; Thunder Bay lab	TB11038592		J529169	0.004	0.005	0.031	0.5					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529170	TB11043961	302.00	303.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529170	0.007	0.004	0.05	0.3					
F-139A	J529171	TB11043961	303.00	304.70	1.70	ALS Minerals; Thunder Bay lab	TB11043961		J529171	0.004	0.001	0.026	<0.2					
F-139A	J529172	TB11043961	304.70	306.40	1.70	ALS Minerals; Thunder Bay lab	TB11043961		J529172	0.008	0.002	0.035	0.8					
F-139A	J529173	TB11043961	306.40	307.40	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529173	0.003	0.001	0.039	0.3					
F-139A	J529174	TB11043961	307.40	309.00	1.60	ALS Minerals; Thunder Bay lab	TB11043961		J529174	0.003	0.001	0.043	0.4					
F-139A	*J529175*	*TB11043961*		*Standard*		ALS Minerals; Thunder Bay lab	TB11043961		*J529175*	*1.355*	*0.137*	*18.95*	*35.4*	*1.405*		*19.55*	*0.488*	
F-139A	J529176	TB11043961	309.00	310.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529176	0.013	0.004	0.068	1.5					
F-139A	J529177	TB11043961	310.00	311.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529177	0.002	0.002	0.03	0.9					
F-139A	J529178	TB11043961	311.00	312.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529178	0.001	0.002	0.018	2.1					
F-139A	J529179	TB11043961	312.00	313.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529179	0.001	0.001	0.011	1.2					
F-139A	J529180	TB11043961	313.00	314.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529180	0.002	0.005	0.017	2.1					
F-139A	J529181	TB11043961	314.00	315.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529181	0.001	0.002	0.025	1.2					
F-139A	J529182	TB11043961	315.00	316.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529182	0.003	0.002	0.012	0.7					
F-139A	J529183	TB11043961	316.00	317.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529183	0.001	0.002	0.014	0.6					
F-139A	J529184	TB11043961	317.00	318.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529184	0.002	0.002	0.008	0.4					
F-139A	J529185	TB11043961	318.00	319.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529185	0.003	0.003	0.016	1.1					
F-139A	J529186	TB11043961	319.00	320.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529186	0.002	0.003	0.037	1					
F-139A	J529187	TB11043961	320.00	321.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529187	0.002	0.001	0.082	0.8					
F-139A	J529188	TB11043961	321.00	322.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529188	<0.001	0.001	0.02	0.3					
F-139A	J529189	TB11043961	322.00	323.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529189	0.002	0.001	0.019	0.4					
F-139A	J529190	TB11043961	323.00	324.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529190	0.001	0.001	0.015	0.2					
F-139A	J529191	TB11043961	324.00	325.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529191	0.001	0.002	0.008	<0.2					
F-139A	J529192	TB11043961	325.00	326.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529192	0.001	<0.001	0.008	0.2					
F-139A	J529193	TB11043961	326.00	327.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529193	0.002	0.002	0.01	0.5					
F-139A	J529194	TB11043961	327.00	328.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529194	0.003	0.006	0.151	2					
F-139A	J529195	TB11043961	328.00	329.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529195	0.017	0.007	0.205	3.2					
F-139A	J529196	TB11043961	329.00	330.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529196	0.019	0.003	0.19	2					
F-139A	*J529197*	*TB11043961*		*Blank*		ALS Minerals; Thunder Bay lab	TB11043961		*J529197*	*0.015*	*0.001*	*0.014*	*<0.2*					
F-139A	J529198	TB11043961	358.50	359.48	0.98	ALS Minerals; Thunder Bay lab	TB11043961		J529198	0.003	0.005	0.333	0.3					
F-139A	J529199	TB11043961	359.48	360.90	1.42	ALS Minerals; Thunder Bay lab	TB11043961		J529199	0.007	0.035	0.609	1.5					
F-139A	*J529200*	*TB11043961*		*Standard*		ALS Minerals; Thunder Bay lab	TB11043961		*J529200*	*1.38*	*0.143*	*18.4*	*34.5*	*1.425*		*19.75*	*0.575*	
F-139A	J529201	TB11043961	360.90	362.30	1.40	ALS Minerals; Thunder Bay lab	TB11043961		J529201	0.004	0.021	0.728	1					
F-139A	J529202	TB11043961	365.00	366.10	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529202	0.005	0.026	1.4	1.8			1.355	0.028	
F-139A	J529203	TB11043961	366.10	367.20	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529203	0.002	0.036	0.442	3.7					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529204	TB11043961	367.20	368.40	1.20	ALS Minerals; Thunder Bay lab	TB11043961		J529204	0.004	0.023	0.191	2.2					
F-139A	J529205	TB11043961	368.40	369.50	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529205	0.001	0.003	0.276	0.6					
F-139A	J529206	TB11043961	369.50	370.60	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529206	0.019	0.014	2.3	2.5			2.12	0.042	
F-139A	J529207	TB11043961	370.60	371.75	1.15	ALS Minerals; Thunder Bay lab	TB11043961		J529207	0.006	0.029	0.472	1.7					
F-139A	J529208	TB11043961	371.75	373.00	1.25	ALS Minerals; Thunder Bay lab	TB11043961		J529208	0.018	0.033	0.9	3.8					
F-139A	J529209	TB11043961	373.00	374.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529209	0.1	0.002	5.12	4.7			4.84	0.05	
F-139A	J529210	TB11043961	374.50	376.05	1.55	ALS Minerals; Thunder Bay lab	TB11043961		J529210	0.081	0.002	6.45	5.6			6.01	0.044	
F-139A	J529211	TB11043961	376.05	377.20	1.15	ALS Minerals; Thunder Bay lab	TB11043961		J529211	0.014	0.001	0.552	1					
F-139A	J529212	TB11043961	377.20	378.40	1.20	ALS Minerals; Thunder Bay lab	TB11043961		J529212	0.012	0.002	0.744	0.9					
F-139A	J529213	TB11043961	378.40	379.50	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529213	0.02	0.002	1.28	1			1.285	0.014	
F-139A	J529214	TB11043961	379.50	381.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529214	0.046	0.003	1.775	1.7			1.69	0.029	
F-139A	J529215	TB11043961	381.00	382.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529215	0.026	0.002	2.14	1.3			2.08	0.02	
F-139A	J529216	TB11043961	382.50	384.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529216	0.008	0.002	0.247	1.1					
F-139A	J529217	TB11043961	384.00	385.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529217	0.014	0.003	0.826	1.1					
F-139A	J529218	TB11043961	385.00	386.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529218	0.006	0.005	0.249	0.7					
F-139A	J529219	TB11043961	435.00	436.10	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529219	0.008	<0.001	0.052	<0.2					
F-139A	J529220	TB11043961	436.10	437.50	1.40	ALS Minerals; Thunder Bay lab	TB11043961		J529220	0.017	0.001	1.095	0.5			1.12	0.005	
F-139A	J529221	TB11043961	437.50	439.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529221	0.012	<0.001	0.356	0.3					
F-139A	J529222	TB11043961	439.00	440.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529222	0.025	0.001	0.076	0.4					
F-139A	J529223	TB11043961	440.00	441.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529223	0.01	0.001	0.06	<0.2					
F-139A	J529224	TB11043961	441.00	442.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529224	0.005	0.001	0.233	0.3					
F-139A	*J529225*	*TB11043961*	*Standard*			ALS Minerals; Thunder Bay lab	TB11043961		*J529225*									
F-139A	J529226	TB11043961	442.50	444.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529226	0.007	0.001	0.712	0.2					
F-139A	J529227	TB11043961	444.00	445.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529227	0.004	0.001	0.224	0.2					
F-139A	J529228	TB11043961	445.50	447.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529228	0.005	0.001	0.107	0.3					
F-139A	J529229	TB11043961	447.00	448.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529229	0.004	<0.001	0.102	0.2					
F-139A	J529230	TB11043961	448.50	449.80	1.30	ALS Minerals; Thunder Bay lab	TB11043961		J529230	0.012	0.003	0.122	0.8					
F-139A	J529231	TB11043961	449.80	451.00	1.20	ALS Minerals; Thunder Bay lab	TB11043961		J529231	0.041	0.001	1.76	0.9			1.77	0.014	
F-139A	J529232	TB11043961	451.00	452.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529232	0.037	<0.001	1.04	1.7			1.075	0.017	
F-139A	J529233	TB11043961	452.00	453.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529233	0.006	0.001	0.354	0.3					
F-139A	J529234	TB11043961	453.00	454.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529234	0.018	<0.001	0.601	0.6					
F-139A	J529235	TB11043961	454.00	455.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529235	0.019	<0.001	0.175	0.5					
F-139A	J529236	TB11043961	455.00	456.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529236	0.018	<0.001	0.524	0.6					
F-139A	J529237	TB11043961	456.00	457.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529237	0.167	0.001	6.95	5.2			6.86	0.052	
F-139A	*J529238*	*TB11043961*	*Blank*			ALS Minerals; Thunder Bay lab	TB11043961		*J529238*	*0.018*	*0.002*	*0.035*	*<0.2*					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529239	TB11043961	457.00	458.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529239	0.1	0.002	5.82	3.2			5.66	0.014	
F-139A	J529240	TB11043961	458.00	459.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529240	0.031	0.001	2.05	1.2			2.02	0.012	
F-139A	J529241	TB11043961	459.00	460.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529241	0.007	0.001	1.095	0.3			1.05	<0.005	
F-139A	J529242	TB11043961	460.00	461.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529242	0.006	0.001	0.476	<0.2					
F-139A	J529243	TB11043961	461.00	462.46	1.46	ALS Minerals; Thunder Bay lab	TB11043961		J529243	0.012	0.002	0.136	0.4					
F-139A	J529244	TB11043961	462.46	464.00	1.54	ALS Minerals; Thunder Bay lab	TB11043961		J529244	0.001	0.001	0.031	<0.2					
F-139A	J529245	TB11043961	464.00	465.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529245	0.003	<0.001	0.025	<0.2					
F-139A	J529246	TB11043961	465.50	467.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529246	0.003	<0.001	0.037	<0.2					
F-139A	J529247	TB11043961	467.00	468.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529247	0.008	<0.001	0.043	0.2					
F-139A	J529248	TB11043961	468.50	469.70	1.20	ALS Minerals; Thunder Bay lab	TB11043961		J529248	0.007	0.003	0.033	<0.2					
F-139A	J529249	TB11043961	469.70	470.80	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529249	0.036	0.001	0.035	1.2					
F-139A	*J529250*	*TB11043961*		*Standard*		ALS Minerals; Thunder Bay lab	TB11043961		*J529250*									
F-139A	J529251	TB11043961	470.80	471.90	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529251	0.033	<0.001	0.025	1.3					
F-139A	J529252	TB11043961	471.90	473.00	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529252	0.013	<0.001	0.029	0.4					
F-139A	J529253	TB11043961	473.00	474.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529253	0.022	<0.001	0.365	0.7					
F-139A	J529254	TB11043961	474.50	476.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529254	0.003	<0.001	0.031	<0.2					
F-139A	J529255	TB11043961	476.00	477.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529255	0.002	<0.001	0.02	0.2					
F-139A	J529256	TB11043961	477.50	479.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529256	0.003	<0.001	0.022	<0.2					
F-139A	J529257	TB11043961	479.00	480.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529257	0.001	<0.001	0.023	<0.2					
F-139A	J529258	TB11043961	480.50	482.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529258	0.006	<0.001	0.022	0.3					
F-139A	J529259	TB11043961	482.00	483.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529259	0.008	<0.001	0.023	0.4					
F-139A	J529260	TB11043961	488.00	488.80	0.80	ALS Minerals; Thunder Bay lab	TB11043961		J529260	0.016	<0.001	0.774	0.6					
F-139A	J529261	TB11043961	488.80	489.50	0.70	ALS Minerals; Thunder Bay lab	TB11043961		J529261	0.033	<0.001	2.2	1.5			2.2	0.008	
F-139A	J529262	TB11043961	489.50	491.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529262	0.006	<0.001	0.462	0.2					
F-139A	J529263	TB11043961	491.00	492.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529263	0.002	<0.001	0.097	<0.2					
F-139A	J529264	TB11043961	492.00	493.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529264	0.007	<0.001	0.47	0.2					
F-139A	J529265	TB11043961	493.00	494.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529265	0.001	<0.001	0.066	<0.2					
F-139A	J529266	TB11043961	494.50	495.50	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529266	0.001	<0.001	0.294	0.2					
F-139A	J529267	TB11043961	495.50	497.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529267	0.01	<0.001	0.236	0.2					
F-139A	J529268	TB11043961	497.00	498.00	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529268	0.005	<0.001	0.224	0.2					
F-139A	J529269	TB11043961	532.50	533.50	1.00	ALS Minerals; Thunder Bay lab	TB11043961		J529269	<0.001	<0.001	0.013	<0.2					
F-139A	J529270	TB11043961	533.50	535.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529270	0.001	<0.001	0.017	<0.2					
F-139A	J529271	TB11043961	535.00	536.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529271	0.002	<0.001	0.014	<0.2					
F-139A	J529272	TB11043961	536.50	538.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529272	0.008	<0.001	0.022	0.3					
F-139A	J529273	TB11043961	558.80	559.83	1.03	ALS Minerals; Thunder Bay lab	TB11043961		J529273	<0.001	<0.001	0.01	<0.2					

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Lab	Certificate Number	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Pb%_OG62	Zn%_OG62	Au_ppm_AA23	Comments
F-139A	J529274	TB11043961	559.83	561.00	1.17	ALS Minerals; Thunder Bay lab	TB11043961		J529274	0.002	<0.001	0.011	0.2					
F-139A	*J529275*	*TB11043961*	*Standard*			ALS Minerals; Thunder Bay lab	TB11043961		*J529275*									
F-139A	J529276	TB11043961	561.00	562.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529276	0.008	<0.001	0.01	0.4					
F-139A	J529277	TB11043961	562.50	564.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529277	0.001	<0.001	0.01	<0.2					
F-139A	J529278	TB11043961	564.00	565.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529278	<0.001	<0.001	0.01	<0.2					
F-139A	J529279	TB11043961	565.50	567.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529279	<0.001	<0.001	0.013	<0.2					
F-139A	J529280	TB11043961	567.00	568.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529280	<0.001	<0.001	0.021	<0.2					
F-139A	J529281	TB11043961	568.50	570.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529281	0.001	0.001	0.024	<0.2					
F-139A	J529282	TB11043961	570.00	571.50	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529282	0.004	0.001	0.014	<0.2					
F-139A	J529283	TB11043961	571.50	573.00	1.50	ALS Minerals; Thunder Bay lab	TB11043961		J529283	<0.001	<0.001	0.011	<0.2					
F-139A	J529284	TB11043961	589.20	590.50	1.30	ALS Minerals; Thunder Bay lab	TB11043961		J529284	0.001	<0.001	0.01	<0.2					
F-139A	J529285	TB11043961	590.50	591.60	1.10	ALS Minerals; Thunder Bay lab	TB11043961		J529285	0.004	<0.001	0.015	0.2					
F-139A	J529286	TB11043961	591.60	593.00	1.40	ALS Minerals; Thunder Bay lab	TB11043961		J529286	0.004	<0.001	0.017	<0.2					

Hole: _____________

Échantillon #	Au g/t	Réanalyse Au g/t >3.0 g/t gravimétrie	Ag g/t	Cu %	Zn %	Pb %	Densité g/cm3
J529202	0.01		2.1	0.003	1.281	0.023	
J529203	0.03		3.2	0.001	0.437	0.036	
J529204	1.26		2.6	0.003	0.179	0.022	
J529205	0.02		0.2	0.002	0.287	0.008	
J529206	0.05		2.9	0.015	2.031	0.014	
J529207	0.01		1.7	0.004	0.470	0.027	
J529208	0.03		3.2	0.014	0.811	0.031	
J529209	0.04		4.6	0.082	4.775	0.004	
J529210	0.08		6.3	0.075	6.077	0.002	
J529211	0.02		1.3	0.012	0.573	0.003	
J529212	0.01		1.0	0.008	0.828	0.004	
J529213	0.01		0.8	0.014	1.160	0.004	
J529214	0.03		1.5	0.029	1.466	0.005	
J529215	0.04		0.8	0.019	1.703	0.003	
J529216	0.09		0.7	0.006	0.241	0.005	
J529217	0.07		0.9	0.011	0.824	0.004	
J529218	0.02		0.4	0.003	0.229	0.009	
J529219	0.03		<0.2	0.005	0.035	0.003	
J529220	0.02		<0.2	0.013	1.073	0.003	
J529221	0.02		<0.2	0.010	0.347	0.002	
J529222	sac vide						
J529223	<0.01		1.2	0.008	0.053	0.002	
J529224	<0.01		0.4	0.003	0.209	0.001	
J529226	<0.01		0.6	0.004	0.612	0.003	
J529227	<0.01		0.3	0.002	0.225	0.003	
J529228	<0.01		0.4	0.003	0.097	0.002	
J529229	<0.01		0.8	0.001	0.089	0.002	
J529230	<0.01		1.0	0.010	0.104	0.006	
J529231	<0.01		1.5	0.038	1.614	0.007	
J529232	<0.01		2.1	0.035	1.045	0.003	
J529233	<0.01		0.8	0.004	0.343	0.004	
J529234	<0.01		0.9	0.015	0.603	0.003	
J529235	0.02		1.0	0.015	0.162	0.002	
J529236	<0.01		1.0	0.016	0.548	0.005	
J529237	0.03		5.9	0.163	6.472	0.002	
J529238	<0.01		<0.2	0.014	0.020	0.002	
J529239	0.02		3.5	0.088	5.194	0.003	
J529240	<0.01		1.3	0.022	2.025	0.003	
J529241	<0.01		0.4	0.005	1.085	0.003	
J529242	0.01		0.3	0.003	0.467	0.002	
J529243	<0.01		0.4	0.009	0.126	0.003	
J529211-Dup			1.1	0.011	0.564	0.002	
J529212-Dup	0.01						
J529234-Dup			0.8	0.015	0.592	0.003	
J529236-Dup	<0.01						
CDN-GS-14A	14.82						
CDN-GS-14A	14.68						
CDN-GS-14A	15.27						
CDN-GS-14A	15.28						
CDN-GS-14A	15.03						
SH-41	1.38						
SH-41	1.37						
SH-41	1.40						
SI-54	1.79						
SL-51	6.05						
CDN-HZ-2			64.3	1.345	7.268	1.594	
CDN-HZ-2			62.5	1.329	7.276	1.686	
CDN-ME-7			157.7	0.225	4.880	5.102	
CDN-ME-7			156.4	0.226	4.870	4.987	
CDN-ME-15			31.9	0.015	0.564	0.002	
CDN-ME-15			31.7	0.013	0.230	0.356	
RTS-3A			11.2	0.237	0.272	0.023	
RTS-3A			12.6	0.227	0.278	0.023	

ı Zinc Canada								Downhole Deviation
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**
F-139	Reflex	28-Feb-11	21	-80.6	146.2	58205	No correction	Test is no good - Reflex instrument was faulty
F-139	Reflex	5-Mar-11	30	-75.6	134.6	58293		
F-139	Reflex	5-Mar-11	60	-74.9	136.9	58368		
F-139	Reflex	5-Mar-11	90	-74.4	139.9	58233		
F-139	Reflex	5-Mar-11	120	-73.2	140.1	58108		
F-139	Reflex	5-Mar-11	150	-71.5	144.5	58106		
F-139	Reflex	5-Mar-11	180	-70.8	145.1	57950		
F-139	Reflex	5-Mar-11	210	-70.2	146.6	57918		
F-139	Reflex	5-Mar-11	240	-69.6	147.8	57796		
F-139	Reflex	5-Mar-11	270	-69.0	148.4	57626		
F-139	Reflex	5-Mar-11	300	-68.2	149.8	57661		
F-139	Reflex	5-Mar-11	330	-67.3	151.5	57543		
F-139	Reflex	5-Mar-11	360	-67.0	153.3	57537		
F-139	Reflex	4-Mar-11	387	-67.2	152.8	57167		
F-139	Reflex	4-Mar-11	420	-66.5	152.6	57353		
F-139	Reflex	5-Mar-11	450	-65.9	153.1	57454		
F-139	Reflex	5-Mar-11	480	-64.4	153.9	57430		
F-139	Reflex	6-Mar-11	510	-63.4	153.8	57131		
F-139	Reflex	6-Mar-11	540	-62.2	155.3	57507		
F-139	Reflex	6-Mar-11	570	-61.1	155.1	57400		
F-139	Reflex	7-Mar-11	600	-60.2	156.6	57409		

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
F-139A	7.50	0.106	
F-139A	9.00	0.064	
F-139A	10.50	0.035	
F-139A	12.00	0.064	
F-139A	13.50	0.292	
F-139A	15.00	-0.018	
F-139A	16.50	-0.026	
F-139A	18.00	0	
F-139A	19.50	0.039	
F-139A	21.00	0.018	
F-139A	22.50	0.052	
F-139A	24.00	0.094	
F-139A	25.50	0.304	
F-139A	27.00	0.101	
F-139A	28.50	0.292	
F-139A	30.00	2.771	
F-139A	31.50	0.097	
F-139A	33.00	0.026	
F-139A	34.50	0.109	
F-139A	36.00	0.469	
F-139A	37.50	0.439	
F-139A	39.00	0.511	
F-139A	40.50	4.047	
F-139A	42.00	0.506	
F-139A	43.50	0.809	
F-139A	45.00	1.413	
F-139A	46.50	3.037	
F-139A	48.00	0.295	
F-139A	49.50	3.562	
F-139A	51.00	5.944	
F-139A	52.50	0.445	
F-139A	54.00	0.092	
F-139A	55.50	0.006	
F-139A	57.00	0.115	
F-139A	58.50	0.989	
F-139A	60.00	0.151	
F-139A	61.50	0.099	
F-139A	63.00	0.099	
F-139A	64.50	0.135	
F-139A	66.00	0.004	
F-139A	67.50	0.05	
F-139A	69.00	0.087	
F-139A	70.50	0.335	
F-139A	72.00	0.088	
F-139A	73.50	0.403	
F-139A	75.00	0.482	
F-139A	76.50	0.069	
F-139A	78.00	0.012	
F-139A	79.50	-0.003	
F-139A	81.00	0.057	
F-139A	82.50	-0.042	
F-139A	84.00	-0.027	
F-139A	85.50	-0.016	
F-139A	87.00	0.038	
F-139A	88.50	0.054	
F-139A	90.00	0.716	
F-139A	91.50	0.067	
F-139A	93.00	0.439	
F-139A	94.50	0.538	
F-139A	96.00	0.569	
F-139A	97.50	0.418	
F-139A	99.00	0.379	
F-139A	100.50	0.225	
F-139A	102.00	0.423	
F-139A	103.50	0.118	
F-139A	105.00	0.09	
F-139A	106.50	0.357	
F-139A	108.00	0.318	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-139A	109.50	0.065	
F-139A	111.00	0.337	
F-139A	112.50	0.539	
F-139A	114.00	1.465	
F-139A	115.50	0.481	
F-139A	117.00	0.331	
F-139A	118.50	0.476	
F-139A	120.00	0.459	
F-139A	121.50	0.336	
F-139A	123.00	0.358	
F-139A	124.50	0.139	
F-139A	126.00	-0.041	
F-139A	127.50	0.115	
F-139A	129.00	0.654	
F-139A	130.50	0.014	
F-139A	132.00	0.039	
F-139A	133.50	0.519	
F-139A	135.00	0.887	
F-139A	136.50	0.073	
F-139A	138.00	2.655	
F-139A	139.50	1.105	
F-139A	141.00	0.094	
F-139A	142.50	0.075	
F-139A	144.00	0.586	
F-139A	145.50	0.043	
F-139A	147.00	0.079	
F-139A	148.50	0.143	
F-139A	150.00	0.133	
F-139A	151.50	0.023	
F-139A	153.00	0.018	
F-139A	154.50	0.101	
F-139A	156.00	-0.025	
F-139A	157.50	-0.032	
F-139A	159.00	0.449	
F-139A	160.50	0.511	
F-139A	162.00	0.445	
F-139A	163.50	0.45	
F-139A	165.00	0.746	
F-139A	166.50	0.587	
F-139A	168.00	0.665	
F-139A	169.50	0.058	
F-139A	171.00	0.08	
F-139A	172.50	0.016	
F-139A	174.00	0.009	
F-139A	175.50	0.091	
F-139A	177.00	0.158	
F-139A	178.50	0.668	
F-139A	180.00	0.374	
F-139A	181.50	0.126	
F-139A	183.00	0.317	
F-139A	184.50	-0.013	
F-139A	186.00	0.069	
F-139A	187.50	0.074	
F-139A	189.00	-0.013	
F-139A	190.50	0.251	
F-139A	192.00	0.355	
F-139A	193.50	0.123	
F-139A	195.00	0.189	
F-139A	196.50	0.054	
F-139A	198.00	0.05	
F-139A	199.50	0.085	
F-139A	201.00	0.161	
F-139A	202.50	0.321	
F-139A	204.00	0.032	
F-139A	205.50	0.031	
F-139A	207.00	0.294	
F-139A	208.50	0.373	
F-139A	210.00	0.341	
F-139A	211.50	0.466	
F-139A	213.00	0.3	
F-139A	214.50	0.154	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-139A	216.00	0.791	
F-139A	217.50	0.131	
F-139A	219.00	0.512	
F-139A	220.50	1.043	
F-139A	222.00	0.286	
F-139A	223.50	0.475	
F-139A	225.00	0.614	
F-139A	226.50	0.708	
F-139A	228.00	0.913	
F-139A	229.50	0.538	
F-139A	231.00	0.529	
F-139A	232.50	0.558	
F-139A	234.00	0.088	
F-139A	235.50	0.402	
F-139A	237.00	0.034	
F-139A	238.50	0.032	
F-139A	240.00	0.292	
F-139A	241.50	0.097	
F-139A	243.00	0.163	
F-139A	244.50	0.093	
F-139A	246.00	0.145	
F-139A	247.50	0.464	
F-139A	249.00	0.571	
F-139A	250.50	0.496	
F-139A	252.00	0.849	
F-139A	253.50	0.566	
F-139A	255.00	0.598	
F-139A	256.50	0.698	
F-139A	258.00	0.643	
F-139A	259.50	0.558	
F-139A	261.00	-0.053	
F-139A	262.50	-0.005	
F-139A	264.00	0.391	
F-139A	265.50	0.657	
F-139A	267.00	0.29	
F-139A	268.50	0.521	
F-139A	270.00	0.267	
F-139A	271.50	0.401	
F-139A	273.00	0.626	
F-139A	274.50	0.381	
F-139A	276.00	0.783	
F-139A	277.50	0.694	
F-139A	279.00	0.601	
F-139A	280.50	0.586	
F-139A	282.00	0.794	
F-139A	283.50	0.469	
F-139A	285.00	0.555	
F-139A	286.50	0.59	
F-139A	288.00	0.184	
F-139A	289.50	0.321	
F-139A	291.00	0.205	
F-139A	292.50	0.013	
F-139A	294.00	0.162	
F-139A	295.50	0.095	
F-139A	297.00	0.119	
F-139A	298.50	0.354	
F-139A	300.00	0.339	
F-139A	301.50	0.722	
F-139A	303.00	1.7	
F-139A	304.50	0.818	
F-139A	306.00	1.695	
F-139A	307.50	0.637	
F-139A	309.00	0.233	
F-139A	310.50	0.12	
F-139A	312.00	0.323	
F-139A	313.50	0.788	
F-139A	315.00	0.064	
F-139A	316.50	0.181	
F-139A	318.00	0.029	
F-139A	319.50	0.109	
F-139A	321.00	0.125	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-139A	322.50	0.133	
F-139A	324.00	0.352	
F-139A	325.50	0.068	
F-139A	327.00	0.152	
F-139A	328.50	0.832	
F-139A	330.00	1.542	
F-139A	331.50	0.969	
F-139A	333.00	0.607	
F-139A	334.50	0.147	
F-139A	336.00	0.59	
F-139A	337.50	0.387	
F-139A	339.00	0.82	
F-139A	340.50	2.693	
F-139A	342.00	1.13	
F-139A	343.50	0.653	
F-139A	345.00	0.898	
F-139A	346.50	0.752	
F-139A	348.00	0.797	
F-139A	349.50	0.532	
F-139A	351.00	0.668	
F-139A	352.50	0.627	
F-139A	354.00	0.117	
F-139A	355.50	0.118	
F-139A	357.00	0.27	
F-139A	358.50	0.068	
F-139A	360.00	0.352	
F-139A	361.50	0.066	
F-139A	363.00	0.152	
F-139A	364.50	0.55	
F-139A	366.00	0.087	
F-139A	367.50	0.477	
F-139A	369.00	0.075	
F-139A	370.50	0.129	
F-139A	372.00	0.03	
F-139A	373.50	0.117	
F-139A	375.00	0.166	
F-139A	376.50	0.31	
F-139A	378.00	0.074	
F-139A	379.50	0.044	
F-139A	381.00	0.026	
F-139A	382.50	-0.224	
F-139A	384.00	0.02	
F-139A	385.50	0.017	
F-139A	387.00	0.136	
F-139A	388.50	0.489	
F-139A	390.00	0.437	
F-139A	391.50	0.567	
F-139A	393.00	0.875	
F-139A	394.50	0.682	
F-139A	396.00	1.016	
F-139A	397.50	1.118	
F-139A	399.00	0.747	
F-139A	400.50	0.761	
F-139A	402.00	0.673	
F-139A	403.50	0.482	
F-139A	405.00	0.629	
F-139A	406.50	0.951	
F-139A	408.00	1.751	
F-139A	409.50	52.93	
F-139A	411.00	18.06	
F-139A	412.50	32.26	
F-139A	414.00	10.44	
F-139A	415.50	24.91	
F-139A	417.00	20.07	
F-139A	418.50	64.73	
F-139A	420.00	26.2	
F-139A	421.50	81.43	
F-139A	423.00	12.87	
F-139A	424.50	28.96	
F-139A	426.00	32.08	
F-139A	427.50	1.419	
F-139A	429.00	0.377	
F-139A	430.50	0.726	
F-139A	432.00	18.36	
F-139A	433.50	1.482	
F-139A	435.00	0.371	
F-139A	436.50	0.062	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-139A	438.00	0.658	
F-139A	439.50	0.845	
F-139A	441.00	0.292	
F-139A	442.50	0.067	
F-139A	444.00	0.303	
F-139A	445.50	0.116	
F-139A	447.00	0.047	
F-139A	448.50	0.028	
F-139A	450.00	0.104	
F-139A	451.50	0.069	
F-139A	453.00	0.08	
F-139A	454.50	0.298	
F-139A	456.00	0.039	
F-139A	457.50	0.148	
F-139A	459.00	0.045	
F-139A	460.50	0.138	
F-139A	462.00	0.069	
F-139A	463.50	0.002	
F-139A	465.00	0.281	
F-139A	466.50	0.718	
F-139A	468.00	0.115	
F-139A	469.50	0.454	
F-139A	471.00	0.084	
F-139A	472.50	0.152	
F-139A	474.00	0.038	
F-139A	475.50	0.041	
F-139A	477.00	0.074	
F-139A	478.50	0.131	
F-139A	480.00	0.039	
F-139A	481.50	0.38	
F-139A	483.00	0.063	
F-139A	484.50	0.088	
F-139A	486.00	0.132	
F-139A	487.50	0.049	
F-139A	489.00	0.156	
F-139A	490.50	0.009	
F-139A	492.00	0.03	
F-139A	493.50	-0.011	
F-139A	495.00	0.041	
F-139A	496.50	0.438	
F-139A	498.00	0.252	
F-139A	499.50	0.12	
F-139A	501.00	0.1	
F-139A	502.50	0.072	
F-139A	504.00	0.371	
F-139A	505.50	0.066	
F-139A	507.00	0.112	
F-139A	508.50	0.074	
F-139A	510.00	0.038	
F-139A	511.50	0.5	
F-139A	513.00	-0.028	
F-139A	514.50	0.004	
F-139A	516.00	0.008	
F-139A	517.50	0.021	
F-139A	519.00	0.06	
F-139A	520.50	0.083	
F-139A	522.00	-0.003	
F-139A	523.50	0.007	
F-139A	525.00	0.001	
F-139A	526.50	0.079	
F-139A	528.00	0.054	
F-139A	529.50	0.043	
F-139A	531.00	0.04	
F-139A	532.50	0.11	
F-139A	534.00	0.115	
F-139A	535.50	-0.047	
F-139A	537.00	0.03	
F-139A	538.50	0.317	
F-139A	540.00	0.078	
F-139A	541.50	0.302	
F-139A	543.00	0.026	
F-139A	544.50	0.108	
F-139A	546.00	0.052	
F-139A	547.50	0.328	
F-139A	549.00	0.084	
F-139A	550.50	0.042	
F-139A	552.00	0.029	
F-139A	553.50	0.015	

HoleID	Depth_m	Mag. Sus. Reading	Comments
F-139A	555.00	0.005	
F-139A	556.50	0.037	
F-139A	558.00	0.005	
F-139A	559.50	0.077	
F-139A	561.00	0.051	
F-139A	562.50	0.017	
F-139A	564.00	-0.01	
F-139A	565.50	-0.018	
F-139A	567.00	-0.013	
F-139A	568.50	0.002	
F-139A	570.00	-0.019	
F-139A	571.50	0.062	
F-139A	573.00	0.031	
F-139A	574.50	0.042	
F-139A	576.00	0.038	
F-139A	577.50	0.104	
F-139A	579.00	0.091	
F-139A	580.50	0.002	
F-139A	582.00	0.072	
F-139A	583.50	0.07	
F-139A	585.00	0.046	
F-139A	586.50	0.054	
F-139A	588.00	0.065	
F-139A	589.50	0.075	
F-139A	591.00	0.336	
F-139A	592.50	0.456	
F-139A	594.00	0.344	
F-139A	595.50	0.401	
F-139A	597.00	0.501	
F-139A	598.50	0.615	
F-139A	600.00	0.421	E.O.H.

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	F-139	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	130.0
LOGGED BY:	D. Cullen	NORTHING:	NA	ZONE:	15	DIP:	-78.0
START DATE:	27-Feb-11	EASTING:	NA	UTM Northing:	5526320	FINAL DEPTH (m):	45.00
FINISH DATE:	27-Feb-11	ELEVATION:	NA	UTM Easting:	640770	CORE SIZE:	BQ
		Casing (m):	7m	UTM Elevation:		Magnetic Declination:	N/A

Target:

Township: **NTS:** 52G15

Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:**

Material Left in Hole: **Plug:** **No**

Core Recovery and Ground Conditions:

Core Storage: **Mattabi core yard.**

Downhole Survey:

Comments: Hole stopped due to excessive deviation at start

Depth			Rock Type			Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name					
0.00	7.00	7.00	OVB		casing/overburden				
7.00	14.28	7.28	S1		Volcaniclastic Sediment				
14.28	45.00	30.72	V1B		Rhyolite				
45.00			E.O.H.						
	-	EOH	**EOH**				EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
F-139	0.00	7.00	7.00	OVB	casing/overburden			
F-139	7.00	14.28	7.28	S1	Volcaniclastic Sediment	Bed		Possibly an ash and crystal tuff? Colour caries from dark grey to medium-light grey; darker grey sections are well-bedded with beds from tens of centimetres to millimetres in thickness, and very fine grained; beds are at variable core angles and often folded/crenulated; lighter grey sections are usually coarser grained (up to 5mm) and also variably foliated; lighter grey, coarser sections often exhibit blebs/wisps of pyrite up to 4-5mm - appear to be replacement(?) of crystals (mafics?) - trace to 1% pyrite overall, also in occasional veinlets; lower contact obscured by broken/blocky core.
F-139	14.28	45.00	30.72	V1B	Rhyolite	Mass	Fol/Bed	Light grey; fine to medium grained; massive to weakly foliated (bedded?) at variable core angles; local sections with up to 5% mafic minerals over 20-30 cm - locally replaced(?) by pyrite and pyhrrotite; siliceous - primary silica as opposed to alteration(?); ~1% pyrite > pyhrrotite and trace chalcopyrite overall - locally up to 7-10% over 40 cm
F-139	45.00			E.O.H.				

Xstrata Zinc Canada				Mineralization Log
HoleID	From_m	To_m	Length	Description
F-139	23.36	25.12	1.76	1-2% disseminated blebs/wisps of pyhrrotite and pyrite
F-139	39.72	40.34	0.62	5-7% pyrite and minor chalcopyrite in patches and stringers
F-139	43.52	43.9	0.38	7-10% net-textured and stringer pyrite and minor chalcopyrite

HoleID	From_m	To_m	Length	Description

Xstrata Zinc Canada			Lithogeochem Sampling																						
Hole ID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m	Sample Descript	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm
F-139	J531809	ALS Minerals; Thunder Bay lab	TB11038591	36.00	36.30	0.30	J531809	<1	174	7.3	7.2	60	1	19	2.73	1.72	0.54	19.1	1.75	3.6	0.59	3.3	0.28	<2	6.2

Xstrata Zinc C

Hole ID	Sample Number	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%
F-139	J531809	3.9	32	9	0.89	61.4	1.07	1	126.5	0.5	0.34	2.77	1.2	0.26	0.51	82	<1	16.9	1.79	40	130	54.2	17.75	6.23	4.95	0.81	5.43	1.76

Hole: ____________________

Xstrata Zinc C									
Hole ID	**Sample Number**	**Cr2O3_%**	**TiO2_%**	**MnO_%**	**P2O5_%**	**SrO_%**	**BaO_%**	**LOI_%**	**Total_%**
F-139	J531809	0.01	0.99	0.12	0.21	0.01	0.02	8.1	100.5

Xstrata Zinc Canada													**Assays**	
HoleID	**Sample Number**	**Certificate Number**	**From_m**	**To_m**	**Length_m**	**RockCode**	**Sample Description**	**Cu %_AA46**	**Pb%_AA46**	**Zn %_AA46**	**Ag_ppm_AA45**	**Cu_OG62**	**Zn%_OG62**	**Au_ppm_AA23**
F-11-139	J529094	TB11038592	38.60	39.60	1.00		J529094	0.013	0.002	0.027	0.4			
F-11-139	J529095	TB11038592	39.60	40.40	0.80		J529095	0.047	0.004	0.007	1.1			
F-11-139	J529096	TB11038592	40.40	41.40	1.00		J529096	0.011	0.002	0.002	0.3			
F-11-139	J529097	TB11038592	41.40	42.40	1.00		J529097	0.005	0.003	0.002	<0.2			
F-11-139	J529098	TB11038592	42.40	43.40	1.00		J529098	0.004	0.002	0.001	0.2			
F-11-139	J529099	TB11038592	43.40	44.00	0.60		J529099	0.073	0.004	0.056	1.8			
F-11-139	*J529100*	*TB11038592*	*Standard*				*J529100*	*1.39*	*0.148*	*18.7*	*33.6*	*1.405*	*20*	*0.497*
F-11-139	*J529101*	*TB11038592*	*Blank*				*J529101*	*0.009*	*0.002*	*0.027*	*<0.2*			
F-11-139	J529102	TB11038592	44.00	45.00	1.00		J529102	0.003	0.002	0.003	<0.2			

Xstrata Zinc Canada								**Downhole Deviation**
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**
F-139	Reflex	27-Feb-11	21	-81.6	-145.4	57772		
F-139	Reflex	28-Feb-11	45	-81.4	-151.8	56995		

Hole: ______________

Xstrata Zinc Canada			**Magnetic Susceptibility Log**
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
F-139	7.50	0.051	
F-139	9.00	0.031	
F-139	10.50	1.083	
F-139	12.00	0.116	
F-139	13.50	2.593	
F-139	15.00	0.037	
F-139	16.50	0.029	
F-139	18.00	0.462	
F-139	19.50	0.088	
F-139	21.00	0.409	
F-139	22.50	0.032	
F-139	24.00	0.088	
F-139	25.50	0.064	
F-139	27.00	0.059	
F-139	28.50	0.061	
F-139	30.00	0.097	
F-139	31.50	0.087	
F-139	33.00	0.057	
F-139	34.50	0.726	
F-139	36.00	0.119	
F-139	37.50	1.634	
F-139	39.00	11.06	
F-139	40.50	11.21	
F-139	42.00	0.428	
F-139	43.50	1.044	
F-139	45.00	1.467	

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	23-333	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	180.0
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-50.0
START DATE:	24-Feb-11	EASTING:	NA	UTM Northing:	5527743	FINAL DEPTH (m):	201.00
FINISH DATE:	26-Feb-11	ELEVATION:	NA	UTM Easting:	654170	CORE SIZE:	BQ
		Casing (m):	15m	UTM Elevation:		Magnetic Declination:	N?A

Target:
Township: **NTS:** 52G15
Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:** **3m**
Material Left in Hole: **Casing. Cap., casing, shoe** **Plug:** **No**
Core Recovery and Ground Conditions:
Core Storage: **Mattabi core yard.**
Downhole Survey:
Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name					
0.00	15.00	15.00	OVB		casing/overburden				
15.00	56.35	41.35	V2J		Andesite				
56.35	65.43	9.08	V1C/V1D		Rhyolite-Dacite				
65.43	82.70	17.27	V1B		Rhyolite				
82.70	112.20	29.50	V1D		Dacite				
112.20	115.48	3.28	V1B		Rhyolite				
115.48	124.20	8.72	V1C/V1D		Rhyodacite-Dacite				
124.20	131.16	6.96	V1D		Dacite				
131.16	136.87	5.71	V1C/V1D		Rhyodacite-Dacite				
136.87	153.50	16.63	V2J		Andesite				
153.50	201.00	47.50	I2J		Diorite				
201.00		-201.00	E.O.H.						
	-	EOH	**EOH**				EOH		

Major Lithological Log

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
23-333	0.00	15.00	15.00	OVB	casing/overburden			
23-333	15.00	56.35	41.35	V2J	Andesite	Fol		Medium green to grey-green; fine grained to locally medium grained; generally moderately foliated at 50-60 degrees to c.a. - locally massivecommon carbonate (+/- quartz) veinlets, seams and fractures, usually regular and parallel to foliation, but also irregular and at variable core angles; occasional magnetite-rich bands; trace pyrite; lower contact sharp and regular at 50 degrees to c.a.
23-333	56.35	65.43	9.08	V1C/V1D	Rhyolite-Dacite	Fol		Appears to be an agglomerate to lapilli tuff; medium grey; fine to medium grained; moderate, variable foliation at 40-70 degrees to c.a.; common fine to medium grained magnetite throughout; occasional quartz-carbonate veins and patches; 3-5% pyhrrotite and pyrite regular and irregular stringers throughout
23-333	65.43	82.70	17.27	V1B	Rhyolite	Fol		Quartz-eye rhyolite, with ~10%, locally up to 15% subrounded greyish to bluish quartz eyes up to 1-2mm; moderate foliation at 45 to 55 degrees to c.a.; light grey; occasional white, milky quartz vein up to 15 cm; trace pyrite and pyhrrotite stringers; lower contact sharp and regular at 45 degrees to c.a.
23-333	82.70	112.20	29.50	V1D	Dacite	Mass	Fr/Bx	Medium grey, to locally lighter and darker grey; predominantly massive, to locally weakly to moderately foliated at 45 to 50 degrees to c.a.; common irregular quartz-carbonate fractures - locally brecciated over 10 to 40 cm intervals; veins occasionally exhibit strong biotite; lower contact sharp and regular at 45 degrees to c.a.
23-333	112.20	115.48	3.28	V1B	Rhyolite	Fol		Quartz eye rhyolite as from 65.43 to 82.70; lower contact sharp and regular at 45 degrees to c.a.
23-333	115.48	124.20	8.72	V1C/V1D	Rhyodacite-Dacite	Fol/Sh	Bx	Similar to unit from 56.35 to 65.43 - appears to be an agglomerate/lapilli/crystal tuff of felsic to intermediate composition; moderate foliation/shearing at 45 to 55 degrees to c.a.; local brecciation over 10-20 cm intervals; occasional sections of po > py stringers and strained/stretched blebs - ~1% sulphides overall, and up to 7-10% over narrow intervals; lower contact sharp and regular at 70 degrees to c.a.
23-333	124.20	131.16	6.96	V1D	Dacite	Mass		As from 82.70 to 112.20; lower contact sharp and irregular
23-333	131.16	136.87	5.71	V1C/V1D	Rhyodacite-Dacite	Fol	Sh	As from 115.48 to 123.20; foliation/shearing generally at 45-55 degrees to c.a., but often contorted and convoluted; 5-7% po > py (~75:25) stringers and locally semi-massive throughout interval; lower contact sharp and regular at 50 degrees to c.a.
23-333	136.87	153.50	16.63	V2J	Andesite	Fol		As from 15.0 to 56.35; lower contact gradational; foliation at 45 degrees to c.a.
23-333	153.50	201.00	47.50	I2J	Diorite	Mass	Fol	Medium to dark greenish-grey; massive to weakly foliated at 50-60 degrees to c.a.; fine to medium grained equigranular (1-2mm); appears to be instrusive equivalent of the andesite or a massive, coarser grained andesite flow; no sulphides observed
23-333	201.00			E.O.H.				

Xstrata Zinc Canada				Mineralization Log
HoleID	From_m	To_m	Length	Description
23-333	56.35	65.43	9.08	3-5% pyhrrotite and pyrite regular and irregular stringers
23-333	115.48	124.2	8.72	~1% sulphides overall, and up to 7-10% over narrow intervals (tens of cm)

a Zinc Canada				Minor Lithological Log
HoleID	From_m	To_m	Length	Description
23-333	24.4	28.9	4.5	looks more like a dacite-rhyodacite?
23-333	126.9	127.3	0.4	greyish quartz vein and 7-10% pyhrrotite

Xstrata Zinc Canada

Lithogeochem Sampling

Hole ID	Sample Number	Lab	Certificate Number	AnalyticalMethod	From_ m	To_m	Length_ m	Sample Descript	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_pp m	Ho_ppm	La_ppm
23-11-333	J531805	ALS Minerals; Thunder Bay lab	TB11038591		45.00	45.30	0.30	J531805	<1	169	14.8	37.4	50	1.1	19	2.75	1.65	0.67	14.6	2.25	1.6	0.59	7.4
23-11-333	J531806	ALS Minerals; Thunder Bay lab	TB11038591		85.00	85.30	0.30	J531806	<1	306	35.5	28.2	60	1.55	52	3.37	1.85	1	18.4	3.44	3.2	0.68	17
23-11-333	J531807	ALS Minerals; Thunder Bay lab	TB11038591		130.00	130.30	0.30	J531807	<1	255	28.6	32.7	50	0.82	62	4.16	2.54	0.99	14.1	3.41	2.5	0.88	13.4
23-11-333	J531808	ALS Minerals; Thunder Bay lab	TB11038591		180.00	180.30	0.30	J531808	<1	59.1	14.3	49.5	20	0.76	97	3.28	2.05	0.79	17.2	2.74	1.7	0.69	6.7

Xstrata Zinc Ca																													
Hole ID	Sample Number	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%
23-11-333	J531805	0.25	<2	2.5	7.6	45	<5	1.74	24.8	1.97	1	150.5	0.2	0.4	1.35	<0.5	0.25	0.36	236	<1	15.4	1.66	82	50	44.5	12.75	15.1	9.69	4.47
23-11-333	J531806	0.29	<2	6.4	16.6	78	6	4.1	43.1	3.44	1	209	0.4	0.52	2.5	<0.5	0.28	0.58	151	<1	18.4	1.92	88	117	56.9	15.95	7.62	6.56	2.63
23-11-333	J531807	0.41	<2	4.6	14	74	8	3.37	50.3	3.05	1	70.9	0.3	0.59	1.67	<0.5	0.39	0.44	206	<1	26	2.66	178	101	52.4	12.65	12.25	8	2.12
23-11-333	J531808	0.31	<2	2.6	8	41	<5	1.72	8.4	2.18	1	138.5	0.2	0.5	1.3	<0.5	0.31	0.34	275	<1	19.1	2.12	101	55	52.1	14.5	12.4	7.9	6.18

Xstrata Zinc Ca

Hole ID	Sample Number	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
23-11-333	J531805	1.45	0.65	0.01	0.7	0.43	0.06	0.02	0.02	9.93	99.8
23-11-333	J531806	3.32	1.22	0.01	0.82	0.14	0.15	0.03	0.03	5.2	100.5
23-11-333	J531807	0.17	2.39	0.01	0.57	0.3	0.1	0.01	0.03	8.3	99.3
23-11-333	J531808	4.42	0.44	<0.01	0.75	0.18	0.06	0.02	0.01	1.09	100

Xstrata Zinc Canada												Assays		
HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Zn%_OG62	Au_ppm_AA23
F-11-139	J529060	TB11038592	55.35	56.35	1.00		J529060	0.011	0.001	0.039	<0.2			
F-11-139	J529061	TB11038592	56.35	57.40	1.05		J529061	0.011	0.001	0.028	0.3			
F-11-139	J529062	TB11038592	57.40	58.40	1.00		J529062	0.01	0.002	0.023	0.3			
F-11-139	J529063	TB11038592	58.40	59.40	1.00		J529063	0.007	0.002	0.028	0.2			
F-11-139	J529064	TB11038592	59.40	60.40	1.00		J529064	0.006	0.002	0.017	0.2			
F-11-139	J529065	TB11038592	60.40	61.40	1.00		J529065	0.006	0.002	0.069	0.3			
F-11-139	J529066	TB11038592	61.40	62.40	1.00		J529066	0.004	0.001	0.018	0.2			
F-11-139	J529067	TB11038592	62.40	63.40	1.00		J529067	0.007	0.002	0.018	0.2			
F-11-139	J529068	TB11038592	63.40	64.40	1.00		J529068	0.007	0.002	0.029	0.3			
F-11-139	J529069	TB11038592	64.40	65.43	1.03		J529069	0.009	0.002	0.034	0.4			
F-11-139	J529070	TB11038592	65.43	66.43	1.00		J529070	0.004	<0.001	0.02	<0.2			
F-11-139	J529071	TB11038592	114.50	115.48	0.98		J529071	0.001	0.001	0.012	<0.2			
F-11-139	J529072	TB11038592	115.48	116.50	1.02		J529072	0.012	0.003	0.011	<0.2			
F-11-139	J529073	TB11038592	116.50	117.50	1.00		J529073	0.015	0.002	0.03	0.3			
F-11-139	J529074	TB11038592	117.50	118.50	1		J529074	0.014	0.002	0.037	0.2			
F-11-139	*J529075*	*TB11038592*	*Standard*				*J529075*	*1.395*	*0.147*	*20.1*	*35*	*1.395*	*20.1*	*NSS*
F-11-139	J529076	TB11038592	118.50	119.50	1		J529076	0.016	0.003	0.079	0.4			
F-11-139	J529077	TB11038592	119.50	120.50	1		J529077	0.007	0.002	0.045	0.2			
F-11-139	J529078	TB11038592	120.50	121.50	1		J529078	0.008	0.003	0.009	<0.2			
F-11-139	J529079	TB11038592	121.50	122.50	1		J529079	0.004	0.002	0.009	<0.2			
F-11-139	J529080	TB11038592	122.50	123.50	1		J529080	0.013	0.002	0.041	0.3			
F-11-139	J529081	TB11038592	123.50	124.50	1		J529081	0.017	0.004	0.046	0.3			
F-11-139	J529082	TB11038592	124.50	126.00	1.5		J529082	0.009	0.007	0.016	<0.2			
F-11-139	J529083	TB11038592	126.00	127.50	1.5		J529083	0.013	0.003	0.028	0.2			
F-11-139	J529084	TB11038592	127.50	129.00	1.5		J529084	0.009	0.003	0.043	<0.2			
F-11-139	J529085	TB11038592	129.00	130.00	1		J529085	0.006	0.002	0.013	<0.2			
F-11-139	J529086	TB11038592	130.00	131.16	1.16		J529086	0.01	0.002	0.012	<0.2			
F-11-139	J529087	TB11038592	131.16	132.00	0.84		J529087	0.037	0.004	0.098	0.8			
F-11-139	J529088	TB11038592	132.00	133.00	1		J529088	0.01	0.002	0.036	<0.2			
F-11-139	J529089	TB11038592	133.00	134.00	1		J529089	0.041	0.004	0.204	0.8			
F-11-139	J529090	TB11038592	134.00	135.00	1		J529090	0.029	0.004	0.159	0.6			
F-11-139	J529091	TB11038592	135.00	136.00	1		J529091	0.028	0.004	0.132	0.5			

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	RockCode	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Zn%_OG62	Au_ppm_AA23
F-11-139	J529092	TB11038592	136.00	136.87	0.87		J529092	0.055	0.004	0.117	0.6			
F-11-139	J529093	TB11038592	136.87	137.90	1.03		J529093	0.012	0.004	0.022	0.2			

Zinc Canada								Downhole Deviation
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**
23-333	Reflex	24-Feb-11	30	-48.3	186.4	55903	No correction	
23-333	Reflex	25-Feb-11	60	-65.0	181.9	56816		several zones of broken/blocky core between 45 and 60m
23-333	Reflex	25-Feb-11	90	-64.8	184.1	56588		
23-333	Reflex	25-Feb-11	120	-63.8	184.4	56980		
23-333	Reflex	26-Feb-11	150	-63.8	185.7	56774		
23-333	Reflex	26-Feb-11	180	-62.7	185.1	56880		
23-333	Reflex	26-Feb-11	210	-62.7	185.6	56761		E.O.H.

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
23-333	16.50	-0.287	
23-333	18.00	0.071	
23-333	19.50	-0.005	
23-333	21.00	0.312	
23-333	22.50	0.581	
23-333	24.00	3.258	
23-333	25.50	0.531	
23-333	27.00	0.531	
23-333	28.50	0.357	
23-333	30.00	0.453	
23-333	31.50	0.781	
23-333	33.00	0.677	
23-333	34.50	0.964	
23-333	36.00	0.821	
23-333	37.50	0.481	
23-333	39.00	0.407	
23-333	40.50	-0.261	
23-333	42.00	-0.149	
23-333	43.50	0.862	
23-333	45.00	0.308	
23-333	46.50	0.254	
23-333	48.00	0.409	
23-333	49.50	0.873	
23-333	51.00	0.844	
23-333	52.50	0.88	
23-333	54.00	10.44	
23-333	55.50	51.99	
23-333	57.00	5.679	
23-333	58.50	3.734	
23-333	60.00	14.33	
23-333	61.50	16.51	
23-333	63.00	16.42	
23-333	64.50	66.62	
23-333	66.00	13.7	
23-333	67.50	2.893	
23-333	69.00	0.004	
23-333	70.50	0	
23-333	72.00	-0.029	
23-333	73.50	0.139	
23-333	75.00	0.013	
23-333	76.50	0.114	
23-333	78.00	0.018	
23-333	79.50	0.093	
23-333	81.00	0.041	
23-333	82.50	0.068	
23-333	84.00	0.39	
23-333	85.50	0.611	
23-333	87.00	-0.506	
23-333	88.50	-0.149	
23-333	90.00	0.123	
23-333	91.50	0.151	
23-333	93.00	0.234	
23-333	94.50	0.51	
23-333	96.00	0.126	
23-333	97.50	0.425	
23-333	99.00	0.474	
23-333	100.50	0.424	
23-333	102.00	0.546	
23-333	103.50	2.31	
23-333	105.00	0.607	
23-333	106.50	0.573	
23-333	108.00	0.943	
23-333	109.50	-0.523	
23-333	111.00	-0.395	
23-333	112.50	-0.231	
23-333	114.00	0.072	
23-333	115.50	2.006	
23-333	117.00	24.65	
23-333	118.50	10.31	
23-333	120.00	2.797	
23-333	121.50	2.006	
23-333	123.00	6.006	
23-333	124.50	1.029	
23-333	126.00	1.151	
23-333	127.50	1.677	

HoleID	Depth_m	Mag. Sus. Reading	Comments
23-333	129.00	1.041	
23-333	130.50	0.417	
23-333	132.00	3.949	
23-333	133.50	48.95	
23-333	135.00	17.83	
23-333	136.50	63.13	
23-333	138.00	2.663	
23-333	139.50	0.0985	
23-333	141.00	1.291	
23-333	142.50	0.377	
23-333	144.00	1.192	
23-333	145.50	0.73	
23-333	147.00	0.714	
23-333	148.50	0.909	
23-333	150.00	0.654	
23-333	151.50	0.587	
23-333	153.00	0.726	
23-333	154.50	0.833	
23-333	156.00	-0.657	
23-333	157.50	0.933	
23-333	159.00	0.164	
23-333	160.50	0.323	
23-333	162.00	0.447	
23-333	163.50	0.529	
23-333	165.00	0.542	
23-333	166.50	0.633	
23-333	168.00	0.636	
23-333	169.50	0.67	
23-333	171.00	0.661	
23-333	172.50	0.63	
23-333	174.00	0.705	
23-333	175.50	0.789	
23-333	177.00	0.639	
23-333	178.50	0.607	
23-333	180.00	0.472	
23-333	181.50	0.661	
23-333	183.00	0.372	
23-333	184.50	0.507	
23-333	186.00	0.634	
23-333	187.50	1.051	
23-333	189.00	0.708	
23-333	190.50	0.637	
23-333	192.00	0.462	
23-333	193.50	0.569	
23-333	195.00	0.444	
23-333	196.50	0.482	
23-333	198.00	0.467	
23-333	199.50	0.52	
23-333	201.00	0.449	

Xstrata Zinc Canada **Summary Geological Log**

HOLE DESCRIPTION					HOLE ORIENTATION	
HOLE NO:	23-11-332	No grid	DATUM:	NAD 83	AZIMUTH:	180.0
LOGGED BY:	D.cullen	NA	ZONE:	15	DIP:	-50.0
START DATE:	20-Feb-11	NA	UTM Northing:	5527965	FINAL DEPTH (m):	
FINISH DATE:	24-Feb-11	NA	UTM Easting:	654140	CORE SIZE:	BQ
		15m	UTM Elevation:		Magnetic Declination:	N/A

Target:
Township: **NTS:** 52G15
Drill Contractor: **Major Drilling, Val D'Or branch** **Cement:** **No** **Casing:** **15m**
Material Left in Hole: **Casing. Cap.** **Plug:** **No**
Core Recovery and Ground Conditions:
Core Storage: **Mattabi core yard.**
Downhole Survey:
Comments:

Depth			Rock Type		Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code					
0.00	15.00	15.00	OVB	casing/overburden				
15.00	59.30	44.30	V2J/V3	Andesite-mafic volcanic				
59.30	70.26	10.96	V1/V1B	Rhyolite-felsic volcanic				
70.26	96.17	25.91	V2J/V3	Andesite-mafic volcanic				
96.17	107.90	11.73	SMS	Semi-massive to Stringer sulphides				
107.90	118.40	10.50	V1B/V1C	Rhyolite/Rhyodacite				
118.40	123.74	5.34	V1B/V1C	Rhyolite/Rhyodacite				
123.74	131.34	7.60	V1B/V1C	Rhyolite/Rhyodacite				
131.34	134.70	3.36	V1B/V1C	Rhyolite/Rhyodacite				
134.70	141.93	7.23	V1B/V1C	Rhyolite/Rhyodacite				
141.93	153.90	11.97	V1B/V1C	Rhyolite/Rhyodacite				
153.90	161.95	8.05	V1B/V1C	Rhyolite/Rhyodacite				
161.95	201.00	39.05	V2J/V3	Andesite-mafic volcanic				
	-	EOH	**EOH**			EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
23-332	0.00	15.00	15.00	OVB	casing/overburden			
23-332	15.00	59.30	44.30	V2J/V3	Andesite-mafic volcanic	Fb	Fol	Andesite-mafic volacin tuff/flow; medium green to grey-green; fine to very fine grained to locally medium grained; generally well-banded/foliated at variable core angles from 40 to 70 degrees to C.A.; common carbonate and quartz-carbonate seams, bands and veinlets, predominantly parallel to banding/foliation; common chloritic alteration; occasional magnetite-rich bands up to 10-20 cm with up to 10% magnetite grains up to 1mm; occasiona pyrite and pyhrrotite stringers and disseminations; lower contact somewhat gradational at 50 degrees to c.a.
23-332	59.30	70.26	10.96	V1/V1B	Rhyolite-felsic volcanic			Rhyolite-felsic volcanic; light grey; fine grained; moderate foliation (bedding?) at 45-50 degrees to c.a.; occasional carbonate and quartz-carbonate veinlets and veins, usually parallel to foliation; no visible sulphides; lower contact sharp and regular at 45 degrees to c.a.
23-332	70.26	96.17	25.91	V2J/V3	Andesite-mafic volcanic	Fb/Fol	Fr/Bx	Andesite-mafic volcanic as from 15.0-59.30; below 88.00 unit becomes variably fractured to locally brecciated over intervals up to 1m; lower contact determined by introduction of strong sulphide mineralization
23-332	96.17	107.90	11.73	SMS	Semi-massive to Stringer sulphides	Sh	Bx/Fr	25-30% Semi-massive to stringer pyrite > pyhrrotite in what appears to be a felsic volcanic host - light grey, fine grained; commonly sheared and brecciated/fractured, with boudinaged and broken carbonate and quartz-carbonate veins and patches (dolomite? - doesn't effervesce in HCL); lower contact gradational, at 50 degrees to c.a., determined by marked decrease in sulphides
23-332	107.90	118.40	10.50	V1B/V1C	Rhyolite/Rhyodacite	Fol/Bed		Felsic (to intermediate) volcanic; very similar to 59.3 to 70.26, but a bit darker in colour; either an amygdular flow or crystal tuff, with local sections exhibiting sub-rounded amygdules or crystals up to 2-3mm; moderate foliation or bedding at 40-45 degrees to c.a.; generally fine grained; ~1% stringer and disseminated po > py overall; rare quartz-carbonate seams/veinlets; lower contact determined by increased sulphide mineralization
23-332	118.40	123.74	5.34	V1B/V1C	Rhyolite/Rhyodacite	Fol/Bed		Mineralized Zone - rhyolite/rhyodacite as above, with 15-20% semi-massive and stringer po > py - ~90% po and 10% py; contacts determined by introduction and exit of strong mineralization
23-332	123.74	131.34	7.60	V1B/V1C	Rhyolite/Rhyodacite	Fol/Bed		As from 107.90 to 118.40 with trace py/po; lower contact determined by introduction of pyhrrotite mineralization
23-332	131.34	134.70	3.36	V1B/V1C	Rhyolite/Rhyodacite	Fol/Bed		Mineralized Zone - as from 118.40 to 123.74 with 7-10% stringer po > py (~90:10); stringers are usually irregular and convoluted
23-332	134.70	141.93	7.23	V1B/V1C	Rhyolite/Rhyodacite	Fol/Bed		As from 107.90 to 118.40 with trace py/po; lower contact determined by introduction of pyhrrotite mineralization
23-332	141.93	153.90	11.97	V1B/V1C	Rhyolite/Rhyodacite	Fol	Sh	Mineralized Zone with predominantly stringer and blebs of pyhrrotite (<5% pyrite); moderately sheared/foliated at 60-70 degrees to c.a.; sulphide content decreases downhole, from ~10% to 2-3% at bottom of interval
23-332	153.90	161.95	8.05	V1B/V1C	Rhyolite/Rhyodacite			As from 107.90 to 118.40
23-332	161.95	201.00	39.05	V2J/V3	Andesite-mafic volcanic			As from 15.0 to 59.30; foliation at 40-50 degrees to c.a.; local magnetite-rich bands; trace sulphides
23-332	201.00		-201.00		E.O.H.			

Xstrata Zinc Canada				Mineralization Log
HoleID	From_m	To_m	Length	Description
23-332	96.17	102.8	6.63	~35-40% semi-massive sulphides (~75% py and 25% po with po richer near top and decreasing downhole
23-332	102.8	104.7	1.9	10-15% stringer py > po
23-332	104.7	106.6	1.9	20-25% semi-massive and stringer py > po
23-332	106.6	107.9	1.3	10-15% stringer py > po
23-332	118.4	123.74	5.34	15-20% semi-massive and stringer po > py (~90% po, 10% py)
23-332	131.34	134.7	3.36	7-10% stringer po > py (~90:10)
23-332	141.93	146	4.07	5-7% sulphides (po:py = 95:5)
23-332	146	148.5	2.5	7-10% po in section that appears to be more of a mafic tuff - darker grey and very fine grained
23-332	148.5	149.7	1.2	5-7% po > py
23-332	149.7	153.9	4.2	2-3% po > py stringers and sheared disseminations and blebs

Xstrata Zinc Canada				**Minor Lithological Log**
HoleID	**From_m**	**To_m**	**Length**	**Description**
23-332	60.95	61.08	0.13	white, milky quartz vein with minor Fe-carbonate along margins
23-332	111.7	112.38	0.68	White, milky quartz vein with ~20% massive po > py
23-332	146	148.5	2.5	Mafic tuff? Darker grey to black, very fine grained
23-				

Xstrata Zinc Canada			Lithogeochem Sampling																
Hole ID	**Sample Number**	**Lab**	**Certificate Number**	**From_ m**	**To_m**	**Length_ m**	**Sample _Descri**	**Ag_ppm**	**Ba_ppm**	**Ce_ppm**	**Co_ppm**	**Cr_ppm**	**Cs_ppm**	**Cu_ppm**	**Dy_ppm**	**Er_ppm**	**Eu_ppm**	**Ga_ppm**
23-332	J531800	ALS Minerals; Thunder Bay lab	TB11038591	30.00	30.30	0.30	J531800	<1	92.8	13.7	44.7	50	0.25	64	2.97	1.78	0.71	16.3
23-332	J531801	ALS Minerals; Thunder Bay lab	TB11038591	63.00	63.30	0.30	J531801	<1	228	15	50.8	60	0.65	68	2.73	1.61	0.67	17.8
23-332	J531802	ALS Minerals; Thunder Bay lab	TB11038591	113.00	113.30	0.30	J531802	<1	100.5	6.9	49.9	260	0.79	91	3.12	1.88	0.75	17.8
23-332	J531803	ALS Minerals; Thunder Bay lab	TB11038591	160.00	160.30	0.30	J531803	<1	454	8	75.3	300	0.84	109	3.17	1.92	0.74	18.8
23-332	J531804	ALS Minerals; Thunder Bay lab	TB11038591	200.00	200.30	0.30	J531804	<1	138.5	9.5	56.7	270	0.68	112	3.35	1.96	0.84	17.6

Xstrata Zinc

Hole ID	Sample Number	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm
23-332	J531800	2.39	1.8	0.63	6.4	0.27	<2	2.5	7.5	47	7	1.67	10.7	1.96	1	160.5	0.2	0.43	1.47	<0.5	0.28	1.33
23-332	J531801	2.4	2	0.57	7	0.22	<2	3	7.8	52	<5	1.79	27.1	1.98	1	164	0.2	0.4	1.59	<0.5	0.25	0.56
23-332	J531802	2.47	1.4	0.65	2.9	0.28	<2	2.1	5.3	121	7	1	15.3	1.74	1	169	0.1	0.43	0.27	<0.5	0.3	0.34
23-332	J531803	2.59	1.5	0.66	3.4	0.29	<2	2.2	5.8	155	5	1.13	37.8	1.84	1	235	0.1	0.44	0.27	<0.5	0.29	0.09
23-332	J531804	2.85	1.4	0.69	3.8	0.29	<2	2.1	6.9	119	<5	1.38	19	2.15	1	173.5	0.1	0.46	0.28	<0.5	0.3	0.12

Xstrata Zinc

Hole ID	Sample Number	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
23-332	J531800	262	<1	17.3	1.92	101	59	45.3	12.35	14.9	10.7	4.28	0.93	0.29	0.01	0.68	0.37	0.07	0.02	0.01	10.05	100
23-332	J531801	271	<1	15.4	1.59	67	63	51.5	15.2	6.49	9.4	3.99	3.18	0.77	0.01	0.82	0.18	0.07	0.02	0.03	9.65	101.5
23-332	J531802	310	<1	17.5	1.99	152	42	47.9	14.45	10.15	9.86	4.03	2.31	0.4	0.04	0.86	0.3	0.07	0.02	0.01	10.2	100.5
23-332	J531803	329	<1	17.7	1.92	89	47	49	16.15	7.78	10.5	2.97	2.12	1.13	0.04	0.93	0.22	0.06	0.03	0.05	10.3	101.5
23-332	J531804	315	<1	18.4	1.99	101	42	48.1	14.75	9.96	10.2	3.22	2.41	0.51	0.04	0.88	0.21	0.07	0.02	0.02	7.2	97.6

Xstrata Zinc Canada — Assays

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Rock_Code	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Zn%_OG62	Au_ppm_AA23
23-332	J529000	TB11038592	95.00	96.17	1.17		J529000	0.006	0.003	0.014	<0.2			
23-332	J529001	TB11038592	96.17	97.00	0.83		J529001	0.016	0.004	0.019	0.4			
23-332	J529002	TB11038592	97.00	98.00	1.00		J529002	0.007	0.004	0.02	0.4			
23-332	J529003	TB11038592	98.00	99.00	1.00		J529003	0.005	0.005	0.014	0.4			
23-332	J529004	TB11038592	99.00	100.00	1.00		J529004	0.007	0.004	0.015	0.5			
23-332	J529005	TB11038592	100.00	101.00	1.00		J529005	0.004	0.004	0.012	0.5			
23-332	J529006	TB11038592	101.00	102.00	1.00		J529006	0.006	0.004	0.012	0.6			
23-332	J529007	TB11038592	102.00	103.00	1.00		J529007	0.005	0.004	0.024	0.3			
23-332	J529008	TB11038592	103.00	104.00	1.00		J529008	0.007	0.002	0.014	0.3			
23-332	J529009	TB11038592	104.00	105.00	1.00		J529009	0.004	0.003	0.011	<0.2			
23-332	J529010	TB11038592	105.00	106.00	1.00		J529010	0.006	0.004	0.01	0.4			
23-332	*J529011*	*TB11038592*	*Blank*				*J529011*	*0.007*	*<0.001*	*0.007*	*<0.2*			
23-332	J529012	TB11038592	106.00	107.00	1.00		J529012	0.013	0.004	0.034	0.3			
23-332	J529013	TB11038592	107.00	107.90	0.90		J529013	0.018	0.006	0.125	0.8			
23-332	J529014	TB11038592	107.90	108.90	1		J529014	0.004	0.002	0.02	<0.2			
23-332	J529015	TB11038592	108.90	109.90	1		J529015	0.011	0.002	0.021	0.2			
23-332	J529016	TB11038592	109.90	110.80	0.9		J529016	0.009	0.001	0.019	<0.2			
23-332	J529017	TB11038592	110.80	111.70	0.9		J529017	0.01	0.001	0.012	<0.2			
23-332	J529018	TB11038592	111.70	112.38	0.68		J529018	0.012	0.002	0.005	0.2			
23-332	J529019	TB11038592	112.38	113.40	1.02		J529019	0.007	0.001	0.018	<0.2			
23-332	J529020	TB11038592	113.40	114.40	1		J529020	0.005	0.001	0.013	<0.2			
23-332	J529021	TB11038592	114.40	115.40	1		J529021	0.007	0.001	0.016	<0.2			
23-332	J529022	TB11038592	115.40	116.40	1		J529022	0.008	0.002	0.026	<0.2			
23-332	J529023	TB11038592	116.40	117.40	1		J529023	0.01	0.001	0.025	<0.2			
23-332	J529024	TB11038592	117.40	118.40	1		J529024	0.011	0.001	0.015	<0.2			
23-332	*J529025*	*TB11038592*	*Standard*				*J529025*	*1.395*	*0.137*	*20.5*	*36.7*	*1.42*	*19.55*	*0.525*
23-332	J529026	TB11038592	118.40	119.40	1		J529026	0.037	0.003	0.094	0.6			
23-332	J529027	TB11038592	119.40	120.40	1		J529027	0.034	0.004	0.094	0.6			
23-332	J529028	TB11038592	120.40	121.50	1.1		J529028	0.032	0.004	0.127	0.4			
23-332	J529029	TB11038592	121.50	122.60	1.1		J529029	0.019	0.005	0.099	0.6			
23-332	J529030	TB11038592	122.60	123.74	1.14		J529030	0.018	0.002	0.082	0.5			
23-332	J529031	TB11038592	123.74	125.00	1.26		J529031	0.008	0.002	0.037	<0.2			
23-332	J529032	TB11038592	125.00	126.50	1.5		J529032	0.009	0.002	0.026	<0.2			
23-332	J529033	TB11038592	126.50	128.00	1.5		J529033	0.014	0.001	0.014	0.2			
23-332	J529034	TB11038592	128.00	129.50	1.5		J529034	0.012	<0.001	0.019	<0.2			
23-332	J529035	TB11038592	129.50	130.50	1		J529035	0.008	0.001	0.016	<0.2			
23-332	J529036	TB11038592	130.50	131.34	0.84		J529036	0.003	0.002	0.021	<0.2			
23-332	J529037	TB11038592	131.34	132.50	1.16		J529037	0.02	0.002	0.026	0.4			
23-332	J529038	TB11038592	132.50	133.60	1.1		J529038	0.029	0.002	0.112	1			

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Rock_Code	Sample Description	Cu %_AA46	Pb%_AA46	Zn %_AA46	Ag_ppm_AA45	Cu_OG62	Zn%_OG62	Au_ppm_AA23
23-332	J529039	TB11038592	133.60	134.70	1.1		J529039	0.025	0.002	0.1	0.8			
23-332	J529040	TB11038592	134.70	136.20	1.5		J529040	0.007	<0.001	0.017	<0.2			
23-332	J529041	TB11038592	136.20	137.70	1.5		J529041	0.013	0.002	0.125	<0.2			
23-332	J529042	TB11038592	137.70	139.20	1.5		J529042	0.005	0.001	0.015	<0.2			
23-332	J529043	TB11038592	139.20	140.70	1.5		J529043	0.004	0.001	0.015	<0.2			
23-332	J529044	TB11038592	140.70	141.93	1.23		J529044	0.005	0.002	0.016	<0.2			
23-332	J529045	TB11038592	141.93	143.00	1.07		J529045	0.032	0.004	0.158	0.6			
23-332	J529046	TB11038592	143.00	144.00	1		J529046	0.023	0.001	0.133	0.6			
23-332	J529047	TB11038592	144.00	145.00	1		J529047	0.026	0.004	0.182	0.5			
23-332	J529048	TB11038592	145.00	146.00	1		J529048	0.043	0.003	0.297	0.8			
23-332	J529049	TB11038592	146.00	147.00	1		J529049	0.031	0.004	0.303	0.8			
23-332	*J529050*	*TB11038592*	*Standard*				*J529050*	*1.58*	*0.156*	*21.1*	*36.7*	*1.405*	*19.95*	*NSS*
23-332	J529051	TB11038592	147.00	148.00	1		J529051	0.032	0.004	0.255	1.1			
23-332	J529052	TB11038592	148.00	149.00	1		J529052	0.023	0.003	0.331	0.6			
23-332	J529053	TB11038592	149.00	150.00	1		J529053	0.02	0.002	0.06	0.4			
23-332	J529054	TB11038592	150.00	151.00	1		J529054	0.01	0.001	0.012	0.2			
23-332	J529055	TB11038592	151.00	152.00	1		J529055	0.01	0.001	0.012	<0.2			
23-332	J529056	TB11038592	152.00	153.00	1		J529056	0.01	0.001	0.02	<0.2			
23-332	J529057	TB11038592	153.00	154.00	1		J529057	0.006	<0.001	0.014	0.2			
23-332	J529058	TB11038592	154.00	155.00	1		J529058	0.012	0.001	0.018	<0.2			
23-332	*J529059*	*TB11038592*	*Blank*				*J529059*	*0.009*	*0.001*	*0.008*	*<0.2*			

Xstrata Zinc Canada								Downhole Deviation
Hole ID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
23-332	Reflex	21-Feb-11	30	-47.4	187.5	56666	No correction	
23-332	Reflex	22-Feb-11	60	-46.0	188.7	56591		
23-332	Reflex	22-Feb-11	90	-44.6	189.4	56235		
23-332	Reflex	23-Feb-11	120	-43.4	189.7	56677		
23-332	Reflex	23-Feb-11	150	-40.3	188.2	59337		
23-332	Reflex	23-Feb-11	180	-38.0	210.0	56897		Told them to redo test if test at bottom is back to normal (i.e. around 190)
23-332	Reflex	24-Feb-11	201	-36.1	196.5	56406		

Hole: ______________

Xstrata Zinc Canada **Magnetic Susceptibility Log**

HoleID	Depth_m	Mag. Sus. Reading	Comments
23-332			
23-332	15.00	10.19	
23-332	16.50	14.83	
23-332	18.00	1.936	
23-332	19.50	1.532	
23-332	21.00	4.795	
23-332	22.50	5.567	
23-332	24.00	8.276	
23-332	25.50	-0.305	
23-332	27.00	-0.089	
23-332	28.50	0.34	
23-332	30.00	0.669	
23-332	31.50	3.543	
23-332	33.00	1.206	
23-332	34.50	32	
23-332	36.00	1.021	
23-332	37.50	3.141	
23-332	39.00	-0.103	
23-332	40.50	0.454	
23-332	42.00	0.214	
23-332	43.50	0.438	
23-332	45.00	0.306	
23-332	46.50	0.379	
23-332	48.00	0.552	
23-332	49.50	0.407	
23-332	51.00	0.636	
23-332	52.50	0.876	
23-332	54.00	0.573	
23-332	55.50	0.733	
23-332	57.00	0.538	
23-332	58.50	0.94	
23-332	60.00	0.622	
23-332	61.50	-0.527	
23-332	63.00	-0.121	
23-332	64.50	0.064	
23-332	66.00	0.101	
23-332	67.50	0.115	
23-332	69.00	0.314	
23-332	70.50	0.778	
23-332	72.00	0.478	
23-332	73.50	0.733	
23-332	75.00	1.086	
23-332	76.50	0.801	
23-332	78.00	0.514	
23-332	79.50	1.221	
23-332	81.00	0.871	
23-332	82.50	1.187	
23-332	84.00	-0.69	
23-332	85.50	-0.011	
23-332	87.00	0.743	
23-332	88.50	1.917	
23-332	90.00	1.49	
23-332	91.50	0.459	
23-332	93.00	0.858	
23-332	94.50	5.54	
23-332	96.00	202.2	
23-332	97.50	371.9	
23-332	99.00	163.2	
23-332	100.50	192.9	
23-332	102.00	436.9	
23-332	103.50	38.92	
23-332	105.00	41.89	
23-332	106.50	33.3	
23-332	108.00	6.004	
23-332	109.50	3.511	
23-332	111.00	4.29	
23-332	112.50	3.047	
23-332	114.00	1.681	
23-332	115.50	4.084	
23-332	117.00	2.987	
23-332	118.50	17.09	
23-332	120.00	37.61	
23-332	121.50	35.29	

HoleID	Depth_m	Mag. Sus. Reading	Comments
23-332	123.00	20.86	
23-332	124.50	17.74	
23-332	126.00	19.15	
23-332	127.50	3.878	
23-332	129.00	2.532	
23-332	130.50	2.193	
23-332	132.00	26.34	
23-332	133.50	26.43	
23-332	135.00	9.218	
23-332	136.50	0.53	
23-332	138.00	0.126	
23-332	139.50	0.749	
23-332	141.00	6.366	
23-332	142.50	13.59	
23-332	144.00	13.55	
23-332	145.50	27.67	
23-332	147.00	24.61	
23-332	148.50	20.92	
23-332	150.00	18.85	
23-332	151.50	13.94	
23-332	153.00	8.889	
23-332	154.50	7.261	
23-332	156.00	3.281	
23-332	157.50	1.711	
23-332	159.00	0.578	
23-332	160.50	0.857	
23-332	162.00	0.513	
23-332	163.50	0.138	
23-332	165.00	-0.75	
23-332	166.50	-0.181	
23-332	168.00	0.258	
23-332	169.50	0.493	
23-332	171.00	1.356	
23-332	172.50	59.57	
23-332	174.00	102.6	
23-332	175.50	69.43	
23-332	177.00	0.941	
23-332	178.80	1.225	
23-332	180.00	12.31	
23-332	181.50	21.6	
23-332	183.00	147.2	
23-332	184.50	71.6	
23-332	186.00	2.078	
23-332	187.50	0.844	
23-332	189.00	-0.571	
23-332	190.50	-0.076	
23-332	192.00	0.158	
23-332	193.50	0.43	
23-332	195.00	0.597	
23-332	196.50	0.591	
23-332	198.00	0.932	
23-332	199.50	1.454	
23-332	201.00	0.904	
23-332	End of Hole		

Xstrata Zinc Canada **Summary Geological Log**

E DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	23-2010-331	GRID:	NA	DATUM:	NAD 83	AZIMUTH:	180
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-50
START DATE:	25-Oct-10	EASTING:	NA	UTM Northing:	5526178	FINAL DEPTH (m):	251m
FINISH DATE:	28-Oct-10	ELEVATION:	NA	UTM Easting:	653118	CORE SIZE:	BQ
		Casing (m):	7m	UTM Elevation:	400	Magnetic Declination:	N/A

Target:	SL-2010-C. Weak MEGATEM EM anomaly. East extension of a mineralized corridor (Lyon Lake South area - lower corridor)		
Township:	Bell Lake	NTS:	52G15
Drill Contractor:	Major Drilling	Cement:	No
		Casing:	7m
Material Left in Hole:	Casing + Cap	Plug:	No.
Core Recovery and Ground Conditions:			
Core Storage:	Mattabi core yard		
Downhole Survey:	BPEM		
Comments:			

Depth			Rock Type					Stratigra			Alteration			Mineraliz		Comments					
From	To	Interval	Major Rock Code	Texture	Rock Name					Type & Intensity				Sulphide Type	Sulphide %	Texture					
0.00	7.00		OVB																		
7.00	55.60		V2 (V3?)		Intermediate (to mafic?) Flow																
55.60	92.05		V1		Felsic Volcanic																
92.05	119.50		V2		Intermediate Volcanic																
119.50	151.15		V1/V2		Felsic to Intermediate Volcanic																
151.15	251.00		V2 (V1?)		Intermediate (to felsic?) Pyroclastic Flow/Tuff																
	-	EOH	EOH									EOH									

Major Litho Log

HoleID	From_m	To_m	Length_m	MajorRockCode	MajorRockName	Comments
23-331	0.00	7.00	7.00	OVB	Casing/overburden	
23-331	7.00	55.60	48.60	V2(V3?)	Intermediate (to mafic?) Volcanic (Flow)	Medium to dark grey; medium to fine grained; moderate foliation @50-60 degrees to C.A.; locally brecciated with quartz(+/- carb) breccia-filling; local garnetiferous sections (more mafic?) up to several metres; local weak pervasive carbonatization. Lower contact sharp and regular at 70 degrees to C.A.
23-331	55.60	92.05		V1	Felsic Volcanic (Flow)	Medium grey; fine to medium grained; moderate foliation at 50-60 degrees to C.A.; common (moderate) reddish-pink seams/stringers at 50-60 degrees to C.A. - andalusite alteration? Occurs with weak to moderate sericite and silicification - downhole the alteration becomes more rusty-red - looks more like hematite alteration; 3-5% blue-grey quartz eyes up to 2-3mm; rare carbonate (unless its dolomite - doesn't effervesce in HCl); trace sulphides. Lower contact gradational - defined by the disappearance of quartz eyes
23-331	92.05	119.50		V2	Intermediate Volcanic	Generally medium to dark grey; lighter reddish-grey near top due to andalusite alteration and silicification(?); fine grained; moderate foliation at 45-60 degrees to C.A. - mainly defined by whitish to reddish seams and wisps (sericite+/-dolomite and andalusite?); occasional irregular; barren quartz veins; trace fine grained pyrite. Lower contact sharp and regular at 45 degrees to C.A.
23-331	119.50	151.15		V1/V2	Felsic to Intermediate Volcanic	Lighter grey than previous unit - possibly due to alteration but looks like a more felsic unit; fine to occasionally medium grained; moderate foliation at 50-60 degrees to C.A. - near top of unit foliation tends to be more wavy and sub-parallel to C.A.; moderate chlorite alteration throughout in seams parallel to foliation; common whitish seams/wisps (sericitic?) parallel to foliation - often with reddish-brown mineral (iron carbonate or andalusite?) Lower contact obscured by broken core
23-331	151.15	251.00		V2 (+V1?)	Intermediate (to felsic?) pyroclastic flow/tuff	Medium to dark grey; fine to coarse grained with variably sized fragments from ash to crystal to lapilli - appear to be felsic to intermediate in composition; moderately chloritic throughout; weakly foliated/bedded at 40-60 degrees to C.A.; to locally massive; trace to 1% pyrite; pyrrhotite and chalcopyrite overall; locally up to 10-15% over core lengths of up to 1 m; rare barren irregular quartz veining up to 20 cm; local blue quartz eyes 1-2mm;

Minor Litho Log

HoleID	From_m	To_m	Length_m	Comments
23-331	25.65	27.07	1.42	Moderate brecciation with quartz breccia-filling
23-331	30.73	32.5	1.77	Moderate brecciation; quartz veining and 2-3% stringer; disseminated and patchy pyrrhotite; pyrite and chalcopyrite
23-331	44.18	44.7	0.52	More felsic-looking unit with 2-3% pyrrhotite; pyrite and chalcopyrite; possibly silicified
23-331	83.6	89	5.4	Moderate too strong rust-red seams / stringers at 60 degrees to C.A. - looks more like hematite; occasional quartz (+ dolomite?) stringers parallel to foliation
23-331	90	91.5	1.5	Moderately broken/blocky core; locally brecciated
23-331	94.9	103.36	8.46	Lighter grey to reddish grey; with irregular red fractures and seams (andalusite or hematite?); possibly a separate; more felsic unit; but looks like alteration
23-331	119.7	121.2	1.5	Foliation wavy; sub-parallel to C.A.
23-331	201.2	202.4	1.2	Feldspar phyric dyke? or flow
23-331	217.93	224.57	6.64	More felsic interval; with occasional blue quartz eyes and quartz-feldspar-phyric with rounded quartz and feldspar phenocrysts up to ~0.5 cm; 1-2% disseminated; stringer and blebby pyrrhotite and pyrite throughout interval

Alteration Log

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensit	Alt2Type	Alt2Intensity	Comments
23-331	43	55.6	12.6	GT	MOD			local garnets (up to 5%) up to 5mm in diameter
23-331	48.17	48.85	0.68	CHLD	MOD			moderate chloritoid alteration in sericitic groundmass with 1-2% disseminated and stringer pyhrrotite
23-331	151.15	162	10.85	AND	WK			local weak to moderate andalusite alteration

Mineralization Log

HoleID	From_m	To_m	Length_m	MinzType	Minz%	MinzStyle1	MinzStyle2	MinzStyle3	Comments
23-331	25.65	27.82	2.17	Py-Cpy	1.5	BL	STR		1-2% blebby and stringer pyrite and chalcopyrite
23-331	47.83	48.17	0.34	Po	6	STR			5-7% pyhrrotite stringers with moderate garnets
23-331	164.5	165	0.5	Py-Po+Cpy	8.5	STR			7-10% pyrite > pyhrrotite stringers (+chalcopyrite?)
23-331	176.4	179.52	3.12	Po-Py+Cpy	2.5	BL	STR	PATCH	2-3% Po, Py and Cpy blebs, stringers and patches
23-331	185.2	186	0.8	Py	12	STR			10-15% pyrite stringers
23-331	205	205.55	0.55	Py	2.5	STR			2-3% pyrite stringers

Geochemical Samples

HoleID	Sample Number	Lab	Certificate Number	AnalyticalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm
23-331	I106047	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	39.80	40.10	0.30	<1	133.5	71.3	3.8	<10	0.41	94	7.24	4.63	1.04	14.5	7.67	8
23-331	I106048	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	70.10	70.40	0.30	<1	149	82.3	0.7	<10	0.5	<5	8.34	5.29	1.52	18.7	8.38	9.1
23-331	I106049	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	99.70	100.00	0.30	<1	93.7	60.5	1.2	<10	0.3	68	5.38	3.54	0.69	12.5	5.87	6.1
23-331	I106050	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	130.00	130.30	0.30	<1	70.2	82.8	1.5	10	1.52	<5	8.31	5.42	1.21	17.7	8.4	9.5
23-331	I106051	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	160.00	160.30	0.30	<1	144	65.9	1.4	<10	0.68	<5	8.5	5.47	1.27	17.7	7.39	9.8
23-331	I106052	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	190.00	190.30	0.30	<1	145.5	106.5	2.2	<10	1.05	8	9.74	6.33	1.7	18.9	10.05	10.7
23-331	I106053	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	215.00	215.30	0.30	<1	281	87.5	3.9	<10	0.63	<5	8.55	5.44	1.65	18.4	8.77	9.1
23-331	I106054	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	250.00	250.30	0.30	<1	386	100	2.6	10	0.93	37	10.3	6.52	1.57	19.1	10.45	10.3

Geochemical Sam

HoleID	Sample Number	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm
23-331	I106047	1.51	33.3	0.69	2	17.4	33.4	<5	<5	8.72	25.9	6.72	3	23.6	1.4	1.2	6.44	<0.5	0.68	1.44	<5	1	39.3	4.57	299
23-331	I106048	1.8	37.4	0.78	<2	20.4	39.2	<5	<5	10.2	48.2	8.11	3	19.3	1.4	1.34	7.41	<0.5	0.79	1.62	<5	1	45.6	5.27	54
23-331	I106049	1.16	27.9	0.48	<2	13.2	29.4	<5	14	7.62	32.2	6.02	2	24.7	0.9	0.9	4.93	<0.5	0.51	1.15	<5	1	29.6	3.12	95
23-331	I106050	1.78	39.9	0.76	<2	20	36.9	5	6	10.05	54.3	7.73	2	41.4	1.4	1.38	8	<0.5	0.8	1.72	<5	1	45.5	5.05	202
23-331	I106051	1.81	30.2	0.78	<2	20.9	31.5	<5	<5	8.15	64.6	6.67	3	27.8	1.4	1.26	8.01	<0.5	0.82	1.78	<5	1	46.8	5.4	143
23-331	I106052	2.05	49.9	0.9	2	22.8	50.3	<5	<5	13.1	67.1	9.91	3	38.6	1.5	1.61	9.25	<0.5	0.91	1.99	<5	1	53.7	6.26	116
23-331	I106053	1.8	40.5	0.78	2	19.5	41.5	6	9	10.75	54.1	8.4	3	49.7	1.4	1.43	8.18	<0.5	0.8	1.84	22	1	48	5.08	71
23-331	I106054	2.14	45.7	0.89	2	22.2	47	<5	11	12.35	66.1	9.73	3	104.5	1.5	1.71	9.19	<0.5	0.95	2.02	<5	1	56.8	5.98	70

Geochemical Sam

HoleID	Sample Number	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
23-331	I106047	294	72.8	8.58	7.63	0.71	2.62	0.13	0.99	<0.01	0.16	0.19	0.01	<0.01	0.01	3.69	97.5
23-331	I106048	339	73	10.4	4.23	0.08	3.21	0.15	1.78	<0.01	0.21	0.09	0.01	<0.01	0.02	3.2	96.4
23-331	I106049	223	84	6.71	2.3	0.01	1.21	0.15	1.2	<0.01	0.12	0.04	0.01	<0.01	0.01	1.69	97.5
23-331	I106050	345	70.8	10.65	6.36	1.12	4.11	0.26	1.42	<0.01	0.21	0.16	0.02	<0.01	0.01	2.69	97.8
23-331	I106051	386	72.7	11.15	4.17	0.1	2.74	0.16	2.36	<0.01	0.23	0.1	0.02	<0.01	0.02	2.58	96.3
23-331	I106052	405	67.9	11.35	5.55	0.44	4.4	0.29	2.08	<0.01	0.28	0.11	0.02	<0.01	0.02	3.39	95.8
23-331	I106053	344	71.9	11.35	3.61	0.21	2.58	0.24	2.54	<0.01	0.35	0.08	0.05	0.01	0.03	2.77	95.7
23-331	I106054	390	73	10.8	4.14	1.24	1.98	0.35	2.52	<0.01	0.25	0.09	0.01	0.01	0.05	1.99	96.4

Major Litho Log

HoleID	Sample Number	CertificateNumber	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn%	Ag_ppm	Zn%_OG62	Au_ppm_AA23	Comments
23-331	E460546	TB10164684	25.50	27.00	1.50		0.005	0.001	0.017	0.2			
23-331	E460547	TB10164684	27.00	28.50	1.50		0.012	0.001	0.03	0.4			
23-331	E460548	TB10164684	28.50	29.50	1.00		0.001	<0.001	0.02	0.2			
23-331	E460549	TB10164684	29.50	30.50	1.00		0.001	<0.001	0.021	0.3			
	E460550	TB10164684		Standard			0.932	0.032	9.97	9.5	10.3	0.079	
23-331	E460551	TB10164684	30.50	31.50	1.00		0.014	0.001	0.025	0.3			
23-331	E460552	TB10164684	31.50	32.50	1.00		0.098	<0.001	0.025	1.4			
23-331	E460553	TB10164684	32.50	33.50	1.00		0.008	<0.001	0.021	0.4			
23-331	E460554	TB10164684	44.00	45.00	1.00		0.009	<0.001	0.007	0.3			
23-331	E460555	TB10164684	45.00	46.50	1.50		0.001	<0.001	0.011	0.3			
23-331	E460556	TB10164684	46.50	47.70	1.20		0.005	<0.001	0.009	0.3			
23-331	E460557	TB10164684	47.70	49.20	1.50		0.011	<0.001	0.009	0.3			
23-331	E460558	TB10164684	163.50	164.50	1.00		0.017	<0.001	0.065	0.6			
23-331	E460559	TB10164684	164.50	165.00	0.50		0.133	0.007	0.124	2			
23-331	E460560	TB10164684	165.00	166.00	1.00		0.016	<0.001	0.018	0.6			
23-331	E460561	TB10164684	175.40	176.40	1.00		<0.001	<0.001	0.026	<0.2			
23-331	E460562	TB10164684	176.40	177.40	1.00		0.004	<0.001	0.036	0.2			
23-331	E460563	TB10164684	177.40	178.50	1.10		0.047	<0.001	0.7	0.6			
23-331	E460564	TB10164684	178.50	179.60	1.10		0.04	<0.001	0.422	0.6			
23-331	E460565	TB10164684	179.60	180.60	1.00		0.002	<0.001	0.016	<0.2			
23-331	E460566	TB10164684	180.60	182.10	1.50		0.003	<0.001	0.021	<0.2			
23-331	E460567	TB10164684	182.10	183.60	1.50		0.008	<0.001	0.028	<0.2			
23-331	E460568	TB10164684	183.60	185.10	1.50		0.004	<0.001	0.033	<0.2			
	E460569	TB10164684		Blank			0.008	<0.001	0.012	0.2			
23-331	E460570	TB10164684	185.10	186.10	1.00		0.003	0.001	0.013	0.5			
23-331	E460571	TB10164684	186.10	187.10	1.00		0.001	0.003	0.009	0.3			
23-331	E460572	TB10164684	204.00	205.00	1.00		0.003	0.001	0.009	0.2			
23-331	E460573	TB10164684	205.60	205.60	0.00		0.011	<0.001	0.012	0.3			
23-331	E460574	TB10164684	206.60	206.60	0.00		0.001	<0.001	0.014	<0.2			
	E460575	TB10164684		Standard			0.953	0.032	9.97	9.8	10.5	0.079	
23-331	E460576	TB10164684	216.80	217.80	1.00		<0.001	0.001	0.029	<0.2			
23-331	E460577	TB10164684	217.80	219.00	1.20		0.004	0.001	0.011	<0.2			
23-331	E460578	TB10164684	219.00	220.00	1.00		0.002	0.001	0.012	<0.2			
23-331	E460579	TB10164684	220.00	221.00	1.00		<0.001	0.001	0.011	<0.2			
23-331	E460580	TB10164684	221.00	222.00	1.00		0.002	0.001	0.015	0.2			
23-331	E460581	TB10164684	222.00	223.00	1.00		0.001	0.001	0.015	<0.2			
23-331	E460582	TB10164684	223.00	224.00	1.00		0.003	0.002	0.011	0.4			
23-331	E460583	TB10164684	224.00	224.70	0.70		0.008	0.002	0.012	0.4			
23-331	E460584	TB10164684	224.70	225.70	1.00		0.008	0.002	0.017	0.3			

Major Litho Log

HoleID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
23-331	Reflex	25-Oct-10	29	48.6	184.3	5799	No correction	
23-331	Reflex	25-Oct-10	59	47.6	184.0	5754		
23-331	Reflex	27-Oct-10	179	-42.5	187.9	5747		
23-331	Reflex	27-Oct-10	209	-42.2	188.6	5746		
23-331	Reflex	29-Oct-10	89	-47.2	184.0	5739		
23-331	Reflex	29-Oct-10	119	-46.7	185.4	5751		
23-331	Reflex	29-Oct-10	149	-44.9	186.5	5753		
23-331	Reflex	29-Oct-10	239	-42.0	190.0	5746		
23-331	Reflex	29-Oct-10	251	-41.9	190.7	5747		

Magnetic Susceptibility

HoleID	From_m	Mag. Sus. Reading	Comments
23-331	8.00	8.651	
23-331	9.50	1.237	
23-331	11.00	0.426	
23-331	12.50	2.375	
23-331	14.00	0.392	
23-331	15.50	0.426	
23-331	17.00	4.261	
23-331	18.50	5.394	
23-331	20.00	8.024	
23-331	21.50	2.018	
23-331	23.00	0.686	
23-331	24.50	0.547	
23-331	26.00	0.68	
23-331	27.50	-0.017	
23-331	29.00	0.081	
23-331	30.50	0.084	
23-331	32.00	1.105	
23-331	33.50	0.138	
23-331	35.00	-0.081	
23-331	36.50	0.839	
23-331	38.00	0.533	
23-331	39.50	0.469	
23-331	41.00	0.063	
23-331	42.50	0.464	
23-331	44.00	5.351	
23-331	45.50	49.87	
23-331	47.00	3.047	
23-331	48.50	0.362	
23-331	50.00	0.373	
23-331	51.50	0.301	
23-331	53.00	0.043	
23-331	54.50	0.058	
23-331	56.00	1.028	
23-331	57.50	0.114	
23-331	59.00	0.623	
23-331	60.50	0.107	
23-331	62.00	0.168	
23-331	63.50	0.059	
23-331	65.00	0.505	
23-331	66.50	0.079	
23-331	68.00	0.549	
23-331	69.50	0.27	
23-331	71.00	0.271	
23-331	72.50	0.322	
23-331	74.00	0.282	
23-331	75.50	0.094	
23-331	77.00	-0.947	
23-331	78.50	-0.441	
23-331	80.00	-0.351	
23-331	81.50	-0.198	
23-331	83.00	0.034	
23-331	84.50	0.067	
23-331	86.00	0.041	
23-331	87.50	0.036	
23-331	89.00	0.012	
23-331	90.50	0.037	
23-331	92.00	0.123	
23-331	93.50	0.057	
23-331	95.00	-0.016	
23-331	96.50	-0.05	
23-331	98.00	-0.017	
23-331	99.50	-0.824	
23-331	101.00	-0.557	
23-331	102.50	-0.314	
23-331	104.00	0.002	
23-331	105.50	0.085	
23-331	107.00	0.25	
23-331	108.50	0.06	
23-331	110.00	0.131	
23-331	111.50	0.073	
23-331	113.00	0.103	
23-331	114.50	0.038	
23-331	116.00	0.115	
23-331	117.50	0.077	
23-331	119.00	0.122	
23-331	120.50	0.139	
23-331	122.00	0.048	
23-331	123.50	0.21	
23-331	125.00	0.026	
23-331	126.50	0.12	
23-331	128.00	0.059	
23-331	129.50	0.047	

HoleID	From_m	Mag. Sus. Reading	Comments
23-331	131.00	0.011	
23-331	132.50	0.018	
23-331	134.00	0.091	
23-331	135.50	0.059	
23-331	137.00	0.128	
23-331	138.50	0.067	
23-331	140.00	0.046	
23-331	141.50	0.073	
23-331	143.00	0.048	
23-331	144.50	0.069	
23-331	146.00	0.043	
23-331	147.50	0.076	
23-331	149.00	0.047	
23-331	150.50	0.232	
23-331	152.00	0.122	
23-331	153.50	0.006	
23-331	155.00	0.037	
23-331	156.50	0.091	
23-331	158.00	0.045	
23-331	159.50	0.122	
23-331	161.00	0.069	
23-331	162.50	0.453	
23-331	164.00	0.271	
23-331	165.50	0.077	
23-331	167.00	-0.011	
23-331	168.50	0	
23-331	170.00	0.01	
23-331	171.50	0.118	
23-331	173.00	0.057	
23-331	174.50	0.091	
23-331	176.00	0.172	
23-331	177.50	0.337	
23-331	179.00	0.366	
23-331	180.50	0.112	
23-331	182.00	0.708	
23-331	183.50	0.079	
23-331	185.00	0.4	
23-331	186.50	0.097	
23-331	188.00	0.059	
23-331	189.50	0.063	
23-331	191.00	0.077	
23-331	192.50	0.104	
23-331	194.00	0.035	
23-331	195.50	0.392	
23-331	197.00	0.066	
23-331	198.50	0.045	
23-331	200.00	0.086	
23-331	201.50	0.346	
23-331	203.00	0.327	
23-331	204.50	0.084	
23-331	206.00	0.334	
23-331	207.50	0.088	
23-331	209.00	0.337	
23-331	210.50	0.268	
23-331	212.00	0.329	
23-331	213.50	0.482	
23-331	215.00	0.049	
23-331	216.50	0.144	
23-331	218.00	0.085	
23-331	219.50	0.107	
23-331	221.00	0.118	
23-331	222.50	0.478	
23-331	224.00	0.085	
23-331	225.50	7.561	
23-331	227.00	0.085	
23-331	228.50	0.042	
23-331	230.00	0.106	
23-331	231.50	0.109	
23-331	233.00	0.058	
23-331	234.50	0.1	
23-331	236.00	0.113	
23-331	237.50	0.073	
23-331	239.00	0.068	
23-331	240.50	0.101	
23-331	242.00	0.013	
23-331	243.50	0.084	
23-331	245.00	0.016	
23-331	246.50	0.117	
23-331	248.00	0.054	
23-331	249.50	0.026	
23-331	251.00	0.022	

Xstrata Zinc Canada

Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	17-2010-85	GRID:	NA	DATUM:	NAD 83	AZIMUTH:	174.0
LOGGED BY:	Steve Siemieniuk	NORTHING:		ZONE:	15	DIP:	-65.0
START DATE:	19-Oct-10	EASTING:		UTM Northing:	5527460	FINAL DEPTH (m):	701.0m
FINISH DATE:	30-Oct-10	ELEVATION:		UTM Easting:	649434	CORE SIZE:	BQ
		Casing (m):	9.00	UTM Elevation:	-500	Magnetic Declination:	0.00

Target: 600m Downhole
Township: Sixmile Lake
NTS: 52 G/15
Drill Contractor: Major Drilling
Cement:
Casing: 9m
Material Left in Hole: Casing + Cap
Plug:
Core Recovery and Ground Conditions:
Core Storage: In core racks at main laydown, Mattabi minesite
Downhole Survey: BPEM
Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization			Comments
From	To	Interval	Major Rock Code	Texture	Rock Name		Type & Intensity	Sulphide Type	Sulphide %	Texture	
6.90	133.55	126.65	**I2J**	Mass, Por	Diorite	IFD	Various Carb-Qtz-Hem				Trace sulfide blebs (py-po)
133.55	159.45	25.90	**V2**	Mass, Bed	Mafic-Intermediate Meta-Volcanic Flow	NNLAF	Various Sil-Carb-Chltd				157.5 - 166.5 Up to 10% disseminated py-po locally
159.45	174.10	14.65	**V2**	Mass, Foliated	Strongly Altered Mafic/Intermediate Volcanic Flows?	NNLAF?	Various Carb-Qtz-Gt				Trace sulfide blebs (py-po)
174.10	214.39	40.29	**V2**	Mass, Bed	Mafic/Intermediate Volcanic Flows +/- Crystal-Ash Tuffs	NNLAF	Various Sil				Local Po near base up to 30%, highly conductive on cm scale
214.39	240.90	26.51	**V1**	Pyr, Bed	Intermediate/Felsic Volcanic Pyroclastic Flows and Crystal-Rich Reworked Tuff?	LLPF/LLAT?	Various Qtz-Carb-Chltd				Minor conductive wisps of Po
240.90	256.40	15.50	**V2**	Mass	Mafic-Intermediate Volcanics	NNLAF?	Various Carb-Qtz-Gt				Trace sulfide blebs (pod)
256.40	265.75	9.35	**V1**	Pyr, Bed	Intermediate/Felsic Volcanic Pyroclastic Flows and Crystal-Rich Reworked Tuff?	LLPF/LLAT?	Various Carb-Qtz				263-266.5 Various py-po up to 10% locally
265.75	280.80	15.05	**V1B**	Pyr, Bed, Bx	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits	LLPF/LLAT?	Various Sil				pod-cp-Sph up to 20% as replacement? over 0.6m
280.80	285.67	4.87	**V2**	Mass	Mafic-Intermediate Volcanics	NNLAF?	Various Carb-Qtz-Gt				Trace sulfide blebs (pod)
285.67	333.03	47.36	**V1B**	Pyr, Bed	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits +/- Mafic Interflows?	LLPF/LLAT?	Various Qz-Chld				Small zones of up to 5% pod, FC chalcopyrite around 292
333.03	418.48	85.45	**V3**	Mass	Mafic Volcanics	NNLAF	Various Carb-Qtz-Gt				Trace to Nil

418.48	514.53	96.05	**V1B**	Pyr, Bed	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits	LLPF/LLAT? Or MTQ (but no pumice, qtz-eyes are 1-2mm)	Various Qz-Chld				Zone of three 10cm bands of semi-massive Sph/Py at 428; disseminated Py over larger interval around that area; two 15cm bands of semi-massive Py at 462; mineralization continues down hole (just picked up core)
514.53	542.69	28.16	**V1**	Mass, Bed	Aphyric Ash Tuff	MTA	Strong Qtz				One small zone of 5% very finely grained and disseminated pyrite
542.69	701.00	158.31	**V1**	Pyr, Bed	Monolithic Lapilli-Crystal-Ash Deposits (Pyroclastic Flows?)	MTQ? (if lithic fragments are silicified pumice?)	Mod-Strong Qtz				Trace euhedral pyrite and disseminated pyrrhotite blebs randomly throughout; Odd patch of cp downhole with good mineralization around 651.25 (20% cp-pod-Py over 25 cm)
	-	EOH	**EOH**								

Major Litho Log

HoleID	From_m	To_m	Length_m	ajorRock Co	MajorRockName	Texture1	Texture2	Texture3	Comments
17-85	0.00	6.90	6.90	OVB	Overburden				Casing to 9m - Bedrock encountered at 6.9 m
17-85	6.90	133.55	126.65	I2J	Diorite	Mass	Por		Dark-to-intermediate grey coloured intrusive rock. Consists of 1mm to sub-mm euhedral to subhedral white feldspar laths (locally up to 30%) set in a dark aphanitic groundmass. Locally sub-mm subhedral chlorite +/- biotite and anhedral interstitial quartz is visible in the groundmass. Unit displays minor variation in colour due to feldspar abundance and alteration (dominantly carbonate - calcite +/- ankerite). Rock fracturing and veining of qtz-carbonate occurs as 1mm to multiple scale veins usually at a high angle TCS; however some low angle veins and fractures are present. Unit is dominantly massive except for some localized shearing at 60 deg. TCA. Unit is pervasively strongly altered with carbonate throughout the entire interval. Minor zones of silica and hematite alteration also occur throughout the section; as well as minor chlorite stringers. Unit is locally moderately to strongly magnetic and contains trace sub-mm blebs of pipe +/- cp.
17-85	133.55	159.45	25.90	V2	Mafic/Intermediate Volcanic Flows	Mass	Bed		Black-to-dark grey aphanitic rock with local zones of very-fine-grained sub-mm size white subhedral feldspar? Rock displays a pseudo foliation where flooded by alteration ((No Suggestions)) reflected by chl. Quartz-carbonate veinlets are present from 18 degrees TCA up to 90 degrees TCA; but are dominantly around 45 degrees TCA. Weak silica and carbonate alteration throughout the unit. Trace sulfides occur randomly as sub-mm blebs and wisps with some quartz-carbonate veins containing minor pyrite. Contact of this unit with overlying diorite is diffuse and intercalated over 1 to 1.5m.
17-85	159.45	174.10	14.65	V2	Strongly Altered Mafic/Intermediate Volcanic Flows?	Mass	Foliated		Strongly altered zone. Rock appears much lighter that surrounding rock in sections due to strong Qz-Cb-Chld alteration. Foliation defined by strong alteration and contrasting aligned (No Suggestions). Foliation angles vary between 45 and 65 degrees TCA. Zone displays variable mineralization throughout; however mineralization doesn't appear to be associated with alteration style or intensity. Upper and lower contacts are diffuse and gradational with surrounding rock.
17-85	174.10	214.39	40.29	V2	Mafic/Intermediate Volcanic Flows +/- Crystal-Ash Tuffs	Mass	Bed		Black-to-dark grey aphanitic rock with local zones of very-fine-grained sub-mm size white subhedral feldspar? Small zones of lapilli ash interbedded with aphanitic volcanic flows occur near the base of the unit (relative to down-hole). Lapilli-ash sections have a sharp upper contact and are gradational to the underlying volcanics. Some volcanic intersections display amygdaloidal texture while no definite pillows were observed. Rock displays a pseudo-foliation where flooded by alteration ((No Suggestions)) reflected by chl. Quartz-carbonate veinlets are present from 18 degrees TCA up to 90 degrees TCA; but are dominantly around 45 degrees TCA. Weak silica and carbonate alteration throughout the unit. This section contains a greater amount of sulfides than 133 - 159 dominantly in the form of pyrrhotite. Near base of unit where pseudo-brecciation occurs there is a strong association of Cb with Po. Sulfide content can get up to 30% in these areas and conductivity has been observed over scales no greater than ~5 cm. Contact of this unit with overlying diorite is diffuse and intercalated over 1 to 1.5m.
17-85	214.39	240.90	26.51	V1	Intermediate/Felsic Volcanic Pyroclastic Flows and Crystal-Rich Reworked Tuff?	Pyr	Bed		Light-to-medium grey aphanitic/"glassy" rock with flooded/replaced clasts/crystals from 1-4 mm in size (dominantly subhedral). Local volcaniclastic/pyroclastic intervals up to 0.5m (brecciated or pseudo-brecciated?) occur throughout the unit. Unit is strongly silica flooded with little variation throughout. Unit also contains moderate cob alteration and weak child alteration throughout. Bedding/foliation is generally at 50 degrees TCA with little variation. Mineralization occurs as fine grained trace disseminations of pod randomly throughout the unit; and also as pervasive sub-mm scale veinlets (up to 20% locally) over a short interval part way though the hole. Sulfides are strongly conductive within wisps; but are not interconnected. Contact with overlying unit is gradational over 20-30 cm; lower contact appears to be a zone of Qtz-flooding / brecciation.
17-85	240.90	256.40	15.50	V2	Mafic-Intermediate Volcanics	Mass			Black-to-dark grey aphanitic rock with local zones of very-fine-grained sub-mm size white subhedral feldspar? Rock displays a pseudo foliation where flooded by alteration ((No Suggestions)) reflected by chl. Quartz-carbonate veinlets from sub-mm to cm size are present from 15 degrees TCA up to 65 degrees TCA. Local weak carbonate alteration; and local weak-moderate get alteration evidenced by sub-mm to 3mm garnets. Trace sulfides occur randomly as sub-mm blebs and wisps. Contact of this unit with overlying unit t appears to be a zone of Qtz-flooding / brecciation.
17-85	256.40	265.75	9.35	V1	Intermediate/Felsic Volcanic Pyroclastic Flows and Crystal-Rich Reworked Tuff?	Pyr	Bed		Medium to dark grey varitextured unit. Unit starts off as what appears to be a reworked crystal rich reworked tuff with 3mm randomly spaced felsic and mafic "clasts" that are subangular to rounded and appear in varying amounts and grades into an aphanitic darker coloured unit that has the feeling of argillaceous sediments (reworked tuff may be similar?) but if they are A.S. there is no bedding and they are silicified. This portion of the unit contains up to 8% pyrrhotite that appear as semi-parallel wisps at 72 degrees TCA (bedding plane being exposed?). Individual wisps are conductive but section as a whole is not. Moderate carbonate alteration throughout the unit.
17-85	265.75	280.80	15.05	V1B	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits	Pyr	Bed	Box	Medium to light grey aphanitic +/- quartz +/- plagioclase phyric unit. Quartz-eye phyric units interbedded with sub-mm to 1mm plagioclase phyric tuff units and larger felsic fragmental units similar to the Middle L rhyodacite-rhyolite tuff-breccia. Section has a consistent presence of 1% disseminated pod throughout and a well mineralized section with (No Suggestions) is found in the coarsest fragmental unit and contains up to 15% sulfides. Moderate to strong silica alteration throughout the unit as well as weak child? alteration in the aphyric tuffs.
17-85	280.80	285.67	4.87	V2	Mafic-Intermediate Volcanics	Mass			Black aphanitic rock. Rock displays no foliation and is strongly silicified in places. Unit appears to be similar to the argillaceous sediments discussed in 256-265; but this unit has local 1-3mm garnitiferous sections. Upper contact is gradational over 10-15 centimetres. Local weak carbonate alteration in the form of wisps occurs with no preferred orientation. Trace sulfides occur randomly as sub-mm blebs.
17-85	285.67	333.03	47.36	V1B	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits +/- Mafic Interflows?	Pyr	Bed		Medium to light grey aphanitic to quartz +/- plagioclase phyric unit pyroclastic flows and aphanitic ash deposits. Unit consists of alternating packages (perhaps upwards of 15?) of quartz +/- plagioclase phyric basal units up to aphyric ash tuff caps. Packages range from 0.5 m to ~2.5 meters in thickness with sharp semi-regular contacts all between 45 and 55 degrees TCA and give a younging direction of up-hole. Basal units are 2-10% (modal) rounded and sub-angular 1-3mm blue quartz crystals in an aphanitic matrix which may or may not have variable amounts of fine grained feldspar. Zone is void of carbonate alteration; but is strongly silicified almost entirely throughout and also contains varying amounts of chloritoid alteration. Unit is essentially barren of sulfides except for a few small zones where there is up to 5 % pod as fine disseminations and wisps. Fracture controlled chalcopyrite is present between 292 and 292 as a few 1-2 mm blebs in a 0.5 cm strongly conductive subparallel TCA pyrrhotite vein.

HoleID	From_m	To_m	Length_ m	ajorRock Co	MajorRockName	Texture1	Texture2	Texture3	Comments
17-85	333.03	418.48	85.45	V3	Mafic Volcanics	Mass			Black to dark grey aphanitic rock with minor zones of visible sub-mm plagioclase. Zone is weakly carbonate-silica altered in small zones and also has local zones of 1-3mm and up to 6mm garnets occurring as subhedral porphyroblasts. Moderately to very strongly magnetic in places where aphanitic and no sulfides - likely fine grained magnetite. No contacts or foliation was observed in the unit. Minor pipe up to 2% as fine disseminated blebs over very short (cm scale) intervals.
17-85	418.48	514.53	96.05	V1B	Aphyric to Quartz +/- Plagioclase-phyric Pyroclastic Flows and Ash Deposits	Pyr	Bed		Medium to light grey aphanitic to quartz +/- plagioclase phyric unit pyroclastic flows and aphanitic ash deposits similar to 285m - 333m but not as well defined repetitive units. Unit starts out as aphanitic and picks up 1-2mm quartz eyes +/- fine grained plagioclase at 439m. Unit displays variable bedding at 55 to 62 degrees TCA. Zone is void of carbonate alteration; but is moderately to strongly silicified almost entirely throughout and also contains varying amounts of chloritoid and chlorite alteration. Unit also picks up varying amounts of garnet alteration in darker coloured (mafic) zones but no contacts are visible (coeval mafic phases?). Unit contains up to 30% bedded sulfides (replacement pod-Py-Sph-cp) in short intervals and also has zones of pervasive poppy mineralization 5-10%. Upper contact appears brecciated and diffuse at 30 degrees TCA; lower contact is gradational.
17-85	514.53	542.69	28.16	V1	Aphyric Ash Tuff	Mass	Bed		Medium to light grey aphanitic rock with varying amounts of mafic looking 'clasts'/clots/wisps throughout in varying amounts. Unit does display weak foliation in areas defined by subparallel wisps of grey material at 50 degrees TCA. Unit is strongly silicified throughout and contains areas with 5% very finely disseminated pyrite. The rest of the unit contains very small patches of finely disseminated pyrite; locally up to 2% over a cm scale.
17-85	542.69	701.00	158.31	V1	Monolithic Lapilli-Crystal-Ash Deposits (Pyroclastic Flows?)	Pyr	Bed		Medium grey coloured aphanitic to glomeroporphyritic rock. Gradational downwards from previous unit it grades into a rock containing monolithic cherty white coloured clasts (sub-angular to sub-rounded; 1-4 mm in size) and lapilli (>4mm sub-rounded to sub-angular cherty white coloured clasts). Could be silicified pumice fragments? These clast/lapilli supported zones grade in and out to ash rich and pure ash zones. Trace euhedral pyrite and blebs of pyrrhotite can be found randomly throughout the unit with there being up to 10% chalcopyrite-pyrrhotite as replacement mineralization near 651. Bedding in clast rich units is around 60 degrees TCA.

Minor Litho Log

HoleID	From_m	To_m	Length_m	MinorRockCode	MinorRockName	Texture1	Texture2	Comments
17-85	17.32	17.52	0.20			Vn		Qtz-Cb-Tour vein; contacts at 40 degrees TCA
17-85	28.48	28.49	0.01			Vn		Qtz-Cb vein with minor fine grained euhedral Py
17-85	33.62	35.42	1.80			Sh		Lighter coloured sheared zone with foliation at 52 degrees TCA defined by pervasive carbonate and chlorite contrast
17-85	36.09	36.19	0.10			Sh		Lighter coloured sheared zone with foliation at 52 degrees TCA defined by pervasive carbonate and chlorite contrast; sharp contacts
17-85	40.30	40.31	0.01	INTR	Mafic Dyke			Sharp contacts at 50 degrees TCA
17-85	40.47	40.48	0.01	INTR	Mafic Dyke			Sharp contacts at 50 degrees TCA
17-85	45.37	45.39	0.02	INTR	Mafic Dyke			Sharp contacts at 73 degrees TCA
17-85	45.61	45.63	0.02	INTR	Mafic Dyke			Sharp contacts at 80 degrees TCA
17-85	45.75	45.77	0.02	INTR	Mafic Dyke			Sharp contacts at 68 degrees TCA
17-85	58.70	58.71	0.01			Vn		Cb vein at 17 degrees TCA
17-85	59.26	59.33	0.07			Vn		Qtz-Cb vein at 42 degrees TCA
17-85	59.61	59.63	0.02			Vn		Qtz-Cb-Tour vein; with minor fine grained euhedral Py +/- cp
17-85	66.18	66.19	0.01			Vn		Qtz-Cb +/- Alb? vein; with minor fine grained euhedral Py; pod; +/- cp
17-85	68.19	68.32	0.13			Sh		Lighter coloured sheared zone with foliation at 80 degrees TCA
17-85	70.86	70.87	0.01			Vn		Qtz-Cb +/- Alb? Vein
17-85	75.25	75.75	0.50			Vn		Qtz-Tour vein at 26 degrees TCA; tour laths up to 8 mm in size
17-85	137.90	137.94	0.04			Vn		Tour-Cb-Qtz vein with up to 70% massive Tour at 35 degrees TCA
17-85	156.50	156.82	0.32			Fol		Foliation at 60 degrees TCA defined by 1-2 mm aligned chi
17-85	152.55	152.57	0.02			Vn		Qtz-Cb +/- Alb? Vein at 10 degrees TCA
17-85	179.18	183.73	4.55			Am		1% 1-4 mm vesicles (carbonate infilled)
17-85	195.60	199.76	4.16			Am		3% 1-4mm vesicles (carbonate infilled)
17-85	199.76	203.00	3.24	V2	Mafic/Intermediate Vol?			Has distinct alteration and appears related to ash-tuff units. Wispy "foliation" appears sub-parallel TCA outlined by carbonate alteration and chlorite contrast
17-85	203.00	203.10	0.10	T2	Lapilli-Ash Tuff	Bed		Sharp upper contact; gradational lower
17-85	203.10	203.68	0.58	V2	Mafic/Intermediate Vol?			Has distinct alteration and appears related to ash-tuff units. Wispy "foliation" appears sub-parallel TCA outlined by carbonate alteration and chlorite contrast
17-85	203.68	203.87	0.19	T2	Lapilli-Ash Tuff	Bed		Sharp upper contact; gradational lower
17-85	203.87	204.20	0.33	V2	Mafic/Intermediate Vol?			Has distinct alteration and appears related to ash-tuff units. Wispy "foliation" appears sub-parallel TCA outlined by carbonate alteration and chlorite contrast
17-85	204.20	204.26	0.06	T2	Lapilli-Ash Tuff	Bed		Sharp upper contact; gradational lower
17-85	204.26	204.33	0.07	V2	Mafic/Intermediate Vol?			Has distinct alteration and appears related to ash-tuff units. Wispy "foliation" appears sub-parallel TCA outlined by carbonate alteration and chlorite contrast
17-85	204.33	204.44	0.11	T2	Lapilli-Ash Tuff	Bed		Sharp upper contact; gradational lower
17-85	204.44	208.40	3.96	V2	Mafic/Intermediate Vol?			Has distinct alteration and appears related to ash-tuff units. Wispy "foliation" appears sub-parallel TCA outlined by carbonate alteration and chlorite contrast
17-85	208.40	208.73	0.33	T2	Lapilli-Ash Tuff	Bed		Sharp upper contact; gradational lower
17-85	214.39	214.95	0.56	V2	Mafic/Intermediate Pyroclastic?			sub-mm to 3 cm rimmed angular "clasts" of Mafic/Intermediate glassy intermediate coloured aphanitic material set in a glassy aphanitic matrix.
17-85	222.80	238.55	15.75	V2	Reworked Crystal-Ash Tuff?	MiBx?		Zone of increased grain size with up to 3mm randomly spaced felsic and mafic "clasts" that are subangular to rounded and appear in varying amounts throughout the section. No marked contacts were observed in core to distinguish different units and are likely diffuse and altered.
17-85	265.75	270.30	4.55	V1B	Quartz-phyric Rhyolite Flow			Unit contains 1-3mm angular to rounded blue quartz-eyes. Gradational upper and lower contacts. Bedding would appear to be at 55 degrees TCA. Trace pyrrhotite throughout section.
17-85	270.30	273.40	3.10	V1B	Reworked Crystal-Ash Tuff?	Mass		Gradational from unit above into 1mm feldspar phyric unit with grey aphanitic matrix.

HoleID	From_m	To_m	Length_m	MinorRockCode	MinorRockName	Texture1	Texture2	Comments
17-85	273.40	274.00	0.60	V1B	Felsic Breccia	Bx		Light grey to white coloured unit with irregular/gradational contacts at the upper and lower bounds. Sub-cm to 5 cm angular "jig-saw" felsic clasts set in a silica flooded matrix. Matrix is also well mineralized in areas surrounding the blocks giving the sulfides a replacement texture. Unit appears similar to the Middle L rhyodacite-rhyolite tuff-breccia
17-85	274.00	278.05	4.05	V1	Felsic Tuff	Aph	Bed	Grey to cream coloured aphanitic unit. Cream colouration gives the appearance of moderate sericite? Alteration as there is no carbonate alteration evident. 1-3mm mafic wisps and clasts occur throughout the unit giving it a bedded appearance at 55 to 60 degrees TCA. Irregular mafic 'clots' appear throughout the unit as well as what appear to be altered/resorbed 1-2mm round quartz-eyes. Unit is well mineralized with bedded (55 to 60 TCA) replacement sphalerite and also contains some cp-pod blebs (local cp up to 5%) and the entire unit appears to have 4% pod finely disseminated throughout.
17-85	289.13	290.72	1.59	V3	Mafic Volcanic?	Aph		Black coloured aphanitic mafic? rock with diffuse upper and lower contacts. Local patches of garnet alteration and disseminated pyrrhotite (3% overall; up to 10% locally) throughout.
17-85	292.85	294.45	1.60	V3	Mafic Volcanic?	Aph		Black coloured aphanitic mafic? rock with diffuse upper and lower contacts. Local patches of garnet alteration and disseminated pyrrhotite (3% overall; up to 10% locally) throughout.
17-85	292.45	292.55	0.10			Vn		Sub-mm massive pyrrhotite veinlet that is infilling an anastomosing fracture that is subparallel TCA. Trace chalcopyrite.
17-85	293.00	293.30	0.30			Vn		Sub-mm massive pyrrhotite veinlet that is infilling an anastomosing fracture that is subparallel TCA. Trace chalcopyrite.
17-85	350.60	350.80	0.20			Vn		Quartz vein with sharp upper and lower contacts at 18 degrees TCA - no wallrock alteration present. Contains 1-2 cm irregular blebs of fine grained pyrrhotite with trace chalcopyrite. Highly conductive individual blebs; but only a few are interconnected.
17-85	387.84	388.00	0.16			Bx		Brecciated zone with strong Qtz-Cb alteration
17-85	417.97	418.23	0.26			Bx		Brecciated zone with mod Qtz
17-85	418.48	424.67	6.19	V1	Reworked? Ash Tuff	Mass		Light grey in colour with a slight foliation given by chlorite wisps at 55 degrees TCA.
17-85	424.67	428.40	3.73	V1	Reworked? Ash Tuff	Bed		Well bedded section with bedding/foliation at 55 degrees TCA. Unit consists of mm-cm scale cream/grey bands (altered ash?). Unit contains semi-massive bedded sulfides (don't appear to have a replacement texture) over short intervals (Py-pod-Sph-cp). Contains about 5% sulfides overall. Pyrite bands are highly conductive.
17-85	428.40	434.83	6.43	V2	Reworked? Ash Tuff	Mass		Dark grey-green colour with a slight foliation given by chlorite 'bands' at 55 degrees TCA. More mafic phase with garnet alteration.
17-85	434.83	449.22	14.39	V1	Reworked? Ash Tuff	Bed		Light grey in colour with a slight foliation given by chlorite wisps at 55 degrees TCA.
17-85	449.22	501.02	51.80	V1	Reworked? Crystal Ash Tuff	Bed		Medium grey/green in colour with a slight foliation given by weak chlorite bands. Also are mafic looking 'clasts' and 'areas' defined by a grey aphanitic material. Clasts vary from sub-angular to rounded and vary in size from 1-5mm. Zone consists of several gradational areas containing 1-2mm rounded to square blue quartz-eyes (Mattabi Succession?). Strongly silicified section surrounding pipe semi-massive replacement mineralization as well as zones of carbonate/chlorite/magnetite 'breccia' (similar to that up section) that are intercalated with the semi-massive mineralization. Trace Py outside of mineralized zone.
17-85	501.02	509.00	7.98	V1				Grey to cream coloured aphanitic unit. Has short intervals of strongly Qtz flooded zones that are fracture controlled (random fractures highlighted by their grey colour). Some flooded zones appear to be semi-brecciated and contain large white cherty 'clasts' / breccia that are subangular to rounded and range in size from 1mm to 6mm. Unit also displays a mottled texture due to grey mafic blebs; 'clasts' and wisps up to 1 cm in size being set amongst a white - peach coloured (K-alt or And?) matrix/goundmass. Certain units have a pyroclastic 'feel' to them. Unit is moderately-strongly silicified with small carbonate bearing mafic dykes appearing near the base. Trace 3-4mm euhedral pyrite throughout the unit.
17-85	509.00	509.17	0.17	INTR	Mafic Dyke			Sharp upper and lower contacts at 75 degrees TCA
17-85	509.99	510.36	0.37	INTR	Mafic Dyke			Sharp upper at 55 TCA; lower at 75
17-85	510.76	511.53	0.77	INTR	Mafic Dyke			Sharp upper at 55 TCA; lower at 65
17-85	512.09	512.20	0.11	INTR	Mafic Dyke			Sharp upper at 80 TCA; lower at 70
17-85	512.81	513.80	0.99	INTR	Mafic Dyke			Sharp upper at 55 TCA; lower at 65
17-85	514.25	514.53	0.28	INTR	Mafic Dyke			Sharp upper at 55 TCA; lower at 65
17-85	514.53	542.69	28.16	V1	Ash Tuff	Mass		Medium to light grey aphanitic rock with varying amounts of mafic looking 'clasts'/clots/wisps throughout in varying amounts. Unit does display weak foliation in areas defined by subparallel wisps of grey material at 50 degrees TCA. Unit is strongly silicified throughout and contains areas with 5% very finely disseminated pyrite. The rest of the unit contains very small patches of finely disseminated pyrite; locally up to 2% over a cm scale.
17-85	544.20	546.63	2.43	V1	Crystal Ash Tuff	Bed		1-4 mm 'clasts' with a weak foliation at 60 degrees TCA; gradational contacts
17-85	546.63	554.30	7.67	V1	Ash Tuff	Mass		Medium grey in colour; no foliation or bedding visible

HoleID	From_m	To_m	Length_m	MinorRockCode	MinorRockName	Texture1	Texture2	Comments
17-85	554.30	581.00	26.70	V1	Crystal-Ash Tuff	Bed		1-4 mm 'clasts' up to 30 mm lapilli with a weak foliation at 60 degrees TCA; gradational contacts
17-85	557.55	557.98	0.43	INTR	Mafic Dyke			Sharp upper at 60 TCA; lower at 70
17-85	558.60	558.78	0.18	INTR	Mafic Dyke			Sharp contacts roughly perpendicular TCA
17-85	581.00	656.90	75.90	V1	Lapilli-Ash Tuff / Pyroclastic Flow	Bed	Pyr	Gradational from unit above into lapilli-rich zone containing elongated sub-rounded lapilli (silicified pumice fragments?).
17-85	656.90	680.39	23.49	V1	Ash Tuff / Pyroclastic Flow	Bed		Gradational from unit above and into unit below; upper contact quartz-flooded. Ash rich aphanitic zone with weak banding/bedding at 50 degrees TCA; some feldspar-phyric zones containing <= 1mm sized altered subhedral-anhedral white feldspar.
17-85	673.70	680.39	6.69			Bl		Blocky core (3-5 cm fragments)
17-85	680.39	681.60	1.21	INTR	Mafic Dyke			Sharp upper at 60 TCA; lower at 55
17-85	681.60	701.00	19.40	V1	Lapilli-Ash Tuff / Pyroclastic Flow	Bed	Pyr	Gradational from unit above into lapilli-rich zone containing elongated sub-rounded lapilli (silicified pumice fragments?).

Mineralization Log

HoleID	From_m	To_m	Length_m	MinzType(s)	Minz%	MinzStyle1	MinzStyle2	MinzStyle3	Comments
17-85	89.45	89.55	0.10	Py	1	Diss			1-3 mm euhedral pyrite
17-85	155.40	156.17	0.77	Po +/- Py	6	Diss	BD	Bl	
17-85	157.40	157.52	0.12	Po +/- Py	3	Diss			
17-85	159.45	160.87	1.42	Po	4	Diss	BD		Locally up to 30%; non-conductive
17-85	161.30	163.80	2.50	Po	7	Diss	Bl		Locally up to 15%; non-conductive
17-85	164.38	165.12	0.74	Po +/- Py	10	Diss			0.5 cm Py-Po stringer at 164.67 @ 30 TCA
17-85	177.76	177.77	0.01	Po	50	FF			
17-85	183.73	195.60	11.87	Po	5	Diss	W	Mod	Strong association with (No Suggestions) flooding; Moderately to strongly conductive in zone from 188-189.5 where sulfides can locally reach 30%
17-85	216.95	217.15	0.20	Po	3	W			Values can reach up to 10% locally on short interval
17-85	221.42	222.20	0.78	Po	5	Diss	W		Values can reach up to 20%; strongly conductive where values are at 20%
17-85	222.80	231.07	8.27	Po	1	Diss			Can get up to 5% in disseminated concentrations
17-85	231.68	232.10	0.42	Po	5	Diss	W		Values can reach up to 20%; strongly conductive where values are at 20%
17-85	257.82	265.75	7.93	Po	8	W	Diss		Wisps dominantly @ 72 TCA; locally mineralization approaches 15%; individual wisps are strongly conductive but do not appear interconnected
17-85	265.75	273.40	7.65	Po	1	Diss			
17-85	273.40	274.00	0.60	Po-Cpy-Sph	15	Rep	Mat		Strongly conductive (No Suggestions); and non-conductive Sph
17-85	274.14	274.27	0.13	Sph	25	Rep	Bed		Non-conductive
17-85	274.27	274.30	0.03	Cp	5	Rep?			Strongly conductive
17-85	289.13	290.72	1.59	Po	3	Diss	W		Non-conductive; except where disseminations reach up to 10%
17-85	291.46	292.85	1.39	Po	5	Diss	FC		Non conductive; except where infilling fracture
17-85	291.46	292.85	1.39	Cp	Trace	FC			Highly conductive as fracture is almost 100% sulfides
17-85	350.60	350.80	0.20	Po-Cpy	15	Bl	Rem		Trace Cpy in Po in QV; conductive blebs only some being interconnected
17-85	407.28	407.38	0.10	Py-Po	2	Diss			
17-85	412.50	412.58	0.08	Py-Po	4	Diss			
17-85	424.67	425.55	0.88	Py-Po-Sph	5	BE/BD			Bedding/foliation at 55 TCA; 1 strongly conductive 2cm pyrite band at 425.2
17-85	426.30	427.29	0.99	Py-Po	8	BE/BD	Diss	Bl	Small pyrite bands are highly conductive
17-85	427.29	428.04	0.75	Sph-Py-Cp	30	BE/BD	SM		3 roughly 10cm bands of semi-massive sphalerite/pyrite with trace cp. 2-4 mm sulfide bands alternate with white-cream-grey siliceous bands.
17-85	428.04	428.40	0.36	Po-Py	10	Diss	Bl		Weakly conductive over very small intervals
17-85	461.82	461.97	0.15	Py-Po	45	BD	Repl?		Spotty conductivity (likely due to interstitial Qtz); Banding at 50 degrees TCA
17-85	462.30	462.41	0.11	Py-Po	45	BD	Repl?		Spotty conductivity (likely due to interstitial Qtz); Banding at 50 degrees TCA
17-85	462.51	462.60	0.09	Py-Po	45	BD	Repl?		Spotty conductivity (likely due to interstitial Qtz); Banding at 50 degrees TCA
17-85	462.60	463.41	0.81	Py	4	Diss	Bl		Blebs can be as dissemination aggregates up to 5mm in size; and can be strongly conductive (on small cm scale intervals)
17-85	467.63	468.20	0.57	Po-Py	3	Diss	Bl		Strongly conductive blebs; but not interconnected
17-85	475.07	492.35	17.28	Py-Po	10	Diss	Repl?	BD	Local patches/weak bands (50-60 degrees TCA); very weakly to non-conductive over very small intervals
17-85	497.52	497.62	0.10	Py	25	Diss	Repl?	BD	Local patches/weak bands (50-60 degrees TCA); very weakly to non-conductive over very small intervals
17-85	498.22	498.35	0.13	Py	25	Diss	Repl?	BD	Local patches/weak bands (50-60 degrees TCA); very weakly to non-conductive over very small intervals
17-85	498.60	498.79	0.19	Py	25	Diss	Repl?	BD	Local patches/weak bands (50-60 degrees TCA); very weakly to non-conductive over very small intervals
17-85	499.89	500.60	0.71	Py	10	Diss	Repl?	BD	Local patches/weak bands (50-60 degrees TCA); very weakly to non-conductive over very small intervals
17-85	522.35	524.60	2.25	Py	5	Diss			Non-conductive; very fine grained
17-85	598.80	599.61	0.81	Po-Py-Cp	1	Bl	Repl?	FC	Semi-FC at 60 TCA
17-85	629.07	634.80	5.73	Py-Po	3	Diss	Repl?		Locally up to 10%; higher values appear to be associated with fragment edges
17-85	642.50	650.00	7.50	Py-Po-Cp	3	Diss	Bl		
17-85	650.00	651.25	1.25	Cp-Po-Py	4	Diss	Bl	BD	Weakly banded at 55 TCA; bands are strongly conductive
17-85	651.25	651.50	0.25	Cp-Po-Py	20	Repl	SM		Semi-massive replacement (interstitial qtz) sulfides; moderately conductive over 3-5 cm
17-85	651.50	652.50	1.00	Cp-Po-Py	4	Diss	Bl		
17-85	685.07	685.09	0.02	Cp-Py	10	Diss	Bl		Small local patch
17-85	688.57	695.50	6.93	Po-Py	2	Diss	Bl		

Hole: ____________

Alteration Log

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Comments
17-85	8.10	11.50	3.40	Hem	Wk			
17-85	15.00	15.22	0.22	Cb	Str			Pv; Diffuse Contacts
17-85	17.20	17.32	0.12	Cb	Str			
17-85	17.52	17.84	0.32	Qz-Cb	Str			Pv; Diffuse Contacts
17-85	18.28	18.32	0.04	Qz	Mod			P
17-85	18.32	18.40	0.08	Cb	Str			Pv
17-85	21.68	21.78	0.10	Cb	Str			Pv
17-85	25.35	25.50	0.15	Cb	Str			Blocky fragments
17-85	33.62	35.42	1.80	Cb-Chl	Str			Pv Cb; Pv Chl
17-85	36.09	36.19	0.10	Cb-Chl	Str			Pv Cb; Pv Chl
17-85	37.60	37.72	0.12	Qz-Cb	Str			P
17-85	55.49	55.54	0.05	Qz-Cb	Str			Pv; Diffuse Contacts
17-85	58.45	59.00	0.55	Qz-Cb	Str			FC; Pv
17-85	60.74	60.80	0.06	Hem	Mod			Pv
17-85	70.85	70.90	0.05	Cb	Mod			Pv; FC
17-85	81.05	83.05	2.00	Cb-Hem	Mod			Pv; FC
17-85	89.45	89.55	0.10	Cb	Str			Pv; Diffuse Contacts
17-85	105.40	107.60	2.20	Cb-Mt	Str			Pv; Diffuse Contacts; up to 5% euhedral Mt
17-85	108.15	108.19	0.04	Hem	Mod			Pv; Diffuse Contacts
17-85	110.32	110.36	0.04	Hem	Mod			Pv; Diffuse Contacts
17-85	117.26	117.30	0.04	Hem	Mod			Pv; Diffuse Contacts
17-85	117.81	118.40	0.59	Cb-Chl				Pv Cb; Pv Chl
17-85	128.20	129.70	1.50	Hem-Cb	Mod			FC Cb @ 65 TCA; Pv Hem
17-85	139.46	139.80	0.34	Cb	Str			Pv; Diffuse Contacts
17-85	143.46	144.12	0.66	Cb-Qz	Wk			Pv; Diffuse Contacts
17-85	148.44	149.10	0.66	Cb-Qz	Mod			Pv; Diffuse Contacts
17-85	151.20	151.35	0.15	Cb-Qz	Mod			FC; @ 78 TCA
17-85	155.40	156.17	0.77	Cb	Mod			Pv
17-85	156.22	156.90	0.68	Cb	Str			Pv; Diffuse Contacts
17-85	157.40	158.80	1.40	Qz	Wk			Pv; Diffuse Contacts
17-85	158.00	159.45	1.45	Cb-Chl	Mod			Pv; Diffuse Contacts
17-85	159.45	160.87	1.42	Cb-Chld	Mod			Pv; Diffuse Contacts
17-85	160.87	161.15	0.28	Cb	Mod			Pv; Diffuse Contacts
17-85	161.15	161.30	0.15	Qz	Str			Pv; Diffuse Contacts
17-85	161.30	162.60	1.30	Cb	Mod			Pv; Diffuse Contacts
17-85	162.60	164.38	1.78	Cb	Mod			Pv; Diffuse Contacts
17-85	162.60	164.38	1.78	Qz	Wk			Pv; Diffuse Contacts
17-85	164.38	165.32	0.94	Cb	Mod			Pv; Diffuse Contacts

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Comments
17-85	164.38	165.32	0.94	Chld	Wk			Pv; Diffuse Contacts
17-85	165.32	165.50	0.18	Qz	Str			Pv; Diffuse Contacts
17-85	165.50	165.74	0.24	Cb-Chld	Mod			Pv; Diffuse Contacts
17-85	165.74	166.04	0.30	Cb-Chld	Wk			Pv; Diffuse Contacts
17-85	166.20	167.20	1.00	Cb-Chld	Wk			Pv; Diffuse Contacts
17-85	167.20	171.02	3.82	Cb	Mod			Pv; Diffuse Contacts
17-85	167.20	171.02	3.82	Qz-Chld	Wk			Pv; Diffuse Contacts
17-85	171.02	174.10	3.08	Qz-Cb	Mod			Pv; Diffuse Contacts
17-85	178.47	179.13	0.66	Cb	Str			Pv; Diffuse Contacts
17-85	179.18	183.73	4.55	Cb	Mod			Pv; Diffuse Contacts
17-85	183.73	195.60	11.87	Cb-Chl	Mod			Pv; Diffuse Contacts
17-85	195.60	199.76	4.16	Cb	Str			Pv; Diffuse Contacts
17-85	199.76	209.50	9.74	Cb	Mod			Pv
17-85	214.39	240.90	26.51	Qz	Mod			Pv; may be because unit is silica rich?
17-85	216.95	217.15	0.20	Chl	Str			Pv; FC
17-85	222.80	231.07	8.27	Cb	Mod			Pv
17-85	222.80	231.07	8.27	Chld	Wk			Sub-mm in size
17-85	231.07	232.80	1.73	Ser	Mod			
17-85	253.85	256.40	2.55	Gt	Mod			
17-85	254.20	254.30	0.10	Cb	Mod			Pv; FC at 65 TCA
17-85	256.40	257.82	1.42	Qz	Str			Pv; Diffuse Contacts
17-85	257.82	265.75	7.93	Cb	Mod			Pv; Diffuse Contacts
17-85	257.82	265.75	7.93	Qz	Wk			Pv; Diffuse Contacts
17-85	265.75	280.80	15.05	Qz	Mod			Pv; Diffuse Contacts
17-85	274.00	278.05	4.05	Ser?	Mod			Pv in Tuffaceous Zones
17-85	280.80	283.72	2.92	Qz	Str			Pv
17-85	285.67	288.10	2.43	Qz	Str			Pv
17-85	288.90	290.00	1.10	Qz	Str			Pv
17-85	289.13	290.72	1.59	Gt	Mod			P
17-85	289.13	290.72	1.59	Chl	Chl			P; Pv
17-85	290.76	291.46	0.70	Qz	Str			Pv
17-85	294.45	298.20	3.75	Qz	Str			Pv
17-85	295.80	298.20	2.40	Chld	Mod			P
17-85	298.51	298.91	0.40	Qz	Str			Pv
17-85	298.51	298.91	0.40	Chld	Mod			P
17-85	299.33	326.40	27.07	Qz	Str			Pv; Minor variation throughout interval
17-85	299.33	308.70	9.37	Chld	Mod			P
17-85	345.32	345.95	0.63	Cb-Qz	Wk			FC @ 18 degrees TCA
17-85	350.60	352.67	2.07	Gt	Wk			

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Comments
17-85	352.67	368.44	15.77	Cb-Qz	Mod			Pv
17-85	352.67	368.44	15.77	Chl	Wk			Pv; P
17-85	368.44	388.81	20.37	Gt	Wk			P
17-85	370.50	371.00	0.50	Cb	Mod			Pv
17-85	385.70	386.35	0.65	Cb-Chl	Mod			Pv
17-85	387.84	388.00	0.16	Qz-Cb	Str			Pv; FC (Bx)
17-85	390.50	418.48	27.98	Gt	Wk			
17-85	411.44	411.55	0.11	Qz-Cb-Chld	Mod			Chld 'foliation' at 65 TCA
17-85	417.97	418.23	0.26	Qz	Mod			Bx; FC
17-85	418.48	424.67	6.19	Chl	Wk			
17-85	418.48	428.40	9.92	Qz	Str			Pv
17-85	428.40	434.83	6.43	Gt	Wk			P; 1-3 mm garnets
17-85	428.40	434.83	6.43	Chl	Mod			Pv; semi-banded
17-85	432.31	433.70	1.39	Mag	Mod			Pv; very fine grained
17-85	434.83	449.22	14.39	Chl	Mod			Pv; semi-banded
17-85	456.27	457.15	0.88	Chld	Str			P
17-85	459.44	468.18	8.74	Qz	Str			Pv
17-85	461.30	461.66	0.36	Mag-Cb-Chl	Mod			Up to 15% Magnetite; Bx
17-85	461.97	462.04	0.07	Mag-Cb-Chl	Mod			Up to 15% Magnetite; Bx
17-85	462.41	462.51	0.10	Mag-Cb-Chl	Mod			Up to 15% Magnetite; Bx
17-85	468.20	468.72	0.52	Mag-Cb-Chl	Mod			Up to 15% Magnetite; Bx
17-85	468.20	468.72	0.52	Gt	Wk			P; 1-3 mm garnets
17-85	468.72	470.11	1.39	Qz	Str			Pv
17-85	470.11	470.19	0.08	Chld	Str			Pv
17-85	470.19	471.87	1.68	Mag-Cb-Chl	Mod			Up to 15% Magnetite; Bx
17-85	470.19	471.87	1.68	Gt	Wk			P; 1-3 mm garnets
17-85	471.87	510.03	38.16	Qz	Str			Pv
17-85	504.45	505.77	1.32	Chld	Wk			P
17-85	509.00	509.17	0.17	Cb	Mod			Pv
17-85	509.17	510.04	0.87	Wk	Chld			P
17-85	509.99	510.36	0.37	Cb	Mod			Pv
17-85	510.36	510.76	0.40	K or And?	Mod			Gives zone washed salmon colour
17-85	510.36	510.76	0.40	Chld	Wk			P

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Comments
17-85	510.76	511.53	0.77	Cb	Mod			Pv
17-85	511.53	512.09	0.56	K or And?	Mod			Gives zone washed salmon colour
17-85	511.53	512.09	0.56	Chld	Wk			P
17-85	512.09	512.20	0.11	Cb	Mod			Pv
17-85	512.20	512.55	0.35	K or And?	Mod			Gives zone washed salmon colour
17-85	512.81	513.80	0.99	Cb	Mod			Pv
17-85	513.80	514.25	0.45	K or And?	Mod			Gives zone washed salmon colour
17-85	514.25	514.53	0.28	Cb	Mod			Pv
17-85	514.53	542.69	28.16	Qz	Str			Pv
17-85	542.69	574.71	32.02	Mod	Qz			Pv
17-85	557.55	557.98	0.43	Cb	Mod			Pv
17-85	558.60	558.78	0.18	Cb	Mod			Pv
17-85	574.71	580.39	5.68	Qz	Str			Pv
17-85	580.39	654.50	74.11	Qz	Mod			Pv
17-85	641.65	649.40	7.75	Gt	Wk			P; 1-3 mm garnets
17-85	654.50	656.90	2.40	Qz	Str			Pv
17-85	677.28	680.39	3.11	Qz	Str			Pv
17-85	677.28	680.39	3.11	Chld	Wk			P
17-85	680.39	681.61	1.22	Cb	Wk			Pv
17-85	681.61	688.57	6.96	Qz	Str			Pv
17-85	688.57	701.00	12.43	Qz	Mod			Pv
17-85	688.57	701.00	12.43	Chl	Wk			P

Lithogeochemical Samples

HoleID	Sample Number	Lab	Certificate Number	AnalyticalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm
17-85	I106135	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	7.73	8.00	0.27	<1	302	14.3	47.7	10	1.92	88	3.09	2	0.71	17.4	2.57	1.7	0.67	6.6	0.29
17-85	I106136	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	34.20	34.52	0.32	<1	141	23.7	51.1	560	1.33	14	2.19	1.19	0.7	12.9	2.61	1.8	0.42	10.7	0.14
17-85	I106137	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	69.13	69.47	0.34	<1	204	14	52.5	20	1.23	203	3.03	1.93	0.82	20.5	2.42	2.3	0.62	6.3	0.26
17-85	I106138	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	99.50	99.77	0.27	<1	236	12	37.8	50	0.87	123	2.44	1.65	0.7	16.9	2.26	1.6	0.56	7	0.24
17-85	I106139	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	129.25	129.55	0.30	<1	217	14.3	30.4	30	1.76	57	3.14	2.09	0.8	17.6	2.53	1.8	0.72	6.8	0.3
17-85	I106140	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	135.17	135.56	0.39	<1	191.5	12.7	38.1	40	1.63	58	2.71	1.76	0.69	18.1	2.25	1.8	0.63	5.7	0.26
17-85	I106141	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	168.61	168.89	0.28	<1	205	39.6	38.6	70	0.94	109	2.98	1.61	0.95	18.8	3.6	3.8	0.59	19.8	0.25
17-85	I106142	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	197.00	197.30	0.30	<1	241	48.4	32.2	10	1.26	44	5.22	3.1	1.59	20.1	5.67	4.7	1.07	20.8	0.42
17-85	I106143	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	208.40	208.73	0.33	<1	759	48.8	33.9	310	3.9	53	4.07	2.11	1.68	15.3	5.62	2.9	0.76	22.4	0.27
17-85	I106144	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	224.00	224.28	0.28	<1	274	38.5	27.9	20	1.18	75	1.88	1.09	0.83	22.8	2.43	5.2	0.36	21.7	0.15
17-85	I106145	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	252.80	253.10	0.30	<1	233	35.8	30.7	110	3.21	56	3.46	2.07	1.08	18.8	3.7	3.5	0.71	16.8	0.32
17-85	I106146	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	266.75	267.05	0.30	1	139.5	81.5	2.9	10	1.6	41	6.68	4.06	1.29	16.4	7.62	7.8	1.39	38.6	0.57
17-85	I106147	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	279.40	279.70	0.30	<1	172	50.9	3.9	10	2.45	<5	5.22	3.18	1.31	13.7	5.43	6.7	1.1	23.9	0.45
17-85	I106148	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	284.10	284.40	0.30	<1	256	51.9	38	10	2	38	5.79	3.46	1.64	20.4	6.24	4.9	1.2	22.4	0.49
17-85	I106149	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	304.27	304.55	0.28	<1	210	65.6	5.2	<10	0.65	5	7.25	4.54	1.43	17.7	7.14	11.6	1.53	30.3	0.72
17-85	I106150	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	328.70	329.00	0.30	<1	178.5	41.4	30.2	10	1.07	6	5.26	3.23	1.26	17.9	5.07	4	1.07	18.3	0.47
17-85	I106151	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	331.61	331.90	0.29	<1	166	52.7	3	10	0.42	<5	5.53	3.67	0.9	12.1	4.94	7	1.2	23.8	0.59
17-85	I106152	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	364.60	364.90	0.30	<1	162	37.4	28.3	10	1.7	27	4.46	2.77	1.32	15.4	4.37	3.6	0.94	16.6	0.41
17-85	I106153	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	392.07	392.34	0.27	<1	208	52.2	21	10	0.51	<5	5.76	3.37	1.67	22.1	6.12	5.1	1.21	22.7	0.49
17-85	I106154	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	419.07	419.37	0.30	<1	259	77.8	3.1	<10	1.13	<5	7.4	4.8	1.32	14.2	7.88	9.1	1.59	35.9	0.73
17-85	I106155	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	430.18	430.48	0.30	<1	263	30.6	137	590	1.26	105	3.07	1.79	0.92	19.8	3.16	3	0.62	14.2	0.26
17-85	I106156	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	458.00	458.30	0.30	<1	601	115.5	3.2	10	1.34	14	11.15	6.57	2.16	20.3	11.5	12.4	2.27	53.9	0.97
17-85	I106157	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	494.00	494.28	0.28	<1	112	87.9	3	10	0.57	<5	8.03	4.75	1.94	17.4	8.67	8.6	1.64	40.9	0.69
17-85	I106158	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	526.20	526.50	0.30	<1	359	92.1	1.5	10	0.61	8	7.99	5.06	1.74	19.4	8.18	11.7	1.66	43.2	0.78
17-85	I106159	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	564.28	564.48	0.20	<1	438	117.5	1.3	<10	1.78	12	10.75	7	1.97	21.2	10.55	14.4	2.28	56.2	1.06
17-85	I106160	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	590.30	590.58	0.28	<1	156.5	83	2.7	<10	1.5	<5	8.02	5.12	1.67	18.4	8.57	9.6	1.72	38.2	0.78
17-85	I106161	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	657.56	657.86	0.30	<1	91.4	28.2	7.2	10	0.36	<5	1.74	0.95	0.62	20.7	2.32	4.4	0.34	13.2	0.13
17-85	I106162	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	698.88	699.18	0.30	<1	572	130.5	2.1	10	1.21	<5	11.6	7.25	3.15	26	13	14	2.42	59.6	1.08

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HoleID	Sample Number	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%
17-85	I106135	<2	2.7	8.2	29	<5	1.85	34.7	2	1	153	0.2	0.45	1.44	<0.5	0.31	0.36	262	1	16.6	2.06	61	58	48.8	14.15	9.7	10.2	2.63	2.08
17-85	I106136	<2	3.1	13.6	238	<5	3.22	20.1	2.73	1	110.5	0.2	0.38	1.34	<0.5	0.16	0.39	107	2	11.2	1	127	60	40.8	10.75	9.75	10.45	9.48	0.57
17-85	I106137	<2	3.5	8	62	<5	1.81	30.6	2.05	1	179	0.2	0.43	1.89	<0.5	0.27	0.47	269	<1	16.3	1.84	50	75	58.7	17.35	5.12	7.45	1.23	3.43
17-85	I106138	<2	2.3	6.8	38	<5	1.54	30.8	1.84	1	133	0.2	0.39	1.26	<0.5	0.24	0.27	235	<1	13.6	1.55	74	49	49.7	15.25	10.45	8.37	3.5	2.36
17-85	I106139	<2	2.6	8	43	<5	1.89	29.8	2.27	1	162	0.2	0.48	1.46	<0.5	0.31	0.35	268	<1	18.2	1.98	74	57	47.7	14.95	10.75	9.52	2.93	2.55
17-85	I106140	<2	2.4	7.6	62	5	1.69	30.9	1.98	1	176	0.2	0.41	1.24	<0.5	0.26	0.31	250	1	14.5	1.72	54	58	53.7	17.4	8.79	7.18	2.17	2.95
17-85	I106141	<2	5.6	17.9	61	7	4.6	34.1	3.45	1	105	0.4	0.52	2.82	<0.5	0.24	0.68	93	<1	14.7	1.55	51	142	69.4	14.7	5.49	0.46	0.76	1.31
17-85	I106142	<2	9	25.7	31	8	6.2	19.1	5.38	1	188.5	0.6	0.89	2.53	<0.5	0.4	0.43	184	<1	25.8	2.74	93	170	50.9	14.95	14.45	4.95	1.78	3.69
17-85	I106143	<2	4.6	27.3	101	9	6.33	36.5	6.06	1	392	0.3	0.77	3.64	<0.5	0.28	0.95	173	1	19.7	1.71	134	102	44.3	12.25	8.97	8.49	6.71	3.71
17-85	I106144	<2	6.3	15	16	10	4.09	59.5	2.55	1	148.5	0.6	0.35	3.74	0.7	0.15	1.02	25	<1	11	0.98	32	196	63.3	17.05	5.51	3.42	0.81	1.76
17-85	I106145	<2	6.1	17.3	48	16	4.4	29.1	3.44	1	250	0.4	0.56	2.45	0.5	0.3	0.5	162	<1	18.1	1.9	86	129	53.3	16.75	12.65	4.71	1.43	2.68
17-85	I106146	2	14.3	36.7	7	86	9.62	38.3	7.52	2	159	1.2	1.15	7.7	2.1	0.58	1.84	<5	<1	37.4	3.68	417	285	65.6	11.2	4.76	6.34	3.1	1.28
17-85	I106147	<2	12.3	24.8	10	19	6.22	36.3	5.37	1	130	0.8	0.86	3.98	1.6	0.46	1.01	19	<1	28.4	2.97	49	260	77.9	8.6	4.19	2.07	1.08	1.06
17-85	I106148	<2	9.2	28.3	43	16	6.81	38.6	5.77	2	177.5	0.6	0.96	2.68	0.9	0.48	0.62	221	<1	30.7	3.2	121	180	58.2	15.7	12.4	2.39	1.65	3.43
17-85	I106149	3	17.7	32.3	10	18	8.09	27.7	6.72	2	84.3	1.2	1.17	6.43	0.8	0.66	1.57	<5	<1	40.2	4.28	321	470	69.9	11.1	9.18	0.91	1.32	1.25
17-85	I106150	2	8	22.3	36	<5	5.36	17.7	4.73	1	118	0.5	0.85	2.24	<0.5	0.47	0.7	205	1	28	3.07	139	145	48.7	12.95	19.8	3.99	3.03	1.07
17-85	I106151	<2	14.1	24.4	5	<5	6.36	30.7	4.93	1	42.3	1	0.86	5.54	<0.5	0.56	1.39	10	<1	32.5	3.66	16	260	83.2	7.4	2.49	0.23	0.33	0.62
17-85	I106152	<2	6.6	20.1	31	<5	4.82	19.1	4.22	1	128.5	0.4	0.7	1.89	<0.5	0.4	0.46	167	<1	23.3	2.56	103	132	41.6	11.65	22.3	5.69	2.81	1.68
17-85	I106153	<2	9.8	28	21	15	6.78	23	5.91	2	249	0.7	0.96	2.74	<0.5	0.48	0.49	229	1	29.6	3.1	88	196	55.5	16.85	14.6	1.19	1.33	2.52
17-85	I106154	2	15.6	38.5	<5	13	9.63	53.5	7.69	2	61.4	1.1	1.23	6.43	0.9	0.71	1.64	17	<1	42	4.64	34	352	78.2	9.14	3.7	1.3	0.48	0.44
17-85	I106155	<2	5.4	15.8	358	44	3.81	92.3	3.24	1	156	0.3	0.51	1.58	2.4	0.25	0.39	191	<1	15.4	1.58	154	111	57.2	19	10.6	0.27	1.43	0.6
17-85	I106156	<2	21.5	55	9	10	13.95	78.7	11.2	3	115	1.6	1.84	8.92	0.9	0.95	1.6	<5	1	56.9	6.09	103	492	70.7	12.85	6.39	1.17	1.04	1.14
17-85	I106157	<2	18.1	41.2	<5	13	10.75	21.6	8.3	3	172	1.2	1.36	6.95	<0.5	0.7	1.5	<5	1	43	4.44	66	289	76.5	11.65	1.89	2.72	1.41	2.01
17-85	I106158	<2	19.6	43.3	<5	9	11.05	25.8	8.49	3	203	1.4	1.33	7.75	<0.5	0.74	1.17	<5	1	42.5	4.98	121	399	74	12.7	4.4	1.7	1.32	1.73
17-85	I106159	2	26	49.9	<5	8	13.5	80.6	9.52	4	89.3	1.9	1.76	10	<0.5	1.02	2.38	<5	1	61	6.66	78	541	68.9	13.25	3.26	2.99	2.17	0.46
17-85	I106160	<2	18.4	40.6	<5	9	10.3	56.2	8.59	3	94.7	1.3	1.34	6.77	<0.5	0.74	1.63	6	<1	44.8	5.01	99	359	70	11.85	4.94	2.76	2.21	0.61
17-85	I106161	<2	7.4	12.4	8	5	3.25	24.1	2.23	1	79.3	0.6	0.3	2.59	<0.5	0.14	0.84	48	1	9.1	0.82	89	168	70.3	15.35	4.88	0.81	1.39	0.35
17-85	I106162	3	27.3	64.4	<5	11	16.5	112.5	13.2	5	102	1.9	1.98	11.05	<0.5	1.05	2.5	20	2	63.1	6.87	134	531	63.5	17.25	3.4	1.94	1.93	0.25

Lithogeoche

HoleID	Sample Number	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
17-85	I106135	1	<0.01	0.84	0.24	0.07	0.02	0.04	11.3	101
17-85	I106136	0.64	0.08	0.51	0.21	0.13	0.01	0.02	17.15	100.5
17-85	I106137	0.94	<0.01	1	0.18	0.09	0.02	0.02	4.39	99.9
17-85	I106138	0.89	0.01	0.7	0.19	0.05	0.01	0.03	8.47	100
17-85	I106139	0.94	0.01	0.79	0.21	0.06	0.02	0.02	9.88	100.5
17-85	I106140	1.15	0.01	0.81	0.22	0.08	0.02	0.02	5.89	100.5
17-85	I106141	1.49	0.01	0.65	0.1	0.13	0.01	0.02	1.89	96.4
17-85	I106142	0.74	<0.01	1.42	0.43	0.33	0.02	0.03	5.86	99.6
17-85	I106143	1.04	0.05	0.81	0.2	0.27	0.05	0.09	12.6	99.5
17-85	I106144	2.88	<0.01	0.45	0.08	0.09	0.02	0.03	2.47	97.9
17-85	I106145	1.3	0.02	0.91	0.43	0.16	0.03	0.03	4.78	99.2
17-85	I106146	1.32	<0.01	0.22	0.15	0.02	0.02	0.02	7.07	101
17-85	I106147	1.39	<0.01	0.45	0.13	0.07	0.02	0.02	2.17	99.2
17-85	I106148	1.7	<0.01	1.49	0.32	0.33	0.02	0.03	1.18	98.8
17-85	I106149	1.17	<0.01	0.32	0.18	0.04	0.01	0.02	2.49	97.9
17-85	I106150	0.64	<0.01	1.23	0.65	0.29	0.02	0.02	6.45	98.8
17-85	I106151	1.54	<0.01	0.15	0.05	0.01	0.01	0.02	1.6	97.7
17-85	I106152	0.79	<0.01	1.08	0.84	0.25	0.02	0.02	9.68	98.4
17-85	I106153	1.47	<0.01	1.59	0.45	0.36	0.03	0.02	2.74	98.7
17-85	I106154	1.85	<0.01	0.2	0.11	0.02	0.01	0.03	2.47	98
17-85	I106155	3.81	0.09	0.86	0.27	0.14	0.02	0.03	3.29	97.6
17-85	I106156	1.97	<0.01	0.32	0.17	0.03	0.01	0.07	1.79	97.7
17-85	I106157	0.51	<0.01	0.43	0.03	0.03	0.02	0.01	1.7	98.9
17-85	I106158	0.82	<0.01	0.41	0.11	0.1	0.03	0.04	2.14	99.5
17-85	I106159	3.21	<0.01	0.34	0.07	0.03	0.01	0.05	3.89	98.6
17-85	I106160	2.39	<0.01	0.38	0.13	0.08	0.01	0.02	3.5	98.9
17-85	I106161	1.26	<0.01	0.43	0.1	0.15	0.01	0.01	2.79	97.8
17-85	I106162	4.9	<0.01	0.61	0.15	0.12	0.01	0.07	4.3	98.4

Assays

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Rock Code	Cu%	Pb%	Zn%	Ag_ppm	Cu%_OG62	ZN%_OG62	Au_ppm_AA23	Other	Other	Other	Other	Other	Comments
17-85	I599512	TB10159176	154.42	155.40	0.98		0.001	0.001	0.009	<0.2									
17-85	I599513	TB10159176	155.40	156.40	1.00		0.011	0.001	0.01	0.2									
17-85	I599514	TB10159176	156.40	157.40	1.00		0.005	0.003	0.013	<0.2									
17-85	I599515	TB10159176	157.40	158.00	0.60		0.002	0.003	0.01	<0.2									
17-85	I599516	TB10159176	158.00	158.70	0.70		0.004	0.001	0.009	0.2									
17-85	I599517	TB10159176	158.70	159.45	0.75		0.008	0.001	0.011	0.3									
17-85	I599518	TB10159176	159.45	160.45	1.00		0.009	0.001	0.008	<0.2									
17-85	I599519	TB10159176	160.45	161.45	1.00		0.005	0.001	0.004	0.2									
17-85	I599520	TB10159176	161.45	162.45	1.00		0.005	<0.001	0.004	0.3									
17-85	I599521	TB10159176	162.45	163.45	1.00		0.001	<0.001	0.004	<0.2									
17-85	I599522	TB10159176	163.45	164.45	1.00		0.001	<0.001	0.004	<0.2									
17-85	I599523	TB10159176	183.75	184.75	1.00		0.009	0.001	0.018	<0.2									
17-85	I599524	TB10159176	184.75	185.75	1.00		0.003	<0.001	0.024	<0.2									
	I599525	TB10159176		Standard			0.989	0.031	9.68	10.3		9.95	0.091						
17-85	I599526	TB10159176	185.75	186.75	1.00		0.018	0.001	0.035	0.3									
17-85	I599527	TB10159176	186.75	187.75	1.00		0.062	<0.001	0.014	1									
17-85	I599528	TB10159176	187.75	188.75	1.00		0.057	0.001	0.017	0.8									
17-85	I599529	TB10159176	188.75	189.75	1.00		0.039	0.003	0.055	0.6									
17-85	I599530	TB10159176	189.75	190.75	1.00		0.004	0.001	0.016	<0.2									
17-85	I599531	TB10159176	190.75	191.75	1.00		0.007	<0.001	0.013	0.2									
17-85	I599532	TB10159176	191.75	192.75	1.00		0.02	0.003	0.015	0.4									
17-85	I599533	TB10159176	192.75	193.75	1.00		0.033	0.009	0.05	1									
17-85	I599534	TB10159176	193.75	194.75	1.00		0.023	0.001	0.018	0.4									
17-85	I599535	TB10159176	194.75	195.60	0.85		0.01	0.001	0.026	0.2									
17-85	I599536	TB10159176	195.60	196.60	1.00		0.002	<0.001	0.017	0.2									
17-85	I599537	TB10159176	220.42	221.42	1.00		0.003	<0.001	0.006	0.2									
17-85	I599538	TB10159176	221.42	222.20	0.78		0.015	<0.001	0.011	0.5									
17-85	I599539	TB10159176	222.20	223.20	1.00		0.002	<0.001	0.004	0.2									
17-85	I599540	TB10159176	257.80	258.30	0.50		0.009	0.001	0.018	0.3									
17-85	I599541	TB10159176	258.80	259.80	1.00		0.013	0.002	0.026	0.5									
17-85	I599542	TB10159176	259.80	260.80	1.00		0.011	0.004	0.063	0.8									
17-85	I599543	TB10159176	260.80	261.80	1.00		0.02	0.003	0.082	1.4									
17-85	I599544	TB10159176	261.80	262.80	1.00		0.008	0.001	0.032	0.5									
	I599545	TB10159176		Blank			0.006	<0.001	0.014	<0.2									
17-85	I599546	TB10159176	262.80	263.80	1.00		0.017	<0.001	0.061	0.5									
17-85	I599547	TB10159176	263.80	264.80	1.00		0.029	0.003	0.161	1									
17-85	I599548	TB10159176	264.80	265.75	0.95		0.019	0.001	0.149	0.5									
17-85	I599549	TB10159176	265.75	266.75	1.00		0.008	0.003	0.044	0.3									
	I599550	TB10159176		Standard			0.953	0.03	9.46	10.8		10	0.077						
17-85	I599551	TB10159176	271.40	272.40	1.00		0.014	0.002	0.069	0.5									
17-85	I599552	TB10159176	272.40	273.40	1.00		0.068	0.007	0.083	1.9									

HoleID	Sample Number	Certificate Number	From_ m	To_m	Length_ m	Rock Code	Cu%	Pb%	Zn%	Ag_pp m	Cu%_O G62	ZN%_ OG62	Au_ppm _AA23	Other	Other	Other	Other	Other	Comments
17-85	I599553	TB10159176	273.40	274.40	1.00		0.122	0.015	1.69	6.4		1.675	0.022						
17-85	I599554	TB10159176	274.40	275.40	1.00		0.144	0.03	0.112	5.7									
17-85	I599555	TB10159176	275.40	276.40	1.00		0.018	0.001	0.117	0.5									
17-85	I599556	TB10159176	276.40	277.40	1.00		0.067	0.006	0.499	1.8									
17-85	I599557	TB10159176	277.40	278.40	1.00		0.013	0.001	0.076	0.2									
17-85	I599558	TB10159176	278.40	279.40	1.00		0.007	0.001	0.016	0.2									
17-85	I599559	TB10159176	288.13	289.13	1.00		0.004	<0.001	0.013	<0.2									
17-85	I599560	TB10159176	289.13	290.00	0.87		0.009	0.001	0.021	0.3									
17-85	I599561	TB10159176	290.00	290.72	0.72		0.01	<0.001	0.018	0.4									
17-85	I599562	TB10159176	290.72	291.46	0.74		0.003	<0.001	0.007	0.2									
17-85	I599563	TB10159176	291.46	292.15	0.69		0.044	0.002	0.023	0.9									
17-85	I599564	TB10159176	292.15	292.85	0.70		0.118	0.001	0.036	2.2									
17-85	I599565	TB10159176	292.85	293.65	0.80		0.034	0.002	0.028	1.1									
17-85	I599566	TB10159176	293.65	294.45	0.80		0.02	0.001	0.019	1.1									
17-85	I599567	TB10159176	294.45	295.45	1.00		0.008	<0.001	0.009	0.3									
	I599568	TB10159176		Standard			1.04	0.033	10.35	10.1	0.991	10.05	0.08						
17-85	I599569	TB10159176	350.45	350.95	0.50		0.047	<0.001	0.029	2.2									
17-85	I599570	TB10159176	423.67	424.67	1.00		0.001	<0.001	0.018	<0.2									
17-85	I599571	TB10159176	424.67	425.70	1.03		0.014	0.001	0.072	1.8									
17-85	I599572	TB10159176	425.70	426.29	0.59		0.009	0.005	0.01	0.6									
17-85	I599573	TB10159176	426.29	427.29	1.00		0.027	0.003	0.064	1.4									
17-85	I599574	TB10159176	427.29	428.04	0.75		0.233	0.227	2.69	23.9		2.95	0.028						
17-85	I599575	TB10159176	428.04	429.04	1.00		0.061	0.003	0.015	2.3									
17-85	I599576	TB10159176	429.04	430.04	1.00		0.028	0.002	0.026	0.8									
17-85	I599577	TB10159176	458.80	459.80	1.00		0.001	<0.001	0.011	<0.2									
17-85	I599578	TB10159176	459.80	461.30	1.50		0.002	<0.001	0.019	<0.2									
17-85	I599579	TB10159176	461.30	462.60	1.30		0.003	<0.001	0.025	0.4									
	I599580	TB10159176		Blank			0.005	<0.001	0.012	<0.2									
17-85	I599581	TB10159176	462.60	464.10	1.50		0.006	<0.001	0.01	<0.2									
17-85	I599582	TB10159176	464.10	465.60	1.50		0.003	<0.001	0.013	<0.2									
17-85	I599583	TB10159176	465.60	467.10	1.50		0.008	0.004	0.01	<0.2									
17-85	I599584	TB10159176	467.10	468.20	1.10		0.004	<0.001	0.006	0.2									
17-85	I599585	TB10159176	468.20	468.70	0.50		0.005	<0.001	0.035	0.2									
17-85	I599586	TB10159176	468.70	470.10	1.40		0.004	<0.001	0.007	<0.2									
17-85	I599587	TB10159176	470.10	471.60	1.50		0.005	0.001	0.022	<0.2									
17-85	I599588	TB10159176	471.60	473.10	1.50		0.001	<0.001	0.013	<0.2									
	I599589	TB10159176		Standard			0.98	0.029	9.64	10.1		9.97	0.086						
17-85	I599590	TB10159176	473.10	474.00	0.90		0.002	0.002	0.014	<0.2									
17-85	I599591	TB10164684	474.00	475.00	1.00		<0.001	<0.001	0.014	<0.2									
17-85	I599592	TB10164684	475.00	476.50	1.50		0.002	<0.001	0.01	0.5									
17-85	I599593	TB10164684	476.50	478.00	1.50		0.003	0.001	0.012	0.4									
17-85	I599594	TB10164684	478.00	479.50	1.50		0.002	0.001	0.01	0.5									

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Rock Code	Cu%	Pb%	Zn%	Ag_ppm	Cu%_OG62	ZN%_OG62	Au_ppm_AA23	Other	Other	Other	Other	Other	Comments
17-85	I599595	TB10164684	479.50	481.00	1.50		0.002	<0.001	0.009	<0.2									
17-85	I599596	TB10164684	481.00	482.50	1.50		0.003	<0.001	0.01	0.4									
17-85	I599597	TB10164684	482.50	484.00	1.50		0.004	0.001	0.015	0.6									
17-85	I599598	TB10164684	484.00	485.50	1.50		0.004	0.001	0.017	0.4									
17-85	I599599	TB10164684	485.50	487.00	1.50		0.002	0.004	0.021	0.6									
17-85	I599600	TB10164684	487.00	488.50	1.50		0.004	0.002	0.017	0.8									
17-85	I599601	TB10164684	488.50	490.00	1.50		0.004	0.001	0.019	0.6									
17-85	I599602	TB10164684	490.00	491.50	1.50		0.001	0.001	0.056	0.4									
17-85	I599603	TB10164684	491.50	492.50	1.00		0.005	<0.001	0.057	0.4									
17-85	I599604	TB10164684	492.50	494.00	1.50		0.001	<0.001	0.006	<0.2									
17-85	I599605	TB10164684	496.02	497.52	1.50		0.002	<0.001	0.011	0.3									
17-85	I599606	TB10164684	497.52	499.02	1.50		0.002	<0.001	0.067	0.2									
17-85	I599607	TB10164684	499.02	500.52	1.50		<0.001	<0.001	0.048	<0.2									
17-85	I599608	TB10164684	500.52	502.02	1.50		<0.001	<0.001	0.011	0.2									
17-85	I599609	TB10164684	520.85	522.35	1.50		<0.001	<0.001	0.009	<0.2									
	I599610	TB10164684		Standard			0.973	0.036	10.2	9.9		10.25	0.063						
17-85	I599611	TB10164684	522.35	523.60	1.25		0.005	0.002	0.029	0.2									
17-85	I599612	TB10164684	523.60	524.60	1.00		<0.001	0.001	0.013	<0.2									
17-85	I599613	TB10164684	524.60	526.10	1.50		0.002	0.002	0.01	<0.2									
17-85	I599614	TB10164684	597.30	598.80	1.50		0.003	0.002	0.012	<0.2									
17-85	I599615	TB10164684	598.80	599.80	1.00		0.021	0.002	0.041	0.5									
17-85	I599616	TB10164684	599.80	601.30	1.50		0.004	0.002	0.04	<0.2									
17-85	I599617	TB10164684	627.30	628.80	1.50		0.002	0.002	0.013	<0.2									
17-85	I599618	TB10164684	628.80	630.30	1.50		<0.001	0.002	0.027	<0.2									
17-85	I599619	TB10164684	630.30	631.80	1.50		0.006	0.002	0.042	<0.2									
17-85	I599620	TB10164684	631.80	633.30	1.50		0.011	0.002	0.058	0.4									
17-85	I599621	TB10164684	633.30	634.80	1.50		0.011	0.002	0.042	<0.2									
17-85	I599622	TB10164684	634.80	636.30	1.50		0.005	0.002	0.036	0.2									
17-85	I599623	TB10164684	641.00	642.50	1.50		0.004	0.001	0.019	<0.2									
17-85	I599624	TB10164684	642.50	644.00	1.50		0.015	0.001	0.019	0.2									
17-85	I599625	TB10164684	644.00	645.50	1.50		0.007	0.002	0.015	<0.2									
17-85	I599626	TB10164684	645.50	647.00	1.50		0.009	0.002	0.124	<0.2									
17-85	I599627	TB10164684	647.00	648.50	1.50		0.021	0.001	0.092	0.4									
17-85	I599628	TB10164684	648.50	650.00	1.50		0.002	0.001	0.017	<0.2									
17-85	I599629	TB10164684	650.00	651.25	1.25		0.505	0.002	0.046	10.2									
17-85	I599630	TB10164684	651.25	652.50	1.25		0.633	0.002	0.055	12.8									

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Rock Code	Cu%	Pb%	Zn%	Ag_ppm	Cu%_OG62	ZN%_OG62	Au_ppm_AA23	Other	Other	Other	Other	Other	Comments
17-85	I599631	TB10164684	652.50	654.00	1.50		0.003	0.001	0.003	<0.2									
17-85	I599632	TB10164684	681.80	683.30	1.50		0.003	0.001	0.008	<0.2									
	I599633	TB10164684		Blank			0.008	0.003	0.011	0.2									
17-85	I599634	TB10164684	632.30	633.80	1.50		0.022	0.001	0.014	0.4									
17-85	I599635	TB10164684	633.80	635.30	1.50		0.007	0.002	0.018	<0.2									
	I599636	TB10164684		Standard			0.984	0.035	10.7	10.2		10.45	0.065						

Downhole Deviation

HoleID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
17-85	Reflex EZ-Shot	20-Oct-10	17	-60.3	185.0	5776		Accepted re-test (Yueshi)
17-85	Reflex EZ-Shot	25-Oct-10	47	-58.2	182.7	5765		Re-test #4
17-85	Reflex EZ-Shot	18-Oct-10	77	-57.1	182.9	5837		Accepted original test (Yeushi) - Three 47m tests rejected
17-85	Reflex EZ-Shot	19-Oct-10	107	-56.2	182.2	5714		
17-85	Reflex EZ-Shot	19-Oct-10	137	-54.8	180.8	5749		
17-85	Reflex EZ-Shot	20-Oct-10	167	-54.5	181.5	5833		
17-85	Reflex EZ-Shot	25-Oct-10	209	-53.2	180.4	5804		Re-test #2
17-85	Reflex EZ-Shot	21-Oct-10	239	-52.5	181.0	5747		
17-85	Reflex EZ-Shot	21-Oct-10	269	-52.5	180.1	5804		
17-85	Reflex EZ-Shot	22-Oct-10	299	-51.8	177.8	5788		Azimuth questionable
17-85	Reflex EZ-Shot	22-Oct-10	329	-51.2	180.0	5796		
17-85	Reflex EZ-Shot	23-Oct-10	359	-50.8	178.8	6062		Azimuth questionable
17-85	Reflex EZ-Shot	24-Oct-10	389	-50.6	180.7	5802		
17-85	Reflex EZ-Shot	25-Oct-10	419	-50.1	182.6	5781		1st test after jammed rods/reaming
17-85	Reflex EZ-Shot	25-Oct-10	449	-48.7	181.8	5738		
17-85	Reflex EZ-Shot	26-Oct-10	479	-47.8	179.3	5794		
17-85	Reflex EZ-Shot	26-Oct-10	509	-47.2	181.0	5765		
17-85	Reflex EZ-Shot	27-Oct-10	539	-45.6	179.7	5760		
17-85	Reflex EZ-Shot	28-Oct-10	569	-44.7	180.0	5760		
17-85	Reflex EZ-Shot	28-Oct-10	599	-44.0	180.1	5763		
17-85	Reflex EZ-Shot	29-Oct-10	629	-43.3	180.6	5768		
17-85	Reflex EZ-Shot	30-Oct-10	659	-42.3	180.6	5769		
17-85	Reflex EZ-Shot	30-Oct-10	701	-41.9	181.1	5757		

Magnetic Susceptibility

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	8.00	6.96	
17-85	9.50	18.65	
17-85	11.00	6.18	
17-85	12.50	1.33	
17-85	14.00	35.93	
17-85	15.50	4.28	
17-85	17.00	1.37	
17-85	18.50	0.83	
17-85	20.00	1.89	
17-85	21.50	2.8	
17-85	23.00	18.74	
17-85	24.50	2.16	
17-85	26.00	2.01	
17-85	27.50	3.8	
17-85	29.00	1.67	
17-85	30.50	0.61	
17-85	32.00	0.4	
17-85	33.50	0.12	
17-85	35.00	0.38	
17-85	36.50	10.1	
17-85	38.00	10.22	
17-85	39.50	13.64	
17-85	41.00	6.23	
17-85	42.50	18.6	
17-85	44.00	13.96	
17-85	45.50	2.4	
17-85	47.00	14.32	
17-85	48.50	6.13	
17-85	50.00	3.8	
17-85	51.50	16.41	
17-85	53.00	0.54	
17-85	54.50	2.84	
17-85	56.00	7.26	
17-85	57.50	8.38	
17-85	59.00	0.4	
17-85	60.50	4.06	
17-85	62.00	3.55	
17-85	63.50	29.4	
17-85	65.00	25.61	
17-85	66.50	18.44	
17-85	68.00	8.08	
17-85	69.50	1.41	
17-85	71.00	8.91	
17-85	72.50	21.65	
17-85	74.00	5.15	
17-85	75.50	35.47	
17-85	77.00	14.14	
17-85	78.50	15.27	
17-85	80.00	53.4	
17-85	81.50	8.85	
17-85	83.00	0.39	
17-85	84.50	6.95	
17-85	86.00	8.56	
17-85	87.50	29.2	
17-85	89.00	43.6	
17-85	90.50	5.46	
17-85	92.00	18.73	
17-85	93.50	3.05	
17-85	95.00	26.26	
17-85	96.50	1.15	
17-85	98.00	3.96	
17-85	99.50	7.93	
17-85	101.00	46.06	
17-85	102.50	20.31	
17-85	104.00	4.21	
17-85	105.50	28.25	
17-85	107.00	26.39	
17-85	108.50	6.66	
17-85	110.00	1.1	
17-85	111.50	10.61	
17-85	113.00	14.61	
17-85	114.50	19.91	
17-85	116.00	12.48	
17-85	117.50	7.18	
17-85	119.00	63	
17-85	120.50	4.68	
17-85	122.00	1.95	
17-85	123.50	26.84	
17-85	125.00	0.88	
17-85	126.50	97.38	
17-85	128.00	32.08	
17-85	129.50	81.91	
17-85	131.00	66.27	

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	132.50	46.12	
17-85	134.00	4.1	
17-85	135.50	0.97	
17-85	137.00	1.57	
17-85	138.50	1.29	
17-85	140.00	4.46	
17-85	141.50	19.64	
17-85	143.00	2.05	
17-85	144.50	0.42	
17-85	146.00	0.48	
17-85	147.50	0.02	
17-85	149.00	0.03	
17-85	150.50	0.03	
17-85	152.00	0.03	
17-85	153.50	0.06	
17-85	155.00	0.01	
17-85	156.50	0.01	
17-85	158.00	6.53	
17-85	159.50	17.8	
17-85	161.00	3.56	
17-85	162.50	10.85	
17-85	164.00	0.41	
17-85	165.50	0.04	
17-85	167.00	0.06	
17-85	168.50	1.2	
17-85	170.00	0.02	
17-85	171.50	0.05	
17-85	173.00	0.04	
17-85	174.50	3.11	
17-85	176.00	6.06	
17-85	177.50	33.23	
17-85	179.00	33.26	
17-85	180.50	10.15	
17-85	182.00	2.52	
17-85	183.50	2.75	
17-85	185.00	9.18	
17-85	186.50	7.09	
17-85	188.00	6.81	
17-85	189.50	11.22	
17-85	191.00	3.03	
17-85	192.50	4.76	
17-85	194.00	6.38	
17-85	195.50	2.55	
17-85	197.00	0.63	
17-85	198.50	1.18	
17-85	200.00	16.48	
17-85	201.50	52.85	
17-85	203.00	10.17	
17-85	204.50	110	
17-85	206.00	128.9	
17-85	207.50	90.37	
17-85	209.00	14.01	
17-85	210.50	54	
17-85	212.00	88.36	
17-85	213.50	22.85	
17-85	215.00	4.59	
17-85	216.50	0.18	
17-85	218.00	0.01	
17-85	219.50	0.04	
17-85	221.00	0.1	
17-85	222.50	13.16	
17-85	224.00	0.35	
17-85	225.50	0.02	
17-85	227.00	0.01	
17-85	228.50	0.004	
17-85	230.00	0.02	
17-85	231.50	0.03	
17-85	233.00	0.49	
17-85	234.50	1.12	
17-85	236.00	0.03	
17-85	237.50	0.38	
17-85	239.00	0.57	
17-85	240.50	1.23	
17-85	242.00	0.49	
17-85	243.50	0.55	
17-85	245.00	0.33	
17-85	246.50	0.79	
17-85	248.00	0.92	
17-85	249.50	1.69	
17-85	251.00	1.17	
17-85	252.50	0.81	
17-85	254.00	1.02	
17-85	255.50	0.6	
17-85	257.00	0.37	

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	258.50	3.01	
17-85	260.00	1.79	
17-85	261.50	7.32	
17-85	263.00	0.42	
17-85	264.50	0.56	
17-85	266.00	0.004	
17-85	267.50	0.02	
17-85	269.00	0.02	
17-85	270.50	0.02	
17-85	272.00	0.91	
17-85	273.50	3.47	
17-85	275.00	6.85	
17-85	276.50	0.65	
17-85	278.00	0.04	
17-85	279.50	0.04	
17-85	281.00	1.48	
17-85	282.50	1.25	
17-85	284.00	0.85	
17-85	285.50	0.73	
17-85	287.00	0.88	
17-85	288.50	0.3	
17-85	290.00	5.42	
17-85	291.50	15.7	
17-85	293.00	6.41	
17-85	294.50	0.56	
17-85	296.00	0.006	
17-85	297.50	0.02	
17-85	299.00	0.05	
17-85	300.50	0.03	
17-85	302.00	0.03	
17-85	303.50	0.02	
17-85	305.00	0.49	
17-85	306.50	0.05	
17-85	308.00	0.03	
17-85	309.50	0.02	
17-85	311.00	0.01	
17-85	312.50	2.65	
17-85	314.00	0.04	
17-85	315.50	0.01	
17-85	317.00	0.43	
17-85	318.50	0.52	
17-85	320.00	0.04	
17-85	321.50	0.46	
17-85	323.00	0.04	
17-85	324.50	0.02	
17-85	326.00	0.03	
17-85	327.50	0.66	
17-85	329.00	11.87	
17-85	330.50	0.44	
17-85	332.00	0.03	
17-85	333.50	2.84	
17-85	335.00	0.63	
17-85	336.50	0.83	
17-85	338.00	0.52	
17-85	339.50	0.52	
17-85	341.00	0.78	
17-85	342.50	0.57	
17-85	344.00	0.82	
17-85	345.50	1.24	
17-85	347.00	8.23	
17-85	348.50	2.59	
17-85	350.00	2.73	
17-85	351.50	9.67	
17-85	353.00	63.58	
17-85	354.50	137	
17-85	356.00	85.22	
17-85	357.50	63.45	
17-85	359.00	60.64	
17-85	360.50	17.03	
17-85	362.00	28.29	
17-85	363.50	2.6	
17-85	365.00	36.18	
17-85	366.50	131.5	
17-85	368.00	139.4	
17-85	369.50	31.9	
17-85	371.00	60.07	
17-85	372.50	4.43	
17-85	374.00	29.28	
17-85	375.50	14.5	
17-85	377.00	42.87	
17-85	378.50	78.51	
17-85	380.00	71.31	
17-85	381.50	109.6	
17-85	383.00	133.9	

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	384.50	117.8	
17-85	386.00	36.06	
17-85	387.50	1.12	
17-85	389.00	0.03	
17-85	390.50	71.95	
17-85	392.00	36.25	
17-85	393.50	201.2	
17-85	395.00	78.8	
17-85	396.50	28.23	
17-85	398.00	80.24	
17-85	399.50	203.5	
17-85	401.00	164.5	
17-85	402.50	150.8	
17-85	404.00	95.1	
17-85	405.50	14.3	
17-85	407.00	15.71	
17-85	408.50	1.31	
17-85	410.00	1.2	
17-85	411.50	0.75	
17-85	413.00	1.14	
17-85	414.50	1.28	
17-85	416.00	1.55	
17-85	417.50	0.96	
17-85	419.00	0.03	
17-85	420.50	0.003	
17-85	422.00	0.009	
17-85	423.50	0.36	
17-85	425.00	0.05	
17-85	426.50	3.82	
17-85	428.00	25.69	
17-85	429.50	54.53	
17-85	431.00	2.09	
17-85	432.50	58.74	
17-85	434.00	29.47	
17-85	435.50	1.68	
17-85	437.00	0.04	
17-85	438.50	0.05	
17-85	440.00	0.05	
17-85	441.50	0.02	
17-85	443.00	0.02	
17-85	444.50	-0.01	
17-85	446.00	0.02	
17-85	447.50	0.03	
17-85	449.00	0.02	
17-85	450.50	0.02	
17-85	452.00	0.03	
17-85	453.50	0.02	
17-85	455.00	0.01	
17-85	456.50	0.78	
17-85	458.00	7.56	
17-85	459.50	0.92	
17-85	461.00	25.48	
17-85	462.50	243.2	
17-85	464.00	7.91	
17-85	465.50	24.14	
17-85	467.00	88.74	
17-85	468.50	1236	
17-85	470.00	83.68	
17-85	471.50	15.45	
17-85	473.00	0.04	
17-85	474.50	0.38	
17-85	476.00	0.9	
17-85	477.50	2.29	
17-85	479.00	0.72	
17-85	480.50	0.03	
17-85	482.00	0.41	
17-85	483.50	1.61	
17-85	485.00	0.005	
17-85	486.50	0.013	
17-85	488.00	0.01	
17-85	489.50	0.001	
17-85	491.00	-0.03	
17-85	492.50	-0.006	
17-85	494.00	-0.014	
17-85	495.50	-0.046	
17-85	497.00	-0.003	
17-85	498.50	-0.014	
17-85	500.00	-0.01	
17-85	501.50	0.026	
17-85	503.00	0.06	
17-85	504.50	0.02	
17-85	506.00	0.04	
17-85	507.50	1.84	
17-85	509.00	3.99	

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	510.50	0.641	
17-85	512.00	0.978	
17-85	513.50	1.02	
17-85	515.00	0.9	
17-85	516.50	0.06	
17-85	518.00	0.29	
17-85	519.50	0.015	
17-85	521.00	0.001	
17-85	522.50	0.01	
17-85	524.00	0.03	
17-85	525.50	-0.04	
17-85	527.00	0.056	
17-85	528.50	0.04	
17-85	530.00	0.02	
17-85	531.50	0.09	
17-85	533.00	0.04	
17-85	534.50	0.035	
17-85	536.00	0.1	
17-85	537.50	0.09	
17-85	539.00	0.06	
17-85	540.50	0.04	
17-85	542.00	0.44	
17-85	543.50	0.07	
17-85	545.00	0.08	
17-85	546.50	0.11	
17-85	548.00	0.8	
17-85	549.50	0.02	
17-85	551.00	0.12	
17-85	552.50	0.04	
17-85	554.00	0.09	
17-85	555.50	0.3	
17-85	557.00	0.32	
17-85	558.50	0.01	
17-85	560.00	0.1	
17-85	561.50	0.05	
17-85	563.00	0.04	
17-85	564.50	0.04	
17-85	566.00	0.004	
17-85	567.50	0.032	
17-85	569.00	0.001	
17-85	570.50	0.02	
17-85	572.00	-0.01	
17-85	573.50	-0.02	
17-85	575.00	-0.02	
17-85	576.50	0.03	
17-85	578.00	0.44	
17-85	579.50	0.05	
17-85	581.00	0.13	
17-85	582.50	0.07	
17-85	584.00	0.34	
17-85	585.50	0.35	
17-85	587.00	0.36	
17-85	588.50	0.31	
17-85	590.00	0.001	
17-85	591.50	0.04	
17-85	593.00	0.02	
17-85	594.50	0.1	
17-85	596.00	0.3	
17-85	597.50	0.37	
17-85	599.00	0.13	
17-85	600.50	0.12	
17-85	602.00	0.05	
17-85	603.50	0.04	
17-85	605.00	0.08	
17-85	606.50	0.03	
17-85	608.00	0.08	
17-85	609.50	0.07	
17-85	611.00	0.03	
17-85	612.50	0.12	
17-85	614.00	0.62	
17-85	615.50	0.14	
17-85	617.00	0.27	
17-85	618.50	0.06	
17-85	620.00	0.07	
17-85	621.50	0.03	
17-85	623.00	0.01	
17-85	624.50	0.08	
17-85	626.00	0.09	
17-85	627.50	0.04	
17-85	629.00	0.05	
17-85	630.50	0.6	
17-85	632.00	0.61	
17-85	633.50	0.52	
17-85	635.00	0.58	

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-85	636.50	0.49	
17-85	638.00	0.06	
17-85	639.50	0.29	
17-85	641.00	0.01	
17-85	642.50	0.07	
17-85	644.00	0.02	
17-85	645.50	0.05	
17-85	647.00	0.45	
17-85	648.50	0.12	
17-85	650.00	0.29	
17-85	651.50	0.38	
17-85	653.00	0.06	
17-85	654.50	0.11	
17-85	656.00	0.03	
17-85	657.50	0.08	
17-85	659.00	0.45	
17-85	660.50	0.03	
17-85	662.00	0.11	
17-85	663.50	0.3	
17-85	665.00	0.08	
17-85	666.50	0.13	
17-85	668.00	0.1	
17-85	669.50	0.58	
17-85	671.00	0.42	
17-85	672.50	0.58	
17-85	674.00	0.42	
17-85	675.50	0.07	
17-85	677.00	0.04	
17-85	678.50	0.09	
17-85	680.00	0.06	
17-85	681.50	0.35	
17-85	683.00	0.04	
17-85	684.50	0.12	
17-85	686.00	0.07	
17-85	687.50	0.03	
17-85	689.00	0.03	
17-85	690.50	0.12	
17-85	692.00	0.04	
17-85	693.50	0.02	
17-85	695.00	0.1	
17-85	696.50	0.12	
17-85	698.00	0.09	
17-85	699.50	0.35	
17-85	701.00	0.36	

Xstrata Zinc Canada

Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	17-2010-84	GRID:	NA	DATUM:	NAD83	AZIMUTH:	174.0
LOGGED BY:	D.Parker	NORTHING:	NA	ZONE:	Z15	DIP:	-60.0
START DATE:	16-Oct-10	EASTING:	NA	UTM Northing:	5547260mN	FINAL DEPTH (m):	563.00
FINISH DATE:	24-Oct-10	ELEVATION:	NA	UTM Easting:	649434mE	CORE SIZE:	BQ
		Casing (m):	19.00	UTM Elevation:	440	Magnetic Declination:	0.00

Target: Intersection of 2 mineralized corridors.

Township: Sixmile Lake **NTS:** 52G15

Drill Contractor: Major Drilling **Cement:** No **Casing:** 19m

Material Left in Hole: Casing + Cap **Plug:** No.

Core Recovery and Ground Conditions:

Core Storage: Mattabi Core yard

Downhole Survey: BPEM

Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization			Comments
From	To	Interval	Major Rock Code	Texture	Rock Name		Type & Intensity	Sulphide Type	Sulphide %	Texture	
0.00	19.00	19.00	OVB		OVB						
19.00	45.60	26.60	V1		Pumice-bearing felsic pyroclastic flows	4b	Weak chlorite				Trace sulphide
45.60	92.20	46.60	V1		Felsic pyroclastic flows	4b	Weak chlorite				45-145m Weak fabric 0-30 degCA with minor Cp+Po+Sp stringers, blebs and disseminated
92.20	145.00	52.80	V1		Rhyolite flow	4a					
145.00	181.90	36.90	V1		Felsic pyroclastic flows	4b	Weak Garnet				
181.90	200.00	18.10	V1		Rhyolite flow	4a					
200.00	286.40	86.40	V1		Felsic pyroclastic flows	4b	Weak chlorite				Trace sulphide
286.40	441.70	155.30	V2,V3		Mafic to Intermediate flow	5c	Weak chlorite+carbonate				Trace sulphide
441.70	476.20	34.50	I3		Mafic Intrusive	F ID	Weak-Mod Carbonate				
476.20	563.00	86.80	V2,V3		Mafic to Intermediate flow	5c					
563.00	-	EOH	EOH								

Major Litho Log

HoleID	From_m	To_m	Length_m	MajorRockCode	MajorRockName	Comments
17-84	0.00	19.00	19.00	OVB		
17-84	19.00	45.60	26.60	V1	Pumice-bearing Pyroclastic Flows	medium to dark gray; coarse grained angular to subrounded felsic volcanic and pumice fragments (up to 50%; 0.5-5.0 cm) in fine grained matrix of similar composition; massive to very weakly foliated 60 deg ca; weak chlorite along foliation; trace disseminated cp + Py +pod; occasional mafic dykes; lower contact indistinct.
17-84	45.60	92.20	46.60	V1	Pyroclastic Flows	medium to dark gray; coarse grained angular to subrounded felsic volcanic fragments in fine grained matrix of similar composition; massive to weak anastomosing foliation 0-40 deg ca; weak chlorite along foliation; occasional minor sulphide blebs and stringers; occasional mafic dykes; lower contact 30 deg ca.
17-84	92.20	145.00	52.80	V1	Quartz-phyric Flow	medium to dark gray; fine grained with 1% 1-2 mm round quartz phenocrysts; massive to very weak wispy foliation 10-30 deg ca; very weak sericite and chlorite along foliation; local minor 1-2 mm garnets; lower contact indistinct.
17-84	145.00	181.90	36.90	V1	Pyroclastic Flows	medium to dark gray; coarse grained angular to subrounded felsic volcanic fragments (up to 4 cm) in fine grained matrix of similar composition; local minor quartz crystals 1-2mm; massive; weak chlorite along irregular spaced foliation and rimming some fragments; lower contact indistinct.
17-84	181.90	200.00	18.10	V1	Quartz-phyric Flow	medium to dark gray; fine grained siliceous matrix with minor 1-2mm blue quartz phenocrysts; trace 2mm red garnets; massive; lower contact irregular.
17-84	200.00	286.40	86.40	V1	Pyroclastic Flows	medium to dark gray; >50% subangular felsic fragments (0.5-5.0cm) in fine grained matrix of similar composition; massive; minor chlorite in matrix; minor calcite sealed fractures 10-30 deg ca; trace 1-2 mm garnet; contact 35 deg ca.
17-84	286.40	441.70	155.30	V2-V3	Mafic to Intermediate Flows	medium to dark gray-green; fine grained; massive; weakly chloritic; local weak carbonate; minor ankerite and calcite sealed fractures and stringers at various angles; lower contact 30 deg ca.
17-84	441.70	476.20	34.50	I3	Hornblende-phyric Mafic Intrusive	dark gray-green; fine grained intermediate matrix with up to 50% dark green hornblende phenocrysts up to 5mm; massive to very weakly foliated 50 deg ca; weak to moderate carbonate; 5% quartz-calcite+/-ankerite stringers at various core angles; weak to moderately magnetic; lower contact 50 deg ca.
17-84	476.20	563.00	86.80	V2-V3	Mafic to Intermediate Flows	medium to dark gray-green; fine to medium grained; locally 1-2mm white feldspar grains; massive; weakly chloritic; local weak carbonate disseminated and calcite sealed fractures at various angles; trace disseminated sulphides; medium grained sections are weak to moderately magnetic.

Minor Litho Log

HoleID	From_m	To_m	Length_m	norRockCo	Comments
17-84	20.20	22.00	1.80	V1	20.2-22.0m: 10% pumice fragments
17-84	23.40	23.70	0.30	V1	23.4-23.7m: 5% pumice fragments
17-84	30.40	30.70	0.30	V1	30.4-30.7m: 10% pumice fragments
17-84	33.50	33.90	0.40	V1	33.5-33.9m: 5% pumice fragments
17-84	37.70	38.10	0.40	V1	37.7-38.1m: 5% pumice fragments
17-84	42.10	42.40	0.30	I3	42.1-42.4m: mafic dyke; dark gray; fine grained; weak carbonate; contacts 50-60 deg ca.
17-84	43.20	45.60	2.40	V1	43.2-45.6m: 10% pumice fragments
17-84	44.00	45.60	1.60	V1	44.0-45.6m: blocky core; 80% recovery
17-84	45.60	45.65	0.05		45.6m: contact indistinct
17-84	46.60	46.62	0.02	V1	46.6m: 2cm quartz carbonate stringer with chlorite margins; 2% cp and sp; 20 deg ca.
17-84	47.60	48.70	1.10	I3	47.6-48.7m: mafic dyke; dark gray; fine grained; massive; weak carbonate; contacts sharp 30-40 deg ca.
17-84	59.20	59.25	0.05	I3	59.2m: 2mm cp + Py stringer; 10 deg ca.
17-84	60.00	62.80	2.80	I3	60.0-62.8m: mafic dyke; dark gray; fine grained; massive; weak carbonate; 10-50 deg ca.
17-84	65.20	65.30	0.10	V1	65.2-65.3m: 10% po+Cpy+Sph blebs and stringer 20 deg ca.
17-84	66.50	68.50	2.00	I3	66.5-68.5m: mafic dyke; dark gray; fine grained; massive; weak carbonate; contacts sharp 80 deg ca.
17-84	67.50	72.20	4.70	V1	67.5-72.2m: minor blocky core.
17-84	87.90	88.20	0.30	I3	87.9-88.2m: mafic dyke; dark gray; fine grained; massive; contacts 60 deg ca.
17-84	88.20	89.00	0.80	V1	88.2-89.0m: silicified with 3-5% Cpy+Po+Sph; disseminated and irregular seams.
17-84	92.20	92.25	0.05		92.2m contact 30 deg ca.
17-84	108.20	134.00	25.80	V1	108.2-134.0m: <1% 1-2mm garnets.
17-84	145.00	145.05	0.05		145.0m: contact indistinct.
17-84	176.00	181.90	5.90	V1	176.0-181.9m: weak spaced cleavage 10-40 deg ca.
17-84	179.00	179.60	0.60	V1	179.0-179.6m: minor shearing 20-40 deg ca.
17-84	181.00	181.90	0.90	V1	181.0-181.9m: silicified with 15% quartz stringers 80 deg ca.
17-84	181.90	181.95	0.05		181.9m: contact indistinct.
17-84	218.00	228.00	10.00	V1	218.0-228.0m: weak silicification and sericite.
17-84	248.30	249.20	0.90	V1	248.3-249.2m: 1cm quartz sulphide stringer < 10 deg ca and 4cm quartz calcite sulphide stringer 50-80 deg ca; overall 2-3% Po+Cpy+Sph.
17-84	257.00	275.00	18.00	V1	257.0-275.0m: trace disseminated pod + Py.
17-84	274.10	274.80	0.70	V1	274.1-274.8m: strong carbonate alteration associated with shearing 30-50 deg ca. 1% Py.
17-84	286.40	286.45	0.05		286.4m: contact 35 deg ca.
17-84	304.60	304.65	0.05	V1	304.6m: 5cm quartz tourmaline stringer 60 deg ca.
17-84	305.30	305.40	0.10	V1	305.3m: 10cm quartz tourmaline stringer 60 deg ca.
17-84	309.30	320.00	10.70	V1	309.3-320.0m: darker green; weak to moderate chlorite.
17-84	329.00	329.05	0.05	V1	329.0m: 5 cm quartz tourmaline stringer 10 deg ca.
17-84	337.00	337.05	0.05	V1	337.0- m: minor disseminated calcite.
17-84	370.40	371.60	1.20	V1	370.4-371.6m: moderate calcite; 1% disseminated fine grained pyrite.
17-84	406.90	441.70	34.80	V1	406.9-441.7m: 1% quartz-ankerite+/-tourmaline stringers at various core angles.
17-84	441.70	441.75	0.05		441.7m contact 30 deg ca
17-84	443.30	443.80	0.50	V1	443.3-443.8m: fine grained with minor disseminated pyrite.
17-84	447.20	448.10	0.90	V1	447.2-448.1m: intermediate feldspar-phyric dyke; light gray; massive to weakly foliated 40 deg ca; minor biotite;20% 1-3mm white feldspar phenocrysts; contacts 50 deg ca.
17-84	476.20	476.21	0.01		476.2m: contact 50 deg ca.
17-84	476.20	481.90	5.70	V2-V3-I3	476.2-481.9m: 40% mafic dykes as 441.7-476.2m; 40-60 deg ca.
17-84	491.00	495.10	4.10	V2-V3	491.0-495.1m: 5-10% quartz-ankerite stringers 10-30 deg ca.
17-84	504.10	504.15	0.05	V2-V3	504.1m: 3cm quartz-ankerite-chlorite stringer 10 deg ca.
17-84	519.30	519.35	0.05	V2-V3	519.3m: 5cm quartz-ankerite-chlorite stringer 40 deg ca.
17-84	521.50	521.55	0.05	V2-V3	521.5m: 2 cm quartz-ankerite-chlorite stringer minor pyrite 10 deg ca.
17-84	536.20	536.25	0.05	V2-V3	536.2m: 5cm quartz-chlorite stringer 10 deg ca.

Alteration Log

HoleID	From_m	To_m	Length_m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Alt3Type	Alt3Intensity	Alt4Type	Alt4Intensity	Comments
17-84	19.00	45.60	26.60	**Chl**	Wk	Qz	Wk	Cb	Wk			
17-84	45.00	92.20	47.20	**Chl**	Wk							
17-84	88.20	89.00	0.80	**Qz**	Mod							
17-84	108.20	134.00	25.80	**Gt**	Wk							
17-84	145.00	181.90	36.90	**Chl**	Wk							
17-84	181.90	200.00	18.10	**Gt**	Wk							
17-84	200.00	286.40	86.40	**Chl**	Wk							
17-84	218.00	228.00	10.00	**Ser**	Wk	Qz	Wk					
17-84	274.10	274.80	0.70	**Cb**	Str							
17-84	286.40	476.20	189.80	**Cb**	Wk-Mod							
17-84	476.20	563.00	86.80	**Cb**	Wk							

Mineralization Log

HoleID	From_m	To_m	Length_m	MinzType	Minz%	MinzStyle1	MinzStyle2	MinzStyle3	Comments
17-84	46.60	46.62	0.02	Cp+Sph	2	Str			
17-84	65.20	65.30	0.10	Po-Cp-Sph	10	Str	Bl		
17-84	88.20	89.00	0.80	Po-Cp-Sph	3-5	Diss	W		
17-84	248.30	249.20	0.90	Po-Cp-Sph	2-3	Str			

Lithogeochemical Samples

HoleID	Sample Number	Lab	Certificate Number	AnalytyicalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm
17-84	I106029	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	29.70	30.00	0.30	<1	259	52.6	23.7	<10	0.47	58	5.85	3.62	1.49	19.9	5.65	5.5
17-84	I106030	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	63.10	63.40	0.30	<1	411	91.2	2.3	<10	0.67	12	10.65	6.42	1.53	19.1	9.81	10.6
17-84	I106031	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	95.00	95.30	0.30	<1	303	93.1	3.5	10	0.53	90	10.45	6.59	1.47	19.2	10.3	9.9
17-84	I106032	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	122.00	122.30	0.30	<1	194	91.6	0.9	<10	0.55	<5	10.8	6.89	1.89	18.3	11.05	10.2
17-84	I106033	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	154.70	155.00	0.30	<1	274	92	1.7	<10	0.46	<5	11.1	6.88	1.22	20.1	10.8	10.8
17-84	I106034	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	187.70	188.00	0.30	<1	337	86.8	1.5	10	0.61	17	9.27	5.69	1.71	18.6	9.19	9.8
17-84	I106035	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	209.00	209.30	0.30	<1	229	74.8	8.2	10	0.18	11	8.73	5.54	1.65	19.1	8.05	8.2
17-84	I106036	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	251.00	251.30	0.30	<1	228	66.9	11.6	10	0.18	28	6.83	4.41	1.34	17.9	6.76	7.7
17-84	I106037	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	280.70	281.00	0.30	<1	255	80.2	5.4	<10	0.54	16	7.05	4.23	1.14	17.4	7.53	7.7
17-84	I106038	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	311.00	311.30	0.30	<1	9.1	29.3	19.5	10	0.01	79	4.24	2.82	0.82	14	3.94	5.7
17-84	I106039	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	340.70	341.00	0.30	<1	205	39	28.3	70	0.33	<5	3.65	2.13	0.97	17.4	4.07	3
17-84	I106040	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	370.70	371.00	0.30	<1	1060	140.5	11.8	20	1.15	34	2.64	1.38	2.14	20.8	7.37	3.7
17-84	I106041	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	401.00	401.30	0.30	<1	105.5	33.5	27	80	0.25	<5	4.73	2.68	1.54	17.8	4.46	2.9
17-84	I106042	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	434.00	434.30	0.30	<1	263	30.8	19.4	80	1.13	9	3.51	2.06	1	20.3	3.6	3.3
17-84	I106043	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	458.00	458.30	0.30	<1	23.6	14.8	56.7	80	0.08	96	3.96	2.53	0.89	17.2	3.06	2
17-84	I106044	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	488.00	488.30	0.30	<1	310	30.4	36.6	70	1.02	78	4.02	2.21	1.4	17.7	3.76	3
17-84	I106045	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	518.00	518.30	0.30	<1	169.5	21.4	39.9	70	0.79	20	2.39	1.4	0.82	17.1	2.51	2.9
17-84	I106046	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	547.70	548.00	0.30	<1	183.5	34.6	26.3	80	0.06	27	3.68	2.15	0.97	20.2	4.02	3.3

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HoleID	Sample Number	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm
17-84	I106029	1.21	24	0.53	<2	11	28	15	12	6.58	56.5	5.72	2	62.6	0.9	0.93	3.8	<0.5	0.56	0.93	197	2	31.3	3.49
17-84	I106030	2.16	41.5	0.95	3	21.3	46.7	7	13	11.3	59.3	9.58	3	117.5	1.6	1.67	7.12	<0.5	0.98	1.69	<5	2	57.8	6.12
17-84	I106031	2.25	42.8	0.89	<2	22.5	45.8	<5	6	11.85	59.3	9.5	3	42.2	1.5	1.67	7.41	<0.5	0.93	1.63	<5	1	58.4	6.23
17-84	I106032	2.27	41.7	0.98	2	22.2	44.8	<5	5	11.65	61.5	9.49	3	40.5	1.4	1.74	7.6	<0.5	1.02	1.75	<5	1	58.8	6.64
17-84	I106033	2.35	41.1	0.98	<2	23.2	46	<5	<5	11.75	64.5	9.8	3	31.6	1.6	1.73	7.92	<0.5	1.01	1.74	<5	1	59.9	6.43
17-84	I106034	1.96	39.1	0.78	2	21.7	41.9	<5	5	10.8	68.2	8.62	4	33.2	1.4	1.53	7.12	<0.5	0.86	1.43	<5	1	51	5.42
17-84	I106035	1.84	33.6	0.77	5	18.1	35.9	9	<5	9.22	42	7.41	3	38.8	1.2	1.37	6.76	<0.5	0.84	1.87	75	1	49	5.32
17-84	I106036	1.41	30.8	0.64	3	16.4	32.3	10	5	8.44	37.2	6.57	3	31.2	1.1	1.08	6.1	<0.5	0.67	1.76	85	1	37.8	4.48
17-84	I106037	1.44	38.1	0.58	2	16.5	37.4	<5	5	9.92	57.3	7.1	2	33.3	1.1	1.17	7.02	<0.5	0.62	1.58	5	2	39.1	4.04
17-84	I106038	0.9	13.3	0.41	5	11.8	15	46	<5	3.74	1	3.17	1	14.8	0.9	0.66	4.86	<0.5	0.41	1.19	72	1	23	2.67
17-84	I106039	0.77	18.6	0.27	<2	6.3	19.1	73	<5	4.81	37.2	4.02	1	59.2	0.4	0.66	2.66	<0.5	0.29	0.51	145	1	19.2	1.86
17-84	I106040	0.45	73.1	0.15	<2	4.7	60.9	15	13	16.55	46	8.88	1	636	0.3	0.69	16.1	<0.5	0.16	2.85	68	<1	11.9	1.03
17-84	I106041	0.97	16.3	0.28	<2	6.2	16.7	73	7	4.25	10.6	3.63	<1	135	0.5	0.72	2.44	<0.5	0.36	0.64	141	1	24.6	2.03
17-84	I106042	0.71	14.7	0.27	<2	7	15.6	64	8	3.85	60.6	3.39	1	96	0.5	0.59	2.59	<0.5	0.3	0.49	158	<1	18.9	1.84
17-84	I106043	0.83	6.6	0.35	<2	3.1	9.1	68	<5	2.02	1.5	2.41	<1	207	0.2	0.56	1.17	<0.5	0.38	0.28	265	<1	21.8	2.46
17-84	I106044	0.81	14.5	0.28	<2	6.1	14.8	73	6	3.7	37.2	3.28	1	184	0.4	0.64	2.29	<0.5	0.31	0.63	137	1	20.7	1.76
17-84	I106045	0.5	10.1	0.22	<2	6	10.4	76	6	2.62	20.9	2.16	1	132.5	0.4	0.39	2.12	<0.5	0.21	0.41	141	<1	12.4	1.4
17-84	I106046	0.73	16.2	0.29	<2	7	16.9	85	8	4.32	6.3	3.69	1	115	0.5	0.61	2.66	<0.5	0.31	0.54	163	1	19.3	1.96

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HoleID	Sample Number	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
17-84	I106029	357	215	57.2	13.05	9.64	2.69	4.66	0.14	2.29	<0.01	1.14	0.44	0.18	0.01	0.03	6.79	98.3
17-84	I106030	186	410	75.2	10.3	5.47	0.05	1.9	0.13	2.36	<0.01	0.22	0.11	0.01	0.01	0.05	2.49	98.3
17-84	I106031	163	371	74.7	10.2	4.39	0.05	1.89	0.13	2.52	<0.01	0.21	0.09	0.01	<0.01	0.04	2.1	96.3
17-84	I106032	183	376	72.4	10.3	5.73	0.68	2.87	0.14	2.25	<0.01	0.2	0.23	0.01	<0.01	0.02	2.19	97
17-84	I106033	130	393	74.5	10.75	3.76	0.08	1.9	0.11	2.63	<0.01	0.21	0.08	0.01	<0.01	0.03	1.98	96
17-84	I106034	105	373	74.7	9.93	4.57	0.12	1.86	0.09	2.67	<0.01	0.2	0.18	<0.01	<0.01	0.04	2.18	96.5
17-84	I106035	354	304	66	11.55	8.06	0.46	2.91	0.08	2.08	<0.01	0.61	0.22	0.08	<0.01	0.03	3.35	95.4
17-84	I106036	947	283	66.7	11.3	8.48	0.13	3.02	0.07	1.86	<0.01	0.63	0.18	0.08	<0.01	0.03	2.58	95.1
17-84	I106037	198	297	69	11.25	6.52	0.16	3.21	0.11	2.29	<0.01	0.5	0.1	0.07	<0.01	0.03	2.43	95.7
17-84	I106038	428	215	68.2	9.38	10.35	0.93	3.66	0.07	0.04	<0.01	0.87	0.15	0.21	<0.01	<0.01	2.7	96.6
17-84	I106039	193	108	53.9	15.75	8.06	4.21	6.22	0.67	1.78	0.01	0.82	0.14	0.12	0.01	0.02	7.71	99.4
17-84	I106040	75	131	62	14.95	5.57	6.83	1.77	2.72	1.84	<0.01	0.6	0.09	0.24	0.07	0.13	3.44	100.5
17-84	I106041	144	105	55	15.75	8.62	7.74	5.2	1.6	0.45	0.01	0.82	0.16	0.13	0.01	0.01	5.9	101.5
17-84	I106042	222	118	56.6	17.25	9.42	6.46	3.58	0.85	2.5	0.01	0.9	0.13	0.15	0.01	0.03	1.59	99.5
17-84	I106043	122	62	45.7	12.7	15.2	9.82	5.22	1.91	0.11	0.01	1.07	0.23	0.09	0.02	<0.01	7.7	99.8
17-84	I106044	110	105	55.6	15.4	8.09	7.41	4.14	1.67	1.4	0.01	0.82	0.11	0.13	0.02	0.04	4.62	99.5
17-84	I106045	162	102	54.1	15.4	8.32	7.58	4.16	1.64	0.71	0.01	0.8	0.17	0.11	0.02	0.02	5.36	98.4
17-84	I106046	225	119	58.4	17.45	9.14	4.07	2.92	1.91	0.65	0.01	0.9	0.16	0.15	0.01	0.02	2.59	98.4

Assays

HoleID	Sample Number	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag ppm	Au ppm	Other	Other	Other	Other	Other	Other	Other	Comments
17-84	E460541	46.40	46.90	0.50	V1	0.181	0.005	0.192	2.1									
17-84	E460542	59.00	59.50	0.50	V1	0.161	0.002	0.021	1.6									
17-84	E460543	65.00	65.50	0.50	V1	0.047	0.003	0.028	1.2									
17-84	E460544	88.40	89.00	0.60	V1	0.575	<0.001	0.204	8.2									
17-84	E460545	248.20	249.20	1.00	V1	0.415	0.002	0.095	10.5									

Downhole Deviation

HoleID	Instrum ent	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
17-84	Reflex	17-Oct-10	32	60.8	194.5	5765		
17-84	Reflex	17-Oct-10	62	60.6	193.7	5737		
17-84	Reflex	17-Oct-10	92	60.2	195.1	5750		
17-84	Reflex	17-Oct-10	122	59.6	193.9	5746		
17-84	Reflex	17-Oct-10	152	59.3	194.4	5745		
17-84	Reflex	18-Oct-10	182	59.0	195.3	5731		
17-84	Reflex	24-Oct-10	253	58.8	196.2	5744		
17-84	Reflex	19-Oct-10	272	59.2	197.1	5749		
17-84	Reflex	24-Oct-10	313	59.1	197.6	5743		
17-84	Reflex	24-Oct-10	343	58.9	197.2	5740		
17-84	Reflex	24-Oct-10	373	58.5	199.0	5727		
17-84	Reflex	24-Oct-10	403	58.5	200.6	5731		
17-84	Reflex	24-Oct-10	443	58.5	200.9	5751		
17-84	Reflex	24-Oct-10	473	58.7	195.8	5551		
17-84	Reflex	24-Oct-10	503	58.4	202.7	5755		
17-84	Reflex	24-Oct-10	533	58.5	203.5	5766		
17-84	Reflex	24-Oct-10	563	58.4	203.3	5696		

Magnetic Susceptibility

Hole_ID	Depth_m	Mag. Sus. Reading	Comments
17-84	20.00	0.019	
17-84	21.50	0.008	
17-84	23.00	0.29	
17-84	24.50	0.239	
17-84	26.00	0.83	
17-84	27.50	0.161	
17-84	29.00	0.251	
17-84	30.50	0.209	
17-84	32.00	0.555	
17-84	33.50	0.678	
17-84	35.00	0.661	
17-84	36.50	0.756	
17-84	38.00	0.462	
17-84	39.50	0.666	
17-84	41.00	0.647	
17-84	42.50	0.123	
17-84	44.00	0.336	
17-84	45.50	0.428	
17-84	47.00	0.77	
17-84	48.50	1.15	
17-84	50.00	0.56	
17-84	51.50	0.637	
17-84	53.00	1.037	
17-84	54.50	0.927	
17-84	56.00	0.683	
17-84	57.50	0.075	
17-84	59.00	0.064	
17-84	60.50	0.649	
17-84	62.00	0.883	
17-84	63.50	0.082	
17-84	65.00	0.296	
17-84	66.50	0.256	
17-84	68.00	0.064	
17-84	69.50	0.12	
17-84	71.00	0.11	
17-84	72.50	0.047	
17-84	74.00	0.061	
17-84	75.50	0.031	
17-84	77.00	0.059	
17-84	78.50	0.047	
17-84	80.00	0.254	
17-84	81.50	0.07	
17-84	83.00	0.05	
17-84	84.50	0.324	
17-84	86.00	0.135	
17-84	87.50	0.362	
17-84	89.00	0.128	
17-84	90.50	0.07	
17-84	92.00	0.116	
17-84	93.50	0.024	
17-84	95.00	0.132	
17-84	96.50	0.017	
17-84	98.00	0.04	
17-84	99.50	0.042	
17-84	101.00	0.124	
17-84	102.50	0.1	
17-84	104.00	0.115	
17-84	105.50	0.153	
17-84	107.00	0.142	
17-84	108.50	0.124	
17-84	110.00	0.063	
17-84	111.50	0.106	
17-84	113.00	0.071	
17-84	114.50	0.105	
17-84	116.00	0.032	
17-84	117.50	0.093	
17-84	119.00	0.053	
17-84	120.50	0.121	
17-84	122.00	0.287	
17-84	123.50	0.079	
17-84	125.00	0.046	
17-84	126.50	0.035	
17-84	128.00	0.417	
17-84	129.50	0.112	
17-84	131.00	0.376	
17-84	132.50	0.119	
17-84	134.00	0.436	

Hole_ID	Depth_m	Mag. Sus. Reading	Comments
17-84	135.50	0.164	
17-84	137.00	0.343	
17-84	138.50	0.108	
17-84	140.00	0.075	
17-84	141.50	0.54	
17-84	143.00	0.334	
17-84	144.50	0.314	
17-84	146.00	0.102	
17-84	147.50	0.053	
17-84	149.00	0.116	
17-84	150.50	0.044	
17-84	152.00	0.129	
17-84	153.50	0.306	
17-84	155.00	0.102	
17-84	156.50	0.322	
17-84	158.00	0.066	
17-84	159.50	0.355	
17-84	161.00	0.117	
17-84	162.50	0.345	
17-84	164.00	0.064	
17-84	165.50	0.142	
17-84	167.00	0.287	
17-84	168.50	0.326	
17-84	170.00	0.379	
17-84	171.50	0.365	
17-84	173.00	0.405	
17-84	174.50	0.278	
17-84	176.00	0.036	
17-84	177.50	0.109	
17-84	179.00	0.357	
17-84	180.50	0.352	
17-84	182.00	0.096	
17-84	183.50	0.039	
17-84	185.00	0.108	
17-84	186.50	0.172	
17-84	188.00	0.138	
17-84	189.50	0.084	
17-84	191.00	0.057	
17-84	192.50	0.075	
17-84	194.00	0.102	
17-84	195.50	0.112	
17-84	197.00	0.094	
17-84	198.50	0.309	
17-84	200.00	0.31	
17-84	201.50	0.392	
17-84	203.00	0.433	
17-84	204.50	0.324	
17-84	206.00	0.379	
17-84	207.50	0.268	
17-84	209.00	0.33	
17-84	210.50	0.341	
17-84	212.00	0.069	
17-84	213.50	0.04	
17-84	215.00	0.119	
17-84	216.50	0.067	
17-84	218.00	0.098	
17-84	219.50	0.06	
17-84	221.00	0.058	
17-84	222.50	0.098	
17-84	224.00	0.071	
17-84	225.50	0.047	
17-84	227.00	0.042	
17-84	228.50	0.048	
17-84	230.00	0.11	
17-84	231.50	0.082	
17-84	233.00	0.553	
17-84	234.50	0.363	
17-84	236.00	0.459	
17-84	237.50	0.306	
17-84	239.00	0.314	
17-84	240.50	0.375	
17-84	242.00	0.375	
17-84	243.50	0.287	
17-84	245.00	0.488	
17-84	246.50	0.177	
17-84	248.00	0.32	
17-84	249.50	0.798	
17-84	251.00	0.225	

Hole_ID	Depth_m	Mag. Sus. Reading	Comments
17-84	252.50	0.151	
17-84	254.00	0.57	
17-84	255.50	0.562	
17-84	257.00	0.385	
17-84	258.50	0.296	
17-84	260.00	0.295	
17-84	261.50	0.679	
17-84	263.00	0.83	
17-84	264.50	0.387	
17-84	266.00	0.57	
17-84	267.50	0.457	
17-84	269.00	0.479	
17-84	270.50	0.368	
17-84	272.00	0.124	
17-84	273.50	0.614	
17-84	275.00	0.441	
17-84	276.50	0.144	
17-84	278.00	0.259	
17-84	279.50	0.289	
17-84	281.00	0.38	
17-84	282.50	0.398	
17-84	284.00	0.498	
17-84	285.50	0.408	
17-84	287.00	0.867	
17-84	288.50	0.573	
17-84	290.00	0.798	
17-84	291.50	0.795	
17-84	293.00	0.518	
17-84	294.50	0.514	
17-84	296.00	0.598	
17-84	297.50	0.416	
17-84	299.00	0.7	
17-84	300.50	0.409	
17-84	302.00	0.161	
17-84	303.50	0.64	
17-84	305.00	0.602	
17-84	306.50	0.46	
17-84	308.00	0.675	
17-84	309.50	0.954	
17-84	311.00	0.654	
17-84	312.50	0.609	
17-84	314.00	0.751	
17-84	315.50	0.73	
17-84	317.00	0.44	
17-84	318.50	0.366	
17-84	320.00	0.629	
17-84	321.50	0.412	
17-84	323.00	0.391	
17-84	324.50	0.166	
17-84	326.00	0.112	
17-84	327.50	0.557	
17-84	329.00	0.543	
17-84	330.50	0.509	
17-84	332.00	0.352	
17-84	333.50	0.632	
17-84	335.00	0.528	
17-84	336.50	0.548	
17-84	338.00	0.645	
17-84	339.50	0.608	
17-84	341.00	0.355	
17-84	342.50	0.286	
17-84	344.00	0.453	
17-84	345.50	0.711	
17-84	347.00	0.609	
17-84	348.50	0.484	
17-84	350.00	0.686	
17-84	351.50	0.365	
17-84	353.00	0.446	
17-84	354.50	0.507	
17-84	356.00	0.555	
17-84	357.50	0.479	
17-84	359.00	0.566	
17-84	360.50	0.506	
17-84	362.00	0.536	
17-84	363.50	0.614	
17-84	365.00	0.473	
17-84	366.50	0.458	
17-84	368.00	0.486	

Hole_ID	Depth_m	Mag. Sus. Reading	Comments
17-84	369.50	0.324	
17-84	371.00	38.93	
17-84	372.50	1.851	
17-84	374.00	1.233	
17-84	375.50	1.351	
17-84	377.00	0.554	
17-84	378.50	0.627	
17-84	380.00	0.656	
17-84	381.50	2.469	
17-84	383.00	0.888	
17-84	384.50	2.614	
17-84	386.00	5.366	
17-84	387.50	0.47	
17-84	389.00	0.599	
17-84	390.50	0.438	
17-84	392.00	0.208	
17-84	393.50	0.297	
17-84	395.00	0.389	
17-84	396.50	0.476	
17-84	398.00	0.532	
17-84	399.50	0.509	
17-84	401.00	0.563	
17-84	402.50	0.699	
17-84	404.00	0.494	
17-84	405.50	0.608	
17-84	407.00	0.84	
17-84	408.50	0.949	
17-84	410.00	0.537	
17-84	411.50	0.608	
17-84	413.00	0.617	
17-84	414.50	0.664	
17-84	416.00	1.632	
17-84	417.50	1.059	
17-84	419.00	0.961	
17-84	420.50	0.425	
17-84	422.00	0.488	
17-84	423.50	0.462	
17-84	425.00	0.519	
17-84	426.50	0.457	
17-84	428.00	0.751	
17-84	429.50	0.643	
17-84	431.00	1.141	
17-84	432.50	0.579	
17-84	434.00	0.539	
17-84	435.50	0.443	
17-84	437.00	0.398	
17-84	438.50	0.417	
17-84	440.00	0.209	
17-84	441.50	0.681	
17-84	443.00	13.99	
17-84	444.50	3.183	
17-84	446.00	64.16	
17-84	447.50	9.377	
17-84	449.00	41.5	
17-84	450.50	49.34	
17-84	452.00	32.11	
17-84	453.50	61.29	
17-84	455.00	125.5	
17-84	456.50	67.46	
17-84	458.00	88.46	
17-84	459.50	59.8	
17-84	461.00	37.44	
17-84	462.50	46.54	
17-84	464.00	51.59	
17-84	465.50	59.38	
17-84	467.00	63.75	
17-84	468.50	27.87	
17-84	470.00	35.24	
17-84	471.50	46.28	
17-84	473.00	14.97	
17-84	474.50	5.87	
17-84	476.00	1.626	
17-84	477.50	2.843	
17-84	479.00	0.623	
17-84	480.50	2.88	
17-84	482.00	0.793	
17-84	483.50	0.457	
17-84	485.00	0.441	

Hole_ID	Depth_m	Mag. Sus. Reading	Comments
17-84	486.50	0.55	
17-84	488.00	0.196	
17-84	489.50	0.433	
17-84	491.00	0.37	
17-84	492.50	0.562	
17-84	494.00	0.641	
17-84	495.50	1.152	
17-84	497.00	4.836	
17-84	498.50	0.782	
17-84	500.00	0.711	
17-84	501.50	0.583	
17-84	503.00	0.494	
17-84	504.50	16.44	
17-84	506.00	14.26	
17-84	507.50	26.88	
17-84	509.00	17.59	
17-84	510.50	18.6	
17-84	512.00	10.4	
17-84	513.50	2.082	
17-84	515.00	2.193	
17-84	516.50	11.48	
17-84	518.00	0.989	
17-84	519.50	1.123	
17-84	521.00	17.89	
17-84	522.50	28.54	
17-84	524.00	30.29	
17-84	525.50	19.91	
17-84	527.00	13.53	
17-84	528.50	11.34	
17-84	530.00	12.82	
17-84	531.50	11.09	
17-84	533.00	4.063	
17-84	534.50	0.53	
17-84	536.00	0.79	
17-84	537.50	0.761	
17-84	539.00	0.542	
17-84	540.50	6.236	
17-84	542.00	12.99	
17-84	543.50	24.5	
17-84	545.00	31.6	
17-84	546.50	21.76	
17-84	548.00	14.72	
17-84	549.50	0.882	
17-84	551.00	1.859	
17-84	552.50	1.285	
17-84	554.00	0.969	
17-84	555.50	11.16	
17-84	557.00	5.362	
17-84	558.50	21.84	
17-84	560.00	4.676	
17-84	561.50	0.599	
17-84	563.00	1.233	

Xstrata Zinc Canada

Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	17-83	GRID:	None	DATUM:	NAD83	AZIMUTH:	190.0
LOGGED BY:	Ryan Tuomi	NORTHING:	NA	ZONE:	15	DIP:	-65.0
START DATE:	7-Oct-10	EASTING:	NA	UTM Northing:	5527612mN	FINAL DEPTH (m):	593.25
FINISH DATE:	17-Oct-10	ELEVATION:	NA	UTM Easting:	650594mE	CORE SIZE:	BQ
		Casing (m):	#REF!	UTM Elevation:	-440	Magnetic Declination:	NA

Target: SL-2010-D. Vertical extension of Upper mineralized corridor.

Township: Sixmile Lake **NTS:** 52G15

Drill Contractor: Major Drilling, Winnipeg Brar **Cement:** None **Casing:** 21m

Material Left in Hole: 21m cas **Plug:** No.

Core Recovery and Ground Conditions:

Core Storage: Mattabi core yard

Downhole Survey: BPEM survey

Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization			Comments
From	To	Interval	Major Rock Code	Texture	Rock Name		Type & Intensity	Sulphide Type	Sulphide %	Texture	
0.00	20.00	20.00	OVB								S = Stringer
20.00	38.33	18.33	T2	BEDDED	Int. lapilli tuff		chloritic	Py/C	1-8%	S	B= blebby
38.33	39.93	1.60	V2	BEDDED	Int. Vol.		chloritic	Py	8-10	S	N = net
39.93	65.30	25.37	V1	MASS	felsic Vol		chloritic	Py/C	1-2	b	D = Disseminated
65.30	73.33	8.03	V1	agglomerat	Felsic Vol		chloritic	Po/P	1	S	
73.33	79.54	6.21	V1T	bedded	felsic tuff/ash beds		chloritic	po	1-5	s	
79.54	85.20	5.66	T	bedded	Ash tuff		chloritic/silicification	Py	trace	B	
85.20	90.23	5.03	T	mass	Ash tuff		chloritic	Po	1	B	
90.23	101.93	11.70	V2J	breccia	Andesite		hloritic/silicification/carbona	Po>C	1-2	B	
101.93	110.20	8.27	V2J	hyaloclastit	Andesite		Chlor/silica/carbonate	Po	trace	B	
110.20	113.60	3.40	V2	mass	Int. Vol.		chlor				
113.60	117.70	4.10	V2	MAss	Int. Vol.		chlor/carb				
117.70	125.40	7.70	V2	mass	Int. Vol.		chlor/carb	Py	trace	B	
125.40	145.50	20.10	V2	semi-mass	Int Vol.		Chlor/carb	Py/C	Trace	B	
145.50	156.90	11.40	V2	mass	Int. Vol		chlor/carb	Py	trace	B	
156.90	160.00	3.10	V2	mass	int.vol		chlor/carb				
160.00	162.80	2.80	V2	bedded	int. vol		chlor	Po/Py	<1	B	
162.80	163.85	1.05	V1	agglomerate	Felsic Vol.		chlor	Po	3	N/B	
163.85	168.76	4.91	V1B	bedded	Rhyolite Tuff		chlor/silica	Po	1	N	
168.76	181.10	12.34	V1	bedded	Felsic Vol.		Chlor/carb/silica	Po/Py	1	N/B	
181.10	201.18	20.08	V1	bedded	Felsic Vol.		Chlor/carb/silica	Po/py	trace	D	
201.18	207.70	6.52	V2	Mass	Int. Vol.		chlor	Py	trace	D	
207.70	221.94	14.24	V1	mass	Felsic Vol.		chlor/carb	Py	trace	D	
221.94	227.20	5.26	V2T	bedded	Int. Vol. Tuff		Chlor	Py	trace	D	
227.20	237.14	9.94	V2	semi-mass	Int Vol. (ash)		chlor/carb	Py	trace	D	
237.14	241.21	4.07	V1B	mass	Rhyolite Tuff		chlor/carb				
241.21	259.80	18.59	V1B	semi-mass	Rhyolite		chlor/silica	Py	1	D	
259.80	263.13	3.33	V1C	bedded	Rhyodacite		silica				
263.13	272.97	9.84	V1D	foliated	dacite		silica	Po/Py	1-2	D	
272.97	281.88	8.91	V1C/T	BEDDED	dacite/rhyolite		silica	Po	1	D	
281.88	285.54	3.66	V1D	mass	Dacitic Tuff		silica				
285.54	289.38	3.84	V1D	porphoritic	Dacite		silica				
289.38	293.38	4.00	V1C	foliated	Rhyodacite		silica	Py	<1	N	
293.38	305.36	11.98	V1C/V1D	aphanitic	dacite/rhyolite		silica	Cpy	1	D	
305.36	320.80	15.44	V1C	massive	rhyodacite		Silica	Po	5	N	
		0.00									

320.80	325.20	4.40	V1D	breccia	Rhyodacite							Silica		Py/Po	1	B/D
325.20	328.08	2.88	V1D	bedded	Dacite Tuff							Silica		Py	3	B
328.08	353.19	25.11	V1C	bedded	Rhyodacite Tuff							Silica				
353.19	380.25	27.06	V1D	massive	aphenitic	DACITE						Silica		Cpy	T	B
380.25	380.90	0.65	V2	banded	INT. VOL.							silica		Po/Py	T-3	NBD
380.90	382.73	1.83	V1C	breccia	massive	RHYODACITE						silica				
382.73	386.50	3.77	V1C	flow	breccia	RHYODACITE FLOW						Silica		Cpy	5	B
386.50	393.80	7.30	V1C	breccia	aphenitic	RHYODACITE						Silica				
393.80	404.78	10.98	V2	semi-mass		INT. VOL.						Chlor		Py	T	D
404.78	435.50	30.72	V2	semi-mass	mineral foliation of plagioclas	INT. VOL.						Chlor/carb		Py	T-1	D/B
435.50	499.00	63.50	v2	semi-mass	mineral foliation of plagioclas	INT VOL.						chlor/carb		Py	T	D/B
499.00	514.96	15.96	V2	semi-mass	INT VOL							CLOR/CARB		Py	T	D/B
514.96	564.17	49.21	V2	FLOW BANDING	INT. VOL. FLOW							CLOR/CARB		Py/Po	T-1	N/B/D
564.17	568.19	4.02	V2	Massive	Int. Vol.							Carb		Py	T	D
568.19	573.00	4.81	V2	massive	Int. Vol.							garnet/carb		Py	T	D
573.00	593.25	20.25	V1	masive	Felsic Vol.							carb		Py	T	D
EOH																

Major Litho Log

HoleID	From_m	To_m	Length_m	Major Litho Log	MajorRock Name	Texture1	Texture2	Texture3	Comments
17-83	0.00	20.00	20.00	OVB					
17-83	20.00	38.33	18.33	T2	Int. Lapilli Tuff	Bedded			Intermediate lapilli tuff with felsic lapilli; dark grey/green matrix; fine to locally medium grained; light grey lapilli; 03.-0.5cm locally as much as 2.5cm; subangular and aligned with bedding at 45 to C.A.; rare quartz-carbonate veinlets random to C.A. crosscut bedding; contain blebby Py ~5-8%; Py up to 8% stringer and massive; fine grained; stringers subparallel with bedding; felsic lapilli below 35.3m show increased chloritization; lapilli larger with depth; basal contact 60 to C.A.; Contact sharp with some mixing.
17-83	38.33	39.93	1.60	V2	Intermediate volcanic	Bedded			Intermediate Volcanic; dark grey with medium grey-green beds at 30 to C.A.; very fine grained; softer medium grey beds coarser and effervesce with HCl weakly; pervasive Py stringers often subparallel to bedding (fracture infilling?) 8-10%; Po blebs <1% random through unit; 1-2mm in diameter; fine grained chlorite within mediun grey beds; strong basal contact at 45 to C.A.
17-83	39.93	65.30	25.37	V1	Felsic Volcanic	Massive	Bedded	fractured	Felsic Volcanic; medium grey/green; fine to medium grained; massive but locally weakly bedded at 50 to C.A.; pervasive fine grained chlorite within matrix; locally zones of increased chlorite; veinlets rare; carry chlorite and occasional blebby sulphides; basal contact arbitrary based on appearance of "ripped up beds" (agglomerate)
17-83	65.30	73.33	8.03						Agglomerate; (Ripped up Ash Beds?)light grey/green and medium grey/green angular to subangular randomly oriented "chunks" 3x3cm up to >12cm locally; rare quartz-carb veinlets carry Po; Chloritoid; and Py; some clasts show more chlorite alteration than others; occasional Po stringers ~1%
17-83	73.33	79.54	6.21		Intercalated Felsic Tuff and Ash Beds	Bedded			Intercalated Felsic Tuff and ash beds; dark grey/green aphanitic matrix intercalated with medium grey/green lapilli tuff beds; beds contact strongly at 50 to C.A.; near top of unit beds show signs of "tearing"; tuff is medium to coarse grained with subangular clasts
17-83	79.54	85.20	5.66	T	Ash Tuff	bedded			Intercalated dark grey/green and medium to light grey/green beds; fine to very fine grained; beds distinguished by colour; beds at 45 to C.A.; lighter coloured beds softer; darker beds more siliceous; lighter beds chloritized; trace random Py blebs 1-2mm in diameter; basal contact distinct and parallel to bedding
17-83	85.20	90.23	5.03	T	Ash Tuff	massive	bedded		Ash; medium grey/green; fine to medium grained; massive to locally bedded with lighter grey/green beds at 30 to C.A.; occasional small irregular veinlets carry coarse 3-4mm chloritoid crystals; chloritoid also present near veinlets; Po occurs within veinlets ~1% blebs and rare very fine grained net texture outside of veinlets; occasional unaltered quartz-eye.
17-83	90.23	101.93	11.70	V2J	Gradational Zone				Andesite Flow Breccia? Partially Resorbed? Transition zone between hyaloclastite below; looks like it was intermediate tuff; whole unit grades from ash beds above to hyaloclastite below; signs of other rock types include lapilli tuff; appears to be possible resorption as clasts chaotically grade (fade? - melt?) into each other over short 5-10cm distances; dark grey/green with lighter lapilli with irregular contacts; silica >65%; 5-10% chlorite; pervasive weak carbonate alteration; coarse grained chloritoid present within or near irregular veinlets; replacing as much as 80% of veinlet; sulphides occur within veinlets 1-2% Po>Cpy>Py; approx 1mm blebs.
17-83	101.93	110.20	8.27	V2J	Andesite? Hyaloclastite	fragmental			Hyaloclastite; fragmental; lighter coloured fragments show dark fine grained rims; clasts subangular to angular; no indication of foliation or bedding; rare quartz-carbonate amygdules; approx. 10% replaced with chlorite; quartz-carbonate veinlets rare and irregular; carry up to 10% coarse grained chloritoid and trace Po; Basal contact gradational
17-83	110.20	113.60	3.40	V2	Intermediate Volcanic	massive			Int. Volcanic; massive with quartz-cab filed amygdules; fine to medium grained; medium dark grey/green matrix with random rare irregular quartz-carb veinlets; veinlets carry chloritoid; highly variable from none to 90% replacement; below 111.8m amygdules begin to decrease in concentration; no significant mineralization; basal contact determined by absence of amygdules and increase of random stringy veinlets in lower unit.
17-83	113.60	117.70	4.10	V2	Intermediate volcanic	massive	banded		Fine to medium grained; medium grey/green; similar to above unit; marked by increase of random irregular quartz-carbonate veinlets and absence of amygdules; many veinlets show signs of brecciation of host (high pressure?); many veinlets chloritized; rare local banding at random angles to C.A.; marked by lighter/greener material; effervesces (carbonate enrichment?) 5-10cm in width; lower contact gradational; marked by increased size and density of veinlets
17-83	117.70	125.40	7.70	V2	Intermediate volcanic	massive			Similar matrix to above; marked by numerous (15-20%) brecciated quartz-carbonate veinlets 1-2cm in width; occasional quartz-carbonate amygdules; veinlets chaotic and random; trace Py within veinlets; rare local banding - lightened zones; show carbonate alteration; up to 20cm in width; basal contact defined by near absence of veinlets.
17-83	125.40	145.50	20.10	V2	Intermediate volcanic	semi-massiv	massive		Dark grey/green; fine grained; semi massive to massive; rare quartz-carbonate veinlets; occasionally brecciated; bands of chlorite rarely seen in veinlets; trace blebby Py and Cpy
17-83	145.50	156.90	11.40	V2	Intermediate volcanic	semi-massiv	massive		Dark grey/green; fine grained; similar to above unit; pervasive weak carbonate alteration; less in local "lighter/greener" zones marked by increased chlorite; common quartz-carb veinlets - brecciated and irregular to C.A.; contain chloritoid and trace Py blebs <1mm in diameter; basal contact arbitrary and marked by relative absence of brecciated veinlets
17-83	156.90	160.00	3.10	V2	Intermediate volcanic	massive			Dark grey; fine grained; massive; much same as above; marked by decreased irregular veinlets with none brecciated; veinlets carry coarse chloritoid and chlorite; rare small (<1mm) amygdules; no significant sulphides
17-83	160.00	162.80	2.80	V2	Quartz-eyepheric Intermediate Volcanic	Bedded	massive		Fine grained; medium grey/green with lighter beds; locally massive; bedded at 30 to C.A.; occasional veinlet parallel to subparallel to bedding; veinlets have a "tearing" effect on surrounding beds; veinlets not mineralized; medium to coarse quartz-eye; grades to massive; basal contact gradational over 10-15cm
17-83			0.00						
17-83	162.80	163.85	1.05		Agglomerate	foliated			Medium grey/green with lighter felsic clasts; fine to medium grained; coarsens downhole; foliated at 30 to C.A.; clasts rounded and elongate; Po net textured and blebby locally up to 3%
17-83	163.85	168.76	4.91	V1B	Rhyolite Tuff	bedded			Dark grey/green with medium grey cherty beds; very small 1/4mm quartz-eye (amygdules?); very rare wispy irregular veinlets; bedding 20 to C.A.; beds range 0.5-10cm; minor; trace Po blebs within veinlets; locally net textured up to 1% over 2cm; basal contact sharp and parallel to bedding.

HoleID	From_m	To_m	Length_ m	Major Litho Log	MajorRock Name	Texture1	Texture2	Texture3	Comments
17-83	168.76	181.10	12.34	V1	Felsic Volcanic	semi-massiv	Bedded		Fine grained; dark grey/green; semi massive; local cherty beds at 20 to C.A.; occasional fine to medium quartz amygdules; 0.5-2mm in diameter garnet common; garnet decreases downhole; occasional small wispy cherty silicified zones 5-8cm in width; up to 80% SiO2; SiO2 content fades downward; occasional Po net textured 1%; Py blebs rare up to 2cm x 1mm in many veinlets; basal contact arbitrary and marked by disappearance of garnet
17-83	181.10	201.18	20.08	V1	felsic volcanic	semi massiv	bedded		Same as above unit without garnet; more veinlets; not all breccia; veinlets irregular; basal contact marked by last siliceous zone; contact at 30 to C.A.; abrupt with 2cm alteration margin
17-83	201.18	207.70	6.52	V2	Intermediate Volcanic	massive	semi-massive		Dark grey grading downward to dark grey/green; fine to medium grained; massive to semi-massive; abundant quartz-eyes 0.5-1.0mm; wisp like quartz-carbonate veinlets; occasional magnetic zones; trace Py in chill margin of dyke.
17-83	207.70	221.94	14.24	V1	Felsic Volcanic	Massive	semi-massive		Quartz-eye phyric Felsic Volcanic; medium grey/green; fine to medium grain; massive to semi-massive flow; small 0.5mm quartz-eye common; local flow banding seen at various angles to C.A. (0-15); Irregular and random quartz-carbonate veinlets; Trace Py and rare chloritoid in veinlets; unit weakly carbonatized; below 216.35m veinlets become increasingly brecciated with no change in mineralization
17-83	221.94	227.20	5.26	V2T	Intermediate volcanic Tu	Bedded	semi-massive		Intermediate Volcanic; Tuff; Medium grey/green to dark grey/green; bedded at 45; beds show signs of mixing; medium grey/green beds show increased chlorite; grades to semi-massive downhole; irregular veinlets brecciated and barren; basal contact arbitrary - marked by lack of brecciation in veinlets; trace net textured Py rare.
17-83	227.20	237.14	9.94	V2	Intermediate Volcanic	semi-massive			Quartz-eye phyric intermediate volcanic (ash?); dark grey/green; fine grained; semi massive; regular and irregular veinlets at variable angles; veinlets rarely carry fine grained chloritoid; occasional lighter carbonate altered zones up to 60cm wide; quartz-eye 1-5mm in diameter altered to carbonate <30%
17-83	237.14	241.21	4.07	V1B	Rhyolite	massive	semi-massive		Rhyolite? Medium grained; medium grey/green; regular veinlets at random angles to C.A.; pervasive weak carbonate alteration; massive to semi-massive; mineral foliation at 40 to C.A.; basal contact marked by 1.5cm quartz-carbonate veinlet 90 to C.A. - Below grain size is smaller
17-83	241.21	259.80	18.59	V1B	Rhyolite	semi-massiv	bedded		Rhyolite; quartz-eye phyric; similar to above unit; marked by smaller grain size; fine to medium grained; medium grey; pervasive weak carbonatization; semi massive grading to strongly bedded at 30 to C.A.; veinlets range from regular to irregular at various angles; rarely carry medium chloritoid; pervasive chloritization; veinlets carry ~1% disseminated Py; below 249.4m bedding becomes strong; below 257.8 begin to see siliceous zoning for 5-15cm up to 70% SiO2.
17-83	259.80	263.13	3.33	V1C	Rhyodacite	bedded			Rhyodacite?; fine grained intercalated beds of dark grey/green rhyolite and tan siliceous dacite; beds contact at 45 to C.A.; beds 10-15cm thick at top and near basal contact rhyolitic beds reduced to near 1-3mm dark banding in massive SiO2 beds; transitional zone between rhyolite above and dacite below; 1 minor veinlet in unit - quartz/carbonate with medium chloritoid 1-3%; basal contact arbitrary with disappearance of rhyolite.
17-83	262.13	272.97	10.84	V1D	Dacite	folidated	massive		Dacite; Tuff?; fine to very fine grained; locally medium grained; tan in colour; foliated at 40 to C.A.; locally massive; upper contact parallel to bedding; top 25cm contains remnant rhyolite; Po and Py blebs 1-2%; dacite uniformly banded at 40 to C.A.; Po occurs within narrow dark bands 1-2% blebs
17-83	272.97	281.88	8.91	V1C/T	Dacite/Rhyolite Tuff	bedded			Intercalated dacite/rhyolite (tuff?) beds; rhyolite beds medium to dark grey; fine to medium grained;25-80cm in width intercalated with tan to light grey dacitic beds; fine to medium grain; 70-200cm in width; beds grade/fade into each other; some local bedding seen at 45 to C.A.; basal contact is top of last dacitic "layer"
17-83	281.88	285.54	3.66	V1D	Dacitic Tuff	massive			Dacitic Tuff; tan; coarse grained; locally over 10-30cm fine grained; rare zones ~20cm of more rhyolitic material; no veins or veinlets; no mineralization; weakly bedded at 45 to C.A.
17-83	285.54	289.38	3.84	V1D	Porphyritic Dacite	porphyritic			Porphyritic Dacite; light tan with tan subangular to angular phenocrysts; "greyer" zones 20-30cm occur down hole (more rhyolitic?); phenocrysts aligned approx 45 to C.A.; no mineralization; basal contact arbitrary as it grades over 10cm to more tuffaceous rhyodacite
17-83	289.38	293.38	4.00	V1C	Rhyodacite	bedded			Rhyodacite; light grey; fine grained; locally bedded at 45 to C.A.; no veinlets; weak Py below dyke; basal contact defined by 1.5cm "dyke" at 80 to C.A.
17-83	293.38	305.60	12.22	V1C/V1D	Dacite/Rhyodacite tuff	aphanitic	porphoritic	bedded	Dacite/rhyodacite tuff; tan to light grey intercalated beds at 45 to C.A;; very fine to fine grained; occasional small zones of porphyritic texture; mostly nearly aphanitic
17-83	305.60	320.80	15.20	V1C	Rhyodacite	Massive	weakly bedded		Rhyodacite; light grey; aphanitic to fine grained massive to weakly bedded at 45 to C.A.; rare very small irregular veinlets; 3 small regular veinlets at random angles to C.A. carry chloritoid up to 5%; basal contact defined by bottom of a series of 2 parallel dykes at 90 to C.A.
17-83	320.80	325.20	4.40	V1D	Rhyodacite	breccia			Rhyodacite; light grey to tan; aphanitic to fine grain; breccia; occasional and very small wispy quartz-carbonate veinlets; Py blebby and disseminated near 2 of the larger veinlets at 323.20m; basal contact defined by bottom of dyke at 45 to C.A.
17-83	325.20	328.08	2.88	V1D	Dacite Tuff	BEDDED	APHANITIC		Dacite Tuff; tan; aphanitic to fine grain with locally medium grained mafics; bedded at 30 to C.A.; rare quartz-carbonate veinlets random and regular at variable angles to C.A.; veinlets carry medium chloritoid; locally Py blebs up to 3% over 3-5cm; basal contact defined by bottom of dyke at 45 to C.A.
17-83	328.08	353.19	25.11	V1C	Rhyodacite Tuff	bedded			Rhyodacite Tuff; Light grey to tan; fine to very fine grained; bedded at 30; rare; regular to irregular quartz-carbonate veinlets at variable angles to C.A.; basal contact defined by bottom of dyke at 80 to C.A.
17-83	353.19	380.25	27.06	V1D	Dacite	Massive	Aphanitic		Dacite; tan to light grey; flow?; some very weak flow banding seen; massive; aphanitic; very siliceous; >80%; occasional small quartz-carbonate veinlets; carry chloritoid. At 364.35 veinlet has small Cpy bleb ~2mm; Strong basal contact at 50 to C.A.
17-83	380.25	380.90	0.65	V2	Int. Vol	banded			Intermediate Volcanic; dark grey/green (flow?) banded; siliceous banding; 1 irregular quartz-carbonate veinlet at 45 to C.A.; carries fine grained chlorite and chloritoid; small bands of net textured Po with occasional larger 1-2mm blebs; minor trace disseminated Cpy; basal contact at 80 to C.A. bounded by 3mm quartz-carbonate veinlet.
17-83	380.90	382.73	1.83	V1C	Rhyodacite breccia	massive			Rhyodacite; breccia; tan to light grey; upper 20cm massive with increasing brecciation downhole through unit; quantity of small wispy quartz-carbonate veinlets increases proportionate to brecciation; basal contact sharp at 40 to C.A.
17-83	382.73	386.50	3.77	V1C	Rhyodacite flow	breccia	semi-massive		Rhyodacite flow; light grey to medium grey; series of 2 flows; tops marked by 20 and 50cm flow top breccia; flow tops contain multiple irregular quartz-carbonate veinlets; lower portion of each flow contains wispy irregular quartz-carbonate veinlets; basal contact sharp and fractured at 75 to C.A.

HoleID	From_m	To_m	Length_ m	Major Litho Log	MajorRock Name	Texture1	Texture2	Texture3	Comments
17-83	386.50	393.90	7.40	V1C	Rhyodacite	breccia	aphanitic	fractured	Rhyodacite Breccia; light grey to tan; aphanitic to locally fine grained; upper 1m very fractured; parallel fractures at 50 to C.A.; fractures mostly infilled with quartz-carbonate; below dyke unit becomes more strongly brecciated; breccia infilled with quartz-carbonate and stringers of chlorite; basal contact strong at 45 to C.A.
17-83	393.80	404.78	10.98	V2	Intermediate Vol	Semi-mass			Intermediate Volcanic; medium to dark grey/green; fine to locally medium grained; upper 70cm silica altered; regular small 5-8cm siliceous bands; quartz-carbonate veinlets regular and irregular at random angles to C.A.; random disseminated trace Py; basal contact at 75 to C.A. breccia quartz-carbonate vein contains breccia from lower unit.
17-83	404.78	435.50	30.72	V2	Intermediate Vol.	semi-mass			Intermediate Volcanic; medium grey/green; similar to above unit but lighter and greener - considerably more chloritic alteration; wispy quartz-carbonate veinlets are barren; no siliceous banding; Basal contact arbitrary based on pervasive magnetism of following unit
17-83	435.50	499.00	63.50	V2	Intermediate volcanic	semi-massiv	banded		Intermediate Volcanic: Similar to above but medium grained; locally fine grained; unit differentiated by magnetic property of unit; unit magnetic and locally strongly magnetic; rare quartz-carbonate veinlets infilled with fine grained magnetite; locally zones of carbonate filled amygdules; downhole decreasingly magnetic; basal contact defined by predominant change in grain size to slightly larger (yet still Medium grained) and lack of magnetism/magnetite.
17-83	499.00	514.96	15.96	v2	Int. Vol.	semi massiv	foliation of plag		Intermediate Volcanic; medium dark grey/green; medium grained; strongly carbonate altered; rare disseminated Py; regular quartz-carbonate veinlets at various angles to C.A.; many at 50 to C.A.; rare veinlets carry chloritoid; basal contact distinct at 40 to C.A.
17-83	514.96	564.17	49.21	V2	Int. Vol.	foliated	semi-mass		Intermediate Vol. (flow?); medium to dark grey; fine grained; locally up to medium grained; carbonate altered bands 5-10cm wide; wispy to small irregular and regular random quartz-carbonate veinlets; chlorite forms foliation at 45 to C.A.(Along fractures?); trace Py; locally net textured up to 1%; garnet present locally; rare chloritoid within veinlets; locally magnetic; basal contact defined by narrow quartz-carbonate veinlet
17-83	564.17	568.19	4.02	V2	Int. Vol	massive			Similar to above unit - Intermediate Volcanic flow; medium grey/green. Medium grained with coarser medium grained feldspar laths; shows pervasive carbonate alteration; locally strong; regular random quartz-carbonate veinlets; locally magnetic; strong basal contact at 45 to C.A.
17-83	568.19	573.00	4.81	V2	Int. Vol	massive			Similar to above unit - Intermediate Volcanic flow; medium to dark grey/green. fine to medium grained; rare wispy quartz-carbonate veinlets occasionally carry chlorite and chloritoid; locally magnetic; pervasive weak carbonate alteration; locally stronger; basal contact arbitrary; grades to next unit
17-83	573.00	593.25	20.25	V1	Felsic Volcanic	massive	mineral foliation		Felsic Volcanic flow; medium green/grey; medium grained; pervasive carbonate and chlorite alteration; mineral foliation 30 to C.A; locally magnetic; wispy quartz-carbonate veinlets at random angles to C.A carry chlorite and trace Py

Minor Lith Log

HoleID	From_m	To_m	Length_m	MinorRockCode	MinorRockName	Texture1	Comments
17-83	20.00	20.30	0.30	I1N	Quartz vein	fractured	Quartz vein. fractured with stringer and blebby Py infill; massive Py up to 1cm in width
17-83	20.80	20.85	0.05	I1N	Quartz/carb veinlet	Breccia	Quartz/carb veinlet brecciated; concentration of Py at lower contact at 60 to C.A.; ~3% Py blebs
17-83	27.18	27.20	0.02	I1N	Quartz/carb veinlet	massive	Quartz/carb veinlet; 50% chlorite replacement
17-83	39.93	40.50	0.57				Upper part of unit fractured; core broken up; more mineralized; Py blebby and stringer 1-2%; locally up to 50% in narrow semi-massive 0.5cm bands; Cpy locally blebby up to 2%; random rare Po blebs up to 1.5cmx1mm
17-83	41.00	41.15	0.15				15cm of pebbled core
17-83	48.88	48.96	0.08	I1N	quartz/carb veinlet	Breccia	Breccia quartz-carb veinlet; sulphides rare
17-83	51.24	51.45	0.21	I1N	Quartz/carb veinlet	Breccia	Breccia quartz-carb veinlet; sulphides rare
17-83	72.44	73.00	0.56	I1N	Quartz vein	massive	Quartz vein with multiple subparallel cherty veinlets above; chlorite beds separate veinlets; all at 50 to C.A.; vein contains chloritoid; chlorite; Po blebs ~2% with most sulphides concentrated at base.
17-83	73.00	73.33	0.33	Db	Diabase?	Dyke?	Dyke? Large ripped up bed?; mineral foliation and contact parallel at 45 to C.A.; barren; forms basal contact with lower unit
17-83	75.30	75.80	0.50				Core broken parallel to bedding
17-83	75.40	75.45	0.05				chlorite "band"; fine grained; parallel to bedding at 50 to C.A.
17-83	73.85	74.45	0.60				Zone of increased Po mineralization; up to 5% stringers
17-83	86.10	86.30	0.20				Zone of abundant quartz-eyes ~5%; altered to chlorite
17-83	88.50	88.80	0.30				Zone of abundant quartz-eyes ~5%; altered to chlorite
17-83	107.00	108.00	1.00				Amygdules increase at depth and approach 5%; unit begins to grade to more massive darker intermediate volcanic (Andesite flow?)
17-83	171.10	171.50	0.40				Wide quartz-carb veinlet breccia; barren
17-83	127.90	128.00	0.10				Zone of magnetite enrichment
17-83	131.30	132.00	0.70				Quartz-carbonate veinlet breccia - trace Py and Cpy
17-83	139.40	142.20	2.80				Lighter carbonate band as seen in above unit
17-83	151.80	154.40	2.60				Lighter zone; does not effervesce like previous lighter zones; pervasive chlorite within
17-83	158.44	158.52	0.08	I1N	quartz vein	massive	Quartz vein; contact at 20 to C.A.; contains fine grained chloritoid
17-83	161.80	161.93	0.13				Rare veinlets crosscut and irregular to bedding, mineralized by chlorite, medium grained chloritoid approx. 1%, 1% Py blebs
17-83	163.25	163.50	0.25	I1N	quartz vein	massive	Zone of 2cm wide barren quartz-carb veinlets
17-83	171.40	173.65	2.25				Increased chlorite (greener); fine grained Po weakly diss. (1%); net textured Py (1%) centered over 2 6cm wide quartz-carb veinlet breccias; garnet size increases below this zone up to 1cm
17-83	175.23	175.47	0.24				Silicified zone; cherty; wispy contacts up to 90% SiO2
17-83	177.90	177.90	0.00	I1N	quartz vein	massive	Quartz veinlet with chlorite altered margins
17-83	181.43	182.10	0.67	I1N	QUARTZ veinlet	Breccia	Quartz-carb veinlet breccia; trace Py and Po; occasional coarse chloritoid
17-83	186.35	186.60	0.25				Siliceous up to 95% SiO2; cherty; decreasing SiO2 content downhole; lower contact gradational
17-83	187.03	187.05	0.02				Siliceous zone
17-83	187.70	188.10	0.40				Chloritic zone; 10-15% chlorite enrichment
17-83	188.25	188.57	0.32				Siliceous Zone
17-83	189.60	190.28	0.68	I1N	QUARTZ veinlet	Breccia	Silicified and Chloritized zone; quartz-carb veinlet breccia; 75% SiO2; 15% Chlorite; occasional medium Chloritoid; contact at 20 to C.A.
17-83	192.30	192.66	0.36				Siliceous zone - abundant Py blebs (1-2%)
17-83	193.33	193.50	0.17	I1N	QUARTZ veinlet	Breccia	veinlet breccia; regular contact at 15 to C.A.
17-83	195.00	195.40	0.40	I1N	QUARTZ veinLET	Breccia	veinlet breccia: irregular contact
17-83	198.40	198.86	0.46				Siliceous zone
17-83	199.68	199.97	0.29	I1N	QUARTZ veinLET	Breccia	Veinlet breccia; irregular contact
17-83	200.85	201.18	0.33				Siliceous zone; 2cm chloritic margin at bottom at 30 to C.A.; marks end of unit
17-83	204.20	204.66	0.46				Up to 20% Quartz-eye
17-83	204.66	206.80	2.14				Felsic Intrusive Dyke; approx 30cm chill above and below; trace Py; pink/grey granitoid; weakly magnetic
17-83	206.90	207.30	0.40				Strongly Magnetic
17-83	222.50	222.65	0.15				Magnetic
17-83	233.05	233.15	0.10	I1N	quartz vein	massive	Bull quartz vein; carries rare 1-2mm blebby Py

HoleID	From_m	To_m	Length_m	MinorRockCode	MinorRockName	Texture1	Comments
17-83	237.65	237.70	0.05	I1N	quartz vein	massive	Bull white quartz vein; contains coarse dolomite; chloritized margins above and below
17-83	239.17	239.23	0.06	I1N	quartz vein	massive	Bull white quartz vein; contains coarse dolomite; chloritized margins above and below
17-83	240.08	240.12	0.04	I1N	quartz vein	massive	Bull white quartz vein; contains coarse dolomite; chloritized margins above and below
17-83	251.56	251.65	0.09	I1N	quartz vein	massive	Quartz vein with 10% dolomite; 1% Py blebs; 2-3% chlorite
17-83	257.30	257.80	0.50				Siliceous zone - shows flow texture at 15 to C.A.; 10-15% fine grain chlorite
17-83	287.45	288.32	0.87	Db	Diabase?	Dyke?	Mafic Dyke at 30 to C.A.; fine to medium grained; dark grey/black
17-83	291.20	291.90	0.70	Db	Diabase?	Dyke?	Mafic Dyke at 80 to C.A.; fine to medium grained with 1-2mm quartz filled amygdules; dark grey/black
17-83	292.59	292.63	0.04	Db	Diabase?	Dyke?	Small dyke at 80 to C.A.; medium grained; medium grey/green - Directly below is small Py net texture up to 1%
17-83	296.15	299.73	3.58		Quartz breccia	Breccia	Breccia zone with quartz infilling
17-83	319.30	319.38	0.08	I1N	Quartz vein	massive	Small quartz-carbonate vein at 85 to C.A.; barren
17-83	320.17	320.40	0.23	Db	Diabase?	Dyke?	Dyke at 90 to C.A.; barren
17-83	320.54	320.80	0.26	Db	Diabase?	Dyke?	Dyke at 90 to C.A.; barren; bottom fragmented; bound by quartz carbonate veinlet
17-83	321.70	321.83	0.13	Db	Diabase?	Dyke?	Dyke at 80 to C.A.; up to 1% disseminated Po
17-83	324.05	325.20	1.15				Dyke at 45 to C.A.; at 324.30 contains 2cm coarse grained quartz-carbonate veinlet with coarse chloritoid; contains approx 1/2% dissociated Py up to 1mm cubes; altered upper contact contains coarser Py up to 3mm cubes.
17-83	327.38	328.08	0.70				Dyke: Contact sharp at 45 to C.A.; weak Py dissociated.
17-83	333.74	334.50	0.76				Zone of increased irregular quartz-carbonate veinlets up to 30%
17-83	336.51	336.60	0.09	I1N	Quartz vein	breccia	Quartz vein; lower contact brecciated; contact at 45 to C.A.
17-83	339.25	339.60	0.35	Db	Diabase?	Dyke?	Dyke with contact at 45 to C.A.
17-83	350.00	350.27	0.27	Db	Diabase?	Dyke?	Dyke with contact at 80 to C.A.
17-83	352.45	353.19	0.74	Db	Diabase?	Dyke?	Dyke with contact at 80 to C.A.
17-83	358.74	361.03	2.29	Db	Diabase?	Dyke?	Dyke; medium grained; disseminated Py; up to 2mm Py cubes; contact at 80 to C;A.
17-83	382.73	384.05	1.32				Flow; 20cm flow top breccia grades to semi massive flow; wispy quartz-carbonate veinlets occasionally replaced by chlorite; 1 veinlet (fracture?) filled with blebby Cpy 5% over 2mm; sharp basal contact with next flow top at 80 to C.A
17-83	384.05	386.50	2.45				Flow: 50cm flow top breccia grades to semi massive flow; occasional small quartz-carbonate veinlets within breccia; wispy veinlets below; semi-massive flow shows moderate silicification
17-83	391.77	392.87	1.10	Db	Diabase?	Dyke?	Dyke: Dark grey; fine grained; many random and irregular wispy quartz-carbonate veinlets
17-83	404.00	404.70	0.70				Larger quartz-carbonate veinlets with increased density; here veinlets carry coarse chloritoid and medium grained chlorite.
17-83	404.78	404.89	0.11	I1N	quartz-vein	breccia	Breccia quartz vein contains breccia from the lower unit; contact at 75 to C.A.
17-83	408.22	408.36	0.14	I1N	quartz-vein	massive	Irregular quartz-carbonate vein contains 1-2% fine grained chlorite
17-83	413.07	413.88	0.81	Db	Diabase?	Dyke?	Dyke; disseminated Py up to 1%; 2-3mm cubes; 80 contact to C.A.
17-83	414.42	414.56	0.14	I1N	quartz-vein	massive	quartz-carbonate vein at 45 to C.A.; up to 80% chloritoid
17-83	416.96	417.20	0.24	I1N	quartz-vein	schist	Quartz-carbonate vein at 45 to C.A.; up to 5% chloritoid; 10cm of chloritic schist then 4cm vein with similar appearance - likely stringer of same vein.
17-83	433.73	434.00	0.27	I1N	Quartz/carb vein	breccia	Quartz-carbonate veinlet breccia
17-83	435.92	436.08	0.16	I1N	quartz/carb vein	breccia	Quartz-carbonate veinlet breccia infilled with magnetite - 30%; contains more Py then elsewhere
17-83	482.42	482.44	0.02	I1N	quartz vein	massive	quartz-carb vein at 50 to C.A.
17-83	491.70	491.77	0.07	I1N	quartz vein	massive	quartz-carb vein at 30 to C.A.
17-83	504.85	504.96	0.11	I1N	quartz vein	massive	quartz-carb vein at 45 to C.A.
17-83	524.78	524.94	0.16	I1N	quartz vein	breccia	quartz-carb veinlet breccia; contains chloritoid and small tourmaline
17-83	528.45	530.69	2.24				garnetiferous zone 1-2mm
17-83	530.93	531.24	0.31	I1N	quartz vein	breccia	quartz-carb vein breccia; regular contact at 50 to C.A.
17-83	544.25	544.70	0.45				Felsic Enrichment - pinkish staining
17-83	548.57	548.57	0.00	I1N	quartz vein	breccia	Quartz-carbonate veinlet breccia
17-83	555.80	556.07	0.27				Garnet - 2-3mm
17-83	563.06	563.27	0.21				Garnet 2-3mm
17-83	572.44	573.00	0.56				Garnet - 2-3mm

Alteration Log

HoleID	From_m	To_m	Length_ m	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Comments
17-83	20.03	573.00	552.97	Chlorite	Weak			Coarse grained chlorite seen replacing occasional veinlets; pervasive fine grained chloritic matrix; chlorite alteration pervasive across entire hole.
17-83	35.30	38.33	3.03	Chlorite	moderate			Chloritization seen within felsic lapilli; lapilli become increasingly green tinted w/ depth
17-83	38.33	39.93	1.60	Chlorite	weak			Fine grained chlorite seen in lighter beds
17-83	39.93	65.30	25.37	Chlorite	weak - mod			Pervasive chlorite within matrix; rare stronger zones and concentrations within rarely occurring veinlets
17-83	65.30	79.54	14.24	Chlorite	weak			Pervasive chlorite throughout unit
17-83	68.30	68.30	0.00	Chloritoid	moderate			Chloritoid occurs within veinlets and vein
17-83	72.74	73.00	0.26	Chlorite	moderate			Chlorite beds separate veinlets
17-83	75.40	75.40	0.00	Chlorite	moderate			1.5cm chlorite "band"; fine grained; parallel to bedding at 50 to C.A.
17-83	151.80	154.40	2.60	chlorite	moderate			Lighter zone; does not effervesce like previous lighter zones; pervasive chlorite within
17-83	171.40	173.65	2.25	Chlorite	moderate			Increased chlorite (greener); fine grained Po weakly diss. (1%); net textured Py (1%) centered over 2 6cm wide quartz-carb veinlet breccias; garnet size increases below this zone up to 1cm
17-83	175.23	175.47	0.24	silica	strong			Silicified zone; cherty; wispy contacts up to 90% SiO2
17-83	186.35	186.60	0.25	silica	strong			Siliceous up to 95% SiO2; cherty; decreasing SiO2 content downhole; lower contact gradational
17-83	187.03	187.05	0.02	silica	strong			Siliceous zone
17-83	187.70	188.10	0.40	chlorite	moderate			Chloritic zone; 10-15% chlorite enrichment
17-83	188.25	188.57	0.32	silica	strong			Siliceous Zone
17-83	189.60	190.28	0.68	silica	strong	chlorite	mod	Silicified and Chloritized zone; quartz-carb veinlet breccia; 75% SiO2; 15% Chlorite; occasional medium Chloritoid; contact at 20 to C.A.
17-83	192.30	192.66	0.36	silica	strong			Siliceous zone - abundant Py blebs (1-2%)
17-83	198.40	198.86	0.46	silica	strong			Siliceous zone
17-83	200.85	201.18	0.33	silica	strong			Siliceous zone; 2cm chloritic margin at bottom at 30 to C.A.; marks end of unit
17-83	257.30	257.80	0.50	silica	strong			Siliceous zone - shows flow texture at 15 to C.A.; 10-15% fine grain chlorite
17-83	241.21	393.80	152.59	Silica	moderate			
17-83	393.80	404.78	10.98	Chlorite	moderate			
17-83	404.78	514.96	110.18	Chlorite	strong			Similar to above unit but lighter and greener - considerably more chloritic alteration
17-83	404.78	499.00	94.22	carbonate	moderate			Pervasive carbonate alteration; some zoning; veinlet replacement.
17-83	499.00	514.96	15.96	carbonate	strong			Similar to above unit with stronger effervescence
17-83	514.96	564.17	49.21	carbonate	moderate			
17-83	528.45	530.69	2.24	garnet	weak			Small <1mm typical
17-83	544.25	544.70	0.45	felsic	weak			Felsic Enrichment - pinkish staining
17-83	555.80	556.07	0.27	garnet	weak			2-3mm typical
17-83	562.06	563.27	1.21	garnet	weak			2-3mm typical
17-83	564.17	573.00	8.83	carbonate	weak			
17-83	572.44	573.00	0.56	garnet	weak			2-3mm typical
17-83	573.00	593.25	20.25	carbonate	moderate	chlorite	mod	Pervasive

Mineralization Log

HoleID	From_m	To_m	Length_m	MinzType	Minz%	MinzStyl	MinzStyl	MinzStyle3	Comments
17-83	20.00	20.30	0.30	Py	5-8	Stringer	Bleb	Massive	Quartz Vein; Py infill in fractures; massive up to 1cm in width
17-83	20.30	21.20	0.90	Py	>1	Bleb	Diss		Fine grain blebs up to 2mm; disseminated
17-83	20.80	20.82	0.02	Py	3	Bleb			Concentration of blebs at lower contact with brecciated quartz/carb veinlet
17-83	21.20	21.25	0.05	Py	5-8	Stinger	Massive		Pervasive Py stringers; irregular to subparallel to bedding; fine grained stringers ~1-2cm wide
17-83	25.00	25.35	0.35	Cpy	1-2	Bleb	Net		Fine grain blebs up to 2mm; disseminated
17-83	26.85	32.30	5.45	Po	1	stringer	bleb		Rare fine grained Po stringer and bleb up to 1/2cm in width
17-83	38.33	39.93	1.60	Py	8-10	Stringer			Pervasive stringers often subparallel to bedding
17-83	38.33	39.93	1.60	Po	<1	Bleb			Random blebs 1-2mm
17-83	39.93	40.50	0.57	Py	1-2	Bleb	Stringers	Massive	locally up to 50% in narrow 1/2cm bands
17-83	39.93	40.50	0.57	Cpy	2	Bleb			locally up to 2% 1cm x 0.5cm blebs typical
17-83	39.93	40.50	0.57	Po	<1	Bleb			Random rare blebs up to 1.5cm x 1mm
17-83	40.50	65.30	24.80	Py	1	Bleb	Diss		rare small blebs; weakly disseminated locally
17-83	40.50	65.30	24.80	Po	1	Bleb			rare small blebs; usually near fracture or veinlet
17-83	65.30	73.00	7.70	Po	1-2	stringer	bleb		occasional Po stingers and blebs random at boundary to lighter clasts
17-83	73.33	79.54	6.21	Py	1-2	Bleb			Random blebs
17-83	73.33	79.54	6.21	Po	1-2	Bleb			Random blebs
17-83	73.85	74.45	0.60	Po	1-5	stringer			zone of increased Po mineralization
17-83	79.54	85.20	5.66	Py	T	Bleb			1-2mm diam. blebs random
17-83	85.20	90.23	5.03	Po	1	Bleb	Net		blebby within veinlets; rare very fine net texture outside of veinlets
17-83	90.23	101.93	11.70	Po>Cpy>Py	1-2	Bleb			occur with veinlets; approx. 1mm blebs
17-83	101.93	110.20	8.27	Po	t	Bleb			Within veinlets
17-83	117.70	125.40	7.70	Py	t	Bleb			Within veinlets
17-83	125.40	145.50	20.10	Py/Cpy	t	Bleb			
17-83	145.50	156.90	11.40	Py	t	Bleb			Within veinlets <1mm blebs
17-83	160.00	162.80	2.80	Po/Py	<1%	Bleb	Net		Po and Py within veinlets; Locally Rare Po net
17-83	162.80	163.85	1.05	Po	3	net	Bleb		locally up to 3%
17-83	163.85	168.76	4.91	Po	1	Net	Bleb		minor trace Po within veinlets; locally net up to 1% over 1-2cm
17-83	168.76	181.10	12.34	Po/Py	1	Bleb	Net	Diss	occasional Po net textured 1%; Py blebs rare up to 2cm x 1mm in many veinlets;
17-83	181.10	201.18	20.08	Py/Po	t	dis	Bleb		rarely within silicified zones and veinlet breccias
17-83	204.66	206.80	2.14	Py	t	Diss			trace Py within chill margin of dyke
17-83	207.70	221.94	14.24	Py	t	Diss			within veinlets
17-83	221.94	227.20	5.26	Py	t	net			
17-83	233.05	233.15	0.10	Py	t	Bleb			within quartz vein
17-83	241.21	259.80	18.59	Py	1	Diss			within veinlets
17-83	251.56	251.65	0.09	Py	1	Bleb			within quartz vein
17-83	263.13	281.88	18.75	Po/Py	1-2	Bleb	Diss		
17-83	289.38	293.38	4.00	Py	<1	net			assoc with small dyke. Directly below the dyke.
17-83	299.83	299.90	0.07	Cpy	1	Diss			zone of weakly Diss Cpy
17-83	305.36	320.80	15.44	Cpy	T	Diss	Stinger		
17-83	313.60	313.63	0.03	Po>Py	3-5	net			small 3cm zone of mineralization
17-83	320.80	325.20	4.40	Py	1	Bleb	Diss		near veinlet contacts
17-83	321.70	321.83	0.13	Po	1	Diss			Occurring in Dyke
17-83	324.05	325.20	1.15	Py	.5	Diss			Occurring in Dyke
17-83	325.20	328.08	2.88	Py	3	Bleb			Locally Blebby Py over 3-5cm
17-83	327.38	328.08	0.70	Py	t	Diss			Occurring in Dyke
17-83	339.25	339.60	0.35	Po	t	Diss			Occurring in Dyke
17-83	350.00	350.27	0.27	Po	t	Diss			Occurring in Dyke

HoleID	From_m	To_m	Length_m	MinzType	Minz%	MinzStyle	MinzStyl	MinzStyle3	Comments
17-83	352.45	353.19	0.74	Po	t	Diss			Occurring in Dyke
17-83	353.19	382.50	29.31	Cpy	T	Bleb			2mm blebs
17-83	358.74	361.03	2.29	Py	1	Diss			Occurring in Dyke
17-83	380.25	380.90	0.65	Po/Cpy	3	net	Bleb		Small bands of net textured Po with occasional larger 1-2mm blebs; minor trace disseminated Cpy;
17-83	382.73	384.05	1.32	Cpy	5	Bleb			Blebby Cpy in small 2mm veinlet
17-83	393.80	514.96	121.16	Py	T-1	Diss	bleb		
17-83	514.96	564.17	49.21	Py/Po	T-1	net	bleb	Diss	
17-83	564.17	593.25	29.08	Py	T	Diss			

Lithogeochemical Samples

HoleID	Sample Number	Lab	Certificate Number	AnalyticalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm
17-83	I106116	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	24.00	24.30	0.30	<1	498	34.3	7.9	30	2.11	8	1.84	1.23	0.68	23.9	2.19	4.1	0.41	17	0.2	<2	5.5	14	20	5	3.9	72
17-83	I106117	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	54.00	54.30	0.30	<1	231	32.6	20.7	130	0.59	15	2.86	1.76	0.94	15.2	2.77	3	0.6	16	0.3	<2	5.6	15	95	6	3.9	37
17-83	I106118	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	84.00	84.30	0.30	<1	882	74.3	12.4	10	1.23	42	5.98	3.59	1.41	17.1	5.97	6.8	1.2	35	0.5	<2	12	32	13	<5	9	97
17-83	I106119	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	120.00	120.30	0.30	<1	154.5	26	32.1	70	1.38	64	2.77	1.75	0.83	11.9	2.65	2.1	0.57	12	0.3	<2	3.6	12	86	<5	3.2	21
17-83	I106120	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	150.00	150.30	0.30	<1	142.5	25.9	20.3	70	4.79	52	2.51	1.58	0.83	11.9	2.52	2.1	0.53	12	0.2	<2	3.8	12	54	<5	3.2	29
17-83	I106121	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	180.03	180.36	0.33	<1	511	42.7	23.1	100	1.7	54	4.76	2.78	1.29	21.6	4.66	3.9	0.96	20	0.4	5	6.4	21	57	5	5.3	46
17-83	I106122	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	209.95	210.25	0.30	<1	55.6	26.7	52.6	740	0.28	34	2.5	1.51	0.87	11.5	2.58	1.7	0.52	12	0.2	<2	2.9	14	284	<5	3.6	3.4
17-83	I106123	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	240.37	240.67	0.30	<1	294	38.9	26.7	450	2.35	9	2.46	1.46	1.01	14.2	2.89	2.4	0.49	17	0.2	<2	4.4	19	113	<5	5	32
17-83	I106124	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	270.00	270.30	0.30	<1	410	36.4	5.5	20	1.12	17	1.57	0.84	0.82	20.8	2.28	4.1	0.29	19	0.1	<2	7.3	14	14	<5	4.1	73
17-83	I106125	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	300.00	300.30	0.30	<1	208	32	1	20	0.63	12	1.41	0.67	0.78	17.1	2.06	3.4	0.25	16	0.1	<2	6.1	13	<5	<5	3.6	51
17-83	I106126	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	330.00	330.30	0.30	<1	489	31.9	1.2	10	1.53	39	1.47	0.74	0.73	17.6	2.04	3.9	0.26	16	0.1	<2	7	13	<5	<5	3.6	56
17-83	I106127	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	362.00	362.30	0.30	<1	418	34.4	1	20	0.85	11	1.57	0.73	0.75	16.6	2.21	3.9	0.28	17	0.1	<2	8.2	14	<5	<5	4	43
17-83	I106128	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	395.00	395.30	0.30	<1	128.5	27.3	5.2	10	0.65	<5	1.65	0.86	0.78	13.2	2.06	3.3	0.31	13	0.1	<2	6.3	12	5	<5	3.2	19
17-83	I106129	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	425.00	425.30	0.30	<1	75.7	31.6	41.2	30	0.28	191	3.31	2.12	0.87	16.2	2.77	1.9	0.68	20	0.3	<2	4.6	12	47	6	3.3	8.2
17-83	I106130	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	455.00	455.30	0.30	<1	46.6	13.6	44	20	0.28	53	2.9	1.91	0.76	15.6	2.25	1.7	0.64	6.4	0.3	<2	2.4	7.5	38	<5	1.8	2.9
17-83	I106131	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	485.00	485.30	0.30	<1	275	14.8	36.2	20	1.31	53	3.03	1.94	0.78	18.1	2.51	1.9	0.6	7	0.3	<2	2.8	8.3	32	<5	1.9	37
17-83	I106132	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	515.00	515.30	0.30	<1	307	10.1	55.2	50	1.43	134	1.35	0.87	0.52	23.2	1.31	2.5	0.29	4.7	0.1	<2	3.8	5.3	44	8	1.3	58
17-83	I106133	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	545.00	545.30	0.30	<1	113	15.4	41.1	30	1.14	87	3.33	2.14	0.82	16.7	2.67	2	0.69	7.5	0.3	<2	2.9	8.6	36	<5	2.1	18
17-83	I106134	ALS Minerals; Thunder Bay lab	TB10164685	Trace ME-MS81; Majors ME-ICP06	575.00	575.30	0.30	<1	179.5	95.5	29.5	140	4.3	30	2.95	1.47	1.89	17.7	6.27	3.5	0.5	45	0.2	<2	4.9	46	139	<5	12	35

Hole: ____________________

Lithogeochen

HoleID	Sample Number	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
17-83	I106116	2.5	2	277	0.5	0.3	4.8	0.6	0.2	1.1	68	1	12	1.4	48	138	56	18	6.6	2.9	1	3.5	2	<0.0	0.5	0.2	0.1	0	0.1	6	97.2
17-83	I106117	3	1	186	0.4	0.5	2.3	<0.5	0.3	0.5	120	1	17	1.8	97	121	52	14	7.9	6.4	3.1	3.3	1	0	0.7	0.3	0.2	0	0	10	98.6
17-83	I106118	6.1	2	149	0.9	1	6.4	<0.5	0.5	1.4	52	1	35	3.6	119	261	60	14	7.9	3.6	1.5	1.1	2.2	<0.0	0.7	0.2	0.2	0	0.1	5.5	96.6
17-83	I106119	2.7	1	145	0.3	0.4	1.4	<0.5	0.3	0.4	129	<1	17	1.7	138	81	34	10	18	10	5	1.1	0.5	0	0.5	0.7	0.1	0	0	17	97.1
17-83	I106120	2.5	1	153	0.3	0.4	1.5	<0.5	0.2	0.4	119	<1	15	1.5	169	80	37	11	18	8	4.3	1.8	0.5	0	0.6	0.8	0.1	0	0	15	96.5
17-83	I106121	4.6	2	243	0.5	0.8	2.7	<0.5	0.4	0.6	269	<1	26	2.6	90	158	54	19	10	3.8	1.6	2.9	1.6	0	0.9	0.3	0.2	0	0.1	3.6	97.7
17-83	I106122	2.9	<1	228	0.2	0.4	1	<0.5	0.2	0.2	116	<1	15	1.6	111	67	44	12	18	7.6	3.6	1.3	0.1	0.1	0.6	0.7	0.1	0	0	12	99.3
17-83	I106123	3.3	1	232	0.3	0.4	1.5	<0.5	0.2	0.4	119	1	14	1.5	52	93	57	17	7.6	5.3	1.9	2.6	1.2	0.1	0.8	0.2	0.2	0	0	6.8	100.5
17-83	I106124	2.5	2	87	0.6	0.3	2.6	<0.5	0.1	0.7	48	<1	8.6	0.7	33	162	71	15	1.2	1.1	0.4	1.8	3.8	<0.0	0.4	0	0.1	0	0.1	2.8	98
17-83	I106125	2.3	1	132	0.5	0.3	2.1	<0.5	0.1	0.6	42	<1	7.3	0.6	15	137	70	13	1	4.2	0.3	1.5	3.2	<0.0	0.4	0	0.1	0	0	5.4	98.8
17-83	I106126	2.4	1	198	0.6	0.3	2.4	<0.5	0.1	0.6	44	<1	7.3	0.6	41	155	64	14	2.4	3.7	0.5	1.6	3.4	<0.0	0.4	0.1	0.1	0	0.1	5.1	95.3
17-83	I106127	2.6	1	171	0.6	0.3	2.5	<0.5	0.1	0.6	35	<1	7.8	0.6	13	154	72	14	1.1	2.1	0.3	3	2.3	<0.0	0.4	0	0.2	0	0.1	1.7	97.8
17-83	I106128	2.3	<1	130	0.4	0.3	2.1	<0.5	0.1	0.5	32	<1	8.5	0.7	21	129	69	12	2.6	5.2	0.7	3.1	0.8	<0.0	0.3	0.1	0.1	0	0	4.6	98.3
17-83	I106129	2.5	1	301	0.2	0.5	1.7	<0.5	0.3	0.4	251	<1	19	2.1	87	70	49	14	9.3	8.4	4.5	2.8	0.2	0	0.8	0.2	0.1	0	<0.01	9.1	98.9
17-83	I106130	2	<1	272	0.2	0.4	1.2	<0.5	0.3	0.3	256	<1	18	1.9	95	58	48	14	12	9.9	4.1	2.2	0.1	<0.0	0.7	0.3	0.1	0	0	8.5	98.9
17-83	I106131	2.1	1	206	0.2	0.4	1.5	<0.5	0.3	0.4	285	2	16	1.9	71	60	55	15	9.5	7.4	2.5	2.4	1	<0.0	0.9	0.3	0.1	0	0	6.1	100.5
17-83	I106132	1.3	1	178	0.3	0.2	2.1	<0.5	0.1	0.5	294	1	6.8	0.9	43	81	61	19	3.5	4.5	1.8	3.4	1.7	0	1.1	0.1	0	0	0	2.8	99.4
17-83	I106133	2.2	1	132	0.2	0.5	1.6	<0.5	0.3	0.4	245	<1	18	2	100	62	54	14	10	7.2	3.8	2.4	0.5	0	0.8	0.2	0.1	0	0	7.8	100.5
17-83	I106134	7.9	1	202	0.3	0.7	8.1	<0.5	0.2	1.6	139	<1	13	1.2	74	119	49	14	7.1	8.6	5	4.2	0.9	0	0.6	0.1	0.3	0	0	10	99.7

Hole: ____________________

Assays

HoleID	Sample Number	CertificateNumber	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag ppm	Au ppm	Comments
17-83	I599503	TB10155381	21.64	23.00	1.36		0.002	<0.001	0.006	0.2		
17-83	I599504	TB10155381	23.00	24.00	1.00		<0.001	<0.001	0.006	0.2		
17-83	I599505	TB10155381	24.90	26.28	1.38		0.002	<0.001	0.102	0.2		
17-83	I599506	TB10155381	26.85	28.10	1.25		<0.001	<0.001	0.009	0.2		
17-83	I599507	TB10155381	32.94	33.62	0.68		0.003	<0.001	0.018	<0.2		
17-83	I599508	TB10155381	35.40	36.50	1.10		0.004	<0.001	0.015	<0.2		
17-83	I599509	TB10155381	36.50	37.60	1.10		0.011	<0.001	0.023	0.3		
17-83	I599510	TB10155381	38.00	39.30	1.30		0.008	<0.001	0.171	0.7		
17-83	I599511	TB10159176	39.30	39.93	0.63		0.026	0.003	0.176	0.9		

Downhole Deviation

HoleID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
17-83	REFLEX	8-Oct-10	29	64.3-	196.1	5749		
17-83	REFLEX	8-Oct-10	59	63.8-	180.0	5767		
17-83	REFLEX	8-Oct-10	89	63.4-	192.5	5998		
17-83	REFLEX	9-Oct-10	119	63.2-	192.3	5873		
17-83	REFLEX	9-Oct-10	149	62.6-	191.1	5833		
17-83	REFLEX	10-Oct-10	179	62.4-	192.2	6108		
17-83	REFLEX	10-Oct-10	209	62.1-	191.5	5766		
17-83	REFLEX	11-Oct-10	239	61.5-	191.5	5873		
17-83	REFLEX	11-Oct-10	269	61-	192.3	5868		
17-83	REFLEX	11-Oct-10	299	59.7-	192.0	5860		
17-83	REFLEX	12-Oct-10	329	58.8-	190.5	5815		
17-83	REFLEX	12-Oct-10	359	58-	190.8	5844		
17-83	REFLEX	13-Oct-10	389	57.6-	192.3	5878		
17-83	REFLEX	13-Oct-10	419	55.6-	190.2	5862		
17-83	REFLEX	14-Oct-10	449	55.4-	188.5	5721		
17-83	REFLEX	14-Oct-10	479	55.4-	191.8	6103		
17-83	REFLEX	15-Oct-10	509	54.9-	189.7	5771		
17-83	REFLEX	16-Oct-10	539	53.9-	190.9	5829		
17-83	REFLEX	16-Oct-10	566	53.3-	235.3	6893		
17-83	REFLEX	17-Oct-10	593	52.5-	193.5	5730		

Magnetic Susceptiblity

HoleID	Depth_m	Mag. Sus. Reading	Comment
17-83	20.00	0.014-	12cm
17-83	21.50	0.137	14cm
17-83	23.00	0.483	18cm
17-83	24.50	0.097	16cm
17-83	26.00	0.037	14cm
17-83	27.50	0.349	16cm
17-83	29.00	0.391	
17-83	30.50	1.378	
17-83	32.00	2.599	
17-83	33.50	0.314	
17-83	35.00	0.739	
17-83	36.50	1.522	
17-83	38.00	7.743	
17-83	39.50	10.59	
17-83	41.00	0.475	
17-83	42.50	1.747	
17-83	44.00	0.31	
17-83	45.50	0.355	
17-83	47.00	0.266	
17-83	48.50	0.314	
17-83	50.00	0.139	
17-83	51.50	0.577	
17-83	53.00	0.417	
17-83	54.50	0.478	
17-83	56.00	0.302	
17-83	57.50	1.3	
17-83	59.00	0.951	
17-83	60.50	0.688	
17-83	62.00	0.471-	
17-83	63.50	0.162	
17-83	65.00	0.857	
17-83	66.50	14.27	
17-83	68.00	29.78	
17-83	69.50	3.526	
17-83	71.00	5.498	
17-83	72.50	10.08	
17-83	74.00	39.01	
17-83	75.50	1.789	
17-83	77.00	0.353	
17-83	78.50	0.309	
17-83	80.00	2.245	
17-83	81.50	0.623	
17-83	83.00	1.211	
17-83	84.50	3.603	
17-83	86.00	0.235-	
17-83	87.50	17.38	
17-83	89.00	0.617	
17-83	90.50	0.865	
17-83	92.00	0.725	
17-83	93.50	0.376	
17-83	95.00	0.595	
17-83	96.50	1.15	
17-83	98.00	1.276	
17-83	99.50	0.727	
17-83	101.00	2.483	
17-83	102.50	18.71	
17-83	104.00	17.57	
17-83	105.50	27.91	
17-83	107.00	15.41	
17-83	108.50	0.207	
17-83	110.00	0.353	
17-83	111.50	0.809	
17-83	113.00	0.696	
17-83	114.50	0.998	
17-83	116.00	0.952	
17-83	117.50	2.667	
17-83	119.00	1.592	
17-83	120.50	4.317	
17-83	122.00	38.04	
17-83	123.50	4.515	
17-83	125.00	1.216	
17-83	126.50	8.812	
17-83	128.00	120.6	
17-83	129.50	6.108	
17-83	131.00	1.462	
17-83	132.50	2.756	
17-83	134.00	2.373	
17-83	135.50	1.094	
17-83	137.00	4.783	
17-83	138.50	12.67	
17-83	140.00	1.706	
17-83	141.50	0.685	
17-83	143.00	1.225	

HoleID	Depth_m	Mag. Sus. Reading	Comment
17-83	144.50	0.738	
17-83	146.00	1.32	
17-83	147.50	1.166	
17-83	149.00	10.2	
17-83	150.50	5.274	
17-83	152.00	2.45	
17-83	153.50	7.879	
17-83	155.00	39.35	
17-83	156.50	5.663	
17-83	158.00	0.417	
17-83	159.50	0.238	
17-83	161.00	2.926	
17-83	162.50	0.73	
17-83	164.00	2.184	
17-83	165.50	0.134	
17-83	167.00	1.143	
17-83	168.50	1.187	
17-83	170.00	8.96	
17-83	171.50	3.038	
17-83	173.00	10.66	
17-83	174.50	19.24	
17-83	176.00	1.671	
17-83	177.50	84.15	
17-83	179.00	96.11	
17-83	180.50	10.26	
17-83	182.00	30.39	
17-83	183.50	18.15	
17-83	185.00	22.03	
17-83	186.50	8.869	
17-83	188.00	69.99	
17-83	189.50	6.567	
17-83	191.00	0.973	
17-83	192.50	1.193	
17-83	194.00	1.498	
17-83	195.50	2.438	
17-83	197.00	21.61	
17-83	198.50	1.51	
17-83	200.00	4.606	
17-83	201.50	2.994	
17-83	203.00	5.074	
17-83	204.50	12.03	
17-83	206.00	43.92	
17-83	207.50	55.54	
17-83	209.00	57.92	
17-83	210.50	50.71	
17-83	212.00	2.216	
17-83	213.50	0.686	
17-83	215.00	0.89	
17-83	216.50	9.231	
17-83	218.00	23.5	
17-83	219.50	1.227	
17-83	221.00	3.061	
17-83	222.50	33.67	
17-83	224.00	0.753	
17-83	225.50	0.459	
17-83	227.00	0.235	
17-83	228.50	0.367	
17-83	230.00	0.567	
17-83	231.50	0.451	
17-83	233.00	0.701	
17-83	234.50	0.365	
17-83	236.00	0.15	
17-83	237.50	0.977	
17-83	239.00	0.692	
17-83	240.50	0.406	
17-83	242.00	0.385	
17-83	243.50	0.506	
17-83	245.00	1.394	
17-83	246.50	1.218	
17-83	248.00	.581-	
17-83	249.50	0.052	
17-83	251.00	0.312	
17-83	252.50	0.321	
17-83	254.00	0.559	
17-83	255.50	0.677	
17-83	257.00	1.159	
17-83	258.50	0.624	
17-83	260.00	0.175	
17-83	261.50	0.583	
17-83	263.00	1.783	
17-83	264.50	0.142	
17-83	266.00	0.02	
17-83	267.50	0.054	
17-83	269.00	0.098	

HoleID	Depth_m	Mag. Sus. Reading	Comment
17-83	270.50	0.114	
17-83	272.00	.815-	
17-83	273.50	.582-	
17-83	275.00	.443-	
17-83	276.50	.224-	
17-83	278.00	0.012	
17-83	279.50	.008-	
17-83	281.00	.004-	
17-83	282.50	.031-	
17-83	284.00	.025-	
17-83	285.50	.02-	
17-83	287.00	.032-	
17-83	288.50	0.013-	
17-83	290.00	0.016	
17-83	291.50	0.405	
17-83	293.00	0.01	
17-83	294.50	.498-	
17-83	296.00	.395-	
17-83	297.50	.264-	
17-83	299.00	.206-	
17-83	300.50	.054-	
17-83	302.00	.036-	
17-83	303.50	0.037	
17-83	305.00	0.024	
17-83	306.50	0.023	
17-83	308.00	0.009	
17-83	309.50	0.11	
17-83	311.00	0.048	
17-83	312.50	0.125	
17-83	314.00	0.005	
17-83	315.50	0.016	
17-83	317.00	0.131	
17-83	318.50	0.306	
17-83	320.00	0.374-	
17-83	321.50	.377-	
17-83	323.00	.015-	
17-83	324.50	0.098	
17-83	326.00	0.302	
17-83	327.50	4.117	
17-83	329.00	0.115	
17-83	330.50	0.048	
17-83	332.00	0.038	
17-83	333.50	0.079	
17-83	335.00	0.006	
17-83	336.50	.019-	
17-83	338.00	0.027	
17-83	339.50	0.149	
17-83	341.00	0.031	
17-83	342.50	0.005	
17-83	344.00	.542-	
17-83	345.50	.384-	
17-83	347.00	.281-	
17-83	348.50	.045-	
17-83	350.00	0.364	
17-83	351.50	0.837	
17-83	353.00	19.69	
17-83	354.50	1.46	
17-83	356.00	0.008	
17-83	357.50	0.005	
17-83	359.00	0.463	
17-83	360.50	0.513	
17-83	362.00	0.041	
17-83	363.50	0.002	
17-83	365.00	.629-	
17-83	366.50	.484-	
17-83	368.00	0.297-	
17-83	369.50	.246-	
17-83	371.00	.068-	
17-83	372.50	.017-	
17-83	374.00	.014-	
17-83	375.50	0.027-	
17-83	377.00	0.06-	
17-83	378.50	.05-	
17-83	380.00	.011-	
17-83	381.50	0.01	
17-83	383.00	0.081	
17-83	384.50	0.108	
17-83	386.00	0.061	
17-83	387.50	.839-	
17-83	389.00	.620-	
17-83	390.50	.344-	
17-83	392.00	0.213	
17-83	393.50	.007-	
17-83	395.00	0.051	

HoleID	Depth_m	Mag. Sus. Reading	Comment
17-83	396.50	0.504	
17-83	398.00	0.485	
17-83	399.50	0.464	
17-83	401.00	1.034	
17-83	402.50	6.124	
17-83	404.00	1.131	
17-83	405.50	0.647	
17-83	407.00	0.579	
17-83	408.50	0.589	
17-83	410.00	.155-	
17-83	411.50	0.264	
17-83	413.00	0.231	
17-83	414.50	0.282	
17-83	416.00	0.365	
17-83	417.50	0.444	
17-83	419.00	0.515	
17-83	420.50	0.466	
17-83	422.00	0.414	
17-83	423.50	0.525	
17-83	425.00	0.471	
17-83	426.50	0.527	
17-83	428.00	0.499	
17-83	429.50	0.504	
17-83	431.00	0.794	
17-83	432.50	0.654	
17-83	434.00	2.795	
17-83	435.50	33.57	
17-83	437.00	69.48	
17-83	438.50	61.13	
17-83	440.00	25.39	
17-83	441.50	7.385	
17-83	443.00	4.775	
17-83	444.50	54.18	
17-83	446.00	7.427	
17-83	447.50	48.98	
17-83	449.00	77.6	
17-83	450.50	82	
17-83	452.00	21.53	
17-83	453.50	17.54	
17-83	455.00	45.92	
17-83	456.50	58.56	
17-83	458.00	41.39	
17-83	459.50	100.5	
17-83	461.00	47.95	
17-83	462.50	6.683	
17-83	464.00	38.95	
17-83	465.50	23.38	
17-83	467.00	8.948	
17-83	468.50	45.08	
17-83	470.00	13.18	
17-83	471.50	16.03	
17-83	473.00	30.06	
17-83	474.50	17.57	
17-83	476.00	65.57	
17-83	477.50	162.9	
17-83	479.00	48.12	
17-83	480.50	11.12	
17-83	482.00	1.385	
17-83	483.50	2.205	
17-83	485.00	22.81	
17-83	486.50	40.73	
17-83	488.00	17.66	
17-83	489.50	81.68	
17-83	491.00	120.5	
17-83	492.50	22.66	
17-83	494.00	42.11	
17-83	495.50	37.93	
17-83	497.00	18.82	
17-83	498.50	24.84	
17-83	500.00	1.69	
17-83	501.50	0.566	
17-83	503.00	0.689	
17-83	504.50	0.602-	
17-83	506.00	0.214-	
17-83	507.50	0.121	
17-83	509.00	0.061	
17-83	510.50	0.29	
17-83	512.00	0.184	
17-83	513.50	0.08	
17-83	515.00	0.058	
17-83	516.50	0.34	
17-83	518.00	0.462	
17-83	519.50	0.504	
17-83	521.00	0.555	

HoleID	Depth_m	Mag. Sus. Reading	Comment
17-83	522.50	0.658	
17-83	524.00	0.546	
17-83	525.50	0.373	
17-83	527.00	0.155	
17-83	528.50	0.029	
17-83	530.00	0.013	
17-83	531.50	0.46	
17-83	533.00	1.038	
17-83	534.50	1.449	
17-83	536.00	4.724	
17-83	537.50	3.868	
17-83	539.00	1.257	
17-83	540.50	2.9	
17-83	542.00	20.76	
17-83	543.50	2.475	
17-83	545.00	16.21	
17-83	546.50	21.73	
17-83	548.00	10.49	
17-83	549.50	7.139	
17-83	551.00	40.76	
17-83	552.50	15.81	
17-83	554.00	9.454	
17-83	555.50	74.67	
17-83	557.00	72.84	
17-83	558.50	103.6	
17-83	560.00	76.14	
17-83	561.50	22.63	
17-83	563.00	232.1	
17-83	564.50	28.81	
17-83	566.00	31.73	
17-83	567.50	25.79	
17-83	569.00	21.59	
17-83	570.50	28.41	
17-83	572.00	96.89	
17-83	573.50	34.88	
17-83	575.00	13.49	
17-83	576.50	122.8	
17-83	578.00	103.6	
17-83	579.50	28.98	
17-83	581.00	21.93	
17-83	582.50	31.96	
17-83	584.00	7.641	
17-83	585.50	39.98	
17-83	587.00	30.78	
17-83	588.50	10.7	
17-83	590.00	12.62	
17-83	591.50	51.38	
17-83	593.00	39.72	

Xstrata Zinc Canada

Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	17-2010-82	GRID:	NA	DATUM:	Nad83	AZIMUTH:	173.0
LOGGED BY:	Ryan Tuomi	NORTHING:	5527582	ZONE:	15N	DIP:	-60.0
START DATE:	28-Sep-10	EASTING:	650016	UTM Northing:	5527582	FINAL DEPTH (m):	452.00
FINISH DATE:	6-Oct-10	ELEVATION:	-300	UTM Easting:	650016	CORE SIZE:	BQ
		Casing (m):	12.00	UTM Elevation:	-300	Magnetic Declination:	#REF!

Target:

Township: Sixmile Lake **NTS:** 52G15

Drill Contractor: Major Drilling, Winnipeg Bran **Cement:** No. **Casing:** 12m

Material Left in Hole: Casing. Casing cap. **Plug:** None

Core Recovery and Ground Conditions:

Core Storage: Mattabi core yard

Downhole Survey: BPEM

Comments:

Depth			Rock Type			Stratigraphy	Alteration	Mineralization			Comments
From	To	Interval	Major Rock Code	Texture	Rock Name		Type & Intensity	Sulphide Type	Sulphide %	Texture	
0.00	12.00	12.00	OVB								
12.00	60.20	48.20	V2	massive / locally bedded	Int. Volcanic (Andesite?)		Sericite	Po	1-2	Disseminated/occ blebs	
60.20	62.80	2.60	T1	Bedded / locally massive	Felsic Tuff		sericite	Po/Cpy	3	Disseminated/occ blebs	
62.80	92.30	29.50	V1	Bedded	Felsic Volcanic		K - Enrichment	Py	1	Disseminated	
92.30	123.60	31.30	T1	Strong Bedding (foliation?)	Felsic Tuff			Py	<1	Disseminated	
123.60	125.20	1.60	T2	massive	Int. Tuff			Py	1	Disseminated	
125.20	233.00	107.80	V2/T1	Bedded	Int. Volcanic (Andesite?)/Felsic Tuff		Chloritoid	Py	<3	Weakly Disseminated and blebby	
233.00	340.00	107.00	V2/T1	Bedded	Int. Volcanic (Andesite?)/Felsic Tuff		Chloritoid	Py	<3	Weakly Disseminated and blebby	
340.00	400.45	60.45	V2/T1	Bedded	Int. Volcanic (Andesite?)/Felsic Tuff		sericite	Po/Cpy	~1	Blebby	
400.45	401.60	1.15	V2	Breccia	Breccia		sericite and strong carbonate	Py	<1	Disseminated and Blebby	
401.60	423.10	21.50	I2	Massive	Int. Volcanic Diorite?		sericite and strong carbonate	Py	<1	Disseminated and Blebby	
423.10	452.00	28.90	V1	massive	Felsic Volcanic		sericite and strong carbonate	Py	<1	Blebby	
	-	EOH	EOH								

Major Litho Log

Hole_ID	From_m	To_m	Length_m	MajorRockCode	MajorRockName	Comments
17-82	0.00	12.00	12.00	OVB		
17-82	12.00	60.20	48.20	V2	Int. Volcanic (Andesite?)	Medium to dark grey/green; medium grained with occasional coarser grained; massive to locally bedded at 45 to C.A.; somewhat fractured with quartz-carbonate veins infilling; veinlets regular to irregular to bedding; some veinlets show presence of possible cordierite 5-10%; veins contain tourmaline - does not occur in veinlets; some pyrite <1% disseminated with occasional blems >5mm more with veins and veinlets ~1-2%; occasional veinlets below 38m begin carrying biotite up to 75% `10-13mm crystals; rare pyhrrotite blems finely disseminated near bascal contact; increasing sericite in last 2m above contact with tuff.
17-82	60.20	62.80	2.60	T1	Felsic Tuff	Dark brown to medium grey; coarse to fining upwards; bedded at 30 to C.A. at top of sequence; massive in lower medium to coarse material; two quartz-carb veinlets one concordant with bedding; one cross cutting bedding; 5-10mm quartz-carb clasts surrounded by occasional fine to very fine sericite; sulphide mineralization increase near bottom of unit >3% disseminated and blebby Po and CPy; Po>>CPy; upper contact gradational over 30cm; lower contact distinct at 30 to C.A.; matrix is mix of medium grained quartz; feldspar with sericitic stringers locally >10%
17-82	62.80	92.30	29.50	V1	Felsic Volcanic	Ash?; dark grey with local brownish pink bleaching; fine grained with locally medium grained; bedding at 30 to C.A.; brownish pink bleaching around fractures; bleaching fine to very fine grained; appears to be k-spar; occasional quartz-carb veinlets irregular and regular to bedding; massive sections have < 1% disseminated fine grained sulphides; rare < 1% occurances of blebby to disseminated Py and Po; Py > Po; lower contact gradational over 0.5m.
17-82	92.30	123.60	31.30	T1	Lapilli Tuff	Light to medium brown lapilli in dark grey fine grained matrix; upper contact gradational; strong (bedding?) foliation at 40-45 to C.A.; lapilli medium to coarse grained; clasts range 1-10cm in size; Interspersed with medium to fine grained "beds"; locally medium grained "blue" silicious beds conforming to bedding;
17-82	123.60	125.20	1.60	T2	Int. Lapilli Tuff	Same as above but unit becomes much darker; softer; less silicious; contains veinlets which carry disseminated Py
17-82	125.20	233.00	107.80	V2/T1	Andesite?/Lapilli Tuff	Dark grey/green; locally light grey associated with intercalated lapilli tuff; zones ~20-50cm width; medium grained; ~50% subangular felsic lapilli; magnetic zones 1-9m in thickness common > 60%; irregular crosscutting veinlets associated with fracturing; contain rare tourmaline; rare felsic enrichment/bleaching surrounding veinlets; veins mostly barren with 1-3% sulphides rarely Py > Po > CPy; sulphides weakly disseminated and occasionally blebby with increased concentration near veinlets; chloritoid present ~< 30% in 5% of veinlets; occasional veins ~3-8cm in width with < 3% Po associated; locally coarser zones of felsic lapilli < 75% with subangular lapilli aligned with bedding;
17-82	233.00	340.00	107.00	V2/T1	Andesite?/Lapilli Tuff	Same as above unit; veins and veinlets contain 50-60% chloritoid.
17-82	340.00	400.45	60.45	V2/T1	Andesite?/Lapilli Tuff	Same as above; increasing sericite veinlet replacement; occasional zones of >70% sericite ~10-30cm in width; crosscutting veinlets show chloritoid in younger veinlets; rare quartz-carb veins contain ~ 1% blebby Po and CPy; Po>Cpy
17-82	400.45	401.60	1.15	V2	Breccia	Moderately to weakly brecciated; predominantly sericite and carbonate bordered by quartz-carb veinlets; upper contact ~ 15 to C.A.; lower contact 90 to C.A.; Zone above breccia shows weak carbonitization; below strong.
17-82	401.60	423.10	21.50	I2	Int. Intrusive (Diorite?)	Medium grey/green; fine grained; sericite/carbonate matrix; veinlets occasionally parellel to each other @ 40 to C.A.; Occasional older veinlets replaced by sericite; pervasive carbonate alteration; < 1% sulphides rarely occcur blebby in ocassional veinlets
17-82	423.10	452.00	28.90	V1	Felsic Volcanic	Medium grey to med green; medium to coarse grained; massive matrix or quartz; carbonate and sericite; veinlets regular and subparallel to each other at 30-45 to C.A.; veinlets show fine grained K-feldspar ~ 30%; rare Py ~2mm blebs; < 1%; veinlets rarely brecciated; occasional dark banding at random angles to C.A. - represented by fine grain size.

Minor Litho Log

HoleID	From_m	To_m	Length_m	MinorRock Code	MinorRockName	Texture1	Comments
17-82	82.85	83.09	0.24				Breccia with foliation concordant with bedding; quartz-carb matrix with trace disseminated sulphides; lower contact sharp and concordant with bedding.
17-82	105.88	106.55	0.67	Db	Diabase? Dyke	weakly foliated	Fine to medium grained; dk grey; lower chill margin light grey; weakly foliated 35-40 to C.A.; upper limit bounded by barren quartz-carb veinlet
17-82	191.68	192.17	0.49	Db	Diabase? Dyke	massive	Massive felsic volcanic; medium grained; medium grey stong upper and lower contact at 30 to C.A.
17-82	413.30	413.70	0.40	I1N	Quartz vein	massive	Barren vein contact at 60 to C.A.
17-82	414.60	414.80	0.20	I1N	Quartz vein	massive	Quartz vein containing chloritoid; contact at 45 to C.A.
17-82	418.16	418.90	0.74	Db	Diabase? Dyke		(Diabase?) Dyke; top contact 30 to C.A.; bottom contact at 90 to C.A.; bounded top and bottom by small quartz-carb veinlets
17-82	424.23	424.45	0.22				Small irregular breccia with sericite infill

Alteration Log

HoleID	From_m	To_m	Length	Alt1Type	Alt1Intensity	Alt2Type	Alt2Intensity	Alt3Type	Alt3Intensity	Alt4Type	Alt4Intensity	Comments
17-82	12.00	62.80	50.80	Sericite	weak	carbonate	weak					Occurs near veinlets
17-82	62.80	92.30	29.50	K-enrichment	strong	carbonate	weak					Pink bleaching around fractures
17-82	92.30	125.20	32.90	carbonate	weak							
17-82	125.20	233.00	107.80	Sericite	weak	K-enrichment	weak	chloritoid	weak			Rare pink bleaching around veinlets
17-82	233.00	340.00	107.00	chloritoid	mod	Sericite	weak	K-enrichment				50-60% choloritoid within veinlets; rare pink bleaching around veinlets
17-82	340.00	400.45	60.45	sericite	mod	Chloritoid	mod	Sericite	weak	K-enrichment	weak	Increasing sericite veinlet replacement; occasional zones of >70% sericite ~10-30cm in width; crosscutting veinlets show chloritoid in younger veinlets.
17-82	400.45	452.00	51.55	carbonate	strong	Sericite	mod	chloritoid	weak			Pervasive carbonate alteration; older veinlets replaced by sericite

Mineralization Log

HoleID	From_m	To_m	Length_m	MinzType	Minz%	MinzStyle1	MinzStyle2	Comments
17-82	12.00	60.20	48.20	Po/Py	1-2	dis	bleb	some pyrite <1% disseminated with occasional blems >5mm more with veins and veinlets; rare pyhrrotite blems finely disseminated near basal contact
17-82	60.20	62.80	2.60	Po/Cpy	3	dis	bleb	sulphide mineralization increase near bottom of unit >3% disseminated and blebby Po and CPy; Po>>CPy
17-82	62.80	125.20	62.40	Py	1	dis	bleb	massive sections have < 1% disseminated fine grained sulphides; rare < 1% occurances of blebby to disseminated Py and Po; Py > Po; veintlets carry disseminated Py
17-82	125.20	340.00	214.80	Py	<3	bleb	dis	veins mostly barren with 1-3% sulphides rarely Py > Po > CPy; sulphides weakly disseminated and occasionally blebby with increased concentration near veinlets
17-82	340.00	400.45	60.45	Po/Cpy	1	bleb		rare quartz-carb veins contain ~ 1% blebby Po and CPy; Po>Cpy
17-82	400.45	452.00	51.55	Py	<1	bleb	dis	< 1% sulphides rarely occcur blebby in ocassional veinlets; veinlets show rare Py ~2mm blebs; < 1%

Lithgeochemical Samples

HoleID	Sample Number	Lab	Certificate Number	AnalyticalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm
17-82	I106101	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	29.58	29.88	0.30	<1	305	33.3	33.1	220	0.73	41
17-82	I106102	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	60.00	60.30	0.30	<1	208	30	11.2	20	0.62	66
17-82	I106103	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	90.03	90.33	0.30	1	633	37	359	10	1.16	963
17-82	I106104	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	120.07	120.36	0.29	<1	253	33.5	3	10	1.82	<5
17-82	I106105	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	149.99	150.30	0.31	<1	285	20.8	28.8	10	1.78	101
17-82	I106106	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	180.85	181.14	0.29	<1	224	17.4	51	10	1.14	81
17-82	I106107	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	210.00	210.33	0.33	<1	211	16.9	35.7	10	1.26	72
17-82	I106108	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	240.00	240.30	0.30	<1	182.5	17.3	45.3	10	1.38	73
17-82	I106109	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	270.06	270.36	0.30	<1	205	15.2	46.9	10	2.16	66
17-82	I106110	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	300.03	300.33	0.30	<1	114.5	16	40.4	<10	0.61	80
17-82	I106111	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	330.00	330.30	0.30	<1	56.1	14.9	41	10	0.17	65
17-82	I106112	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	360.00	360.30	0.30	<1	33.4	12.1	39.1	20	0.27	31
17-82	I106113	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	390.00	390.30	0.30	<1	288	24.7	43.3	50	0.89	141
17-82	I106114	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	420.00	420.30	0.30	<1	20.4	10.3	48	40	0.23	106
17-82	I106115	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	450.00	450.30	0.30	<1	130.5	11.2	43.2	30	0.78	80

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HoleID	Sample Number	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm
17-82	I106101	3.19	2	1.03	16	3.4	2.5	0.66	14.5	0.3	<2	4.3	18.7	77	<5	4.34	25.3	3.5	1	221	0.4	0.53
17-82	I106102	2.24	1.32	0.72	17.8	2.53	4.5	0.45	14.7	0.22	5	6.7	13.8	19	6	3.48	36.8	2.62	2	107.5	0.7	0.36
17-82	I106103	1.82	0.88	0.79	15.4	2.58	3.8	0.32	18.5	0.11	35	6.9	15.3	1385	11	4.28	74.6	2.84	1	61	0.5	0.35
17-82	I106104	1.72	0.9	0.67	19.4	2.23	3.9	0.33	16.9	0.12	2	7.1	13.9	6	<5	3.79	81.7	2.59	<1	50.8	0.6	0.32
17-82	I106105	3.69	2.33	1.02	19.8	3.05	2.6	0.78	9.5	0.35	<2	3.6	11.2	25	6	2.7	37.3	2.83	1	165	0.3	0.56
17-82	I106106	3.59	2.4	0.93	18.3	2.8	2.2	0.78	8.1	0.36	<2	3.1	9.7	25	<5	2.29	31.7	2.55	1	149	0.2	0.55
17-82	I106107	3.49	2.26	0.93	17.8	2.7	2.2	0.76	7.9	0.35	<2	3	9.4	24	<5	2.25	28.6	2.44	1	145	0.2	0.52
17-82	I106108	3.32	2.13	0.84	18.4	2.58	2.2	0.73	8.1	0.33	<2	3.1	9.4	34	<5	2.23	24.6	2.36	1	201	0.2	0.5
17-82	I106109	3.23	2.04	0.82	16.5	2.41	1.9	0.68	7.1	0.31	<2	2.6	8.4	30	<5	1.98	37.5	2.26	1	129	0.2	0.45
17-82	I106110	3.3	2.22	0.81	17.1	2.58	1.9	0.74	7.4	0.34	<2	2.9	8.8	21	<5	2.09	13.8	2.29	1	142.5	0.2	0.49
17-82	I106111	3.25	2.03	0.78	15.7	2.47	1.9	0.69	6.8	0.31	<2	2.6	8.2	30	<5	1.95	1.4	2.17	1	191	0.2	0.48
17-82	I106112	2.98	1.88	0.71	14.8	2.21	1.6	0.63	5.1	0.28	<2	2.3	7.3	34	<5	1.68	1.5	1.98	<1	162.5	0.2	0.43
17-82	I106113	2.94	1.78	0.8	15.3	2.43	1.7	0.6	12	0.26	<2	2.4	11.8	56	<5	3.04	33.1	2.46	<1	156	0.2	0.42
17-82	I106114	2.35	1.51	0.56	13.3	1.77	1.3	0.51	5	0.23	<2	1.8	5.9	59	<5	1.38	2.1	1.49	<1	224	0.1	0.34
17-82	I106115	2.35	1.52	0.63	14.7	1.79	1.4	0.49	5.2	0.22	<2	2	6.4	42	<5	1.47	17.6	1.61	<1	155	0.1	0.34

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HoleID	Sample Number	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%
17-82	I106101	1.52	<0.5	0.29	0.35	171	2	17.5	1.88	89	99	48.4	13.9	12.15	8.2	2.76	2.01	0.85	0.02	0.88	0.44	0.16
17-82	I106102	3.08	<0.5	0.21	0.73	45	1	11.7	1.35	318	167	65.4	12.5	7.53	2.58	1.03	3.19	1.36	<0.01	0.41	0.24	0.1
17-82	I106103	2.4	<0.5	0.12	0.66	38	<1	9	0.74	54	154	63.6	13.95	3.11	3.98	0.88	0.11	5.37	<0.01	0.38	0.09	0.14
17-82	I106104	2.48	<0.5	0.12	0.63	48	1	9.3	0.79	16	162	64.5	14.45	1.92	2.59	1.45	0.21	4.3	<0.01	0.4	0.06	0.16
17-82	I106105	1.99	<0.5	0.34	0.51	330	1	20.1	2.33	74	93	54.9	15.45	8.73	5.88	1.58	2.49	1.24	<0.01	1.08	0.23	0.11
17-82	I106106	1.63	<0.5	0.35	0.4	293	<1	21.6	2.4	106	79	48.4	14.75	11.8	7.8	2.71	2.28	0.79	<0.01	0.91	0.34	0.1
17-82	I106107	1.55	<0.5	0.34	0.4	281	<1	20.8	2.31	104	80	51.8	14.1	11.65	5.93	2.2	2.17	0.75	<0.01	0.9	0.28	0.09
17-82	I106108	1.59	<0.5	0.32	0.39	293	<1	19.8	2.21	76	77	51.1	15.7	11	6.86	1.95	2.8	0.67	<0.01	0.94	0.36	0.09
17-82	I106109	1.38	<0.5	0.28	0.35	256	<1	19	2.04	93	68	47.3	14.45	9.97	10.55	2.6	2.05	0.71	<0.01	0.79	0.37	0.09
17-82	I106110	1.51	<0.5	0.34	0.38	268	<1	20	2.17	99	72	46.8	14.15	11.7	8.75	3.29	1.9	0.34	<0.01	0.88	0.25	0.09
17-82	I106111	1.34	<0.5	0.3	0.31	294	<1	19.3	2.09	80	64	47.3	13.55	10.85	10.15	3.82	1.83	0.05	<0.01	0.89	0.23	0.07
17-82	I106112	1.25	<0.5	0.29	0.33	226	<1	16.8	1.91	48	58	47.5	13.7	9.56	9.23	5.67	2.53	0.05	<0.01	0.7	0.14	0.07
17-82	I106113	2.27	<0.5	0.25	0.49	228	<1	16.6	1.76	64	61	44.3	14.1	9.9	10.65	3.51	3.27	0.77	0.01	0.68	0.21	0.08
17-82	I106114	0.95	<0.5	0.22	0.25	204	<1	13.7	1.51	75	46	46.1	13	9.97	10.25	6.11	1.61	0.06	0.01	0.56	0.19	0.06
17-82	I106115	0.97	<0.5	0.22	0.25	239	<1	13.9	1.54	92	48	42.5	13.8	11.25	11.15	4.42	2.06	0.49	<0.01	0.65	0.32	0.06

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HoleID	Sample Number	SrO_%	BaO_%	LOI_%	Total_%
17-82	I106101	0.03	0.04	10.9	100.5
17-82	I106102	0.01	0.03	4.35	98.7
17-82	I106103	0.01	0.07	4.96	96.7
17-82	I106104	<0.01	0.03	6.24	96.3
17-82	I106105	0.02	0.03	5.14	96.9
17-82	I106106	0.02	0.03	8.06	98
17-82	I106107	0.02	0.02	7.03	96.9
17-82	I106108	0.02	0.02	7.39	98.9
17-82	I106109	0.01	0.02	9.76	98.7
17-82	I106110	0.02	0.01	8.7	96.9
17-82	I106111	0.02	0.01	9.34	98.1
17-82	I106112	0.02	<0.01	9.58	98.8
17-82	I106113	0.02	0.03	11.85	99.4
17-82	I106114	0.02	<0.01	11.05	99
17-82	I106115	0.02	0.01	11.45	98.2

Assays

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag ppm	Au ppm	Comments
17-82	I599501	TB10155381	128.72	129.28	0.56	V2	0.002	<0.001	0.005	<0.2		
17-82	I599502	TB10155381	149.00	149.50	0.50	V2	0.004	<0.001	0.009	0.2		

Downhole Deviation

HoleID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
17-82	Reflex EZ-SHOT	29-Sep-10	23	57.1-	175.4	5765		
17-82	Reflex EZ-SHOT	29-Sep-10	53	55.6-	178.6	5711		
17-82	Reflex EZ-SHOT	2-Oct-10	83	54.9-	178.4	5709		
17-82	Reflex EZ-SHOT	2-Oct-10	113	54.6-	179.0	5686		
17-82	Reflex EZ-SHOT	2-Oct-10	143	54.1-	177.2	5707		
17-82	Reflex EZ-SHOT	2-Oct-10	173	53.6-	180.5	5717		
17-82	Reflex EZ-SHOT	2-Oct-10	203	53.1-	183.6	5868		
17-82	Reflex EZ-SHOT	3-Oct-10	233	52.6-	186.1	5766		
17-82	Reflex EZ-SHOT	3-Oct-10	263	52.3-	193.4	5794		
17-82	Reflex EZ-SHOT	4-Oct-10	293	51.4-	189.8	5724		
17-82	Reflex EZ-SHOT	4-Oct-10	323	51-	189.0	5733		
17-82	Reflex EZ-SHOT	5-Oct-10	353	50.5-	191.9	5747		
17-82	Reflex EZ-SHOT	5-Oct-10	383	50.2-	194.4	5689		
17-82	Reflex EZ-SHOT	5-Oct-10	413	50.0-	194.9	5732		
17-82	Reflex EZ-SHOT	6-Oct-10	452	48.8-	200.0	5742		

Magnetic Susceptibility

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-82	12.50	1.155	19cm
17-82	14.00	1.377	15cm
17-82	15.50	1.653	17cm
17-82	17.00	0.767	14cm
17-82	18.50	0.951	15cm
17-82	20.00	0.744	17cm
17-82	21.50	0.871	16cm
17-82	23.00	0.803	13cm
17-82	24.50	1.456	18cm
17-82	26.00	0.91	14cm
17-82	27.50	0.656	14cm
17-82	29.00	0.598	16cm
17-82	30.50	1.205	18cm
17-82	32.00	0.8	10cm
17-82	33.50	0.687	14cm
17-82	35.00	0.466	17cm
17-82	36.50	0.417	20cm
17-82	38.00	0.415	17cm
17-82	39.50	0.345	17cm
17-82	41.00	0.436	13cm
17-82	42.50	0.63	14cm
17-82	44.00	0.778	14cm
17-82	45.50	0.673	12cm
17-82	47.00	0.954	16cm
17-82	48.50	1.704	16cm
17-82	50.00	0.874	19cm
17-82	51.50	0.633	17cm
17-82	53.00	0.634	16cm
17-82	54.50	0.587	14cm
17-82	56.00	0.466	16cm
17-82	57.50	122.2	15cm
17-82	59.00	1.377	16cm
17-82	60.50	0.436	16cm
17-82	62.00	0.474	12cm
17-82	63.50	0.781	13cm
17-82	65.00	0.317	20cm
17-82	66.50	0.109	15cm
17-82	68.00	0.371	12cm
17-82	69.50	0.079	10cm
17-82	71.00	0.367	13cm
17-82	72.50	0.063	15cm
17-82	74.00	0.147	10cm
17-82	75.00	1.962	13cm
17-82	77.00	17.72	20cm
17-82	78.00	0.524	16cm
17-82	80.00	0.083	13cm
17-82	81.50	1.336	12cm
17-82	83.00	0.558	10cm
17-82	84.50	0.409	17cm
17-82	86.00	0.356	15cm
17-82	87.50	0.921	16cm
17-82	89.00	0.079	16cm
17-82	90.50	0.039	14cm
17-82	92.00	0.131	14cm
17-82	93.50	0.01-	13cm
17-82	95.00	0.032	13cm
17-82	96.50	0.031	17cm
17-82	98.00	0.004	14cm
17-82	99.50	0.028	15cm
17-82	101.00	0.023	12cm
17-82	102.50	0.031	16cm
17-82	104.00	0.005	18cm
17-82	105.50	0.012	13cm
17-82	107.00	0.049	15cm
17-82	108.50	0.023-	13cm
17-82	110.00	0.025	18cm
17-82	111.50	0.059	17cm
17-82	113.00	0.012-	14cm
17-82	114.50	0.036	14cm
17-82	116.00	0.055	12cm
17-82	117.50	0.099-	18cm
17-82	119.00	0.351	16cm
17-82	120.50	0.031-	20cm
17-82	122.00	0.030-	17cm
17-82	123.50	0.060-	16cm
17-82	125.00	0.308	13cm
17-82	126.50	0.352	19cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-82	128.00	0.553	16cm
17-82	129.50	0.344	18cm
17-82	131.00	1.049	12cm
17-82	132.50	0.174	12cm
17-82	134.00	0.341	17cm
17-82	135.50	0.306	11cm
17-82	137.00	5.583	16cm
17-82	138.50	0.35	15cm
17-82	140.00	0.461	13cm
17-82	141.50	7.587	16cm
17-82	143.00	1.183	16cm
17-82	144.50	0.351	16cm
17-82	146.00	94.26	14cm
17-82	147.50	13.81	18cm
17-82	149.00	92.6	11cm
17-82	150.50	0.486	16cm
17-82	152.00	10.79	17cm
17-82	153.50	50.06	15cm
17-82	155.00	16.49	12cm
17-82	156.50	0.1	13cm
17-82	158.00	0.562	14cm
17-82	159.50	0.312	15cm
17-82	161.00	0.919	18cm
17-82	162.50	5.226	16cm
17-82	164.00	60.64	17cm
17-82	165.50	20.52	16cm
17-82	167.00	37.74	13cm
17-82	168.50	21.78	14cm
17-82	170.00	0.536	15cm
17-82	171.50	0.699	16cm
17-82	173.00	10.31	16cm
17-82	174.50	0.525	13cm
17-82	176.00	21.14	11cm
17-82	177.50	5.446	18cm
17-82	179.00	21.14	13cm
17-82	180.50	0.466	15cm
17-82	182.00	3.14	15cm
17-82	183.50	15.58	14cm
17-82	185.00	4.971	11cm
17-82	186.50	20.03	13cm
17-82	188.00	18.57	13cm
17-82	189.50	1.283	18cm
17-82	191.00	0.505	13cm
17-82	192.50	0.078	14cm
17-82	194.00	7.087	15cm
17-82	195.50	0.658	11cm
17-82	197.00	0.395	13cm
17-82	198.50	82.8	12cm
17-82	200.00	103.4	13cm
17-82	201.50	0.903	13cm
17-82	203.00	39.24	14cm
17-82	204.50	63.25	16cm
17-82	206.00	6.404	15cm
17-82	207.50	51.41	15cm
17-82	209.00	33.92	16cm
17-82	210.50	62.02	14cm
17-82	212.00	22	11cm
17-82	213.50	50.56	20cm
17-82	215.00	73.87	12cm
17-82	216.50	70.76	12cm
17-82	218.00	67.71	12cm
17-82	219.50	1.214	12cm
17-82	221.00	73.57	16cm
17-82	222.50	63.69	19cm
17-82	224.00	52.25	17cm
17-82	225.50	63.09	17cm
17-82	227.00	24.66	15cm
17-82	228.50	15.55	12cm
17-82	230.00	0.571	16cm
17-82	231.50	0.581	12cm
17-82	233.00	1.76	12cm
17-82	234.50	0.245	14cm
17-82	236.00	0.843	14cm
17-82	237.50	2.252	13cm
17-82	239.00	0.674	12cm
17-82	240.50	0.566	12cm
17-82	242.00	0.664	12cm
17-82	243.50	4.438	18cm
17-82	245.00	5.473	17cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-82	246.50	50.49	14cm
17-82	248.00	1.587	14cm
17-82	249.50	10.49	11cm
17-82	251.00	6.06	15cm
17-82	252.50	40.12	18cm
17-82	254.00	15.03	17cm
17-82	255.50	1.486	19cm
17-82	257.00	0.642	16cm
17-82	258.50	1.284	15cm
17-82	260.00	11.64	15cm
17-82	261.50	6.77	15cm
17-82	263.00	35.98	11cm
17-82	264.50	7.985	18cm
17-82	266.00	19.68	20cm
17-82	267.50	6.268	11cm
17-82	269.00	9.354	14cm
17-82	270.50	4.776	14cm
17-82	272.00	7.504	16cm
17-82	273.50	19.29	14cm
17-82	275.00	8.047	11cm
17-82	276.50	24.05	11cm
17-82	278.00	37.94	10cm
17-82	279.50	22.48	14cm
17-82	281.00	0.969	14cm
17-82	282.50	0.367	13cm
17-82	284.00	85.41	11cm
17-82	285.50	0.648	13cm
17-82	287.00	76.46	14cm
17-82	288.50	15.22	11cm
17-82	290.00	1.062	10cm
17-82	291.50	12.07	15cm
17-82	293.00	1.393	17cm
17-82	294.50	2.297	20cm
17-82	296.00	94.75	16cm
17-82	297.50	27.46	11cm
17-82	299.00	1.258	14cm
17-82	300.50	12.54	12cm
17-82	302.00	0.648	11cm
17-82	303.50	28.86	12cm
17-82	305.00	3.831	14cm
17-82	306.50	4.434	15cm
17-82	308.00	24.35	13cm
17-82	309.50	24.52	13cm
17-82	311.00	25.07	13cm
17-82	312.50	0.375	18cm
17-82	314.00	8.839	11cm
17-82	315.50	0.125	14cm
17-82	317.00	146.6	15cm
17-82	318.50	27.01	12cm
17-82	320.00	15.82	13cm
17-82	321.50	13.75	14cm
17-82	323.00	4.272	11cm
17-82	324.50	4.552	16cm
17-82	326.00	62.32	15cm
17-82	327.50	22.16	14cm
17-82	329.00	33.21	11cm
17-82	330.50	26.22	10cm
17-82	332.00	7.471	13cm
17-82	333.50	10.81	14cm
17-82	335.00	0.484	15cm
17-82	336.50	0.379	19cm
17-82	338.00	0.509	14cm
17-82	339.50	47.82	18cm
17-82	341.00	12.05	16cm
17-82	342.50	37.65	13cm
17-82	344.00	41.19	14cm
17-82	345.50	20.9	17cm
17-82	347.00	88.12	19cm
17-82	348.50	46.47	15cm
17-82	350.00	4.698	17cm
17-82	351.50	4.484	18cm
17-82	353.00	25.64	14cm
17-82	354.50	22.04	12cm
17-82	356.00	5.414	13cm
17-82	357.50	20.85	15cm
17-82	359.00	26.82	15cm
17-82	360.50	10.52	16cm
17-82	362.00	0.622	18cm
17-82	363.50	0.578	17cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
17-82	365.00	21.13	15cm
17-82	366.50	4.981	11cm
17-82	368.00	6.43	19cm
17-82	369.50	90.83	13cm
17-82	371.00	90.7	16cm
17-82	372.50	64.99	14cm
17-82	374.00	0.491	17cm
17-82	375.50	55.82	15cm
17-82	377.00	54.52	11cm
17-82	378.50	42.98	15cm
17-82	380.00	56.79	13cm
17-82	381.50	0.562	14cm
17-82	383.00	21.51	14cm
17-82	384.50	0.451	11cm
17-82	386.00	33.59	12cm
17-82	387.50	38.29	15cm
17-82	389.00	54.34	13cm
17-82	390.50	70.92	14cm
17-82	392.00	20.96	13cm
17-82	393.50	31.35	11cm
17-82	395.00	17.87	13cm
17-82	396.50	12.67	11cm
17-82	398.00	30.03	12cm
17-82	399.50	7.592	12cm
17-82	401.00	0.06	14cm
17-82	402.50	0.653	15cm
17-82	404.00	14.7	17cm
17-82	405.50	7.843	13cm
17-82	407.00	0.587	16cm
17-82	408.50	3.436	14cm
17-82	410.00	2.224	14cm
17-82	411.50	1.065	19cm
17-82	413.00	0.515	15cm
17-82	414.50	0.593	13cm
17-82	416.00	7.582	13cm
17-82	417.50	4.809	15cm
17-82	419.00	5.242	12cm
17-82	420.50	2.04	18cm
17-82	422.00	27.62	10cm
17-82	423.50	0.855	13cm
17-82	425.00	2.661	17cm
17-82	426.50	25	14cm
17-82	428.00	10.94	17cm
17-82	429.50	1.338	13cm
17-82	431.00	0.375	18cm
17-82	432.50	0.375	16cm
17-82	434.00	1.312	16cm
17-82	435.50	22.7	15cm
17-82	437.00	0.831	14cm
17-82	438.50	25.21	13cm
17-82	440.00	0.506	16cm
17-82	441.50	0.643	12cm
17-82	443.00	0.778	17cm
17-82	444.50	0.71	11cm
17-82	446.00	4.735	14cm
17-82	447.50	0.428	19cm
17-82	449.00	0.578	11cm
17-82	450.50	3.493	17cm
17-82	452.00	0.471	13cm

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Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	16-513	**GRID:**	No grid	**DATUM:**	NAD 83	**AZIMUTH:**	170.0
LOGGED BY:	D.Parker, S.Siemieniuk, D.Cull	**NORTHING:**	NA	**ZONE:**	15	**DIP:**	-75.0
START DATE:	16-Mar-11	**EASTING:**	NA	**UTM Northing:**	5526906	**FINAL DEPTH (m):**	1020.00
FINISH DATE:	1-Apr-11	**ELEVATION:**	NA	**UTM Easting:**	648955	**CORE SIZE:**	BQ
		Casing (m):	12.00	**UTM Elevation:**		**Magnetic Declination:**	N/A

Target:					
Township:		**NTS:**	52G15		
Drill Contractor:	**Major Drilling, Val D'Or branch**	**Cement:**	**No**	**Casing:**	**12m**
Material Left in Hole:	**Casing. Cap.**			**Plug:**	**No**
Core Recovery and Ground Conditions:					
Core Storage:	**Mattabi core yard.**				
Downhole Survey:					
Comments:					

Depth			Rock Type		Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name				
0.00	12.00	12.00	**OVB**	Casing/Overburden				
12.00	82.70	70.70	**V1D**	Dacitic Ash-Lapilli Tuff	5b		<1% py	
82.70	116.10	33.40	**V1D**	Dacitic Lapilli Tuff Breccia	5b	Local Sil	<1% py+cp+sph	82.7-93.2m: sil, 1-2% py+cp+sph;
116.10	147.00	30.90	**V1D**	Dacitic Crystal-Lapilli Tuff	5b		<1% py	89.4-90.1m: 5-7%py,trace cp, trace sph
147.00	215.90	68.90	**V1D**	Dacitic Lapilli Tuff Breccia	5b	Local Sil	<1% py+cp+sph	150.4-158.8m: 5-10% py, stringers to semi-massi
215.90	227.40	11.50	**V1D**	Dacitic Ash Tuff	5b			163.7-168.2m: 1% py+cp+sph, stringers
227.40	326.80	99.40	**V1D**	Dacitic Lapilli Tuff Breccia	5b		<1% py+po+cp	239-241.5m: 1% py+po+cp stringers
326.80	392.20	65.40	**V1D, V2**	Dacitic to Andesitic Flow Units	5c			325.4-325.5: 10-15% cp+sp+py stringers
392.20	401.90	9.70	**V1B**	Rhyolitic Ash Tuff	5b			392.4-393.2: 20% po+py+cp stringers
401.90	454.80	52.90	**V1D, V2**	Dacitic to Andesitic Flow Units	5c	Local Chl and Ank		422.4-422.6m: chloritic band 3% cp+py
454.80	525.20	70.40	**V1D**	Dacitic Lapilli Tuff Breccia	5b	Local Chl		
525.20	637.80	112.60	**V1D, V2**	Dacitic to Andesitic Flow Units	5c	Local Chl and Sil		552.6-552.75m: 40% semi-mass po+cp; 585.4-586.7m: ~1% cp-po, 5% locally; 602.5-602.25m: cp+sph up to 3% local patches;
637.80	643.80	6.00	**V1D, V2**	Dacitic to Andesitic Flow Units (Hyaloclastite/Flow Top)	5c	Local Chl and Sil	~2% cp+po(non-mag)+py	Local pockets (irregular, 2-4 cm) of up to 30% sulfides
643.80	662.70	18.90	**V1D, V2**	Dacitic to Andesitic Flow Units	5c	Local Chl and Sil		
662.70	677.70	15.00	**V1D, V2**	Dacitic to Andesitic Flow Units (Hyaloclastite/Flow Top)	5c	Mod Sil, Chl, Ank?		~4% overall of po+py+cp; finely disseminated throughout with local bands of up to 30% sulfides
677.70	713.25	35.55	**V1D**	Dacitic Lapilli Tuff	5b	Local Chl, Gt		
713.25	720.50	7.25	V1D, V2	Dacite to Andesitic Flow units	5c			
720.50	754.30	33.80	V1D	Dacitic Lapilli Tuff Breccia	5b	weak to mod chl		
754.30	758.95	4.65	V1B	Rhyolitic Ash Tuff	5b			
758.95	780.80	21.85	V1D, V2	Dacite to Andesitic Flow units	5c			
780.80	785.14	4.34	V1D	Dacitic Lapilli Tuff	5b			
785.14	786.96	1.82	V1B	Rhyolitic Ash Tuff	5b			
786.96	794.30	7.34	V1D	Dacitic Lapilli Tuff	5b			
794.30	832.80	38.50	V1D, V2	Dacite to Andesitic Flows	5c			
832.80	841.15	8.35	V1B	Rhyolitic Ash Tuff	5b			
841.15	869.65	28.50	V1D	Dacitic Lapilli Tuff	5b			
869.65	980.72	111.07	V1D, V1B	Dacite to Rhyolitic(?) Flows/Tuffs	5c, 4a(?)			
980.72	1020.00	39.28	I2J/V2J	Diorite/Andesite?	E/5c?			
	-	EOH	**EOH**			EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
16-513	0.00	12.00	12.00	OVB	casing/overburden			
16-513	12.00	82.70	70.70	V1D	Dacitic Ash-Lapilli Tuff			Dark gray; fine grained with local concentrations up to 25% of white rounded to subangular fragments 2-20mm; massive to very weakly foliated 0-30deg ca; occassional 1-2cm quartz stringers at various angles <1%; minor disseminated pyrite locally up to 1%; lower contact indistinct.
16-513	82.70	116.10	33.40	V1D	Dacitic Lapilli Tuff Breccia			Medium gray, mottled; fine grained matrix with brecciated texture and local concentrations up to 50% of subrounded to sub angular 0.5-5cm variably dark to light fragments; local blebby and stringer pyrite and chalcopyrite and trace sphalerite associated with silicification; contacts indistinct.
16-513	116.10	147.00	30.90	V1D	Dacitic Lapilli-Crystal Tuff			Dark gray; medium grained matrix of light and dark crystals/fragments 1-3mm with local concentrations of subrounded to subangular 1-3cm lapillis; massive, very poorly bedded; <1% pyrite blebs, stringers and disseminated; lower contact 50 deg ca.
16-513	147.00	215.90	68.90	V1D	Dacitic Lapilli Tuff Breccia			Medium gray, mottled; fine to medium grained matrix with coarse brecciated texture and local concentrations of subrounded to sub angular 1-10cm variably dark to light fragments, locally clast supported; typically <1% pyrite+sphalerite+chalcopyrite stringers and disseminated; locally silicified with semi-massive pyrite; lower contact gradational.
16-513	215.90	227.40	11.50	V1D	Dacitic Ash Tuff			Dark gray; fine grained; massive; trace pyrite;lower contact indistinct.
16-513	227.40	326.80	99.40	V1D	Dacitic Lapilli Tuff Breccia			Medium gray, mottled; fine grained light gray matrix with angular to subrounded variably light and dark lapillis 0.5-5cm; local coarse breccia; massive; <1% disseminated py; local minor py+po+cp+/-sph stringers; lower contact 45 deg ca.
16-513	326.80	392.20	65.40	V1D, V2	Dacitic to Andesitic Flow Units			Dark gray; fine grained; local minor concentrations of zoned subrounded fragments, 2-5 mm, possible hyaloclastites; massive; locally minor blocky core; local minor quartz stringers; trace sulphides; lower contact 20 deg ca.
16-513	392.20	401.90	9.70	V1B	Rhyolitic Ash Tuff			Medium gray; very fine grained; siliceous; massive, locally weakly laminated 20-30 deg ca; typically <1% very fine grained disseminated sulphides; locally 5-20% po+py+cp concentrated at upper and lower contact; lower contact 40 deg ca.
16-513	401.90	454.80	52.90	V1D, V2	Dacitic to Andesitic Flow Units			Dark gray to gray-green; fine grained; massive; minor quartz +/- ankerite stringers at various angles; local weak to moderate chlorite and ankerite alteration; trace sulphides; lower contact 55 deg ca.
16-513	454.80	525.20	70.40	V1D	Dacitic Lapilli Tuff Breccia			Medium gray to gray-green; fine grained matrix with up to 50% 2mm to 2 cm subrounded variably light and dark fragments; brecciated texture becomes apparent downhole; massive to weakly foliated/banded 30-50 deg ca; local weak chlorite alteration; local minor quartz stringers at varios angles commonly associated with minor py+cp+sph; lower contact irregular.
16-513	525.20	637.80	112.60	V1D, V2	Dacitic to Andesitic Flow Units			Dark to medium gray-green; fine grained; massive at top of hole, near bottom up to 10% 1-3mm subrounded-angular while feldspar? fragments; minor quartz stringers at various (15-70) angles; local weak to moderate silica alteration; minor zones of cp/po/sph/py contained throughout but nothing of significance; generally non-magnetic except where po present; upper contact sharp and irregular at ~70 TCA; lower contact gradational
16-513	637.80	643.80	6.00	V1D, V2	Dacitic to Andesitic Flow Units (Hyaloclastite/Flow Top)	Bx/Hyal		Medium to dark grey fine grained unit; contact gradational from above unit; contains mm sized up to 8 cm subangular silicious fragments throughout ir varying concentrations, locally 'clast' supported (hyaloclastite or silicified flow top?); moderate chlorite alteration in patches and veinlets, moderate to strong silica alteration throughout, variable disseminated patches of po? (non-magnetic)+cp+py occurr throughout the unit; perhaps 2% overall and locally up to 30% sulfides on a 2-4 cm scale; lower contact appears sharp at 75 TCA
16-513	643.80	662.70	18.90	V1D, V2	Dacitic to Andesitic Flow Units			Dark to medium gray-green; fine grained; massive at top of hole and appears to become feldspar-phyric near the bottom containing sub-mm white-feldspar?; local weak silica and chlorite alteration; minor sub-mm veinlets of po contained throughout the unit; lower contact appears gradational over ~10cm
16-513	662.70	677.70	15.00	V1D, V2	Dacitic to Andesitic Flow Units (Hyaloclastite/Flow Top)	Bx/Hyal		Medium to dark grey fine grained unit; contact gradational from above unit; contains mm sized up to 5 cm subangular silicious fragments throughout ir varying concentrations, locally 'clast' supported (hyaloclastite or silicified flow top?); amount of brecciation/flowtop decreases down the hole; moderate to strong silica alteration throughout section, meter long intersections of strong ankerite? alteration (soft, pervasive alteration) and weak chlorite alteration in patches and veinlets, 4% sulfides occur throughout the whole unit (dominantly non-mag po? (has a reddish tinge to it leading me to think po vs. py which is also visible in section) but with varying amounts of cp+po as well, local disseminated concentrations of pervaisive disseminated po+/-cp mineralization occurr throughout unit with up to 30% sulfides; lower contact appears gradational at 30 TCA (may be pseudo-contact due to a cessation of pervasive alteration).

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
16-513	677.70	713.25	35.55	V1D	Dacitic Lapilli Tuff Breccia			Medium to light grey fine grained unit with local concentrations of ameboid to subangular white fragments ranging in size from 1mm to 2cm. In other places the fragments appear mottled (pumice?), they are quite silicious and mottling appears to be in the form of fine grained chlorite; upper contact is gradational at 30 TCA; contains four 4cm wide 'pockets' containing garnet/chlorite +/- ankerite alteration with three of them being moderately mineralized (dominantly po-py); lower contact sharp and regular at 45 degrees to c.a.
16-513	713.25	720.50	7.25	V1D, V2	Dacite to Andesitic Flow units			Medium to dark grey; fine-grained with occasional feldspar phenocrysts (lapilli?) up to ~1cm; generally massive with local weak brecciation/silicification - possible flow top breccias; trace patchy pyrite; lower contact obscured by broken/blocky core
16-513	720.50	754.30	33.80	V1D	Dacitic Lapilli Tuff Breccia	Lap	Bx	Medium grey-green - mottled appearance due to 10-15% sub-rounded to sub-angular light to dark coloured lapilli and/or phenocrysts, commonly zoned with chloritic rims; weak to moderate chlorite throughout; lapilli range from several mm to 2-3cm; local breccia zones 10-20 cm; occasional white, milky quartz veins - mainly in last 10 m of unit; lower contact irregular due to minor brecciation with quartz
16-513	754.30	758.95	4.65	V1B	Rhyolitic Ash Tuff	Bed		Light grey; fine grained; siliceous; exhibits common irregular weakly chloritic seams that appear to be bedding, but are at variable core angles, commonly parallel to core axis; trace pyrite; lower contact somewhat diffuse, irregular
16-513	758.95	780.80	21.85	V1D, V2	Dacite to Andesitic Flow units	Mass		Medium to dark grey-green; fine grained; massive; rare lapilli/phenocrysts up to 1cm; moderate chlorite throughout, locally as 5-10% clots and wisps generally 2-3mm up to 5mm; local almandine garnets 2-5 mm; occasional irregular quartz veins up to several cm; trace pyrite, pyhrrotite and chalcopyrite
16-513	780.80	785.14	4.34	V1D	Dacitic Lapilli Tuff	Mass		Medium to dark grey-green; fine grained with common, variably coloured lapilli up to 3-4cm; massive; trace fine grained py, po and cpy; lower contact sharp and irregular
16-513	785.14	786.96	1.82	V1B	Rhyolitic Ash Tuff	Bed		As from 754.30 to 758.95; lower contact sharp and irregular at ~70 degrees to c.a.
16-513	786.96	794.30	7.34	V1D	Dacitic Lapilli Tuff	Mass		As from 780.80 to 785.14; local garnets; lower contact sharp and irregular
16-513	794.30	832.80	38.50	V1D, V2	Dacite to Andesitic Flows	Mass		Medium grey; fine grained; massive; weak to locally moderate chlorite, with occasional zones of chlorite clots/blebs up to 3-4mm; local bleaching along fractures - pale green-grey (epidote-carbonate?); local garnets; trace sulphides overall - locally up to 2-3% po>py>sph; lower contact irregular, brecciated
16-513	832.80	841.15	8.35	V1B	Rhyolitic Ash Tuff	Bed		As from 754.30 to 758.95 with moderate irregular quartz-carb veining and trace pyrite; lower contact sharp and irregular
16-513	841.15	869.65	28.50	V1D	Dacitic Lapilli Tuff	Mass		Medium to dark grey-green; massive to weakly foliated at 60-70 degrees; fine grained with up to ~20% rounded to sub-angular lapilli up to 3-4cm, variably coloured from light grey-white to dark green-grey; lighter lapilli often appear zoned, often with chloritic rims, and darker lapilli often appear chloritic - moderate chlorite alteration; ~1% almandine garnets scattered/disseminated throughout; trace py, po; lower contact sharp and regular at 70 degrees to c.a.
16-513	869.65	980.72	111.07	V1D, V1B	Dacite to Rhyolitic(?) Flows/Tuffs	Mass	fr	Medium grey, with subtle variations throughout; fine grained; massive; commonly exhibits zones/intervals with what appears to be tight fracturing resembling in-situ brecciation, with abundant cross-cutting chlorite seams/fractures; weak to moderate chlorite throughout; variations in colour (lighter and darker medium-grey) looks like it might be bleaching due to weak silicification/albitization(or rhyolitic composition?); rare quartz veins up to 10cm; short intervals/sections with garnets up to several mm throughout; trace sulphides overall, locally up to 5-7% over less than a metre; lower contact somewhat diffuse, regular, at 90 degrees to c.a.
16-513	980.72	1020.00	39.28	I2J/V2J	Diorite/Andesite?	Mass		Dark grey-green; massive; generally fine grained with local sections exhibiting medium grained (up to 2-3mm) mafic minerals (amphiboles?); occasional garnets
16-513	1020.00				E.O.H.			

Xstrata Zinc Canada				**Mineralization Log**
HoleID	**From_m**	**To_m**	**Length**	**Description**
16-513	82.70	93.20	10.5	1-2% py+cp+sph disseminated, blebby and stringers.
16-513	89.40	90.10	0.7	5-7% fine grained py with trace cp and sph, wispy, patchy.
16-513	150.40	158.80	8.4	5-10% py, stringers to semi-massive.
16-513	155.20	157.30	2.1	semi-massive py, 30-40%
16-513	163.70	168.20	4.5	1% py+cp+sph, stringers
16-513	239.00	241.50	2.5	1% py+po+cp, stringers
16-513	325.40	325.50	0.1	10-15% cp+sph+py, stringers and blebs.
16-513	392.40	393.20	0.8	20% po+py+cp, patchy, wispy stringers
16-513	401.40	401.80	0.4	5% po+py+cp, patchy, wispy stringers
16-513	422.40	422.60	0.2	3% cp+py stringers and disseminated
16-513	552.60	552.75	0.15	40% semi-mass po+cp, banded
16-513	585.40	586.70	1.3	~1% cp-po, 5% locally as disseminated blebs
16-513	602.05	602.25	0.2	cp+sph up to 3% in local disseminated patches
16-513	637.80	643.80	6	~2% overall with local irregular patches throughout the unit, 2-4 cm in size, contain po(non-mag)+cp+py, occurr as disseminated bands (2-4
16-513	662.70	677.70	15	~4% overall of finely disseminated po+py+cp with local bands (4-5 cm in size) of up to 30% po+py+cp, localized 1-3mm blebs also occur
16-513	708.40	711.90	3.5	3 small 4cm 'pockets' of po+py+/-cp along with garnet, chlorite, and ankerite? alteration (infilled pumice fragments?)
16-513	752.50	754.30	1.8	0.5-1% po, py disseminated and wisps/blebs
16-513	766.44	767.40	0.96	0.5% fine grained disseminated cpy and po
16-513	799.20	799.87	0.67	2-3% pyrite and 1% sphalerite, disseminated and stringers
16-513	814.70	818.00	3.3	2-3% py > po > sph
16-513	824.50	826.20	1.7	1-2% py, po with local garnets
16-513	956.75	957.50	0.75	5-7% stringer po and py (+sph?)
16-513	962.32	962.52	0.2	2-3% stringer po and py

Xstrata Zinc Canada				Minor Lithological Log
HoleID	From_m	To_m	Length	Description
16-513	82.70	93.20	10.5	light gray, silicified, 1-2% py+cp+sph, disseminated, blebby and stringers
16-513	89.40	90.10	0.7	5-7% fine grained py with trace cp and sph, wispy and patchy.
16-513	150.40	158.80	8.4	silicified, locally cherty, 5-10% py stringers to semi-massive.
16-513	155.20	157.30	2.1	semi-massive py, 30-40%, siliceous matrix
16-513	163.70	168.20	4.5	1% py+cp+sph stringers, 20-40 deg ca.
16-513	239.00	241.50	2.5	1% py+po+cp, stringers, 0-30 deg ca.
16-513	325.40	325.50	0.1	heavy sulphide band 40 deg ca, 10-15% cp+sph+py, stringers and blebs.
16-513	345.50	353.40	7.9	minor blocky core
16-513	368.00	390.90	22.9	5% quartz stringers, minor feldspar, chlorite, sulphides, 50-80 deg ca.
16-513	369.80	376.10	6.3	minor blocky core
16-513	392.40	393.20	0.8	20% po+py+cp, patchy wispy stringers
16-513	401.40	401.80	0.4	5% po+py+cp, patchy wispy stringers
16-513	410.00	421.00	11	weak to moderate ankerite disseminated and along fractures, weak to moderate pervasive chlorite
16-513	422.40	422.60	0.2	chloritic band with 3% cp+py @ 35 deg ca
16-513	445.80	454.80	9	weak and patchy ankerite and chlorite
16-513	519.40	523.50	4.1	pegmatite dyke, white, coarse grained quartz and feldspar, 5 deg ca, likely <10cm true width, minor cp, minor gray submetallic REE? Minerals
16-513	547.80	548.70	0.9	zone of patchy quartz flooding
16-513	554.10	557.50	3.4	light gray aphanitic alteration zone, moderate silica and chlorite alteration, chlorite wisps roughly parallel TCA give an irregular 'whispy' foliation (alteration pipe?)
16-513	664.80	669.60	4.8	strong carbonate? alteration with weak chlorite
16-513	670.40	677.70	7.3	strong carbonate? alteration with weak chlorite
16-513	720.00	720.50	0.5	moderately blocky/broken core
16-513	720.50	754.30	33.8	weak to moderate chlorite
16-513	766.44	767.40	0.96	3-5% almandine garnets 2-5mm in size
16-513	774.00	780.80	6.8	5-10% chlorite clots and wisps
16-513	788.80	791.30	2.5	1-2% garnets up to 2mm with trace very fine grained cpy, py and po
16-513	841.15	869.65	28.5	moderate chlorite alteration and ~1% disseminated garnets throughout
16-513	850.15	850.73	0.58	mafic dyke or flow; medium-dark green-grey; fine grained homogeneous; massive to weakly foliated at 60-70 degrees; contacts sharp at 60 degrees
16-513	869.65	980.72	111.07	weak to moderate chlorite and possibly weak silicification/albitization(?); common tight fracturing
16-513	894.42	895.00	0.58	mafic dyke or flow; medium-dark green-grey; fine grained homogeneous

Xstrata Zinc Canada				**Lithogeochem Sampling**																					
Hole ID	Sample Number	Lab	Certificate Number	From_m	To_m	Length_m	SampleID	Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Lu	Mo	Nb
16-513	J531840	ALS Minerals; Thunder Bay lab	TB11052105	30.00	30.30	0.30	J531840	<1	211	35	16.3	20	0.55	9	3.49	2.22	0.97	18.6	3.53	3.8	0.73	16.4	0.32	<2	7.2
16-513	J531841	ALS Minerals; Thunder Bay lab	TB11052105	60.00	60.30	0.30	J531841	<1	429	45.8	19.5	20	0.98	30	4.08	2.6	1.28	21.6	4.18	4.5	0.85	22.2	0.39	<2	8.5
16-513	J531842	ALS Minerals; Thunder Bay lab	TB11052105	81.00	81.30	0.30	J531842	<1	420	48.3	20.6	20	0.64	61	4.39	2.49	1.3	20.6	4.97	4.2	0.84	23.4	0.35	<2	8
16-513	J531843	ALS Minerals; Thunder Bay lab	TB11052105	87.00	87.30	0.30	J531843	<1	287	82.5	11.6	<10	0.58	57	8.54	5.13	1.86	19.6	8.84	8.5	1.7	37.5	0.75	2	17.4
16-513	J531844	ALS Minerals; Thunder Bay lab	TB11052105	102.00	102.30	0.30	J531844	<1	307	73.8	10.8	<10	0.44	63	7.67	4.78	1.55	20.4	6.98	8.7	1.54	33.3	0.74	2	17.5
16-513	J531845	ALS Minerals; Thunder Bay lab	TB11052105	132.00	132.30	0.30	J531845	<1	520	88.5	9.4	<10	0.54	18	9	5.54	1.95	21.5	8.78	9.4	1.86	40.5	0.81	2	19.3
16-513	J531846	ALS Minerals; Thunder Bay lab	TB11052105	153.00	153.30	0.30	J531846	<1	389	68.9	19.3	<10	0.45	42	7.5	4.48	1.76	17.7	7.68	7.6	1.52	30.9	0.64	<2	15.8
16-513	J531847	ALS Minerals; Thunder Bay lab	TB11052105	159.00	159.30	0.30	J531847	<1	345	79.2	4.2	<10	0.45	5	8.09	4.96	1.72	19.8	8.04	8.2	1.61	35.8	0.69	2	17.1
16-513	J531848	ALS Minerals; Thunder Bay lab	TB11052105	168.00	168.30	0.30	J531848	<1	407	83.6	16	<10	0.54	59	7.98	5.04	1.82	20.4	8.07	8.6	1.63	37.5	0.73	2	18
16-513	J531849	ALS Minerals; Thunder Bay lab	TB11052105	198.00	198.30	0.30	J531849	<1	184	69.9	5.9	<10	0.34	6	7.35	4.46	1.58	18.3	6.67	8.2	1.51	31.4	0.69	2	16.1
16-513	J531850	ALS Minerals; Thunder Bay lab	TB11052105	221.70	222.00	0.30	J531850	<1	262	82.7	6.4	<10	0.47	18	6.85	4.36	1.5	20.4	7.18	8.3	1.42	37.4	0.65	2	18.5
16-513	J531851	ALS Minerals; Thunder Bay lab	TB11052105	252.00	252.30	0.30	J531851	1	444	88.5	34.6	320	0.55	932	3.18	1.67	1.79	15.1	4.79	3.8	0.62	43.1	0.22	<2	7.1
16-513	J531852	ALS Minerals; Thunder Bay lab	TB11052105	282.00	282.30	0.30	J531852	<1	242	141	15.8	10	0.59	144	14.35	9.11	3.27	37	14.8	15	3.02	69.5	1.33	3	35.2
16-513	J531853	ALS Minerals; Thunder Bay lab	TB11052105	312.00	312.30	0.3	J531853	<1	329	81.6	5.8	<10	0.52	16	7.15	4.43	1.47	19.3	7.31	8.5	1.48	37.8	0.64	<2	18.5
16-513	J531854	ALS Minerals; Thunder Bay lab	TB11052105	342.00	342.30	0.3	J531854	<1	283	65	14	<10	0.5	<5	6.25	3.93	1.55	19.6	6.38	6.2	1.32	29.9	0.58	<2	15
16-513	J531855	ALS Minerals; Thunder Bay lab	TB11052105	372.00	372.30	0.3	J531855	<1	380	22.9	17.7	220	0.64	<5	2.09	1.33	0.59	18.4	2.14	3.1	0.44	11.4	0.2	<2	5.1
16-513	J531856	ALS Minerals; Thunder Bay lab	TB11052105	396.00	396.30	0.3	J531856	<1	22.4	28.4	9.2	20	0.07	23	1.04	0.45	0.52	16.2	1.56	3.2	0.18	14.9	0.06	2	6.4
16-513	J531857	ALS Minerals; Thunder Bay lab	TB11052105	402.00	402.30	0.3	J531857	<1	83.4	25.3	21.6	110	0.23	<5	2.25	1.54	0.46	16.6	2.31	2.8	0.51	12.6	0.22	4	4.5
16-513	J531858	ALS Minerals; Thunder Bay lab	TB11052105	417.00	417.30	0.3	J531858	<1	163.5	29.1	23.9	120	0.38	<5	2.41	1.5	0.68	16.6	2.56	2.7	0.51	14.8	0.19	<2	4.8
16-513	J531859	ALS Minerals; Thunder Bay lab	TB11052105	447.00	447.30	0.30	J531859	<1	175.5	27	24.9	130	0.48	<5	2.47	1.57	0.76	16.5	2.54	2.9	0.52	13.7	0.23	<2	5.1
16-513	J531860	ALS Minerals; Thunder Bay lab	TB11052105	477.00	477.30	0.30	J531860	<1	281	24.3	17.8	110	0.49	22	2.4	1.45	0.77	16.5	2.5	2.9	0.49	12	0.21	7	4.9
16-513	J531861	ALS Minerals; Thunder Bay lab	TB11052105	507.00	507.30	0.30	J531861	<1	283	32.1	27.3	110	0.53	19	2.73	1.65	0.91	17.6	2.91	3.2	0.57	15.8	0.25	<2	5.8
16-513	J531862	ALS Minerals; Thunder Bay lab	TB11052105	526.90	527.20	0.30	J531862	<1	330	20.3	24.9	130	0.21	83	2	1.35	0.68	17.3	2	2.9	0.42	10.1	0.2	<2	5
16-513	J531863	ALS Minerals; Thunder Bay lab	TB11052105	555.80	556.10	0.30	J531863	<1	301	30.6	23.5	150	0.23	73	2.15	1.41	0.78	19	2.57	3.1	0.45	15.5	0.22	<2	5.6
16-513	J531864	ALS Minerals; Thunder Bay lab	TB11052105	575.70	576.00	0.30	J531864	<1	374	32.2	24.5	160	0.8	88	2.78	1.71	0.97	19.3	3.03	3.2	0.56	16	0.26	<2	5.5
16-513	J531865	ALS Minerals; Thunder Bay lab	TB11052105	614.40	614.70	0.30	J531865	<1	150	31.8	31.3	150	0.18	71	2.06	1.3	0.81	17.9	2.59	3.1	0.42	15.6	0.21	<2	5.5
16-513	J531866	ALS Minerals; Thunder Bay lab	TB11061671	651.00	651.30	0.30	J531866	<1	134	24.1	26.4	70	0.73	5	2.18	1.3	0.67	14.8	2.2	2.5	0.43	11.3	0.2	2	5
16-513	J531867	ALS Minerals; Thunder Bay lab	TB11061671	680.20	680.50	0.30	J531867	<1	156.5	78.5	1.9	<10	0.8	30	8.08	5.21	1.47	18.2	7.42	8.3	1.62	35.1	0.77	2	19
16-513	J531868	ALS Minerals; Thunder Bay lab	TB11061671	710.00	710.30	0.3	J531868	<1	173	80.9	1.4	<10	0.63	<5	9.44	5.95	1.89	18.7	8.64	10	1.9	35.4	0.91	4	20.3
16-513	J531869	ALS Minerals; Thunder Bay lab	TB11061671	741.00	741.30	0.3	J531869	<1	200	91.3	1.7	<10	0.61	23	9.52	5.84	2.16	19.4	8.96	11.1	1.88	40.3	0.87	<2	19.8
16-513	J531870	ALS Minerals; Thunder Bay lab	TB11061671	779.70	780.00	0.3	J531870	<1	232	114	3.7	<10	0.44	55	9.72	5.78	1.89	19.6	9.85	8.8	1.89	51.1	0.85	2	20
16-513	J531871	ALS Minerals; Thunder Bay lab	TB11061671	818.70	819.00	0.3	J531871	<1	87.5	80.4	1.2	<10	0.14	5	8.34	5.19	1.72	17	8.07	8	1.67	35.2	0.79	<2	18.3
16-513	J531872	ALS Minerals; Thunder Bay lab	TB11061671	867.00	867.30	0.3	J531872	<1	183.5	86.7	1.9	<10	0.59	<5	8.58	5.44	1.95	18.6	7.91	8.7	1.7	38.6	0.8	2	19.2
16-513	J531873	ALS Minerals; Thunder Bay lab	TB11061671	906.00	906.30	0.3	J531873	<1	159.5	89.7	1.3	<10	0.27	6	9.2	5.69	1.9	19	8.73	9	1.84	39.2	0.89	<2	20.2
16-513	J531874	ALS Minerals; Thunder Bay lab	TB11061671	948.00	948.30	0.3	J531874	<1	93.8	87.4	1	<10	0.2	9	9.86	6.13	2.02	17.7	8.98	10.7	1.93	38.2	0.92	3	19.5
16-513	J531875	ALS Minerals; Thunder Bay lab	TB11061671	980.00	980.30	0.3	J531875	<1	159.5	79.8	2.9	<10	0.29	<5	8.6	5.26	1.21	18.5	7.53	8.3	1.72	35.1	0.8	2	19.2
16-513	J531876	ALS Minerals; Thunder Bay lab	TB11061671	1012.00	1012.30	0.3	J531876	<1	272	50.2	14.4	50	0.77	39	4.75	3.02	1.19	21.3	4.62	6	0.96	22.7	0.51	<2	11.6

Hole: ___________________

Xstrata Zinc Ca

Hole ID	Sample Number	Nd	Ni	Pb	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	Cr2O3
16-513	J531840	17.6	30	9	4.17	36.9	3.59	1	262	0.6	0.54	3.42	<0.5	0.29	0.75	152	1	21.3	2.16	114	138	54.2	15.8	6.77	6.37	4.49	0.3	1.58	<0.01
16-513	J531841	22.1	34	10	5.4	61.8	4.36	2	283	0.7	0.71	3.9	<0.5	0.37	0.91	187	1	24.7	2.58	163	165	54.8	18.45	7.33	3.16	5.29	0.3	2.6	<0.01
16-513	J531842	23.5	38	10	5.58	62	4.92	2	271	0.6	0.78	3.63	<0.5	0.34	0.82	177	2	23.5	2.25	389	154	60.4	16.35	7.47	0.42	5.26	0.22	2.42	<0.01
16-513	J531843	42.4	14	9	10.05	47.4	8.67	3	299	1.3	1.37	7.06	<0.5	0.71	1.64	21	2	46.8	4.8	97	311	75.3	13.45	2.92	0.28	0.78	0.22	1.8	<0.01
16-513	J531844	37	7	6	8.93	41.9	7.48	2	367	1.3	1.1	6.84	<0.5	0.68	1.61	27	1	46.1	4.72	202	320	67.5	13.8	6.78	0.67	3.98	0.18	1.68	<0.01
16-513	J531845	44.9	10	8	10.75	45.2	9.2	3	350	1.4	1.7	7.43	<0.5	0.8	1.72	25	1	52.5	5.32	235	333	66.1	14.5	8.08	0.76	3.51	0.21	1.82	<0.01
16-513	J531846	36	27	7	8.47	38.5	7.68	3	319	1.1	1.16	6.2	<0.5	0.61	1.44	19	2	45.8	4.18	119	272	71.6	11.9	7.37	0.34	1.27	0.23	1.53	<0.01
16-513	J531847	39.7	7	7	9.61	37.4	8.4	2	304	1.2	1.27	6.78	<0.5	0.66	1.55	21	2	48.2	4.58	151	302	69.2	13	6.87	0.28	2.24	0.18	1.46	<0.01
16-513	J531848	41.7	8	8	9.91	50.5	8.69	3	311	1.3	1.27	6.95	<0.5	0.68	1.65	22	1	46.6	4.7	165	306	71.4	13.45	6.73	0.28	1.59	0.22	1.91	<0.01
16-513	J531849	34.3	<5	5	8.37	42.9	7.05	3	218	1.2	1.1	6.51	<0.5	0.64	1.5	25	1	42.7	4.46	200	281	71	12.25	6.76	0.17	2.84	0.12	1.57	<0.01
16-513	J531850	40.2	<5	6	9.99	58.7	7.9	3	253	1.3	1.12	7.41	<0.5	0.64	1.7	18	1	39.1	4.24	159	288	67	13.15	6.32	0.7	2.53	0.16	2.02	<0.01
16-513	J531851	41	123	5	10.4	52.2	6.85	3	325	0.5	0.61	7.96	<0.5	0.22	1.6	94	1	17	1.46	525	143	51.3	11.95	9.41	5.37	6.67	0.16	1.5	0.05
16-513	J531852	74.9	11	15	18.05	50.2	14.55	3	539	2.4	2.33	13	<0.5	1.32	3.14	39	2	83.7	8.61	453	558	66.3	12.5	6.97	1.68	4.74	0.18	0.86	<0.01
16-513	J531853	39.9	<5	7	9.74	61.3	7.81	3	291	1.3	1.17	7.36	<0.5	0.63	1.77	17	2	40.8	4.18	239	297	71.8	12.8	5.27	0.65	2.9	0.19	2.03	<0.01
16-513	J531854	33	<5	<5	7.94	41	6.57	2	199	1	0.99	4.79	<0.5	0.55	1.17	52	2	36	3.66	291	234	61.3	13.15	9.38	0.91	4.7	0.14	1.44	<0.01
16-513	J531855	10.5	75	9	2.63	74.8	2.05	2	254	0.4	0.33	3.09	<0.5	0.18	0.94	140	2	12.1	1.27	215	112	64.4	15.7	5.28	0.18	3.89	0.25	2.72	0.03
16-513	J531856	11.4	18	<5	3.07	7.3	1.94	1	36.7	0.5	0.2	2.13	<0.5	0.06	0.54	33	1	4.6	0.36	88	117	75.4	12.25	3.53	0.28	0.98	0.13	0.27	<0.01
16-513	J531857	11.9	80	5	2.94	23.2	2.28	1	72	0.4	0.4	2.45	<0.5	0.22	0.65	130	5	13.3	1.42	352	101	59.3	13.65	11.1	0.84	5.91	0.16	0.86	0.01
16-513	J531858	13.2	81	<5	3.31	53.7	2.56	1	55.9	0.4	0.43	2.51	<0.5	0.21	0.59	130	2	13.8	1.34	310	99	57.5	14.05	6.96	0.68	6.96	0.09	1.94	0.02
16-513	J531859	12.8	87	<5	3.13	44.2	2.45	1	68.3	0.4	0.41	2.61	<0.5	0.22	0.59	138	2	14.2	1.45	434	108	59.6	14.95	7.98	0.28	8.65	0.15	1.76	0.02
16-513	J531860	11.5	65	7	2.82	49.8	2.3	2	98.7	0.4	0.38	2.57	<0.5	0.21	0.65	136	2	13.8	1.36	254	105	60.1	14.05	7.35	2.67	5.31	0.22	2.18	0.02
16-513	J531861	15.1	97	6	3.73	39.4	2.98	1	74.4	0.5	0.45	2.89	<0.5	0.24	0.74	146	1	15.7	1.61	338	117	58.6	14.8	8.4	3.15	6.54	0.22	1.54	0.01
16-513	J531862	9.6	60	9	2.35	26	1.87	1	101.5	0.4	0.31	2.65	<0.5	0.19	0.76	144	1	11.4	1.29	371	106	64.1	15	7.4	2.05	3.88	0.27	1.1	0.02
16-513	J531863	14.2	81	6	3.52	36	2.73	1	51.8	0.5	0.35	3.01	<0.5	0.21	1.09	138	1	11.9	1.39	220	116	70.4	16.05	6.06	0.35	1.76	0.17	1.58	0.02
16-513	J531864	15	91	12	3.71	66.9	2.99	1	131	0.5	0.45	2.93	<0.5	0.24	0.69	152	1	15.7	1.62	332	121	56.5	16.25	7.25	4.78	5.91	0.33	2.49	0.02
16-513	J531865	15.3	107	8	3.72	36.2	2.93	1	42.1	0.5	0.36	2.82	<0.5	0.2	0.78	148	2	11.2	1.33	393	111	60.6	15.5	8.71	0.2	5.91	0.11	1.7	0.02
16-513	J531866	10.9	66	21	2.64	60	2.25	1	92.7	0.3	0.34	1.93	<0.5	0.19	0.89	105	2	12.5	1.35	597	116	60.4	14.1	10.35	1.97	6.37	0.2	1.77	0.01
16-513	J531867	38.6	5	14	9.08	71.5	7.92	3	47.2	1.2	1.26	5.86	<0.5	0.74	1.38	<5	2	50.8	5.13	515	318	72.1	11	6.53	0.38	2.55	0.08	2.05	<0.01
16-513	J531868	39.8	8	14	9.3	79.3	8.39	3	50.4	1.3	1.44	6.45	<0.5	0.87	1.49	<5	4	57.3	5.93	146	381	74.6	11.55	4.49	0.26	1.77	0.14	2.78	<0.01
16-513	J531869	45.1	<5	10	10.55	71.2	9.12	3	60.7	1.3	1.48	6.74	<0.5	0.86	1.56	<5	1	57.2	5.83	203	422	73.5	11.75	5.99	1.7	2.74	0.15	2.26	<0.01
16-513	J531870	54.8	7	8	13.05	55.5	10.85	3	56.8	1.3	1.59	7.3	<0.5	0.84	1.58	<5	2	57.8	5.72	219	333	74.2	11.45	5.72	0.94	2.84	0.11	1.79	<0.01
16-513	J531871	39.5	7	<5	9.09	23.6	8.02	3	23.1	1.2	1.34	6.06	<0.5	0.76	1.37	<5	1	50.1	5.25	142	295	78.3	10.75	5.78	0.14	1.54	0.07	0.82	<0.01
16-513	J531872	42.4	7	7	9.79	72.4	8.63	3	60.8	1.3	1.32	6.27	<0.5	0.78	1.45	<5	3	52.9	5.39	153	323	73.2	11.2	5.97	1.8	2.5	0.2	2.14	<0.01
16-513	J531873	43.1	5	<5	10.1	32.2	8.9	4	39.8	1.3	1.44	6.47	<0.5	0.86	1.36	<5	1	54.1	5.91	180	324	73.8	11.5	6.7	1.84	2.45	0.12	1.1	<0.01
16-513	J531874	42.8	8	<5	10.15	28	9.08	3	21.1	1.3	1.54	6.37	<0.5	0.89	1.6	<5	2	57.8	6.02	150	403	77.3	11.3	6.02	0.12	1.49	0.11	0.87	<0.01
16-513	J531875	37.8	7	<5	8.95	38.3	7.54	2	24.6	1.2	1.32	5.9	<0.5	0.78	1.34	<5	1	53	5.36	124	307	72	10.45	5.47	0.12	2.37	0.11	1.39	<0.01
16-513	J531876	24.4	39	5	5.75	63	4.97	2	54.1	0.7	0.76	3.78	<0.5	0.46	2	116	2	29.8	3.2	174	255	58.8	16.9	9.02	4.14	4.43	0.52	1.79	0.01

Xstrata Zinc Ca

Hole ID	Sample Number	TiO2	MnO	P2O5	SrO	BaO	LOI	Total							
16-513	J531840	0.89	0.16	0.14	0.03	0.02	7.14	97.9							
16-513	J531841	1.02	0.13	0.16	0.03	0.05	6.4	99.7							
16-513	J531842	0.92	0.08	0.25	0.03	0.05	4.07	97.9							
16-513	J531843	0.72	0.04	0.23	0.03	0.03	2.7	98.5							
16-513	J531844	0.75	0.11	0.12	0.04	0.04	4.99	100.5							
16-513	J531845	0.77	0.12	0.21	0.04	0.06	3.88	100							
16-513	J531846	0.63	0.09	0.23	0.04	0.04	4.2	99.5							
16-513	J531847	0.68	0.14	0.22	0.03	0.04	3.2	97.5							
16-513	J531848	0.71	0.09	0.2	0.03	0.05	2.58	99.2							
16-513	J531849	0.65	0.11	0.13	0.03	0.02	2.8	98.5							
16-513	J531850	0.68	0.14	0.19	0.03	0.03	2.69	95.6							
16-513	J531851	0.65	0.23	0.31	0.04	0.06	10.15	97.9							
16-513	J531852	0.64	0.17	0.2	0.03	0.01	3.69	98							
16-513	J531853	0.64	0.1	0.2	0.03	0.03	3.6	100							
16-513	J531854	0.99	0.2	0.27	0.02	0.03	4.39	96.9							
16-513	J531855	0.67	0.08	0.08	0.03	0.04	3.9	97.3							
16-513	J531856	0.35	0.06	0.1	0.01	<0.01	2.5	95.9							
16-513	J531857	0.62	0.26	0.11	0.01	0.01	5.37	98.2							
16-513	J531858	0.63	0.21	0.1	0.01	0.02	6.27	95.4							
16-513	J531859	0.66	0.22	0.11	0.01	0.02	5.08	99.5							
16-513	J531860	0.65	0.26	0.09	0.01	0.03	6.07	99							
16-513	J531861	0.71	0.16	0.11	0.01	0.03	4.98	99.3							
16-513	J531862	0.68	0.15	0.09	0.01	0.04	4.19	99							
16-513	J531863	0.72	0.1	0.1	0.01	0.03	2.88	100							
16-513	J531864	0.73	0.2	0.11	0.01	0.04	3.46	98.1							
16-513	J531865	0.7	0.11	0.12	0.01	0.02	4.48	98.2							
16-513	J531866	0.67	0.26	0.04	0.01	0.02	3.82	100							
16-513	J531867	0.36	0.17	0.08	<0.01	0.02	2.46	97.8							
16-513	J531868	0.42	0.12	0.1	<0.01	0.02	1.78	98							
16-513	J531869	0.41	0.15	0.01	0.01	0.02	1.79	100.5							
16-513	J531870	0.39	0.08	0.1	0.01	0.03	2.4	100							
16-513	J531871	0.36	0.11	<0.01	<0.01	0.01	2.92	101							
16-513	J531872	0.4	0.15	0.06	0.01	0.02	2.09	99.7							
16-513	J531873	0.39	0.17	<0.01	<0.01	0.02	2.8	101							
16-513	J531874	0.38	0.14	0.02	<0.01	0.01	3.57	101.5							
16-513	J531875	0.34	0.1	0.02	<0.01	0.02	1.97	94.4							
16-513	J531876	0.81	0.2	0.04	0.01	0.03	2.88	99.6							

Hole: ___________________

Xstrata Zinc Canada											Assays			
HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	RockCode	nple Num	Cu%	Pb%	Zn%	Ag ppm	Cu%	Zn%	Au ppm
16-513	J529397	TB11052104	155.00	156.00	1.00		J529397	0.009	0.001	0.009	0.3			
16-513	J529398	TB11052104	156.00	157.00	1.00		J529398	0.006	0.001	0.006	0.4			
16-513	J529399	TB11052104	157.00	158.00	1.00		J529399	0.003	<0.001	0.007	<0.2			
16-513	J529400	TB11052104			0.00	**Standard**	J529400							
16-513	J529401	TB11052104	392.30	393.30	1.00		J529401	0.114	<0.001	0.036	0.6			
16-513	J529402	TB11052104	551.45	552.45	1.00		J529402	0.005	<0.001	0.022	<0.2			
16-513	J529403	TB11052104	552.45	552.95	0.50		J529403	0.017	<0.001	0.011	<0.2			
16-513	J529404	TB11052104	552.95	553.95	1.00		J529404	0.008	0.001	0.029	<0.2			
16-513	J529405	TB11052104	584.30	585.30	1.00		J529405	0.043	0.001	0.043	0.5			
16-513	J529406	TB11052104	585.30	586.80	1.50		J529406	0.143	0.001	0.068	1.3			
16-513	J529407	TB11052104	586.80	587.80	1.00		J529407	0.003	0.001	0.029	<0.2			
16-513	J529408	TB11052104	636.80	637.80	1.00		J529408	0.010	0.002	0.041	<0.2			
16-513	J529409	TB11052104	637.80	639.30	1.50		J529409	0.013	0.001	0.045	<0.2			
16-513	J529410	TB11052104	639.30	640.80	1.50		J529410	1.200	0.008	0.428	37.4	1.245		0.348
16-513	J529411	TB11052104	640.80	642.30	1.50		J529411	0.013	<0.001	0.019	0.2			
16-513	J529412	TB11052104	642.30	643.80	1.50		J529412	0.217	<0.001	0.081	7.2			
16-513	J529413	TB11052104	643.80	645.30	1.50		J529413	0.006	<0.001	0.047	0.2			
16-513	J529414	TB11052104	645.30	646.80	1.50		J529414	0.209	0.001	0.084	8.2			
16-513	J529415	TB11052104	646.80	648.30	1.50		J529415	0.001	<0.001	0.046	<0.2			
16-513	J529416	TB11052104			0.00	**Blank**	J529416	0.010	<0.001	0.011	<0.2			
16-513	J529417	TB11052104	661.70	662.70	1.00		J529417	0.002	0.001	0.047	<0.2			
16-513	J529418	TB11052104	662.70	664.20	1.50		J529418	0.005	0.001	0.050	<0.2			
16-513	J529419	TB11052104	664.20	665.70	1.50		J529419	0.057	0.001	0.049	1.4			
16-513	J529420	TB11052104	665.70	667.20	1.50		J529420	0.016	<0.001	0.048	0.3			
16-513	J529421	TB11052104	667.20	668.70	1.50		J529421	0.027	0.004	0.046	0.7			
16-513	J529422	TB11052104	668.70	670.20	1.50		J529422	0.048	<0.001	0.067	0.9			
16-513	J529423	TB11052104	670.20	671.70	1.50		J529423	0.015	0.001	0.017	0.4			
16-513	J529424	TB11052104	671.70	673.20	1.50		J529424	0.028	<0.001	0.017	0.8			
16-513	J529425	TB11052104			0.00	**Standard**	J529425							
16-513	J529426	TB11052104	673.20	674.70	1.50		J529426	0.037	0.001	0.076	0.7			
16-513	J529427	TB11052104	674.70	676.20	1.50		J529427	0.028	0.001	0.095	0.7			
16-513	J529428	TB11052104	676.20	677.70	1.50		J529428	0.012	<0.001	0.031	0.2			
16-513	J529429	TB11052104	677.70	678.70	1.00		J529429	0.004	<0.001	0.019	<0.2			

HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	RockCode	ıple Num	Cu%	Pb%	Zn%	Ag ppm	Cu%	Zn%	Au ppm
16-513	J529430	TB11061670	798.00	799.00	1.00		J529430	0.004	<0.001	0.006	<0.2			
16-513	J529431	TB11061670	799.00	800.00	1.00		J529431	0.005	0.003	0.047	0.3			
16-513	J529432	TB11061670	800.00	801.00	1.00		J529432	0.002	<0.001	0.003	<0.2			
16-513	J529433	TB11061670	813.70	814.70	1.00		J529433	0.01	<0.001	0.002	0.2			
16-513	J529434	TB11061670	814.70	815.80	1.10		J529434	0.02	<0.001	0.003	0.4			
16-513	J529435	TB11061670	815.80	816.90	1.10		J529435	0.01	<0.001	0.001	0.2			
16-513	J529436	TB11061670	816.90	818.00	1.10		J529436	0.008	<0.001	0.002	<0.2			
16-513	J529437	TB11061670	818.00	819.00	1.00		J529437	0.002	<0.001	<0.001	<0.2			
16-513	J529438	TB11061670	955.75	956.75	1.00		J529438	0.002	0.001	<0.001	<0.2			
16-513	J529439	TB11061670	956.75	957.50	0.75		J529439	0.01	0.001	0.007	0.9			
16-513	J529440	TB11061670	957.50	958.50	1.00		J529440	0.001	<0.001	0.011	<0.2			

Xstrata Zinc Canada									**Downhole Deviation**
Hole ID	**Instrument**	**Date Measured**	**Depth**	**Dip**	**Azimuth**	**Magnetic Field**	**Corrected Azimuth**	**Comments**	
16-513	Reflex	16-Mar-11	30	-74.8	171.4	57672			
16-513	Reflex	17-Mar-11	60	-74.4	168.8	57545			
16-513	Reflex	17-Mar-11	90	-74.2	168.1	57457			
16-513	Reflex	17-Mar-11	120	-74.1	168.9	57304			
16-513	Reflex	17-Mar-11	150	-73.9	167.6	57854			
16-513	Reflex	18-Mar-11	180	-73.9	168.4	57587			
16-513	Reflex	18-Mar-11	210	-73.0	204.9	38566	167.6?		
16-513	Reflex	18-Mar-11	240	-72.6	166.8	57429			
16-513	Reflex	18-Mar-11	270	-71.8	168.7	57773			
16-513	Reflex	19-Mar-11	300	-71.1	167.3	57473			
16-513	Reflex	19-Mar-11	330	-70.7	167.3	57399			
16-513	Reflex	20-Mar-11	360	-70.5	165.4	57527			
16-513	Reflex	20-Mar-11	390	-70.2	165.7	57183			
16-513	Reflex	21-Mar-11	420	-69.6	165.7	57426			
16-513	Reflex	21-Mar-11	450	-69.4	164.5	57414			
16-513	Reflex	21-Mar-11	480	-68.8	165.6	57355			
16-513	Reflex	22-Mar-11	510	-68.7	165.3	57386			
16-513	Reflex	22-Mar-11	540	-68.6	167.7	57360			
16-513	Reflex	23-Mar-11	570	-68.2	167.4	57790			
16-513	Reflex	24-Mar-11	600	-67.9	168.0	57516			
16-513	Reflex	24-Mar-11	630	-67.4	168.2	57667			
16-513	Reflex	25-Mar-11	660	-66.9	168.9	57690			
16-513	Reflex	26-Mar-11	690	-66.3	171.2	57762		Two hexagonal core barrels and 18" shell removed during bit change at 672m as per Lucy's request	
16-513	Reflex	27-Mar-11	720	-64.7	174.2	57972			
16-513	Reflex	27-Mar-11	750	-63.9	176.3	58022			
16-513	Reflex	28-Mar-11	780	-62.5	177.7	57860			
16-513	Reflex	28-Mar-11	810	-61.8	177.7	57758			
16-513	Reflex	29-Mar-11	840	-61.0	177.6	56690			
16-513	Reflex	29-Mar-11	870	-60.3	178.3	57652			
16-513	Reflex	30-Mar-11	900	-60.2	178.0	57756			
16-513	Reflex	30-Mar-11	930	-59.8	178.2	57645			
16-513	Reflex	30-Mar-11	960	-59.8	179.0	57550			
16-513	Reflex	31-Mar-11	990	-59.6	179.0	57602			
16-513	Reflex	1-Apr-11	1020	-59.2	180.1	57921			

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
16-513	12.00	0.482	
16-513	13.50	0.278	
16-513	15.00	0.039	
16-513	16.50	0.06	
16-513	18.00	0.359	
16-513	19.50	0.3	
16-513	21.00	0.364	
16-513	22.50	0.26	
16-513	24.00	0.119	
16-513	25.50	0.31	
16-513	27.00	0.311	
16-513	28.50	0.658	
16-513	30.00	0.331	
16-513	31.50	0.37	
16-513	33.00	0.444	
16-513	34.50	0.527	
16-513	36.00	0.306	
16-513	37.50	0.369	
16-513	39.00	0.444	
16-513	40.50	0.092	
16-513	42.00	0.177	
16-513	43.50	0.505	
16-513	45.00	0.809	
16-513	46.50	0.561	
16-513	48.00	0.492	
16-513	49.50	0.861	
16-513	51.00	0.788	
16-513	52.50	0.786	
16-513	54.00	1.355	
16-513	55.50	1.651	
16-513	57.00	0.517	
16-513	58.50	2.681	
16-513	60.00	0.483	
16-513	61.50	0.268	
16-513	63.00	0.116	
16-513	64.50	0.365	
16-513	66.00	0.131	
16-513	67.50	0.299	
16-513	69.00	0.185	
16-513	70.50	0.378	
16-513	72.00	0.259	
16-513	73.50	0.659	
16-513	75.00	0.656	
16-513	76.50	0.397	
16-513	78.00	0.652	
16-513	79.50	0.44	
16-513	81.00	0.361	
16-513	82.50	0.457	
16-513	84.00	0.06	
16-513	85.50	0.086	
16-513	87.00	0.904	
16-513	88.50	0	
16-513	90.00	0.002	
16-513	91.50	0.156	
16-513	93.00	0.394	
16-513	94.50	0.333	
16-513	96.00	0.289	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	97.50	0.336	
16-513	99.00	0.133	
16-513	100.50	0.244	
16-513	102.00	0.33	
16-513	103.50	0.303	
16-513	105.00	0.592	
16-513	106.50	0.534	
16-513	108.00	0.15	
16-513	109.50	0.114	
16-513	111.00	0.172	
16-513	112.50	0.101	
16-513	114.00	0.118	
16-513	115.50	0.165	
16-513	117.00	0.081	
16-513	118.50	0.286	
16-513	120.00	0.299	
16-513	121.50	0.335	
16-513	123.00	0.551	
16-513	124.50	0.482	
16-513	126.00	0.66	
16-513	127.50	0.28	
16-513	129.00	0.249	
16-513	130.50	0.136	
16-513	132.00	0.107	
16-513	133.50	0.073	
16-513	135.00	0.136	
16-513	136.50	0.16	
16-513	138.00	0.158	
16-513	139.50	0.367	
16-513	141.00	0.212	
16-513	142.50	0.447	
16-513	144.00	0.356	
16-513	145.50	0.366	
16-513	147.00	0.522	
16-513	148.50	0.322	
16-513	150.00	0.462	
16-513	151.50	0.404	
16-513	153.00	0.345	
16-513	154.50	0.122	
16-513	156.00	0.04	
16-513	157.50	0.384	
16-513	159.00	0.318	
16-513	160.50	0.089	
16-513	162.00	0.405	
16-513	163.50	0.494	
16-513	165.00	0.464	
16-513	166.50	0.744	
16-513	168.00	1.508	
16-513	169.50	0.496	
16-513	171.00	0.535	
16-513	172.50	0.631	
16-513	174.00	0.399	
16-513	175.50	0.392	
16-513	177.00	0.397	
16-513	178.50	0.339	
16-513	180.00	0.128	
16-513	181.50	0.47	
16-513	183.00	0.458	
16-513	184.50	0.426	
16-513	186.00	0.546	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	187.50	0.552	
16-513	189.00	0.625	
16-513	190.50	0.58	
16-513	192.00	0.402	
16-513	193.50	0.806	
16-513	195.00	0.609	
16-513	196.50	0.279	
16-513	198.00	0.161	
16-513	199.50	0.29	
16-513	201.00	0.341	
16-513	202.50	0.167	
16-513	204.00	0.327	
16-513	205.50	0.279	
16-513	207.00	0.416	
16-513	208.50	0.448	
16-513	210.00	0.365	
16-513	211.50	0.128	
16-513	213.00	0.357	
16-513	214.50	0.529	
16-513	216.00	0.547	
16-513	217.50	0.604	
16-513	219.00	0.335	
16-513	220.50	0.455	
16-513	222.00	0.199	
16-513	223.50	0.413	
16-513	225.00	0.351	
16-513	226.50	0.336	
16-513	228.00	0.479	
16-513	229.50	0.278	
16-513	231.00	0.461	
16-513	232.50	0.507	
16-513	234.00	0.282	
16-513	235.50	0.408	
16-513	237.00	0.455	
16-513	238.50	0.458	
16-513	240.00	0.608	
16-513	241.50	0.352	
16-513	243.00	0.397	
16-513	244.50	0.428	
16-513	246.00	0.446	
16-513	247.50	0.115	
16-513	249.00	0.398	
16-513	250.50	0.346	
16-513	252.00	0.453	
16-513	253.50	0.27	
16-513	255.00	0.442	
16-513	256.50	0.63	
16-513	258.00	0.502	
16-513	259.50	0.119	
16-513	261.00	0.496	
16-513	262.50	0.385	
16-513	264.00	0.561	
16-513	265.50	0.369	
16-513	267.00	0.439	
16-513	268.50	0.413	
16-513	270.00	0.356	
16-513	271.50	0.342	
16-513	273.00	0.207	
16-513	274.50	0.44	
16-513	276.00	0.502	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	277.50	0.371	
16-513	279.00	0.305	
16-513	280.50	0.23	
16-513	282.00	0.455	
16-513	283.50	0.227	
16-513	285.00	0.317	
16-513	286.50	0.373	
16-513	288.00	0.308	
16-513	289.50	0.278	
16-513	291.00	0.434	
16-513	292.50	0.122	
16-513	294.00	0.1	
16-513	295.50	0.414	
16-513	297.00	0.044	
16-513	298.50	0.308	
16-513	300.00	0.246	
16-513	301.50	0.09	
16-513	303.00	0.121	
16-513	304.50	0.326	
16-513	306.00	0.606	
16-513	307.50	0.318	
16-513	309.00	0.239	
16-513	310.50	0.282	
16-513	312.00	0.283	
16-513	313.50	0.54	
16-513	315.00	0.333	
16-513	316.50	0.591	
16-513	318.00	0.4	
16-513	319.50	0.273	
16-513	321.00	0.166	
16-513	322.50	0.117	
16-513	324.00	0.39	
16-513	325.50	0.637	
16-513	327.00	0.75	
16-513	328.50	0.643	
16-513	330.00	0.593	
16-513	331.50	0.522	
16-513	333.00	0.735	
16-513	334.50	0.398	
16-513	336.00	0.326	
16-513	337.50	0.276	
16-513	339.00	0.307	
16-513	340.50	0.667	
16-513	342.00	0.362	
16-513	343.50	0.502	
16-513	345.00	0.457	
16-513	346.50	0.658	
16-513	348.00	0.523	
16-513	349.50	0.526	
16-513	351.00	0.488	
16-513	352.50	0.547	
16-513	354.00	0.798	
16-513	355.50	0.682	
16-513	357.00	0.494	
16-513	358.50	0.585	
16-513	360.00	0.476	
16-513	361.50	0.412	
16-513	363.00	0.497	
16-513	364.50	0.331	
16-513	366.00	0.488	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	367.50	0.379	
16-513	369.00	0.444	
16-513	370.50	0.652	
16-513	372.00	0.119	
16-513	373.50	0.509	
16-513	375.00	0.285	
16-513	376.50	0.52	
16-513	378.00	0.49	
16-513	379.50	0.44	
16-513	381.00	0.379	
16-513	382.50	0.122	
16-513	384.00	0.441	
16-513	385.50	0.188	
16-513	387.00	0.518	
16-513	388.50	0.334	
16-513	390.00	0.551	
16-513	391.50	0.541	
16-513	393.00	0.313	
16-513	394.50	0.431	
16-513	396.00	0.059	
16-513	397.50	0.796	
16-513	399.00	0.569	
16-513	400.50	0.135	
16-513	402.00	0.721	
16-513	403.50	0.106	
16-513	405.00	0.651	
16-513	406.50	0.447	
16-513	408.00	0.606	
16-513	409.50	0.606	
16-513	411.00	1.154	
16-513	412.50	0.406	
16-513	414.00	0.534	
16-513	415.50	0.541	
16-513	417.00	0.47	
16-513	418.50	0.423	
16-513	420.00	1.018	
16-513	421.50	0.49	
16-513	423.00	0.569	
16-513	424.50	0.582	
16-513	426.00	0.667	
16-513	427.50	0.462	
16-513	429.00	0.175	
16-513	430.50	0.125	
16-513	432.00	0.411	
16-513	433.50	0.097	
16-513	435.00	0.515	
16-513	436.50	0.377	
16-513	438.00	0.255	
16-513	439.50	0.394	
16-513	441.00	0.49	
16-513	442.50	0.55	
16-513	444.00	0.343	
16-513	445.50	0.422	
16-513	447.00	0.522	
16-513	448.50	0.412	
16-513	450.00	0.535	
16-513	451.50	0.405	
16-513	453.00	0.556	
16-513	454.50	0.752	
16-513	456.00	0.29	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	457.50	0.585	
16-513	459.00	0.393	
16-513	460.50	0.506	
16-513	462.00	0.536	
16-513	463.50	0.568	
16-513	465.00	0.581	
16-513	466.50	0.398	
16-513	468.00	0.453	
16-513	469.50	0.572	
16-513	471.00	0.498	
16-513	472.50	0.421	
16-513	474.00	0.785	
16-513	475.50	0.454	
16-513	477.00	0.425	
16-513	478.50	0.165	
16-513	480.00	0.127	
16-513	481.50	0.147	
16-513	483.00	0.443	
16-513	484.50	0.49	
16-513	486.00	0.126	
16-513	487.50	0.089	
16-513	489.00	0.745	
16-513	490.50	0.389	
16-513	492.00	0.387	
16-513	493.50	0.333	
16-513	495.00	0.701	
16-513	496.50	0.504	
16-513	498.00	0.489	
16-513	499.50	0.388	
16-513	501.00	0.324	
16-513	502.50	0.433	
16-513	504.00	0.214	
16-513	505.50	0.394	
16-513	507.00	0.667	
16-513	508.50	0.469	
16-513	510.00	0.509	
16-513	511.50	0.48	
16-513	513.00	0.515	
16-513	514.50	0.327	
16-513	516.00	0.409	
16-513	517.50	0.736	
16-513	519.00	0.703	
16-513	520.50	0.747	
16-513	522.00	0.595	
16-513	523.50	0.386	
16-513	525.00	0.565	
16-513	526.50	0.188	
16-513	528.00	0.111	
16-513	529.50	0.275	
16-513	531.00	0.375	
16-513	532.50	0.197	
16-513	534.00	0.291	
16-513	535.50	0.288	
16-513	537.00	0.345	
16-513	538.50	0.422	
16-513	540.00	0.485	
16-513	541.50	0.475	
16-513	543.00	0.558	
16-513	544.50	0.395	
16-513	546.00	0.425	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	547.50	0.354	
16-513	549.00	0.482	
16-513	550.50	0.127	
16-513	552.00	0.343	
16-513	553.50	0.383	
16-513	555.00	0.428	
16-513	556.50	0.336	
16-513	558.00	0.371	
16-513	559.50	0.481	
16-513	561.00	0.323	
16-513	562.50	0.454	
16-513	564.00	0.437	
16-513	565.50	0.741	
16-513	567.00	0.648	
16-513	568.50	0.107	
16-513	570.00	0.307	
16-513	571.50	0.284	
16-513	573.00	0.391	
16-513	574.50	0.384	
16-513	576.00	0.383	
16-513	577.50	0.611	
16-513	579.00	0.572	
16-513	580.50	0.417	
16-513	582.00	0.648	
16-513	583.50	0.578	
16-513	585.00	0.458	
16-513	586.50	0.405	
16-513	588.00	0.456	
16-513	589.50	0.494	
16-513	591.00	0.384	
16-513	592.50	0.372	
16-513	594.00	0.297	
16-513	595.50	0.385	
16-513	597.00	0.358	
16-513	598.50	0.408	
16-513	600.00	0.451	
16-513	601.50	0.041	
16-513	603.00	0.368	
16-513	604.50	0.36	
16-513	606.00	0.504	
16-513	607.50	0.375	
16-513	609.00	0.346	
16-513	610.50	0.515	
16-513	612.00	0.39	
16-513	613.50	0.483	
16-513	615.00	0.639	
16-513	616.50	0.522	
16-513	618.00	0.4	
16-513	619.50	0.4	
16-513	621.00	0.344	
16-513	622.50	0.472	
16-513	624.00	0.332	
16-513	625.50	0.4	
16-513	627.00	0.68	
16-513	628.50	0.529	
16-513	630.00	0.602	
16-513	631.50	0.535	
16-513	633.00	0.52	
16-513	634.50	0.441	
16-513	636.00	0.626	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	637.50	0.62	
16-513	639.00	0.05	
16-513	640.50	0.434	
16-513	642.00	0.331	
16-513	643.50	0.699	
16-513	645.00	0.436	
16-513	646.50	0.653	
16-513	648.00	0.429	
16-513	649.50	0.059	
16-513	651.00	0.456	
16-513	652.50	0.685	
16-513	654.00	0.448	
16-513	655.50	0.506	
16-513	657.00	0.572	
16-513	658.50	0.827	
16-513	660.00	0.47	
16-513	661.50	0.464	
16-513	663.00	0.087	
16-513	664.50	0.077	
16-513	666.00	0.084	
16-513	667.50	0.02	
16-513	669.00	0.015	
16-513	670.50	0.028	
16-513	672.00	0.075	
16-513	673.50	0.071	
16-513	675.00	0.03	
16-513	676.50	0.04	
16-513	678.00	0.275	
16-513	679.50	0.321	
16-513	681.00	0.349	
16-513	682.50	0.31	
16-513	684.00	0.494	
16-513	685.50	0.329	
16-513	687.00	0.355	
16-513	688.50	0.01	
16-513	690.00	0.454	
16-513	691.50	0.025	
16-513	693.00	0.08	
16-513	694.50	0.054	
16-513	696.00	0.13	
16-513	697.50	0.367	
16-513	699.00	0.34	
16-513	700.50	0.359	
16-513	702.00	0.284	
16-513	703.50	0.088	
16-513	705.00	0.272	
16-513	706.50	0.277	
16-513	708.00	0.502	
16-513	709.50	0.389	
16-513	711.00	0.361	
16-513	712.50	0.328	
16-513	714.00	0.3	
16-513	715.50	0.594	
16-513	717.00	0.291	
16-513	718.50	0.31	
16-513	720.00	0.396	
16-513	721.50	0.09	
16-513	723.00	0.104	
16-513	724.50	0.269	
16-513	726.00	0.126	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	727.50	0.125	
16-513	729.00	0.117	
16-513	730.50	0.102	
16-513	732.00	0.072	
16-513	733.50	0.271	
16-513	735.00	0.17	
16-513	736.50	0.28	
16-513	738.00	0.119	
16-513	739.50	0.136	
16-513	741.00	0.181	
16-513	742.50	0.347	
16-513	744.00	0.144	
16-513	745.50	0.129	
16-513	747.00	0.269	
16-513	748.50	0.312	
16-513	750.00	0.304	
16-513	751.50	0.119	
16-513	753.00	0.352	
16-513	754.50	0.047	
16-513	756.00	0.079	
16-513	757.50	0.037	
16-513	759.00	0.109	
16-513	760.50	0.028	
16-513	762.00	0.184	
16-513	763.50	0.138	
16-513	765.00	0.153	
16-513	766.50	1.092	
16-513	768.00	0.143	
16-513	769.50	0.047	
16-513	771.00	0.132	
16-513	772.50	0.508	
16-513	774.00	0.156	
16-513	775.50	0.781	
16-513	777.00	0.559	
16-513	778.50	0.28	
16-513	780.00	0.128	
16-513	781.50	0.35	
16-513	783.00	0.046	
16-513	784.50	0.148	
16-513	786.00	0.117	
16-513	787.50	0.114	
16-513	789.00	0.29	
16-513	790.50	0.552	
16-513	792.00	0.151	
16-513	793.50	0.322	
16-513	795.00	0.825	
16-513	796.50	10.3	
16-513	798.00	0.767	
16-513	799.50	0.881	
16-513	801.00	0.067	
16-513	802.50	0.082	
16-513	804.00	0.098	
16-513	805.50	0.442	
16-513	807.00	0.065	
16-513	808.50	0.439	
16-513	810.00	24.96	
16-513	811.50	3.376	
16-513	813.00	1.637	
16-513	814.50	9.758	
16-513	816.00	11.99	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	817.50	10.35	
16-513	819.00	0.63	
16-513	820.50	0.556	
16-513	822.00	0.451	
16-513	823.50	1.245	
16-513	825.00	8.655	
16-513	826.50	0.135	
16-513	828.00	0.47	
16-513	829.50	1.469	
16-513	831.00	0.073	
16-513	832.50	0.042	
16-513	834.00	0.032	
16-513	835.50	0.052	
16-513	837.00	0.03	
16-513	838.50	0.03	
16-513	840.00	0.044	
16-513	841.50	0.427	
16-513	843.00	0.099	
16-513	844.50	1.412	
16-513	846.00	0.349	
16-513	847.50	0.247	
16-513	849.00	9.58	
16-513	850.50	0.36	
16-513	852.00	0.132	
16-513	853.50	0.053	
16-513	855.00	0.114	
16-513	856.50	0.168	
16-513	858.00	0.142	
16-513	859.50	0.096	
16-513	861.00	1.724	
16-513	862.50	1.934	
16-513	864.00	0.343	
16-513	865.50	0.149	
16-513	867.00	0.442	
16-513	868.50	1.555	
16-513	870.00	0.48	
16-513	871.50	1.007	
16-513	873.00	0.292	
16-513	874.50	0.311	
16-513	876.00	0.156	
16-513	877.50	0.21	
16-513	879.00	0.151	
16-513	880.50	0.732	
16-513	882.00	1.402	
16-513	883.50	3.078	
16-513	885.00	0.382	
16-513	886.50	0.304	
16-513	888.00	0.8	
16-513	889.50	4.186	
16-513	891.00	21.35	
16-513	892.50	0.753	
16-513	894.00	2.457	
16-513	895.50	0.914	
16-513	897.00	0.513	
16-513	898.50	0.187	
16-513	900.00	0.145	
16-513	901.50	0.143	
16-513	903.00	0.175	
16-513	904.50	0.146	
16-513	906.00	0.295	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	907.50	0.112	
16-513	909.00	0.128	
16-513	910.50	0.1	
16-513	912.00	0.329	
16-513	913.50	0.494	
16-513	915.00	0.429	
16-513	916.50	0.265	
16-513	918.00	0.122	
16-513	919.50	0.251	
16-513	921.00	0.437	
16-513	922.50	0.103	
16-513	924.00	1.065	
16-513	925.50	0.292	
16-513	927.00	0.119	
16-513	928.50	0.083	
16-513	930.00	0.117	
16-513	931.50	0.124	
16-513	933.00	0.114	
16-513	934.50	0.304	
16-513	936.00	0.241	
16-513	937.50	0.069	
16-513	939.00	0.263	
16-513	940.50	0.288	
16-513	942.00	0.112	
16-513	943.50	0.133	
16-513	945.00	0.246	
16-513	946.50	0.595	
16-513	948.00	7.435	
16-513	949.50	12.36	
16-513	951.00	0.542	
16-513	952.50	0.427	
16-513	954.00	0.35	
16-513	955.50	0.272	
16-513	957.00	0.067	
16-513	958.50	0.281	
16-513	960.00	0.406	
16-513	961.50	0.354	
16-513	963.00	0.334	
16-513	964.50	0.511	
16-513	966.00	0.314	
16-513	967.50	0.321	
16-513	969.00	0.321	
16-513	970.50	8.915	
16-513	972.00	0.172	
16-513	973.50	0.098	
16-513	975.00	0.115	
16-513	976.50	0.274	
16-513	978.00	0.093	
16-513	979.50	0.271	
16-513	981.00	0.125	
16-513	982.50	0.041	
16-513	984.00	0.104	
16-513	985.50	0.101	
16-513	987.00	0.058	
16-513	988.50	0.068	
16-513	990.00	0.265	
16-513	991.50	0.075	
16-513	993.00	0.066	
16-513	994.50	0.113	
16-513	996.00	0.079	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-513	997.50	0.036	
16-513	999.00	0.165	
16-513	1000.50	0.311	
16-513	1002.00	0.405	
16-513	1003.50	0.281	
16-513	1005.00	0.096	
16-513	1006.50	0.3	
16-513	1008.00	0.629	
16-513	1009.50	1.26	
16-513	1011.00	0.653	
16-513	1012.50	0.127	
16-513	1014.00	0.041	
16-513	1015.50	0.108	
16-513	1017.00	0.163	
16-513	1018.50	0.341	
16-513	1020.00	0.017	
16-513	1020.00	E.O.H.	

Xstrata Zinc Canada

Summary Geological Log

LE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	16-2010-512	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	*176
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-66.0
START DATE:	27-Sep-10	EASTING:	NA	UTM Northing:	5,527,494mN	FINAL DEPTH (m):	875.00
FINISH DATE:	14-Oct-10	ELEVATION:	NA	UTM Easting:	648,871mE	CORE SIZE:	BQ
		Casing (m):	3m	UTM Elevation:	#REF!	Magnetic Declination:	N/A

Target:	**2 mineralized trends with several BPEM offhole anomalies.**		
Township:	**Sixmile Lake**	**NTS:**	52G15
Drill Contractor:	**Major Drilling, Winnipeg Branch**	**Cement:**	**No**
		Casing:	**3m**
Material Left in Hole:	**Casing. Cap.**	**Plug:**	**No**
Core Recovery and Ground Conditions:			
Core Storage:	**Mattabi core yard.**		
Downhole Survey:	**BPEM, Crone Geophysics**		
Comments:			

Depth From	To	Interval	Rock Type: Major Rock Code	Texture	Rock Name			Stra tigra		Alteration: Type & Intensity				Min erali: Sulphide Type	Sulphide %	Texture	Comments		
0.00	3.00	3.00	**OVB**																
3.00	53.00	50.00	**I2J**		Diorite														
53.00	87.14	34.14	**V2/V1**		Intermediate Volcanic														
87.14	142.90	55.76	**V1/V1B**		Felsic Volcanic (Rhyolite)														
142.90	182.83	39.93	**V2/V1C**		Intermediate Volcanic (Rhyodacite?)														
182.83	230.50	47.67	**V1B**		Rhyolite														
230.50	284.10	53.60	**V2/V2J**		Intermediate Volcanic (Andesite or														
284.10	371.40	87.30	**V1(V2?)**		Felsic (to intermediate?) Volcanic														
371.40	511.75	140.35	**V2/V2J**		Intermediate Volcanic (Andesite)														
511.75	529.35	17.60	**V1/V1B/V1C**		Rhyolite - Rhyodacite														
529.75	555.38	25.63	**V2/V2J**		Intermediate volcanic (Andesite)														
555.38	562.87	7.49	**V1/V1B/V1C**		Rhyolite - Rhyodacite														
562.87	580.83	17.96	**V1B**		Rhyolite														
580.83	589.80	8.97	**V1C/V1D**		Rhyodacite - Dacite														
589.80	598.05	8.25	**V1B**		Rhyolite														
598.05	606.65	8.60	**V1B**		Rhyolite Tuff														
606.65	652.50	45.85	**V1C/V1D**		Rhyodacite-Dacite Flow														
652.50	654.58	2.08	**V1D/V2J**		Dacite-Andesite														
654.58	676.85	22.27	**V1B/V1C**		Rhyolite Tuff - Rhyodacite														
676.85	679.50	2.65	**V1D/V2J**		Dacite-Andesite														

679.50	682.83	3.33	**V1C/V1D**		Rhyodacite-Dacite Flow														
682.83	689.14	6.31	**Mineralized Zone**		Rhyodacite-Dacite Flow														
689.14	692.70	3.56	**V1C/V1D**		Rhyodacite-Dacite Flow														
692.70	695.90	3.20	**I2J**		Diorite														
695.90	706.93	11.03	**V1C/V1D**		Rhyodacite-Dacite Flow														
706.93	712.60	5.67	**Mineralized Zone**		Rhyodacite-Dacite Flow														
712.60	715.25	2.65	**V1C/V1D**		Rhyodacite-Dacite Flow														
715.25	745.47	30.22	**V1B/V1C**		Rhyolite-Rhyodacite Ash Tuff														
745.47	778.89	33.42	**V1C**		Rhyodacite Tuff/Agglomerate														
778.89	799.65	20.76	**V1D/V2J**		Dacite-Andesite Lapilli Tuff														
799.65	867.30	67.65	**V1B**		Altered Rhyolite(?)														
867.30	875.00	7.70	**V1D/V2J**		Dacite-Andesite Lapilli Tuff														
	-	EOH	**EOH**									EOH							

Major Litho Log

HoleID	From_m	To_m	Length_m	MajorRockCode	MajorRockName	Comments
16-512	0.00	3.00	3.00	OVB	casing/overburden	
16-512	3.00	53.00	50.00	I2J	Diorite	Medium to dark green-grey; medium to locally fine grained; massive with locally weakly bedded sections of felsic tuff/flow - bedding at 30-50 degrees to C.A.; locally coarser grained feldspar altered to chlorite and sericite; occasional irregular and regu quartz-carbonate veinlets and fractures at variable core angles; rare pyrite - usually associated with qtz-carb veinlets; lower contact gradational and arbitrary due to intercalated felsic to intermediate volcanics
16-512	53.00	87.14	34.14	V2	Intermediate Volcanic (Dacite - Rhyolite?)	Medium to dark grey; fine to locally medium grained with local amygdules or crystals (crystal tuff?); predominantly massive to locally bedded at 45 degrees to core axis; locally moderately fractured - associated with more felsic-looking sections and increased sulphides; ~1% pyrrhotite > chalcopyrite - fine grained; disseminated; fracture-hosted and net-textured sulphides; locally associated with lighter grey-brown; more felsic-looking alteration(?); lower contact gradational/arbitrary due to intercala beds of felsic volcanics
16-512	87.14	142.90	55.76	V1(V1B)	Felsic Volcanic (Rhyolite?)	Light to medium grey; fine to very fine grained with local medium to coarse grained intervals; variably foliated to massive - foliation at 40-45 degrees to c.a. - becomes more massive downhole; hard; siliceous; occasional quartz and qtz-carb veins up to cm at variable core angles; local volcaniclastic/pyroclastic intervals up to 1-2 m (brecciated?); commonly exhibits intervals over several metres with up to 10% fine to medium grained (up to 2mm) mafic minerals; trace sulphides overall; predominantly as occasional seams of net-textured and semi-massive sulphides from ~1 cm up to 10-15 cm. Lower contact sharp and regular at 35 degrees to C.A.
16-512	142.90	182.83	39.93	V2(V1C)	Intermediate Volcanic (Rhyodacite?)	Medium grey; fine to medium grained; massive to locally weakly to moderately foliated/bedded at 35-45 degrees to C.A.; appears to be a pyroclastic (crystal/ash/lapilli tuff) with grains from 1-2mm and lapilli/clasts from 1 to 10cm; occasional beds/units of more felsic-looking material up to 1-2m; occasional quartz veins (+/-carb) usually 1-5cm; and irregular pods; occasional stringers and disseminations of Po > Py > Cpy - trace overall; up to 2-3% over 10 cm; lower contact sharp and regular at 45 degrees to C.A.
16-512	182.83	230.50	47.67	V1B	Rhyolite	Felsic volcanic - light grey; very fine to fine grained; texturally appears similar to above unit (i.e. pyroclastic; lapilli/crystal/ash tuff); hard; siliceous; weakly to moderately foliated at 30-45 degrees to C.A. to locally massive; occasional quartz veins - generally ~1cm; but up to 20cm; rare/trace sulphides as stringers of Po > Py > Cpy; lower contact sharp and sheared at 30 degrees to C.A.
16-512	230.50	284.10	53.60	V2/V2J	Intermediate Volcanic (Andesite? Dacite?)	Medium to dark grey; fine to very fine grained to locally medium grained with short intervals (<1m) of crystal tuff or amygdular flow; massive to bedded at 30-45 degrees to C.A.; rare quartz-carb fractures/veinlets; irregular and occasionally parallel to bedding; rare sulphide stringers parallel to bedding; Po > Py > Cpy; Last 1-2m exhibit occasional grey-white cherty beds at 30 degrees to C.A.; lower contact obscured by broken/blocky core (due to broken bit at 284m; that they had to drill through)
16-512	284.10	371.40	87.30	V1(V2?)	Felsic (to Intermediate?) Volcanic	Light to medium grey to grey-green; appears to be a pyroclastic; ash to crystal tuff; with fragments/crystals up to 4-5mm; generally 1-3mm; moderate pervasive chlorite throughout as medium grained elongated clots or wisps parallel to foliation; moder foliation at 45 degrees to C.A.; occasional qtz-carb veinlets commonly but not always parallel to foliation; occasional qtz-carb veinlets with chloritoid (?); trace pyrite usually in qtz-carb veinlets; lower contact sharp and regular at 45 degrees to C.A.
16-512	371.40	511.75	140.35	V2/V2J	Intermediate Volcanic (Andesite)	Dark grey (to locally medium grey); fine grained with occasional medium grains (up to 2-3mm) often sub-rounded - sometimes appear to be amygdules (quartz-phyric); but overall unit appears to be an ash tuff; commonly moderately bedded at 45-60 degrees to C.A. - also commonly massive; locally exhibits chloritic clots/wisps (up to 3mm) often; but not always; parallel to bedding; occasional qtz-carb (calcite) veinlets and fractures; irregular and regular; at variable core angles; rare white barren quartz veins up to ~10cm - crosscutting bedding; occasional chloritoid-bearing qtz-carb veinlets; unit exhibits patchy; weak; pervasive carbonate (calcite) - i.e. pervasive but weak carb over intervals of several metres; unit becomes more massive below ~460m; with only occasional; weak or vague bedding; trace pyrite; usually associated with quartz fractures/veinlets; lower contact sharp and irregular
16-512	511.75	529.35	17.60	V1/V1B/V1C	Felsic Volcanic (Rhyolite - Rhyodacite?)	Medium to light grey to green-grey; very fine to fine grained; generally massive - appears to be felsic irregular blobs or patches <1 m within a more intermediate host; with sharp to diffuse contacts between the two - lighter material may represent silicification or albitization(?) it tends to be harder; in several cases the lighter grey material appears to be bleaching/alteration halo in the along the margins of quartz-carbonate veinlets (carb is light brown in places - siderite?); darker; more intermediate material exhibits pervasive; moderate calcite; rare qtz-carb veinlets/fractures; trace fine grained disseminated and fracture pyrite; lower contact sharp and regular at 55 degrees to C.A.
16-512	529.35	555.38	26.03	V2/V2J	Intermediate Volcanic (Andesite)	As from 371.40 to 511.75 but more massive and less quartz-feldspar-phyric; locally weakly foliated (bedded?) at 50-60 degrees to C.A.; unit is becoming more fractured; with common irregular and regular qtz-carb fractures that occasionally approach a brecciated appearance over several cm; trace fracture-controlled pyrite; lower contact gradational
16-512	555.38	562.87	7.49	V1/V1B/V1C	Rhyolite-Rhyodacite	Similar to 511.75 to 529.35; but the lighter grey; more felsic-looking intervals are more distinctly bedded at 45 degrees to C.A.; the intermediate sections are massive; trace stringer and disseminated pyrite; lower contact sheared at 45 degrees to core axis
16-512	562.87	580.83	17.96	V1B	Rhyolite	Light grey with common darker grey bands and intervals; very fine to medium grained - quartz-phyric; with up to 5-10% blue and grey quartz eyes up to 4 mm in diameter; starting at 596.13 to lower contact; bedding (foliation?) moderate at 45-60 degr to C.A.; patchy weak calcite throughout; moderate sericite throughout; occasional intervals of stringer to net-textured Po > Py > Cpy - up to 30% over 0.5m; 1-2% overall for the unit. Lower contact sharp and regular at 60 degrees to C.A.
16-512	580.83	589.80	8.97	V1C/V1D	Rhyodacite-Dacite	Medium to locally light grey; fine grained; weakly to moderately bedded at 60 degrees to C.A.; occasional quartz (+/- calcite) fractures and veinlets; trace pyrite; lower contact sharp and regular at 45 degrees to C.A.
16-512	589.80	598.05	8.25	V1B	Rhyolite Flow	Quartz eye rhyolite; similar to 562.87 to 580.83; but not as sericitic or carbonatized - weakly sericitic and minor carb in veinlets; ~10% blue quartz eyes up to 3mm; moderate foliation at 45 degrees to C.A.; lower contact diffuse - determined by the abrupt disappearance of quartz eyes
16-512	598.05	606.65	8.60	V1B	Rhyolite Tuff	Light grey; fine grained; massive to weakly foliated/bedded at 60 degrees to C.A.; common pyrite + pyrrhotite seams; stringers up to several mm wide at variable core angles but most often at 60 degrees to C.A. - 0.5 to 1.0% overall; lower contact sharp and irregular
16-512	606.65	652.50	45.85	V1C/V1D	Rhyodacite-Dacite Flow	Medium grey-green; often in alternating intervals of grey and olive-green sections; fine grained; predominantly massive to locally weakly foliated at 45-60 degrees to C.A.; rare quartz (+/- carb) veins and irregular pods; very little carbonate detected; mainly in fractures that also exhibit green alteration haloes; trace fine grained pyrite and chalcopyrite; lower contact sharp and regular at 60 degrees to C.A.
16-512	652.50	654.58	2.08	V1D/V2J	Dacite-Andesite	Medium to dark green; medium to coarse grained with coarse almandine(?) garnets up to 7mm; weak to moderate foliation at 70 degrees to C.A.; occasional band of stringer to net-textured Po and Py up to 10cm wide; lower contact sharp and regular at 70 degrees to C.A.
16-512	654.58	676.85	22.27	V1B/V1C	Rhyolite Tuff - Rhyodacite	Similar to 598.05 to 606.65; but darker grey and more strongly foliated at 60 degrees to C.A.; locally weakly sericitic; local stringers of Po and Py - 0.5% overall; lower contact sharp and regular at 40 degrees to C.A.
16-512	676.85	679.50	2.65	V1D/V2J	Dacite-Andesite	As from 652.50 to 654.58 with 3-5% garnets up to 5mm; trace sulphides; lower contact sharp and regular at 60 degrees to C.A.
16-512	679.50	682.83	3.33	V1C/V1D	Rhyodacite-Dacite Flow	Medium grey to greenish grey; very fine to fine grained to locally coarse with coarse garnets as above; siliceous; hard; moderately foliated at 60 degrees to C.A.; rare irregular quartz and qtz-carb (calcite) fractures and veinlets; local sections with grey and blue quartz eyes; 1-2% stringer Py > Po overall; locally up to 30% over 1 - 1.5m; lower contact sharp and irregular
16-512	682.83	689.14	6.31	Mineralized Zone	Rhyodacite-Dacite Flow	Rhyodacite-Dacite Flow as above with variable sulphide mineralization as described below
16-512	689.14	692.70	3.56	V1C/V1D	Rhyodacite-Dacite Flow	Medium grey to greenish grey; very fine to fine grained to locally coarse with coarse garnets as above; siliceous; hard; moderately foliated at 60 degrees to C.A.; rare irregular quartz and qtz-carb (calcite) fractures and veinlets; local sections with grey and blue quartz eyes; 1-2% stringer Py > Po overall; locally up to 30% over 1 - 1.5m; lower contact sharp and irregular
16-512	692.70	695.90	3.20	I2J	Diorite	692.70 - 695.22: Diorite dyke; medium grey; medium grained; weak foliation at 70 degrees to C.A.; contacts sharp and regular at 70 degrees to C.A.
16-512	695.90	706.93	11.03	V1C/V1D	Rhyodacite-Dacite Flow	Rhyodacite-Dacite Flow as above with variable sulphide mineralization as described below

HoleID	From_m	To_m	Length_m	MajorRockCode	MajorRockName	Comments
16-512	706.93	712.60	5.67	Mineralized Zone	Rhyodacite-Dacite Flow	Rhyodacite-Dacite Flow as above with variable sulphide mineralization as described below
16-512	712.60	715.25	2.65	V1C/V1D	Rhyodacite-Dacite Flow	Rhyodacite-Dacite Flow
16-512	715.25	745.47	30.22	V1B/V1C	Rhyolite-Rhyodacite Ash Tuff	Light to medium grey; fine to very fine grained with local medium to coarse grains over narrow intervals (<1m) - usually garnets in more mafic (andesitic) sections; commonly bedded at 45-40 degrees to C.A.; local cherty beds; trace disseminated and stringer Py (Po); lower contact gradational
16-512	745.47	778.89	33.42	V1C	Rhyodacite Tuff/Agglomerate	Becoming darker grey; generally coarser grained and more chaotic-looking; locally resembles a lapilli tuff and is locally quartz- and feldspar-phyric; bedding still common but is more variable at 40-60 degrees to C.A. and is often folded/contorted/chaotic in appearance; common light grey; cherty beds; common chlorite-altered grains and wisps up to several mm; rare irregular quartz veinlets; carbonate weak to absent; 0.5-1.0% fine grained stringer and disseminated pyrite; lower contact gradational
16-512	778.89	799.65	20.76	V1D/V2J	Dacite-Andesite Lapilli Tuff	Dark grey-green; generally fine to medium grained matrix with up to 20% rounded light grey rhyolitic lapilli up to 4cm - occasionally with blue quartz eyes - matrix also contains blue quartz eyes; 0.5% blebs and scattered Po and Py down to ~791m; then increases to ~1-2%; lower contact sharp and irregular
16-512	799.65	867.30	67.65	V1B	Altered Rhyolite(?)	Light to medium grey; very fine grained to medium grained; with occasional quartz eyes (often blue) and chlorite-altered grains; appears to be strongly altered overall - primarily silicification; chlorite and sericite; with abundant chlorite seams and stringers at variable core angles (net-textured appearance) - locally looks like an in-situ breccia; occasional white; barren quartz veins from 1 to 5cm wide(+/- calcite); weak local calcite; 1-2% scattered; patchy; disseminated and stringer Py and Po; lower contact sharp and irregular
16-512	867.30	875.00	7.70	V1D/V2J	Dacite-Andesite Lapilli Tuff	Similar to 778.89 to 799.65 with fewer lapilli; and lapilli look like they could be amygdules up to 1.5cm in diameter (i.e. appear to exhibit vesicle-filling; with an outer zone of druzy calcite and centre of clear colourless quartz); still contains blue and grey quartz eyes; ~1% fine grained stringer Py > Po

Mineralization Log

HoleID	From_m	To_m	Length	Description
16-512	74.33	76.14	1.81	2-3% Po, cpy; predominantly stringers, blebs and net-textured - locally breccia-filling (breccia or volcaniclastic?)
16-512	87.14	91.3	4.16	5 to 6 seams, veins and blebs of semi-massive and net-textured Po > Cpy (1-2% overall)
16-512	101.76	101.8	0.05	several irregular seams, stringers and veinlets of net-textured Po > Cpy (~10% sulphides through intervals)
16-512	103.1	103.4	0.27	several irregular seams, stringers and veinlets of net-textured Po > Cpy (~10% sulphides through intervals)
16-512	113.41	113.8	0.4	2-3% blebs and disseminated Po > Cpy
16-512	223.6	224.5	0.9	3-5% stringer Po > Cpy
16-512	562.5	562.9	0.37	moderate breccia and shear with 2-3% stringer and coarse pyrite
16-512	567.9	569.1	1.23	3-5% stringer and net-textured Po > Py > Cpy (minor Cpy); occasional cherty bands of up to 5cm with fine rust-red bands (hematite?)
16-512	569.75	570.3	0.5	30% net-textured Po with minor Py - no Cpy observed
16-512	571.1	571.4	0.3	~10% Po and Py as above
16-512	572.87	573	0.13	30% stringer and net-textured Po, Py and Cpy - sulphides are ~50% Po, 30% Cpy and 20% Py
16-512	595.22	598.1	2.83	3-5% disseminated and stringer sulphides - mainly Po > Py, very little Cpy observed
16-512	598.55	599	0.4	10-15% stringer Po = Py
16-512	652.8	653	0.2	7-10% Net-textuted and stringer Po > Py
16-512	563.8	654	90.2	7-10% Net-textuted and stringer Po > Py
16-512	663.5	667.6	4.13	2-3% stringer Py and Po
16-512	682.83	683.6	0.72	7-10% Py, Po stringers
16-512	684.2	684.9	0.7	5-7% Py > Po stringers
16-512	685.6	687	1.4	30% Py > Po stringers and net-textured
16-512	687	689.1	2.14	2-3% Py > Po stringers
16-512	695.22	695.9	0.68	3-5% Py > Po stringers
16-512	696.83	697.7	0.87	3-5% Py > Po stringers
16-512	706.93	712.6	5.67	5-7% stringer, net-textured and semi-massive Py > Po
16-512	712.6	715.3	2.65	trace to 0.5% Py and Po stringers

Minor Litho Log

HoleID	From_m	To_m	Length_m	Description
16-512	215.3	227.8	12.5	Interval exhibits ~10 white; barren quartz veins; both irregular and occasionally parallel to foliation; from 2 to 20cm; interval is generally darker grey - rhyodacitic?
16-512	283.7	284.1	0.4	Breccia Zone; moderately brecciated cherty beds with quartz-carb breccia-filling and minor Py stringers; upper contact of breccia zone sharp at 45 degrees to C.A.
16-512	284	284.1	0.1	Broken/blocky/ground core due to broken bit - drillers had to drill through bit
16-512	457.76	457.89	0.13	weak to moderate breccia zone with quzrt-carbonate (calcite) cavity-filling; breccia zone at 50 degrees to C.A.
16-512	460.85	460.95	0.1	weak to moderate breccia zone with quzrt-carbonate (calcite) cavity-filling; breccia zone at 50 degrees to C.A.
16-512	492.4	492.45	0.05	minor quartz patch with a clast(?) or fragment ~1cm x 3cm that looks like jasper but its soft (cinnabar?)
16-512	523.7	524.5	0.8	moderately broken / blocky core
16-512	560.18	562.5	2.32	Interval is approximately 40% irregular white quartz veins/patches with ~10% carb in veining - most carb doesn't effervesce and a small omount is yellowish; vein containes 15-20% chlorite (?) as irregular partings; trace fine grained galena (?)
16-512	628.25	629.1	0.85	Intermediate to mafic dyke - medium-dark grey; fine grained; moderate foliation at 60 degrees to C.A.; upper contact irregular; lower at 45 degrees to C.A.
16-512	681.85	682.83	0.98	garnetiferous - as from 676.85 to 679.50 (andesitic?) grades into rest of unit
16-512	744.5	745.47	0.97	several moderately brecciated sections from 1 to 20cm wide; one breccia zone in the middle of the interval contains ~3-5% disseminated and stringer Po and Py

Lithogeochemical Samples

Hole ID	Sample Number	Lab	Certificate Number	AnalytyicalMethod	From_m	To_m	Length_m	Ag_ppm	Ba_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Dy_ppm	Er_ppm	Eu_ppm	Ga_ppm	Gd_ppm	Hf_ppm	Ho_ppm	La_ppm
16-512	I106001	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	20.00	20.30	0.30	<1	210	12.5	43.7	30	0.4	47	2.43	1.58	0.62	15.7	2.02	1.6	0.52	6.1
16-512	I106002	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	50.00	50.30	0.30	<1	116	14.9	32.9	30	0.57	54	3.09	2.07	0.69	16.3	2.52	1.8	0.67	7.1
16-512	I106003	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	79.40	79.70	0.30	<1	185	12.4	49.6	30	1.38	73	2.7	1.75	0.64	14.6	2.18	1.6	0.57	5.9
16-512	I106004	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	110.65	110.95	0.30	<1	221	35.3	23.9	20	1.08	43	2.42	1.37	0.96	18.6	2.77	4.2	0.47	18.1
16-512	I106005	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	139.70	140.00	0.30	<1	133	20.4	3.1	20	0.7	<5	1.35	0.7	0.65	16.9	1.68	3.2	0.24	10.8
16-512	I106006	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	179.73	180.03	0.30	<1	383	32.8	11	30	1.08	<5	1.75	1.06	0.68	17.2	2.32	4.7	0.35	16.4
16-512	I106007	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	199.36	199.66	0.30	<1	429	26	2.3	20	1.43	<5	1.42	0.74	0.61	17.9	1.86	3.6	0.25	13.6
16-512	I106008	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	229.69	230.00	0.31	<1	396	21.9	3.2	10	1.42	<5	1.32	0.73	0.51	15.3	1.74	3.2	0.25	11.4
16-512	I106009	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	259.67	260.00	0.33	<1	667	42	24.5	10	1.26	80	4.19	2.55	1.19	18.8	4.35	4.3	0.87	19.8
16-512	I106010	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	289.70	290.00	0.30	<1	279	36.3	33.5	230	1.14	6	3.05	1.92	1.05	15.1	3.53	2.7	0.65	15.6
16-512	I106011	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	319.70	320.00	0.30	<1	88.7	24.9	20.9	10	0.41	57	2.82	1.79	0.73	12.4	2.81	3	0.58	11.3
16-512	I106012	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	350.00	350.30	0.30	<1	148	25.9	45	440	0.75	39	2.51	1.53	0.86	14.1	2.73	1.9	0.5	11.2
16-512	I106013	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	380.40	380.70	0.30	<1	234	30.9	22.4	10	1.11	50	3.4	2.04	0.96	13	3.63	3.1	0.69	14.3
16-512	I106014	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	409.70	410.00	0.30	<1	208	51	31.8	10	1.62	69	5.62	3.46	1.55	19.2	5.62	4.5	1.16	23
16-512	I106015	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	440.00	440.30	0.30	<1	261	52.1	26.4	10	1.65	66	5.89	3.56	1.65	21.2	5.82	4.6	1.21	23.1
16-512	I106016	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	470.00	470.30	0.30	<1	237	53	21.9	10	1.12	39	5.6	3.36	1.67	21.2	5.79	4.6	1.12	23.5
16-512	I106017	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	500.00	500.30	0.30	<1	237	53.2	23.5	20	1.3	48	5.36	3.35	1.64	21.5	5.7	5	1.1	23.7
16-512	I106018	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	530.00	530.30	0.30	<1	200	54.1	26.4	10	1.18	72	5.72	3.42	1.7	19.7	5.93	4.5	1.14	23.9
16-512	I106019	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	559.70	560.00	0.30	<1	493	45.7	60.9	10	1.51	72	4.28	2.62	1.06	19.9	4.43	4.8	0.89	21.7
16-512	I106020	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	588.00	588.30	0.30	<1	314	42.3	19.5	190	3.49	123	3.54	2.12	1.16	20.1	3.72	3.8	0.72	20
16-512	I106021	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	620.00	620.30	0.30	<1	338	37.9	9.3	200	1.92	13	2.21	1.21	1.05	22	2.7	3.8	0.42	18.8
16-512	I106022	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	650.00	650.30	0.30	<1	127	34.4	17.8	180	0.88	9	3.23	2.09	0.95	18.3	3.2	3.8	0.65	16.1
16-512	I106023	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	680.00	680.30	0.30	<1	162.5	95.8	2.1	10	0.82	<5	9.08	5.59	1.94	19.9	9.48	9.9	1.85	44.8
16-512	I106024	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	723.00	723.30	0.30	<1	239	111.5	0.9	10	0.9	<5	6.64	3.69	1.7	18.6	8.66	9.5	1.24	52.9
16-512	I106025	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	760.00	760.30	0.30	<1	645	84.3	3.9	<10	0.55	22	9.02	5.86	1.61	18.8	8.63	10.6	1.88	37.1
16-512	I106026	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	790.00	790.30	0.30	<1	71.1	57.8	33.7	30	0.08	63	5.18	2.65	1.57	18.5	6.17	4.5	0.96	26.7
16-512	I106027	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	830.00	830.30	0.30	<1	427	123	2.9	10	0.35	12	11.8	7.38	2.67	21.1	13.4	12	2.45	52.6
16-512	I106028	ALS Minerals; Thunder Bay lab	TB10155380	Trace ME-MS81; Majors ME-ICP06	870.00	870.30	0.30	<1	76	47.7	12.3	30	0.16	29	4.39	2.48	1.39	20.3	4.76	4.2	0.85	22.9

Lithogeochm

Hole ID	Sample Number	Lu_ppm	Mo_ppm	Nb_ppm	Nd_ppm	Ni_ppm	Pb_ppm	Pr_ppm	Rb_ppm	Sm_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Tb_ppm	Th_ppm	Tl_ppm	Tm_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Yb_ppm	Zn_ppm	Zr_ppm	SiO2_%	Al2O3_%	Fe2O3_%	CaO_%	MgO_%
16-512	I106001	0.22	<2	2.3	7	45	<5	1.57	8.1	1.79	1	176	0.2	0.36	1.25	<0.5	0.24	1.41	235	1	13.5	1.46	70	58	49.6	14.1	9.19	10.6	4.25
16-512	I106002	0.32	<2	2.5	8.7	46	<5	1.92	11.1	2.23	1	162	0.3	0.46	1.38	<0.5	0.31	0.64	251	1	18.1	2.07	81	64	47.3	13.2	11.4	9.39	3.97
16-512	I106003	0.26	<2	2.4	7.3	82	<5	1.61	23.9	1.88	1	170.5	0.3	0.38	1.3	<0.5	0.27	0.42	209	1	15.1	1.69	91	60	47.3	13	8.62	10.25	5.21
16-512	I106004	0.2	2	6.4	15.3	38	8	3.97	43.3	2.8	1	248	0.6	0.41	3.97	<0.5	0.2	1.05	50	2	12.9	1.27	489	162	69.4	14.2	3.03	2.55	0.83
16-512	I106005	0.09	2	5.2	8.8	10	<5	2.24	37.4	1.63	1	134	0.5	0.24	2.57	<0.5	0.1	0.51	25	2	7	0.61	25	133	67.7	13.6	2.82	4.27	0.54
16-512	I106006	0.17	2	7.7	14.4	16	5	3.67	60.8	2.53	1	156	0.7	0.32	3.27	<0.5	0.17	0.87	47	2	9.2	1.01	56	191	70.8	12.95	3.6	2.14	0.87
16-512	I106007	0.1	<2	5	11.3	6	<5	2.91	68.2	2.03	1	148	0.6	0.27	2.62	<0.5	0.11	0.48	32	1	6.4	0.65	13	131	66.6	14.45	1.58	4.81	0.39
16-512	I106008	0.11	<2	4.4	9.8	7	<5	2.48	68.2	1.8	1	124	0.5	0.23	2.39	<0.5	0.11	0.81	17	1	6.4	0.72	18	119	71	13.55	2.07	1.91	0.65
16-512	I106009	0.39	<2	8.2	21.6	35	5	5.15	60.8	4.41	1	222	0.7	0.69	3.29	<0.5	0.39	0.75	152	1	23.2	2.45	249	174	53	13.8	13.35	4.26	3.19
16-512	I106010	0.29	<2	4.6	20.7	94	<5	4.72	34.9	3.91	1	270	0.4	0.53	2.31	<0.5	0.29	0.45	158	2	16.8	1.8	97	107	43.5	12.9	9.77	10.3	4.54
16-512	I106011	0.28	<2	5.6	13.3	38	<5	3.12	11.6	2.8	<1	90.1	0.5	0.45	2.22	<0.5	0.27	0.63	112	2	15.7	1.82	107	127	57.2	9.65	13.9	5.83	2.77
16-512	I106012	0.23	<2	3.2	14.7	202	<5	3.36	13.7	2.86	1	249	0.3	0.41	1.09	<0.5	0.22	0.24	141	1	13.3	1.45	86	72	44.3	13.9	10.2	10.35	5.47
16-512	I106013	0.3	<2	5.7	16.6	33	<5	3.85	33.2	3.48	1	154.5	0.5	0.57	2.27	<0.5	0.3	0.49	116	2	17	1.9	132	123	62	9.95	10.9	4.7	3.41
16-512	I106014	0.52	<2	9	27.4	32	5	6.39	27.3	5.44	1	206	0.7	0.89	2.44	<0.5	0.52	0.6	199	1	31.4	3.3	155	187	50.4	14.2	13.3	6	2.68
16-512	I106015	0.52	<2	9.5	28.7	27	6	6.63	36	5.75	2	226	0.7	0.93	2.63	<0.5	0.53	0.3	228	1	32.5	3.4	156	181	49.5	15.1	13.1	7.08	2.59
16-512	I106016	0.5	<2	9.4	28.9	23	<5	6.67	34.8	5.71	2	168	0.7	0.91	2.68	<0.5	0.51	0.46	225	1	30	3.22	96	190	55.2	15	12	5.62	1.67
16-512	I106017	0.48	<2	9.9	29	26	5	6.74	42.8	5.68	2	145.5	0.7	0.88	2.69	<0.5	0.49	0.46	216	1	29.5	3.08	92	205	57.1	15.45	12.05	4.48	1.5
16-512	I106018	0.49	<2	8.7	29.3	26	9	6.77	31.7	5.85	1	146	0.7	0.91	2.53	<0.5	0.51	0.4	202	6	29.7	3.18	125	180	55	14.2	13	6.02	1.84
16-512	I106019	0.4	<2	8.5	23.2	89	6	5.57	59.4	4.46	2	130.5	0.7	0.7	3.51	0.9	0.4	0.79	155	1	22.6	2.54	157	183	57.9	14.95	11.85	2.73	2.38
16-512	I106020	0.33	<2	6.6	19.9	54	12	4.97	76.7	3.7	1	95.3	0.6	0.58	2.77	1.2	0.33	0.51	151	1	18.6	2.05	116	154	61.4	17.55	7.87	3.5	1.42
16-512	I106021	0.14	<2	6.9	16.1	29	7	4.25	65.7	2.77	1	252	0.6	0.39	2.65	<0.5	0.18	0.56	139	1	11.3	0.99	24	159	65.8	18.45	2.06	4.08	0.77
16-512	I106022	0.33	<2	6.3	16.6	61	<5	4.06	45.7	3.26	1	122.5	0.5	0.53	2.4	<0.5	0.32	0.64	177	1	15.5	2.07	128	162	64.5	15.6	8.85	2.11	1.51
16-512	I106023	0.82	<2	19.9	47.9	10	5	11.65	45.1	9.58	3	126	1.5	1.48	7.64	<0.5	0.83	1.5	7	2	46.4	5.32	72	374	77	11.65	3.48	0.8	1.04
16-512	I106024	0.56	2	20	53.8	6	8	13.3	38.7	9.78	4	229	1.6	1.21	8.99	<0.5	0.55	1.04	<5	2	30.6	3.63	45	282	80.7	11.2	1.53	0.64	0.29
16-512	I106025	0.88	<2	21.5	41.5	8	<5	10.3	34.3	8.26	3	140.5	1.6	1.45	8.78	<0.5	0.9	1.69	5	3	51	5.7	71	390	77	10.9	4.2	0.77	1.42
16-512	I106026	0.4	<2	9.6	29.9	29	<5	7.03	2.5	6.05	1	120.5	0.7	0.92	3.05	<0.5	0.38	0.68	139	3	23.9	2.55	118	158	66.2	12.05	8.87	1.85	3.28
16-512	I106027	1.09	2	25.2	69.4	15	<5	16	25.7	14.3	3	195	1.8	2	8.26	<0.5	1.07	1.82	7	4	64.7	7.05	70	460	74.2	11.75	4.78	0.86	1.94
16-512	I106028	0.35	<2	7.3	23.9	37	9	5.67	3.9	4.7	1	167	0.6	0.74	3.67	<0.5	0.37	0.82	151	1	21.6	2.29	207	159	58.2	17.45	9.25	5.49	4.23

Lithogeochm

Hole ID	Sample Number	Na2O_%	K2O_%	Cr2O3_%	TiO2_%	MnO_%	P2O5_%	SrO_%	BaO_%	LOI_%	Total_%
16-512	I106001	2.32	0.27	<0.01	0.75	0.28	0.07	0.02	0.03	8.72	100
16-512	I106002	2.54	0.41	<0.01	0.77	0.25	0.08	0.02	0.01	11.3	100.5
16-512	I106003	1.66	0.94	<0.01	0.69	0.2	0.06	0.02	0.02	13.65	101.5
16-512	I106004	2.61	1.38	<0.01	0.45	0.04	0.1	0.03	0.03	2.9	97.6
16-512	I106005	4.72	1.28	<0.01	0.33	0.08	0.09	0.01	0.02	3.9	99.4
16-512	I106006	1.53	1.98	<0.01	0.5	0.07	0.13	0.02	0.05	2.9	97.5
16-512	I106007	0.72	3.44	<0.01	0.36	0.04	0.1	0.02	0.06	5.46	98
16-512	I106008	0.87	2.78	0.01	0.3	0.05	0.08	0.02	0.04	4.47	97.8
16-512	I106009	0.92	1.96	<0.01	0.99	0.18	0.17	0.03	0.08	6.77	98.7
16-512	I106010	2.01	1.1	0.02	0.86	0.2	0.19	0.03	0.03	14.15	99.6
16-512	I106011	0.63	0.39	<0.01	0.69	0.34	0.12	0.01	0.01	7.8	99.3
16-512	I106012	2	0.53	0.06	0.7	0.21	0.12	0.03	0.02	12.9	101
16-512	I106013	0.78	1.17	<0.01	0.71	0.24	0.16	0.02	0.03	5.39	99.5
16-512	I106014	3.16	0.74	<0.01	1.28	0.24	0.3	0.02	0.02	6.57	98.9
16-512	I106015	2.49	1.11	<0.01	1.37	0.25	0.31	0.02	0.03	6.09	99
16-512	I106016	3.16	1.14	<0.01	1.47	0.22	0.32	0.02	0.03	5.28	101
16-512	I106017	3.13	1.32	<0.01	1.51	0.19	0.33	0.02	0.03	1.99	99.1
16-512	I106018	2.31	0.88	<0.01	1.39	0.31	0.31	0.02	0.02	6.1	101.5
16-512	I106019	1.14	1.72	<0.01	1.05	0.14	0.14	0.01	0.06	6.29	100.5
16-512	I106020	0.71	2.98	0.02	0.81	0.14	0.17	0.01	0.04	2.99	99.6
16-512	I106021	2.21	2.61	0.02	0.85	0.03	0.15	0.03	0.04	2.8	99.9
16-512	I106022	0.7	2.08	0.02	0.74	0.19	0.06	0.01	0.02	2.89	99.3
16-512	I106023	0.89	1.58	<0.01	0.27	0.08	0.02	0.01	0.02	2.4	99.2
16-512	I106024	1.13	1.16	<0.01	0.28	0.05	0.07	0.03	0.03	2.79	99.9
16-512	I106025	0.21	1.18	<0.01	0.27	0.07	0.04	0.02	0.08	2.89	99.1
16-512	I106026	0.18	0.09	<0.01	0.88	0.13	0.23	0.01	0.01	4.48	98.3
16-512	I106027	0.21	0.92	<0.01	0.27	0.03	0.06	0.02	0.05	4.27	99.4
16-512	I106028	0.19	0.14	<0.01	0.88	0.2	0.2	0.02	0.01	2.7	99

Assays

HoleID	Sample Number	CertificateNumber	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag_ppm	Zn%_2	Au_ppm	Comments
16-512	E460501	TB10155381	87.00	88.00	1.00		0.024	<0.001	0.004	0.2			
16-512	E460502	TB10155381	88.00	89.00	1.00		0.021	<0.001	0.003	0.2			
16-512	E460503	TB10155381	89.00	90.00	1.00		0.016	0.001	0.004	0.2			
16-512	E460504	TB10155381	90.00	91.30	1.30		0.012	<0.001	0.005	0.2			
16-512	E460505	TB10155381	101.50	102.00	0.50		0.01	<0.001	0.003	0.2			
16-512	E460506	TB10155381	102.00	103.00	1.00		0.012	<0.001	0.004	0.2			
16-512	E460507	TB10155381	103.00	103.50	0.50		0.05	0.002	0.007	0.4			
16-512	E460508	TB10155381	114.50	115.00	0.50		0.065	<0.001	0.053	0.7			
16-512	E460509	TB10155381	223.60	224.60	1.00		0.075	<0.001	0.014	1.4			
16-512	E460510	TB10155381	567.70	568.50	0.80		0.013	<0.001	0.059	0.4			
16-512	E460511	TB10155381	568.50	569.30	0.80		0.013	<0.001	0.073	0.9			
16-512	E460512	TB10155381	569.30	570.30	1.00		0.03	0.001	0.042	0.9			
16-512	E460513	TB10155381	570.30	571.00	0.70		0.003	<0.001	0.004	0.3			
16-512	E460514	TB10155381	571.00	571.70	0.70		0.008	<0.001	0.004	0.5			
	E460515	TB10155381		Blank			0.004	<0.001	0.012	0.2			
16-512	E460516	TB10155381	571.70	572.70	1.00		0.007	<0.001	0.003	0.3			
16-512	E460517	TB10155381	572.70	573.20	0.50		0.173	<0.001	0.348	1.5			
16-512	E460518	TB10155381	595.00	596.00	1.00		0.001	<0.001	0.008	0.2			
16-512	E460519	TB10155381	596.00	597.00	1.00		0.004	<0.001	0.01	0.4			
16-512	E460520	TB10155381	597.00	598.05	1.05		<0.001	<0.001	0.013	0.2			
16-512	E460521	TB10155381	598.05	599.00	0.95		0.002	<0.001	0.003	<0.2			
16-512	E460522	TB10155381	652.50	653.50	1.00		0.012	<0.001	0.013	0.4			
16-512	E460523	TB10155381	653.50	654.60	1.10		0.003	<0.001	0.016	0.2			
16-512	E460524	TB10155381	682.83	683.80	0.97		0.003	<0.001	0.018	0.4			
	E460525	TB10155381		Standard			0.952	0.032	9.89	10.5	10.2	0.079	
16-512	E460526	TB10155381	683.80	685.30	1.50		0.002	<0.001	0.037	0.2			
16-512	E460527	TB10155381	685.30	686.30	1.00		0.002	0.001	0.024	0.6			
16-512	E460528	TB10155381	686.30	687.30	1.00		0.003	0.001	0.026	0.5			
16-512	E460529	TB10155381	687.30	688.30	1.00		0.001	<0.001	0.026	0.6			
16-512	E460530	TB10155381	688.30	689.30	1.00		<0.001	<0.001	0.014	0.2			
16-512	E460531	TB10155381	695.00	695.90	0.90		<0.001	0.001	0.008	0.3			
16-512	E460532	TB10155381	695.90	696.80	0.90		<0.001	<0.001	0.005	<0.2			
16-512	E460533	TB10155381	696.80	697.70	0.90		0.002	0.001	0.015	0.4			
16-512	E460534	TB10155381	705.90	706.90	1.00		<0.001	<0.001	0.011	<0.2			
16-512	E460535	TB10155381	706.90	708.50	1.60		0.001	0.001	0.008	0.4			
16-512	E460536	TB10155381	708.50	710.00	1.50		<0.001	<0.001	0.009	0.2			
16-512	E460537	TB10155381	710.00	711.50	1.50		<0.001	<0.001	0.009	0.6			
16-512	E460538	TB10155381	711.50	712.60	1.10		0.001	<0.001	0.013	0.4			
16-512	E460539	TB10155381	712.60	713.60	1.00		0.001	<0.001	0.014	0.2			
16-512	E460540	TB10155381	744.50	745.47	0.97		0.001	<0.001	0.012	0.2			
16-512	E460585	TB10164684	73.00	74.20	1.20		0.014	0.001	0.009	0.2			
16-512	E460586	TB10164684	74.20	75.20	1.00		0.01	0.001	0.005	<0.2			
16-512	E460587	TB10164684	75.20	76.20	1.00		0.03	<0.001	0.006	0.3			

HoleID	Sample Number	CertificateNumber	From_m	To_m	Length_m	RockCode	Cu %	Pb%	Zn %	Ag_ppm	Zn%_2	Au_ppm	Comments
16-512	E460588	TB10164684	76.20	77.20	1.00		0.009	0.001	0.011	0.2			
16-512	E460589	TB10164684	562.30	563.30	1.00		0.017	0.002	0.02	0.5			
16-512	E460590	TB10164684	563.30	564.50	1.20		0.002	0.001	0.011	0.3			
16-512	E460591	TB10164684	564.50	565.60	1.10		0.003	0.001	0.003	0.2			
16-512	E460592	TB10164684	565.60	566.70	1.10		0.003	0.001	0.003	<0.2			
16-512	E460593	TB10164684	566.70	567.70	1.00		0.003	0.001	0.004	0.2			
16-512	E460594	TB10164684	573.20	574.20	1.00		0.002	0.001	0.003	0.2			
16-512	E460595	TB10164684	599.00	600.00	1.00		0.001	0.001	0.006	0.3			
16-512	E460596	TB10164684	600.00	601.00	1.00		0.001	<0.001	0.003	0.3			
16-512	E460597	TB10164684	651.50	652.50	1.00		0.006	<0.001	0.004	0.2			
16-512	E460598	TB10164684	654.60	655.60	1.00		0.004	<0.001	0.004	<0.2			
16-512	E460599	TB10164684	662.50	663.50	1.00		0.003	<0.001	0.004	0.3			
	E460600	TB10164684		Standard			0.931	0.035	10	9.8	10.4	0.077	
16-512	E460601	TB10164684	663.50	664.50	1.00		0.008	0.001	0.017	0.3			
16-512	E460602	TB10164684	664.50	665.50	1.00		0.005	<0.001	0.004	0.2			
16-512	E460603	TB10164684	665.50	666.50	1.00		0.008	<0.001	0.005	0.3			
16-512	E460604	TB10164684	666.50	667.70	1.20		0.011	0.001	0.007	0.3			
16-512	E460605	TB10164684	667.70	668.70	1.00		0.002	<0.001	0.01	<0.2			
16-512	E460606	TB10164684	681.80	682.83	1.03		0.004	0.005	0.024	<0.2			
16-512	E460607	TB10164684	689.30	690.30	1.00		0.001	<0.001	0.007	0.2			
16-512	E460608	TB10164684	791.00	792.50	1.50		0.008	<0.001	0.013	<0.2			
16-512	E460609	TB10164684	792.50	794.00	1.50		0.004	<0.001	0.009	0.2			
16-512	E460610	TB10164684	794.00	795.50	1.50		0.003	0.001	0.011	0.2			
16-512	E460611	TB10164684	795.50	797.00	1.50		0.004	<0.001	0.01	0.2			
16-512	E460612	TB10164684	797.00	798.50	1.50		0.006	0.001	0.012	0.2			
16-512	E460613	TB10164684	798.50	799.65	1.15		0.006	0.001	0.013	0.3			
16-512	E460614	TB10164684	799.65	801.00	1.35		0.001	0.001	0.005	<0.2			
16-512	E460615	TB10164684	801.00	802.50	1.50		0.001	<0.001	0.007	<0.2			
16-512	E460616	TB10164684	802.50	804.00	1.50		<0.001	<0.001	0.005	<0.2			
16-512	E460617	TB10164684	804.00	805.50	1.50		<0.001	<0.001	0.008	<0.2			
16-512	E460618	TB10164684	805.50	807.00	1.50		<0.001	<0.001	0.009	0.2			
16-512	E460619	TB10164684	807.00	808.50	1.50		<0.001	<0.001	0.009	0.2			
16-512	E460620	TB10164684	808.50	810.00	1.50		0.001	<0.001	0.011	<0.2			
16-512	E460621	TB10164684	810.00	811.50	1.50		<0.001	<0.001	0.01	<0.2			
16-512	E460622	TB10164684	811.50	813.00	1.50		<0.001	<0.001	0.007	<0.2			
16-512	E460623	TB10164684	866.00	867.30	1.30		0.002	0.001	0.01	0.3			
16-512	E460624	TB10164684	867.30	868.80	1.50		0.006	0.001	0.013	<0.2			
16-512	E460625	TB10164684	868.80	870.00	1.20		0.003	0.001	0.014	<0.2			No standard at E460625 - ran out of standards
16-512	E460626	TB10164684	870.30	871.80	1.50		0.004	0.001	0.012	0.2			Whole rock sample from 870.0 to 870.30
16-512	E460627	TB10164684	871.80	873.30	1.50		0.005	<0.001	0.01	0.2			
16-512	E460628	TB10164684	873.30	874.30	1.00		0.005	0.001	0.01	0.2			
16-512	E460629	TB10164684	874.30	875.00	0.70		0.004	<0.001	0.009	0.2			

Downhole Deviation

Hole ID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
16-512	Reflex	27-Sep-10	14	66.9	182.2	5819	No correction	Initial azimuth was supposed to be 174 degrees, but was set using 2 degree west declination (i.e. 176); declination should have been ignored because holes were planned using UTM north instead of True north, and UTM north is almost identical to magnetic north
16-512	Reflex	27-Sep-10	44	66.1	184.2	5708		
16-512	Reflex	28-Sep-10	74	65.7	182.3	5758		
16-512	Reflex	28-Sep-10	104	65.4	182.9	5767		
16-512	Reflex	28-Sep-10	134	64.2	181.8	5760		
16-512	Reflex	29-Sep-10	164	63.3	182.1	5764		
16-512	Reflex	29-Sep-10	194	62.3	182.9	5768		
16-512	Reflex	30-Sep-10	224	61.2	180.8	5763		
16-512	Reflex	30-Sep-10	254	60.4	181.0	5759		
16-512	Reflex	2-Oct-10	284	58.9	11.6	5040		broken bit (i.e. pieces of steel) stuck in hole
16-512	Reflex	3-Oct-10	314	58.3	180.2	5739		
16-512	Reflex	3-Oct-10	344	57.7	180.9	5746		
16-512	Reflex	4-Oct-10	374	56.7	180.5	5731		
16-512	Reflex	4-Oct-10	404	56.2	176.0	5953		high mag field reading?
16-512	Reflex	4-Oct-10	434	55.6	181.4	5724		azimuth back to normal
16-512	Reflex	5-Oct-10	464	55.1	181.8	5739		
16-512	Reflex	5-Oct-10	494	54.3	183.9	5736		
16-512	Reflex	6-Oct-10	524	53.7	182.8	5697		
16-512	Reflex	6-Oct-10	554	53.3	183.9	5723		
16-512	Reflex	7-Oct-10	584	52.5	184.8	5720		
16-512	Reflex	8-Oct-10	614	51.9	186.2	5724		
16-512	Reflex	8-Oct-10	644	51.9	187.7	5685		
16-512	Reflex	9-Oct-10	674	51.7	189.6	6070		
16-512	Reflex	10-Oct-10	704	50.5	185.7	5613		
16-512	Reflex	10-Oct-10	734	48.6	185.5	5677		
16-512	Reflex	11-Oct-10	764	48.4	187.8	5925		
16-512	Reflex	12-Oct-10	794	47.6	191.0	5869		
16-512	Reflex	12-Oct-10	824	47.4	192.1	5865		
16-512	Reflex	13-Oct-10	854	46.7	193.3	5867		
16-512	Reflex	14-Oct-10	875	46.5	194.8	5880		

Magnetic Susceptibility

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	5.00	0.677	11cm
16-512	8.00	8.508	12cm
16-512	11.00	66.12	12cm
16-512	14.00	84.39	15cm
16-512	17.00	13.19	16cm
16-512	20.00	8.334	15cm
16-512	23.00	20.31	14cm
16-512	26.00	18.63	15cm
16-512	29.00	173.2	15cm
16-512	32.00	79.3	19cm
16-512	35.00	4.173	16cm
16-512	38.00	42.55	14cm
16-512	41.00	18.43	14cm
16-512	44.00	3.455	12cm
16-512	47.00	0.846	13cm
16-512	50.00	16.34	13cm
16-512	53.00	9.819	20cm
16-512	56.00	12.54	13cm
16-512	59.00	7.113	16cm
16-512	62.00	24.57	13cm
16-512	65.00	0.269	12cm
16-512	68.00	8.98	13cm
16-512	71.00	0.934	15cm
16-512	74.00	24.75	17cm
16-512	77.00	0.735	14cm
16-512	80.00	0.437	14cm
16-512	83.00	0.532	15cm
16-512	86.00	0.639	12cm
16-512	89.00	0.303	13cm
16-512	92.00	0.057	19cm
16-512	95.00	0.743	16cm
16-512	98.00	0.025	11cm
16-512	101.00	0.064	14cm
16-512	104.00	0.011	18cm
16-512	107.00	0.011	17cm
16-512	110.00	0.02	11cm
16-512	113.00	0.719	18cm
16-512	116.00	0.017	14cm
16-512	119.00	0.079	12cm
16-512	122.00	9.346	14cm
16-512	125.00	0.004	11cm
16-512	128.00	1.6	17cm
16-512	131.00	0.907	12cm
16-512	134.00	0.01	17cm
16-512	137.00	0.327	17cm
16-512	140.00	0.046	15cm
16-512	142.00	0.029	15cm
16-512	143.00	2.634	11cm
16-512	144.50	0.738	20cm
16-512	146.00	0.013	17cm
16-512	147.50	0.02	19cm
16-512	149.00	0.028	13cm
16-512	150.50	0.928	13cm
16-512	152.00	0.035	13cm
16-512	153.50	0.358	11cm
16-512	155.00	1.167	18cm
16-512	156.50	0.063	17cm
16-512	158.00	0.488	14cm
16-512	159.50	0.043	19cm
16-512	161.00	0.372	15cm
16-512	162.50	0.424	12cm
16-512	164.00	0.456	17cm
16-512	165.50	0.075	16cm
16-512	167.00	4.94	12cm
16-512	168.50	0.283	18cm
16-512	170.00	0.005	16cm
16-512	171.50	0.207	18cm
16-512	173.00	0.037	16cm
16-512	174.50	0.285	11cm
16-512	176.00	0.298	18cm
16-512	177.50	0.009	14cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	179.00	1.403	14cm
16-512	180.50	1.631	16cm
16-512	182.00	0.485	16cm
16-512	183.50	0.016	15cm
16-512	185.00	0.018	15cm
16-512	186.50	0.007	15cm
16-512	188.00	0.039	15cm
16-512	189.50	0.046	17cm
16-512	191.00	0.01	16cm
16-512	192.50	-0.005	15cm
16-512	194.00	-0.014	13cm
16-512	195.50	0.013	14cm
16-512	197.00	-0.008	17cm
16-512	198.50	-0.001	16cm
16-512	200.00	0	13cm
16-512	201.50	0.013	14cm
16-512	203.00	0.017	15cm
16-512	204.50	0.003	11cm
16-512	206.00	-0.016	13cm
16-512	207.50	0.002	16cm
16-512	209.00	0.011	14cm
16-512	210.50	0.019	13cm
16-512	212.00	0.007	15cm
16-512	213.50	0.012	14cm
16-512	215.00	0.003	11cm
16-512	216.50	0.017	16cm
16-512	218.00	0.088	11cm
16-512	219.50	0.197	13cm
16-512	221.00	0.318	15cm
16-512	222.50	0.316	13cm
16-512	224.00	1.397	11cm
16-512	225.50	0.056	15cm
16-512	227.00	0.047	12cm
16-512	228.50	0.073	14cm
16-512	230.00	0.042	14cm
16-512	231.50	0.882	16cm
16-512	233.00	0.646	16cm
16-512	234.50	0.753	12cm
16-512	236.00	1.161	14cm
16-512	237.50	1.43	18cm
16-512	239.00	0.893	15cm
16-512	240.50	1.547	13cm
16-512	242.00	0.504	19cm
16-512	243.50	1.281	15cm
16-512	245.00	1.094	18cm
16-512	246.50	0.636	16cm
16-512	248.00	1.486	16cm
16-512	249.50	0.719	18cm
16-512	251.00	2.136	17cm
16-512	252.50	3.989	18cm
16-512	254.00	2.205	14cm
16-512	255.50	0.35	17cm
16-512	257.00	1.338	18cm
16-512	258.50	1.845	18cm
16-512	260.00	2.136	12cm
16-512	261.50	0.534	16cm
16-512	263.00	0.517	12cm
16-512	264.50	1.306	15cm
16-512	266.00	1.444	14cm
16-512	267.50	0.719	15cm
16-512	269.00	0.78	14cm
16-512	270.50	0.407	14cm
16-512	272.00	1.511	13cm
16-512	273.50	3.465	19cm
16-512	275.00	0.341	15cm
16-512	276.50	0.687	13cm
16-512	278.00	0.815	18cm
16-512	279.50	1.71	13cm
16-512	281.00	0.031	15cm
16-512	282.50	0.642	19cm
16-512	284.00	0.595	11cm
16-512	285.50	0.389	15cm
16-512	287.00	0.364	13cm
16-512	288.50	0.689	14cm
16-512	290.00	0.385	19cm
16-512	291.50	6.197	18cm
16-512	293.00	94.64	16cm
16-512	294.50	2.111	12cm
16-512	296.00	73.02	12cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	297.50	0.34	12cm
16-512	299.00	9.558	14cm
16-512	300.50	12.63	11cm
16-512	302.00	19.5	10cm
16-512	303.50	12.62	14cm
16-512	305.00	23.63	12cm
16-512	306.50	2.706	14cm
16-512	308.00	0.367	13cm
16-512	309.50	0.428	14cm
16-512	311.00	0.454	15cm
16-512	312.50	4.857	12cm
16-512	314.00	0.349	15cm
16-512	315.50	0.34	15cm
16-512	317.00	0.392	18cm
16-512	318.50	16.55	16cm
16-512	320.00	1.516	12cm
16-512	321.50	10.35	13cm
16-512	323.00	0.28	16cm
16-512	324.50	0.855	14cm
16-512	326.00	0.317	13cm
16-512	327.50	0.291	17cm
16-512	329.00	6.685	12cm
16-512	330.50	0.54	14cm
16-512	332.00	0.401	17cm
16-512	333.50	7.988	19cm
16-512	335.00	1.729	17cm
16-512	336.50	14.02	14cm
16-512	338.00	11.17	16cm
16-512	339.50	7.614	12cm
16-512	341.00	2.133	13cm
16-512	342.50	1.554	15cm
16-512	344.00	1.027	13cm
16-512	345.50	4.651	16cm
16-512	347.00	2.778	20cm
16-512	348.50	5.362	16cm
16-512	350.00	12.82	14cm
16-512	351.50	3.244	11cm
16-512	353.00	41.76	13cm
16-512	354.50	2.338	14cm
16-512	356.00	1.946	14cm
16-512	357.50	15.38	13cm
16-512	359.00	7.027	15cm
16-512	360.50	25.58	14cm
16-512	362.00	21.59	10cm
16-512	363.50	21.08	12cm
16-512	365.00	8.796	13cm
16-512	366.50	0.395	13cm
16-512	368.00	0.392	18cm
16-512	369.50	0.504	11cm
16-512	371.00	0.739	12cm
16-512	372.50	0.052	15cm
16-512	374.00	0.422	12cm
16-512	375.50	0.436	13cm
16-512	377.00	0.89	18cm
16-512	378.50	0.37	15cm
16-512	380.00	0.367	13cm
16-512	381.50	0.765	11cm
16-512	383.00	0.501	10cm
16-512	384.50	0.621	12cm
16-512	386.00	0.578	16cm
16-512	387.50	0.591	11cm
16-512	389.00	0.668	13cm
16-512	390.50	2.422	11cm
16-512	392.00	1.287	18cm
16-512	393.50	23.79	10cm
16-512	395.00	12.55	16cm
16-512	396.50	4.229	18cm
16-512	398.00	10.86	14cm
16-512	399.50	1.889	13cm
16-512	401.00	11.44	15cm
16-512	402.50	40.9	15cm
16-512	404.00	2.527	17cm
16-512	405.50	35.03	14cm
16-512	407.00	1.334	13cm
16-512	408.50	1.957	14cm
16-512	410.00	18.97	12cm
16-512	411.50	1.528	17cm
16-512	413.00	2.403	13cm
16-512	414.50	1.381	10cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	416.00	1.084	11cm
16-512	417.50	0.654	14cm
16-512	419.00	5.914	15cm
16-512	422.00	29.23	13cm
16-512	423.50	1.204	12cm
16-512	425.00	24.05	13cm
16-512	426.50	24.89	13cm
16-512	428.00	29.78	12cm
16-512	429.50	19.02	17cm
16-512	431.00	1.966	15cm
16-512	432.50	0.933	16cm
16-512	434.00	0.752	10cm
16-512	435.50	0.681	17cm
16-512	437.00	28.55	15cm
16-512	438.50	51.16	16cm
16-512	440.00	1.016	13cm
16-512	441.50	53.2	10cm
16-512	443.00	15.79	16cm
16-512	444.50	0.772	14cm
16-512	446.00	3.116	18cm
16-512	447.50	3.493	13cm
16-512	449.00	26.7	14cm
16-512	450.50	74.42	13cm
16-512	452.00	5.695	15cm
16-512	453.50	55.85	10cm
16-512	455.00	3.542	16cm
16-512	456.50	19.04	10cm
16-512	458.00	0.665	17cm
16-512	459.50	1.43	16cm
16-512	461.00	1.004	11cm
16-512	462.50	0.823	14cm
16-512	464.00	16.73	13cm
16-512	465.50	7.306	15cm
16-512	467.00	0.892	12cm
16-512	468.50	0.77	19cm
16-512	470.00	22.75	13cm
16-512	471.50	7.328	17cm
16-512	473.00	15.15	18cm
16-512	474.50	23.35	14cm
16-512	476.00	116.3	15cm
16-512	477.50	1.932	16cm
16-512	479.00	0.934	11cm
16-512	480.50	10.05	17cm
16-512	482.00	4.317	13cm
16-512	483.50	5.251	13cm
16-512	485.00	0.607	15cm
16-512	486.50	0.539	10cm
16-512	488.00	19.45	10cm
16-512	489.50	8.661	11cm
16-512	491.00	5.619	16cm
16-512	492.50	1.595	10cm
16-512	494.00	0.677	19cm
16-512	495.50	0.423	16cm
16-512	497.00	0.626	11cm
16-512	498.50	1.253	12cm
16-512	500.00	24.94	13cm
16-512	501.50	25.76	16cm
16-512	503.00	6.173	10cm
16-512	504.50	5.765	17cm
16-512	506.00	1.674	11cm
16-512	507.50	0.625	13cm
16-512	509.00	0.611	12cm
16-512	510.50	0.521	15cm
16-512	512.00	0.019	11cm
16-512	513.50	0.774	12cm
16-512	515.00	0.431	10cm
16-512	516.50	0.496	14cm
16-512	518.00	0.741	10cm
16-512	519.50	0.324	14cm
16-512	521.00	0.468	13cm
16-512	522.50	0.761	12cm
16-512	524.00	0.531	8cm
16-512	525.50	1.636	11cm
16-512	527.00	0.077	7cm
16-512	528.50	0.082	13cm
16-512	530.00	1.85	10cm
16-512	531.50	2.389	12cm
16-512	533.00	0.719	13cm
16-512	534.50	0.659	12cm

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	536.00	0.768	9cm
16-512	537.50	0.63	11cm
16-512	539.00	0.608	16cm
16-512	540.50	0.552	15cm
16-512	542.00	0.603	13cm
16-512	543.50	0.793	12cm
16-512	545.00	0.675	11cm
16-512	546.50	0.556	13cm
16-512	548.00	0.658	12cm
16-512	549.50	0.608	11cm
16-512	551.00	0.692	10cm
16-512	552.50	0.602	14cm
16-512	554.00	0.554	14cm
16-512	555.50	0.537	13cm
16-512	557.00	0.699	15cm
16-512	558.50	0.436	12cm
16-512	560.00	0.728	13cm
16-512	561.50	0.617	13cm
16-512	563.00	0.044	10cm
16-512	564.50	0.2	8cm
16-512	566.00	0.877	17cm
16-512	567.50	2.991	12cm
16-512	569.00	122.9	17cm
16-512	570.50	2.088	11cm
16-512	572.00	0.57	13cm
16-512	573.50	4.78	16cm
16-512	575.00	0.289	10cm
16-512	576.50	0.407	13cm
16-512	578.00	0.428	15cm
16-512	579.50	2.392	19cm
16-512	581.00	0.128	11cm
16-512	582.50	0.085	17cm
16-512	584.00	0.085	14cm
16-512	585.50	0.027	12cm
16-512	587.00	0.444	13cm
16-512	588.50	0.495	14cm
16-512	590.00	0.061	15cm
16-512	591.50	0.009	15cm
16-512	593.00	0.053	15cm
16-512	594.50	0.001	12cm
16-512	596.00	1.093	13cm
16-512	597.50	1.287	11cm
16-512	599.00	1.882	9cm
16-512	600.50	0.645	14cm
16-512	602.00	0.182	Stopped measuring core length on instructions from Xstrata Geophysicist
16-512	603.50	0.463	
16-512	605.00	0.699	
16-512	606.50	0.395	
16-512	608.00	0.679	
16-512	609.50	0.009	
16-512	611.00	0.289	
16-512	612.50	0.036	
16-512	614.00	0.042	
16-512	615.50	-0.031	
16-512	617.00	0.027	
16-512	618.50	0.028	
16-512	620.00	3.753	
16-512	621.50	-0.741	
16-512	623.00	-0.492	
16-512	624.50	-0.341	
16-512	626.00	-0.03	
16-512	627.50	-0.015	
16-512	629.00	0.161	
16-512	630.50	-0.013	
16-512	632.00	-0.004	
16-512	633.50	0.033	
16-512	635.00	0.033	
16-512	636.50	0.003	
16-512	638.00	0.019	
16-512	639.50	0.07	
16-512	641.00	0.284	
16-512	642.50	0.316	
16-512	644.00	0.007	
16-512	645.50	0	
16-512	647.00	1.483	
16-512	648.50	21.22	
16-512	650.00	2.137	
16-512	651.50	3.319	
16-512	653.00	77.27	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	654.50	9.037	
16-512	656.00	0.483	
16-512	657.50	0.442	
16-512	659.00	0.097	
16-512	660.50	0.162	
16-512	662.00	1.974	
16-512	663.50	89.84	
16-512	665.00	6.923	
16-512	666.50	0.949	
16-512	668.00	41.89	
16-512	669.50	0.523	
16-512	671.00	0.439	
16-512	672.50	-0.763	
16-512	674.00	-0.633	
16-512	675.50	0.069	
16-512	677.00	266.8	
16-512	678.50	14.25	
16-512	680.00	1.53	
16-512	681.50	0.096	
16-512	683.00	5.854	
16-512	684.50	4.991	
16-512	686.00	2.19	
16-512	687.50	4.679	
16-512	689.00	5.015	
16-512	690.50	0.485	
16-512	692.00	0.131	
16-512	693.50	0.285	
16-512	695.00	0.101	
16-512	696.50	1.018	
16-512	698.00	1.856	
16-512	699.50	107.5	
16-512	701.00	0.115	
16-512	702.50	0.042	
16-512	704.00	317	
16-512	705.50	0.107	
16-512	707.00	4.819	
16-512	708.50	26.03	
16-512	710.00	5.514	
16-512	711.50	3.87	
16-512	713.00	4.43	
16-512	714.50	6.478	
16-512	716.00	2.348	
16-512	717.50	106.9	
16-512	719.00	1.604	
16-512	720.50	3.625	
16-512	722.00	0.132	
16-512	723.50	0.495	
16-512	725.00	0.295	
16-512	726.50	0.717	
16-512	728.00	0.379	
16-512	729.50	0.005	
16-512	731.00	0.127	
16-512	732.50	0.059	
16-512	734.00	0.411	
16-512	735.50	0.421	
16-512	737.00	0.433	
16-512	738.50	0.063	
16-512	740.00	0.069	
16-512	741.50	-0.825	
16-512	743.00	0.131	
16-512	744.50	3.932	
16-512	746.00	0.642	
16-512	747.50	0.06	
16-512	749.00	0.281	
16-512	750.50	0.045	
16-512	752.00	0.479	
16-512	753.50	0.543	
16-512	755.00	0.36	
16-512	756.50	0.541	
16-512	758.00	0.106	
16-512	759.50	0.056	
16-512	761.00	0.468	
16-512	762.50	0.618	
16-512	764.00	0.506	
16-512	765.50	-0.45	
16-512	767.00	0.116	
16-512	768.50	0.023	
16-512	770.00	0.019	
16-512	771.50	0.144	

HoleID	Depth_m	Mag. Sus. Reading	Comments
16-512	773.00	0.06	
16-512	774.50	0.151	
16-512	776.00	0.134	
16-512	777.50	0.026	
16-512	779.00	0.862	
16-512	780.50	0.295	
16-512	782.00	0.847	
16-512	783.50	1.059	
16-512	785.00	3.308	
16-512	786.50	0.987	
16-512	788.00	-0.396	
16-512	789.50	0.051	
16-512	791.00	1.534	
16-512	792.50	3.446	
16-512	794.00	2.435	
16-512	795.50	23.62	
16-512	797.00	91.96	
16-512	798.50	8.408	
16-512	800.00	12.28	
16-512	801.50	2.054	
16-512	803.00	0.088	
16-512	804.50	0.068	
16-512	806.00	0.352	
16-512	807.50	0.491	
16-512	809.00	0.188	
16-512	810.50	0.295	
16-512	812.00	-0.044	
16-512	813.50	-0.007	
16-512	815.00	-0.041	
16-512	816.50	-0.014	
16-512	818.00	-0.001	
16-512	819.50	0.117	
16-512	821.00	0.059	
16-512	822.50	-0.003	
16-512	824.00	0.048	
16-512	825.50	0.031	
16-512	827.00	-0.01	
16-512	828.50	0.067	
16-512	830.00	0.104	
16-512	831.50	0.069	
16-512	833.00	-0.01	
16-512	834.50	0.048	
16-512	836.00	0.109	
16-512	837.50	0.008	
16-512	839.00	0.647	
16-512	840.50	0.021	
16-512	842.00	0.007	
16-512	843.50	0.025	
16-512	845.00	-0.328	
16-512	846.50	0.507	
16-512	848.00	0.966	
16-512	849.50	0.03	
16-512	851.00	0.115	
16-512	852.50	0.268	
16-512	854.00	0.29	
16-512	855.50	0.024	
16-512	857.00	0.015	
16-512	858.50	0.033	
16-512	860.00	0.023	
16-512	861.50	0.24	
16-512	863.00	0.615	
16-512	864.50	4.673	
16-512	866.00	20.22	
16-512	867.50	8.066	
16-512	869.00	18.65	
16-512	870.50	18.61	
16-512	872.00	2.371	
16-512	873.50	0.927	
16-512	875.00	0.689	

Xstrata Zinc Canada

Summary Geological Log

HOLE DESCRIPTION		HOLE LOCATION				HOLE ORIENTATION	
HOLE NO:	WS-11-32	GRID:	No grid	DATUM:	NAD 83	AZIMUTH:	360.0
LOGGED BY:	D.Cullen	NORTHING:	NA	ZONE:	15	DIP:	-55.0
START DATE:	2-Apr-11	EASTING:	NA	UTM Northing:	5525280	FINAL DEPTH (m):	402.00
FINISH DATE:	6-Apr-11	ELEVATION:	NA	UTM Easting:	638940	CORE SIZE:	BQ
		Casing (m):	9.00	UTM Elevation:		Magnetic Declination:	N/A

Target:

Township: NTS: 52G15

Drill Contractor: Major Drilling, Val D'Or branch **Cement:** No **Casing:** 9m

Material Left in Hole: Casing. Cap. **Plug:** No

Core Recovery and Ground Conditions:

Core Storage: Mattabi core yard.

Downhole Survey:

Comments:

Depth			Rock Type		Stratigraphy	Alteration	Mineralization	Comments
From	To	Interval	Major Rock Code	Rock Name				
0.00	9.00	9.00	**OVB**	Casing/Overburden				
9.00	150.30	141.30	**V3, V2**	Mafic to Intermediate Pyroclastic	3b?	weak to moderate chlorite		
150.30	217.20	66.90	**V1 (V2)**	Felsic - Intermediate Pyroclastic	3b?	weak to moderate chlorite		
217.20	337.00	119.80	**V2**	Intermediate Tuff	3b?	moderate chlorite		
337.00	354.28	17.28	V1B	Rhyolite	3b?	weak chlorite		
354.28	402.40	48.12	V2	Intermediate Tuff	3b?	moderate chlorite		
	-	EOH	**EOH**			EOH		

Hole ID	From_m	To_m	Length_m	Major Rock Code	Major Rock Name	Major Texture 1	Major Texture 2	Comments
WS-32	0.00	9.00	9.00	OVB	casing/overburden			
WS-32	9.00	150.30	141.30	V3, V2	Mafic to Intermediate Pyroclastic	Pyr	Lap	Looks like a mafic-intermediate lapilli-ash tuff; medium green-grey; fine grained, with common elongated lapilli up to several cm from light to dark grey green; moderate foliation at 30-40 degrees to c.a., becoming stronger and 45-50 degrees to c.a. below about 80m; common rounded to elongated feldspar-quartz(?)-carbonate (effervesces in HCL) clasts/lapilli/pods up to 2-3cm, often exhibiting strain shadows, pink to buff to white in colour - possibly locally hematite altered?; felsic clasts drop off to none by 124m; moderately to weakly magnetic down to 87m, with fine grained disseminated magnetite; weakly to moderately chloritic throughout; trace pyrite overall, usually in rare bands of disseminated medium-grained pyrite up to 25-30% over 1-2cm; lower contact gradational
WS-32	150.30	217.20	66.90	V1 (V2)	Felsic - Intermediate Pyroclastic	Pyr	Lap	Similar to above unit but lighter green-grey; common felsic lapilli, occasionally light pinkish (hematite alteration?), predominantly 1-3cm, up to 5-6cm and elongated parallel to foliation; moderate foliation at 45 degrees to c.a.; lapilli boundaries often appear diffuse; weak to moderate chlorite, throughout matrix and as local seams, wisps and clots; occasional quartz-carb veins and patches regular, parallel to foliation and irregular; trace disseminated and stringer pyrite; lower contact gradational
WS-32	217.20	337.00	119.80	V2	Intermediate Tuff	Fol	Lap	Medium green-grey; fine grained; moderate foliation at 45 degrees to c.a.; gradational from above unit, distinguished from it by a sharp decrease in lapilli and it appears more mafic; still some lapilli, but fewer, local, and generally smaller; moderate chlorite throughout matrix as wisps and seams, and locally as clots; rare quartz-carbonate veinlets generally less than 1cm; trace disseminated and stringer pyrite, with trace chalcopyrite, locally up to 0.5-1% py over 7m;
WS-32	337.00	354.28	17.28	V1B	Rhyolite	Fol		Light to locally medium grey; fine grained; massive to weakly foliated at 45 degrees to c.a.; moderate sericite; local sections of chlorite clots up to 2-3mm, often wispy; also exhibits vague, diffuse light grey-whitish blebs 2-3mm - possibly altered amygdules; trace pyrite overall - locally 1-2% over 3m lower contact somewhat gradational at 45 degrees
WS-32	354.28	402.40	48.12	V2	Intermediate Tuff	Fol	Lap	As from 217.20 to 337.00 but with more lapilli - up to ~20-25% medium to light grey lapilli generally 2-3cm up to 5cm, sub-rounded/oval to sub-angular; moderate foliation at 45 degrees to c.a.; moderate chlorite; trace pyrite, up to 2-3% over 0.7m
WS-32	402.40		-402.40	E.O.H.				

Xstrata Zinc Canada				Mineralization Log
HoleID	**From_m**	**To_m**	**Length**	**Description**
WS-32	330.00	337.00	7.00	0.5 to 1% stringer pyrite
WS-32	351.30	354.70	3.40	1-2% stringer and disseminated fine grained pyrite
WS-32	399.80	400.50	0.70	2-3% disseminated medium grained pyrite

Xstrata Zinc Canada | Minor Lithological Log

HoleID	From_m	To_m	Length	Description
WS-32	131.70	148.90	17.20	moderate to strong quartz + feldspar (+dolomite? doesn't effervesce in HCL) veining - approximately 20% of interval is veining - irregular and at variable core angles; barren, no sulphides; local sercite; local brecciation
WS-32	150.30	217.20	66.90	weak to moderate chlorite, throughout matrix and as local seams, wisps and clots
WS-32	188.05	188.77	0.72	~25-30 cm of white, barren quartz-carbonate
WS-32	213.80	214.70	0.90	60% quartz-carb with common chlorite fraxctures and patches
WS-32	217.20	337.00	119.80	moderate chlorite throughout as wisps, seams and aggregates, and locally as clots up to 2 cm elongated parallel to foliation
WS-32	337.00	354.28	17.28	moderate sericite; weak chlorite
WS-32	354.28	402.00	47.72	moderate chlorite
WS-32	378.10	379.05	0.95	Fault zone: ~75% of core is strongly broken/blocky
WS-32	399.80	400.50	0.70	silicified zone? Light grey and somewhat harder; possibly a sediment - exhibits a number of thin (1-5mm) contorted/folded black bands/beds; 2-3% disseminated medium to fine grained pyrite; numerous weakly mineralized quartz-carb veins

Xstrata Zinc Canada			Lithogeochem Sampling																						
Hole ID	Sample Number	Lab	Certificate Number	From_ m	To_m	Length_ m	Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Hf	Ho	La	Lu	Mo	Nb	Nd
WS-32	J531879	ALS Minerals; Thunder Bay lab	TB11061671	42.00	42.30	0.30	<1	102	38.9	28.6	30	0.86	39	4.33	2.65	1.03	18.7	4.29	3.8	0.86	17.1	0.38	<2	8.2	19.6
WS-32	J531880	ALS Minerals; Thunder Bay lab	TB11061671	81.00	81.30	0.30	<1	203	35.9	29.1	10	0.15	57	3.97	2.47	1.16	20.9	4.07	3.9	0.84	16.7	0.37	<2	7.9	19.5
WS-32	J531881	ALS Minerals; Thunder Bay lab	TB11061671	123.00	123.30	0.30	<1	79.6	34.7	25.9	20	0.2	14	4.55	2.7	1.25	20.1	4.55	4.1	0.91	15.9	0.41	<2	8	19.2
WS-32	J531882	ALS Minerals; Thunder Bay lab	TB11061671	162.00	162.30	0.30	<1	189.5	34.8	24.2	10	0.53	79	4.06	2.47	1.27	18.3	4.35	4.6	0.82	16	0.39	<2	7.7	18.9
WS-32	J531883	ALS Minerals; Thunder Bay lab	TB11061671	202.00	202.30	0.30	<1	90.4	34.4	22.5	10	0.25	42	4.4	2.6	1.29	18.7	4.55	3.5	0.92	15.8	0.38	<2	7.7	19
WS-32	J531884	ALS Minerals; Thunder Bay lab	TB11061671	242.00	242.30	0.30	<1	37	34.7	30.1	10	0.17	<5	4.71	2.9	1.26	19.3	4.84	3.8	0.99	16.3	0.41	<2	7.4	19.1
WS-32	J531885	ALS Minerals; Thunder Bay lab	TB11061671	285.00	285.30	0.30	<1	122	31.2	23.8	10	0.33	47	4.45	2.72	1.24	17.7	4.58	3.2	0.93	14.4	0.39	<2	7.2	17.2
WS-32	J531886	ALS Minerals; Thunder Bay lab	TB11061671	324.00	324.30	0.30	<1	120.5	28	22.9	10	0.36	59	3.74	2.28	1.16	15.9	4.09	3.1	0.79	12.8	0.33	<2	6.6	15.8
WS-32	J531887	ALS Minerals; Thunder Bay lab	TB11061671	341.70	342.00	0.30	<1	79.8	86.8	1.7	<10	0.33	<5	7.16	4.26	1.68	18.2	7.68	10.4	1.47	41	0.58	3	21.9	41.6
WS-32	J531888	ALS Minerals; Thunder Bay lab	TB11061671	384.00	384.30	0.30	<1	134	36.5	24.8	20	0.44	8	4.43	2.75	1.31	18.6	4.76	3.5	0.93	16.9	0.39	<2	8	19.6

Xstrata Zinc

Hole ID	Sample Number	Ni	Pb	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	Cr2O3	TiO2
WS-32	J531879	39	5	4.53	10.1	4.19	1	109.5	0.5	0.7	2.39	<0.5	0.36	0.54	188	1	26	2.48	104	162	51.7	14.45	10.6	2.97	5.87	4.54	0.42	0.01	1.22
WS-32	J531880	34	<5	4.44	7.4	4.45	1	136.5	0.5	0.66	2.23	<0.5	0.36	0.54	223	1	25.7	2.36	115	158	51.4	14.2	10.85	3.78	5.47	3.81	0.31	<0.01	1.2
WS-32	J531881	41	<5	4.43	7.9	4.44	1	75.9	0.5	0.74	2.29	<0.5	0.39	0.47	211	<1	26.9	2.6	107	152	50	14.65	10.9	5.72	3.85	0.45	0.36	<0.01	1.21
WS-32	J531882	26	6	4.34	30.1	4.33	1	231	0.5	0.69	2.31	<0.5	0.36	0.43	186	1	24.3	2.45	98	190	54.8	14	7.98	5.18	3.34	1.19	1.27	<0.01	1.16
WS-32	J531883	32	5	4.34	16.2	4.3	1	82.8	0.5	0.72	2.27	<0.5	0.38	0.51	202	<1	25.6	2.55	105	135	49.9	14.2	10.2	6.87	4.56	0.38	0.72	<0.01	1.17
WS-32	J531884	37	5	4.4	6.6	4.42	1	64.6	0.5	0.79	2.24	<0.5	0.41	0.5	224	<1	27	2.63	138	143	49.4	14.05	11.25	5.54	6.41	0.25	0.3	<0.01	1.14
WS-32	J531885	33	<5	3.93	20.7	4.09	1	88.4	0.5	0.77	2.02	<0.5	0.39	0.51	181	<1	26.8	2.52	160	124	53.5	13.35	10.2	3.18	6.72	0.24	1.02	<0.01	1.1
WS-32	J531886	29	<5	3.56	31.7	3.86	1	87.4	0.4	0.64	1.89	<0.5	0.32	0.46	176	<1	21.6	2.14	107	126	45.7	12.15	9.6	8.32	6.1	0.2	1.39	<0.01	1.01
WS-32	J531887	5	6	10.25	20.2	8.49	3	88.6	1.4	1.25	7.96	<0.5	0.59	1.82	<5	2	40.1	3.82	23	364	70.8	11.3	1.76	3.59	2.47	0.38	0.81	<0.01	0.29
WS-32	J531888	34	6	4.49	30.3	4.46	1	111	0.5	0.75	2.36	<0.5	0.38	0.35	196	<1	26.2	2.48	115	125	53.7	14.4	9.85	4.51	4.81	0.31	1.44	<0.01	1.13

Xstrata Zinc							
Hole ID	Sample Number	MnO	P2O5	SrO	BaO	LOI	Total
WS-32	J531879	0.15	0.29	0.01	0.01	5.41	97.7
WS-32	J531880	0.17	0.21	0.01	0.02	6.9	98.3
WS-32	J531881	0.14	0.21	0.01	0.01	10.55	98.1
WS-32	J531882	0.13	0.26	0.03	0.02	9.98	99.3
WS-32	J531883	0.15	0.2	0.01	0.01	11.9	100.5
WS-32	J531884	0.15	0.2	0.01	<0.01	11.3	100
WS-32	J531885	0.08	0.27	0.01	0.01	8.34	98
WS-32	J531886	0.22	0.19	0.01	0.01	15.8	100.5
WS-32	J531887	0.07	0.04	0.01	0.01	6.07	97.6
WS-32	J531888	0.11	0.24	0.01	0.02	8.7	99.2

Xstrata Zinc Canada														Assays
HoleID	Sample Number	Certificate Number	From_m	To_m	Length_m	Sample number	Cu %	Pb%	Zn %	Ag_ppm	Zn%_2	Au_ppm	Comments	
WS-32	J529443	TB11061670	350.00	351.00	1.00	J529443	0.003	<0.001	0.008	<0.2				
WS-32	J529444	TB11061670	351.00	352.00	1.00	J529444	0.001	<0.001	0.006	<0.2				
WS-32	J529445	TB11061670	352.00	353.00	1.00	J529445	0.001	<0.001	0.007	<0.2				
WS-32	J529446	TB11061670	353.00	354.00	1.00	J529446	0.001	<0.001	0.013	<0.2				
WS-32	J529447	TB11061670	354.00	355.00	1.00	J529447	0.002	<0.001	0.017	0.2				
WS-32	J529448	TB11061670	355.00	356.00	1.00	J529448	0.003	0.001	0.016	<0.2				
WS-32	J529449	TB11061670	398.80	399.80	1.00	J529449	0.016	<0.001	0.013	<0.2				
WS-32	J529450	TB11061670	Standard			J529450	0.182	0.007	4.9	3	5.28	0.058		
WS-32	J529451	TB11061670	399.80	400.50	0.70	J529451	0.009	0.001	0.008	0.4				
WS-32	J529452	TB11061670	400.50	401.50	1.00	J529452	0.011	<0.001	0.012	<0.2				
WS-32	J529453	TB11061670	401.50	402.40	0.90	J529453	0.046	<0.001	0.011	0.2				

Hole: ______________

Xstrata Zinc Canada								Downhole Deviation
Hole ID	Instrument	Date Measured	Depth	Dip	Azimuth	Magnetic Field	Corrected Azimuth	Comments
WS-32	Reflex	2-Apr-11	30	-53.8	359.6	57001	no correction	
WS-32	Reflex	3-Apr-11	60	-52.2	1.0	57575		
WS-32	Reflex	3-Apr-11	90	-50.7	2.6	57557		
WS-32	Reflex	3-Apr-11	120	-48.9	0.2	57283		
WS-32	Reflex	3-Apr-11	150	-47.9	359.0	57509		
WS-32	Reflex	4-Apr-11	180	-47.6	359.2	57350		
WS-32	Reflex	4-Apr-11	210	-47.5	359.7	57616		
WS-32	Reflex	4-Apr-11	240	-47.1	359.1	57459		
WS-32	Reflex	5-Apr-11	270	-47.5	358.8	57337		
WS-32	Reflex	5-Apr-11	300	-47.7	359.6	57726		
WS-32	Reflex	5-Apr-11	330	-47.3	358.8	57345		
WS-32	Reflex	6-Apr-11	360	-45.8	359.6	57055		
WS-32	Reflex	6-Apr-11	390	-44.9	359.8	59119		

Xstrata Zinc Canada			Magnetic Susceptibility Log
HoleID	**Depth_m**	**Mag. Sus. Reading**	**Comments**
WS-32	9.0	12.58	
WS-32	10.5	14.51	
WS-32	12.0	58.96	
WS-32	13.5	79.58	
WS-32	15.0	58.73	
WS-32	16.5	37.27	
WS-32	18.0	38.89	
WS-32	19.5	44.68	
WS-32	21.0	30.18	
WS-32	22.5	38.67	
WS-32	24.0	15.18	
WS-32	25.5	13.82	
WS-32	27.0	4.031	
WS-32	28.5	10.01	
WS-32	30.0	25.95	
WS-32	31.5	28.68	
WS-32	33.0	9.357	
WS-32	34.5	1.969	
WS-32	36.0	27.3	
WS-32	37.5	36.15	
WS-32	39.0	14.66	
WS-32	40.5	28.44	
WS-32	42.0	14.2	
WS-32	43.5	11.18	
WS-32	45.0	6.163	
WS-32	46.5	1.579	
WS-32	48.0	4.892	
WS-32	49.5	1.149	
WS-32	51.0	0.68	
WS-32	52.5	1.416	
WS-32	54.0	6.919	
WS-32	55.5	23.18	
WS-32	57.0	21.74	
WS-32	58.5	37.76	
WS-32	60.0	63.2	
WS-32	61.5	48.97	
WS-32	63.0	45.79	
WS-32	64.5	57.7	
WS-32	66.0	49.82	
WS-32	67.5	87.17	
WS-32	69.0	83.7	
WS-32	70.5	88.79	
WS-32	72.0	86.66	
WS-32	73.5	93.1	
WS-32	75.0	87.79	
WS-32	76.5	64.65	
WS-32	78.0	41.55	
WS-32	79.5	4.296	
WS-32	81.0	21.35	
WS-32	82.5	27.86	
WS-32	84.0	20.7	
WS-32	85.5	32.97	
WS-32	87.0	19.57	
WS-32	88.5	1.204	
WS-32	90.0	0.448	
WS-32	91.5	0.627	
WS-32	93.0	0.435	
WS-32	94.5	0.55	
WS-32	96.0	0.696	
WS-32	97.5	0.442	
WS-32	99.0	0.701	
WS-32	100.5	0.814	
WS-32	102.0	0.665	
WS-32	103.5	0.537	
WS-32	105.0	0.023	
WS-32	106.5	0.354	
WS-32	108.0	0.391	
WS-32	109.5	0.395	
WS-32	111.0	0.47	
WS-32	112.5	0.537	
WS-32	114.0	0.333	
WS-32	115.5	0.37	
WS-32	117.0	0.483	
WS-32	118.5	0.508	
WS-32	120.0	0.446	

HoleID	Depth_m	Mag. Sus. Reading	Comments
WS-32	121.5	0.631	
WS-32	123.0	0.589	
WS-32	124.5	0.395	
WS-32	126.0	0.49	
WS-32	127.5	0.51	
WS-32	129.0	0.21	
WS-32	130.5	0.196	
WS-32	132.0	0.414	
WS-32	133.5	0.705	
WS-32	135.0	0.487	
WS-32	136.5	0.551	
WS-32	138.0	0.054	
WS-32	139.5	0.109	
WS-32	141.0	0.936	
WS-32	142.5	0.85	
WS-32	144.0	0.681	
WS-32	145.5	0.747	
WS-32	147.0	1.014	
WS-32	148.5	0.856	
WS-32	150.0	0.632	
WS-32	151.5	0.387	
WS-32	153.0	0.146	
WS-32	154.5	0.186	
WS-32	156.0	0.429	
WS-32	157.5	0.342	
WS-32	159.0	0.556	
WS-32	160.5	0.536	
WS-32	162.0	0.47	
WS-32	163.5	0.568	
WS-32	165.0	0.631	
WS-32	166.5	0.627	
WS-32	168.0	0.704	
WS-32	169.5	0.812	
WS-32	171.0	0.208	
WS-32	172.5	0.608	
WS-32	174.0	0.583	
WS-32	175.5	0.208	
WS-32	177.0	0.166	
WS-32	178.5	0.561	
WS-32	180.0	0.373	
WS-32	181.5	0.658	
WS-32	183.0	0.337	
WS-32	184.5	0.479	
WS-32	186.0	0.457	
WS-32	187.5	0.682	
WS-32	189.0	0.516	
WS-32	190.5	0.538	
WS-32	192.0	0.627	
WS-32	193.5	0.577	
WS-32	195.0	0.797	
WS-32	196.5	0.497	
WS-32	198.0	0.548	
WS-32	199.5	0.089	
WS-32	201.0	0.126	
WS-32	202.5	0.287	
WS-32	204.0	0.345	
WS-32	205.5	0.556	
WS-32	207.0	0.573	
WS-32	208.5	0.48	
WS-32	210.0	0.548	
WS-32	211.5	0.571	
WS-32	213.0	0.755	
WS-32	214.5	0.812	
WS-32	216.0	0.548	
WS-32	217.5	0.499	
WS-32	219.0	0.572	
WS-32	220.5	0.527	
WS-32	222.0	0.578	
WS-32	223.5	0.551	
WS-32	225.0	0.454	
WS-32	226.5	0.572	
WS-32	228.0	0.556	
WS-32	229.5	0.625	
WS-32	231.0	0.454	
WS-32	232.5	0.504	
WS-32	234.0	0.559	
WS-32	235.5	0.636	
WS-32	237.0	0.505	

HoleID	Depth_m	Mag. Sus. Reading	Comments
WS-32	238.5	0.599	
WS-32	240.0	0.733	
WS-32	241.5	0.776	
WS-32	243.0	0.427	
WS-32	244.5	0.495	
WS-32	246.0	0.166	
WS-32	247.5	0.295	
WS-32	249.0	0.505	
WS-32	250.5	0.432	
WS-32	252.0	0.505	
WS-32	253.5	0.642	
WS-32	255.0	0.369	
WS-32	256.5	0.609	
WS-32	258.0	0.527	
WS-32	259.5	0.546	
WS-32	261.0	0.629	
WS-32	262.5	0.61	
WS-32	264.0	0.524	
WS-32	265.5	0.413	
WS-32	267.0	0.618	
WS-32	268.5	0.681	
WS-32	270.0	0.554	
WS-32	271.5	0.446	
WS-32	273.0	0.454	
WS-32	274.5	0.557	
WS-32	276.0	0.431	
WS-32	277.5	0.44	
WS-32	279.0	0.657	
WS-32	280.5	0.71	
WS-32	282.0	0.465	
WS-32	283.5	0.606	
WS-32	285.0	0.612	
WS-32	286.5	0.641	
WS-32	288.0	0.599	
WS-32	289.5	0.434	
WS-32	291.0	0.355	
WS-32	292.5	0.162	
WS-32	294.0	0.353	
WS-32	295.5	0.455	
WS-32	297.0	0.514	
WS-32	298.5	0.383	
WS-32	300.0	0.525	
WS-32	301.5	0.614	
WS-32	303.0	0.599	
WS-32	304.5	0.707	
WS-32	306.0	0.584	
WS-32	307.5	0.61	
WS-32	309.0	0.567	
WS-32	310.5	0.538	
WS-32	312.0	0.517	
WS-32	313.5	0.444	
WS-32	315.0	0.162	
WS-32	316.5	0.155	
WS-32	318.0	0.368	
WS-32	319.5	0.342	
WS-32	321.0	0.429	
WS-32	322.5	0.488	
WS-32	324.0	0.452	
WS-32	325.5	0.485	
WS-32	327.0	0.626	
WS-32	328.5	0.461	
WS-32	330.0	0.506	
WS-32	331.5	0.675	
WS-32	333.0	0.517	
WS-32	334.5	0.439	
WS-32	336.0	0.626	
WS-32	337.5	0.072	
WS-32	339.0	0.043	
WS-32	340.5	0.011	
WS-32	342.0	0.064	
WS-32	343.5	0.002	
WS-32	345.0	0.047	
WS-32	346.5	0.002	
WS-32	348.0	0.026	
WS-32	349.5	0.113	
WS-32	351.0	0.075	
WS-32	352.5	0.093	
WS-32	354.0	0.305	
WS-32	355.5	0.491	

HoleID	Depth_m	Mag. Sus. Reading	Comments
WS-32	357.0	0.588	
WS-32	358.5	0.54	
WS-32	360.0	0.438	
WS-32	361.5	0.249	
WS-32	363.0	0.178	
WS-32	364.5	0.362	
WS-32	366.0	0.449	
WS-32	367.5	0.461	
WS-32	369.0	0.394	
WS-32	370.5	0.314	
WS-32	372.0	0.544	
WS-32	373.5	0.537	
WS-32	375.0	0.484	
WS-32	376.5	0.6	
WS-32	378.0	0.51	
WS-32	379.5	0.565	
WS-32	381.0	0.491	
WS-32	382.5	0.221	
WS-32	384.0	0.213	
WS-32	385.5	0.323	
WS-32	387.0	0.475	
WS-32	388.5	0.501	
WS-32	390.0	0.678	
WS-32	391.5	0.51	
WS-32	393.0	0.546	
WS-32	394.5	0.534	
WS-32	396.0	0.571	
WS-32	397.5	0.559	
WS-32	399.0	0.52	
WS-32	400.5	0.701	
WS-32	402.0	0.435	E.O.H.

Xstrata Zinc Canada - Sturgeon Lake Drilling Program

Fall 2010

Highlights of work procedure for geological team

Communication

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- Daily report to Lucy Potter, including hole deviation survey data, core photos and summary log.
- Send digital log to Lucy Potter after completing core logging of each hole.
- Report any technical problems with drilling to Lucy Potter.
- Immediately report any safety and/or environmental incident or accident to Aaron MacDonell, Lucy Potter, Barry Zerbin and/or Garry Clark.

Safety and Environment

- Geologist or technician is responsible for access planning to drill site in order to minimize environmental impacts. This should be carried out in cooperation with the site manager, (A.MacDonell)

- Geologist or technician ensures that the core shack and drill site are kept safe, clean and organized.

- Daily check of drill and water pump sites by technician or geologist, ask drillers to immediately correct all abnormalities.

- Complete the Drill Site Safety Inspection Form at least once for each drill set-up.

- Complete a safety and environmental inspection of the drill site after the drill, pump and other equipment have been de-mobed. Complete the Final Drill Site Inspection form, including photos, and all required signatures.

- All these sites including pump sites and access trails should be verified by a representative of the Mattabi mine site.

Drill set-up and alignment

- The technician will spot the hole at the designated collar location and provide the alignment information (dip and azimuth) to the drillers.

- A clearly labelled picket should be positioned at the collar location (hole number, azimuth, dip, and estimated depth). Two front sight pickets, along the desired azimuth, should be placed in front of the drill, and should be clearly labelled as such.

- The drill foreman will align the drill, but the geologist or technician is responsible for the final check on location and alignment (dip and azimuth).

- Drill alignment must be done during the day, even if the drill is moved during the night.

- The geologist or technician will perform a GPS survey of each drill hole location (NAD83, Zone 15).

Hole deviation surveys

- Survey by Reflex every 30 meters by the drill crew.

- 1st survey at 9 meters below casing.

- Record the magnetic susceptibility value of each test. The geologist or technician will determine if the magnetic susceptibility is acceptable, and the test should be repeated if it is not.

Core Handling & Logging

- Verify core for missing intervals, tag errors, reversed runs and misplaced core in the box. The ends of each row should be fitted together to ensure continuity of the core. Immediately alert drillers of any inconsistencies and correct the problem.

- Prior to logging or removing any core for sampling, photograph all core one bench at a time. Additional close-up photographs should be taken of mineralized zones (see Appendix A)

- Logging may be done directly on a laptop, or on paper. If paper is used, data must be immediately transferred to computer and backed-up at regular intervals.

- Detailed core recovery and RQD will not be collected, but a note should be made of any bad ground in the hole.

- All measurements and descriptions should be entered in the drill log format provided.

- There should be no overlap or gaps in the From – To for major rock units.

- Each unit should be described by color → grain size → texture(s) → structure(s) → alteration(s) → mineralization(s) → kind or style of inferior contact.

- Where applicable, structural features should be noted and described, and angles to core axis should be measured with a protractor. These should be noted as point data – with a distance given in the From column.

- Alteration and texture can be described in the comment section of a Major or Minor unit, but should also be included in the fields provided for such information.

- Where applicable, break out minor units to highlight variations in composition, fabric, and dykes/veins less than 1m in length.

- Where possible, assign major intervals to stratigraphic units (see Appendix B)

- Take magnetic susceptibility measurements every 1.5 m (or one per row of core).

- A metal Dymo tag should be affixed to the end of each box. This will be inscribed with the hole number, From – To meterage and box number.

Sampling

- Metal assay samples (half core)

  - 0.5 to 1.5 m length
  - All intervals of >5% visible sulfides
  - 1 to 3 wing samples (<5% sulfides or barren) before and after main sampling interval.
  - Include a standard every 25 samples (1 and half teaspoon of standard material).
  - Irregularly insert a blank (barren sample) with an average ratio of 1 in 25 samples.

- Whole rock samples (whole core)

  - 0.3 m length
  - Choose an interval of homogenous rock without quartz-carbonate vein and <5% visible sulfides
  - ±30 m spacing - up to 50 m within large fresh rock unit, closer within variable lithologies or alteration zone.

- Sample intervals should not cross major/minor unit boundaries, and should respect changes in alteration and/or mineralization, where applicable.

- Samples should be marked with a red china marker along the entire length of the sample, perpendicular to any bedding or structure in the core. This will serve as the guideline when spitting the core. Additionally, arrows should be drawn at the beginning and end of each sample indicating the interval to be cut.

- Staple 1 copy of the tag on core box both for each metal assay sample and whole rock sample at the beginning of the sample interval. A second copy will be inserted in the sample bag. The third copy remains in the sample booklet.

- Sample cutting and shipping is the responsibility of the technician. However, geologists are required to verify and sign the “List of Samples Form”.

- Technician should ensure that all sample tags are visible from the outside when the bags are sealed. This will allow for quick sample identification when packing samples into a larger shipping bag.

Sample Analysis

- Sample analysis will be performed by ALS Laboratory in Thunder Bay.

- Assay samples: Cu, Pb and Zn by method AA-46, and Ag by method AA45 for all metal assay samples, re-assay samples which have result >1% Cu, Pb or Zn by method OG62 for this (these) metal(s), plus Au by method AA23.

- While Rock Samples: Combination of 38 Rare Earth & Trace Elements by method ME-MS81 and whole rock package by method ME-ICP06 for all whole rock sample.

- Results and invoices are sent to Lucy Potter.

End of hole

- Geologist ensures that drilling ends at least 30m below the last significant mineralized zone or the target depth when the hole reaches planed length.

Borehole EM surveys

- Most holes will have a TDEM survey by TMC Geophysics.

- Assist the crew in locating the drill set-up.

- Provide summary information to the survey crew regarding any trouble spots down the hole.

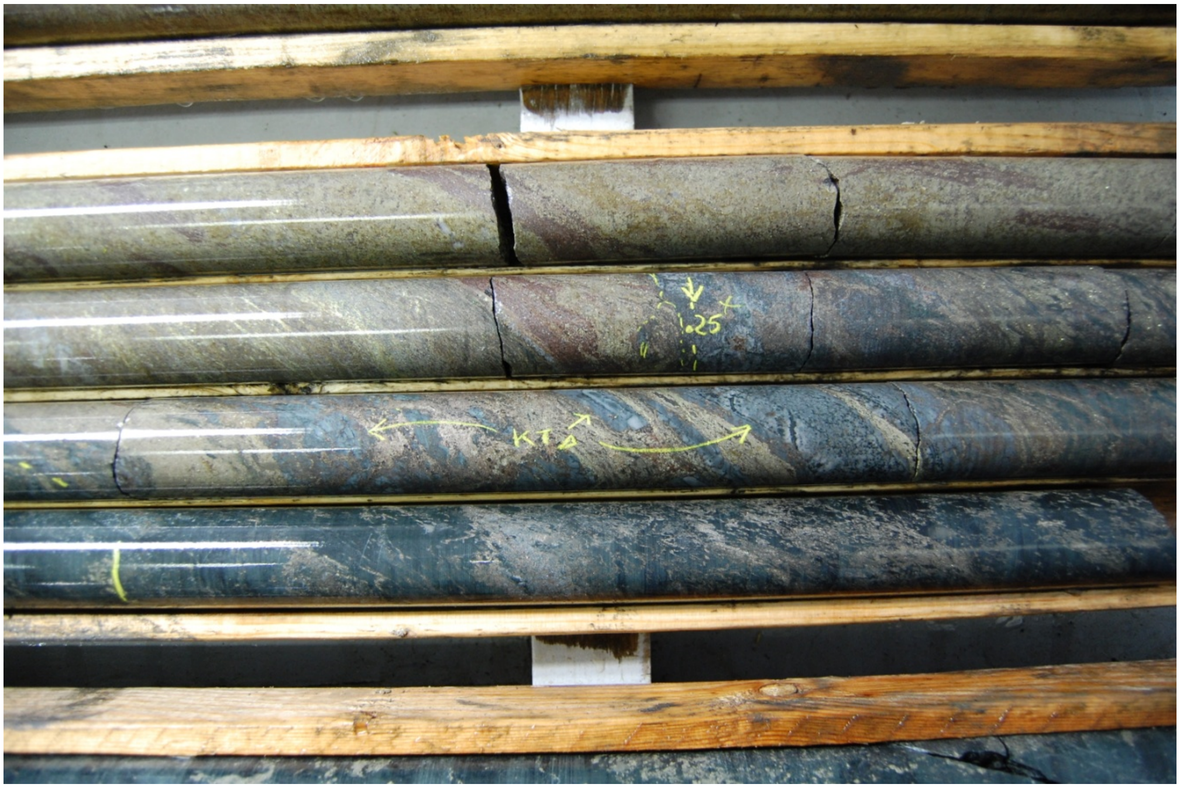
- Technician will be asked to attempt to locate historical drillhole casings using maps provided. These holes may eventually be cleaned and surveyed.

Appendix A

Drill Core Photography

- Photograph 1 bench (approx 4 boxes) at a time
- Wet core prior to taking photo
- Ensure lighting is adequate and minimize reflection of light as much as possible.
- Name the file with drill hole number and From – To depth (e.g. *SL-10-001_113.5m_to_119.5m.jpg*). Alternately, this information can be clearly written on a paper or white board and included in the photograph.
- Close-up of mineralization and/or features of interest.

Example 1 – Full bench of core



Example 2 – Close-up

Appendix B

Stratigraphy

Darkwater Lake Succession		
1a	DLLF	basalt lava flows
1b	DLSC	scoria-rich pyroclastic deposits and epiclastic sediments
1c	DLRY	rhyolite lava flows
Jackpot Lake Succession		
2a	JLAT	aphyric ash deposits and interflow sedimentary rocks
High Level Lake Succession		
3a	HLBX	heterolithic mesobreccia and megabreccia deposits
3b	HLPF/HLAT	aphyric to quartz-phyric pyroclastic flow and ash deposits
Bell River Succession		
4a	BRRL	rhyolite lava flows
4b	BRPF	pumice-rich ash flow tuff deposits
4c	BRSED	clastic sedimentary deposits
Tailings Lake Succession		
5a	TLSED	heterolithic debris flow deposits and clastic sedimentary rocks
5b	TLAT	aphyric ash tuff deposits
5c	TLDL	dacitic to andesitic lava flows
Mattabi Succession		
6a	MTQ	bedded quartz-phyric, pumice-rich pyroclastic flow and ash deposits
6b	MTA	massive ash tuff deposits
Lower L Succession		
7a	LLPF/LLAT	aphyric to quartz ± plagioclase-phyric pyroclastic flow and ash depoists
7b	LLSED	clastic and chemical sedimentary rocks
Middle L Succession		
8a	MLPF/MLAT	pumice-rich, quartz ± k-spar-phyric pyroclastic flow and ash deposits
8b	MLVB/MLMB	monolithic breccia deposits and heterolithic breccia deposits with *myrmeckite and/or microcline-bearing fragments*
Upper L Succession		
Pyroclastic Series		
9a	ULPF/ULAT	quartz ± plagioclase phyric pyroclastic flow and ash deposits
Sedimentary Series		
9b	ULSED	clastic and chemical sedimentary rocks
No Name Lake Series		
10a	NNLAF	andesite lava flows and hyaloclastite

Bell River Lake Series

11a	BRLDL	andesite to dacite lava flows and flow breccias
11b	BRLDQ	dacite to rhyodacite quartz ± plagioclase-phyric lava flows

Lyon Creek Succession

12a	LCDL	plagioclase-phyric dacite lava flows
12b	LCSC	clastic sedimentary rocks
12c	LCSI	iron formation
12d	LCSG	graphite-rich sedimentary rocks

Lyon Lake Succession

13a	LYLAF	andesite lava flows
13b	LYSED	herolithic debris flow deposits and interflow clastic sedimentary rocks

Swamp Lake Succession

14a	SLRL	quartz ± feldspar-phyric rhyodacite to rhyolite lava flows
14b	SLPF	dacite to rhyolite pyroclastic flow deposits
14c	SLSED	clastic sedimentary rocks

Intra-Caldera Intrusive Rocks

A	IBB	Beidelman Bay Complex
B	IBR	Bell River Rhyolite Feeder Dikes
C	IFD	Coarse-grained, massive feldspar-phyric diorite
D	IQD	Massive to amygdaloidal diorite with interstitial quartz plates
	INTR	Undifferentiated dikes

Post-Caldera Intrusive Rocks

E	IMD	Massive, locally feldspar-phyric diorite
F	ID	Coarse-grained, amphibole-rich diorite
	IL	“Lamprophyre” dikes

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: WS-11-32
Drilling Dates: April 2 - April 6, 2011
UTM Location: N: 5525280 E: 638940
Drill Contractor: Major Drilling

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: F-11-141A
Drilling Dates: April 8 - April 11, 2011
UTM Location: N: 5526191 E: 641123
Drill Contractor: Major Drilling

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: F-11-141
Drilling Dates: April 7 - April 8 , 2011
UTM Location: N: 5526191 E: 641123
Drill Contractor: Major Drilling

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

SAME SET-UP AS F-141A – HAD TO WAIT TO FINISH F-141 A FOR FINAL INSPECTION

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: F-140

Drilling Dates: March 8 - March 16 , 2011

UTM Location: N: 5526350 E: 641020

Drill Contractor: Major Drilling

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: ______________

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling	
SUPERVISOR: Andre Demers	DATE OF INSPECTION: March 12, 2011
MODEL/TYPE OF DRILL USED:	OTHER EQUIPMENT:
INSPECTION PERFORMED BY: D.Cullen	
Corrective Action Required - Comments and/or suggestions:	
Project: Sturgeon Lake	Contract Number:

Signature of Contractor: ____________ March 17/2011

Signature of Inspector: ____________ March 17/2011

Signature of Geology Supervisor: ____________ ____________

Hole: ____________

Xstrata Zinc Canada
Final Drill Site Inspection

Drillhole Number: F-139A
Drilling Dates: Feb 28, 2011 to March 7, 2011
UTM Location: N: 5526320 E: 640770
Drill Contractor: Major Drilling

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [signature] Date: MAR 8/2011

Signature of Inspector: [signature] Date: Mar 8/2011

Signature of Geology Supervisor: Date:

Signature of Xstrata Representative: Date:

Attachments
Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number:	23-11-333
Drilling Dates:	Feb 24 - Feb 26, 2011
UTM Location:	N: 5527743 E: 654170
Drill Contractor:	Major Drilling

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [signature] Date: 28-02-11

Signature of Inspector: [signature] Date: FEB 27

Signature of Geology Supervisor: ____________ Date: ____________

Signature of Xstrata Representative: ____________ Date: ____________

Attachments

Photos: ____________ **Field Notes:** ____________ **Sketch:** ____________ **Map:** ____________ **Other:** ____________

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: 23-11-332
Drilling Dates: Feb 20 - Feb 24, 2011
UTM Location: N: 5527965 E: 654140
Drill Contractor: Major Drilling

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [signature] Date: FEB 25/11

Signature of Inspector: [signature] Date: FEB 25/11

Signature of Geology Supervisor: ____________ Date: ____________

Signature of Xstrata Representative: ____________ Date: ____________

Attachments
Photos: ________ **Field Notes:** ________ **Sketch:** ________ **Map:** ________ **Other:** ________

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: 23-2010-331
Drilling Dates: Oct 25, 2010 to Oct 28, 2010
UTM Location: N: 5526178 E: 653118
Drill Contractor: Major

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump		x		
		Sump covered with soil and contoured			x	
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: Allen Mayd Date: Oct 29/10

Signature of Inspector: [signature] Date: Oct 29/10

Signature of Geology Supervisor: [signature] Date: Oct 29/10

Signature of Xstrata Representative: Date:

Attachments
Photos: **Field Notes:** **Sketch:** **Map:** **Other:**

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata ZINC

Drillhole Number: 17-2010-85
Drilling Dates: Oct 19, 2010 to Oct 29, 2010
UTM Location: N: 5527460 E: 649134
Drill Contractor: Major

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump		x		
		Sump covered with soil and contoured			x	
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: Allen Monyd Date: Oct 31/2010

Signature of Inspector: Des Cullen Date: Oct 31/2010

Signature of Geology Supervisor: Des Cullen Date: Oct 31/2010

Signature of Xstrata Representative: Date:

Attachments
Photos: ✓ **Field Notes:** **Sketch:** **Map:** **Other:**

Xstrata Zinc Canada
Final Drill Site Inspection

Drillhole Number: 16-2010-84
Drilling Dates: Oct 15, 2010 to Oct 23, 2010
UTM Location: N: 5526582 E: 649668
Drill Contractor: Major

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump		x		
		Sump covered with soil and contoured			x	
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [illegible] Date: Oct 25/10

Signature of Inspector: [illegible] Date: Oct 25/10

Signature of Geology Supervisor: [illegible] Date: Oct 25/10

Signature of Xstrata Representative: Date:

Attachments
Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

Xstrata Zinc Canada
Final Drill Site Inspection

Drillhole Number:	17-2010-83
Drilling Dates:	OCT 7-17 2010
UTM Location:	N: ~~650594~~ 5527612 E: 650594
Drill Contractor:	MAJOR

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		X		
		Casing cut to ground level	X			
		Casing cap	X			
		Damaged Casing		X		
		Making Water		X		
		Cap labelled with hole number	X			
	Debris	All equipment removed from the site	X			
		All litter removed from site (absorbant matting, boxes,etc.)	X			
		All rock cuttings contained in sump	X			
		Sump covered with soil and contoured	X			
	Spill	Oil		X		
		Grease		X		
		Diesel		X		
		Other		X		
		Dirty ice, snow and/or soil			X	
	Site	Tree stumps cut to ground level	X			
		Collar picket in place with metal tag	X			
Pump Site	Debris	All equipment removed from the site	X			
		All litter removed from site (wire, food wrappers, etc.)	X			
	Spill	Oil		X		
		Grease		X		
		Diesel		X		
		Other		X		
		Dirty ice, snow and/or soil		X		
Access Road	Site	No hanging trees left along trail		X		
		Cut wood trimmed and stacked by roadside			X	
	Debris	All equipment removed from the site	X			
		All litter removed from site (wire, absorbant matting, etc.)	X			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [signature] **Date:** 10/21/10

Signature of Inspector: [signature] **Date:** 10/19/10

Signature of Geology Supervisor: [signature] **Date:** 10/20/10

Signature of Xstrata Representative: ______ **Date:** ______

Attachments
Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

Xstrata Zinc Canada
Final Drill Site Inspection

Drillhole Number:	17-2010-82
Drilling Dates:	Sept 28 - Oct 6 - 2010
UTM Location:	5527582N 650016E
Drill Contractor:	MAJOR

General Appearance of Site (circle one): **CLEAN** **DIRTY**

			Yes	*No*	*NA*	*Comment (e.g. quantity, severity)*
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level	x			
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil			x	
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site			x	pump site still in use for next hole
		All litter removed from site (wire, food wrappers, etc.)			x	
	Spill	Oil			x	
		Grease			x	
		Diesel			x	
		Other			x	
		Dirty ice, snow and/or soil			x	
Access Road	Site	No hanging trees left along trail		x		
		Cut wood trimmed and stacked by roadside			x	
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: [illegible] Date: Oct 15/2010

Signature of Inspector: [illegible] Date: Oct 15/2010

Signature of Geology Supervisor: [illegible] Date: Oct 16/2010

Signature of Xstrata Representative: Date:

Attachments

Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: 16-11-513
Drilling Dates: March 17 - April 1, 2011
UTM Location: N: 5526350 E: 641020
Drill Contractor: Major Drilling

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: Date: April 3 / 2011

Signature of Inspector: Date: April 3 / 2011

Signature of Geology Supervisor: Date:

Signature of Xstrata Representative: Date:

Attachments
Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

16 · 2010 · 512

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: 16-2010-512
Drilling Dates: Sept 27, 2010 to 14 Oct , 2010
UTM Location: N: 5527494 E: 648871
Drill Contractor: Major

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump		x		
		Sump covered with soil and contoured			x	
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag				
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: Allen Monyd Date: OCT 14/2010

Signature of Inspector: [signature] Date: OCT 15/2010

Signature of Geology Supervisor: [signature] Date: OCT 15/2010

Signature of Xstrata Representative: Date:

Attachments
Photos: ____ **Field Notes:** ____ **Sketch:** ____ **Map:** ____ **Other:** ____

16-2010-512

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: 16-2010-512
Drilling Dates: Sept 27, 2010 to 14 Oct , 2010
UTM Location: N: 5527494 E: 648871
Drill Contractor: Major

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump		x		
		Sump covered with soil and contoured			x	
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag				
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

Signature of Contractor: Allen Monyd Date: OCT 14/2010

Signature of Inspector: [signature] Date: OCT 15/2010

Signature of Geology Supervisor: [signature] Date: OCT 15/2010

Signature of Xstrata Representative: Date:

Attachments
Photos: ______ **Field Notes:** ______ **Sketch:** ______ **Map:** ______ **Other:** ______

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: WS-11-32
Drilling Dates: April 2 - April 6, 2011
UTM Location: N: 5525280 E: 638940
Drill Contractor: Major Drilling
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	X		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	X		
40-Appropriate medical facilities have been selected to treat injuries	X		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	X		
42-Complete first aid kit on-site for treating minor injuries	X		
43-Stretcher and emergency blanket available on-site	X		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	X		
59-Warnings and labels clearly visible on all chemicals	X		
60-Garbage	X		
61-Absence of site contamination	X		
62-Biodegradable oil used	X		
63-Motors equipped with drip tray and/or absorbant matting	X		
64-Damaged equipment regularly retired	X		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	X		
66-Diesel fuel stored at least 4m away from drill set-up	X		
67-Complete spill kit at drill on-site	X		
68-Complete spill kit at pump site(s)	X		
69-Fines and other material prevented from entering waterbody	X		
70-Shoreline buffer of 20m	X		
71-Access to waterbody limited to 5m maximum	X		
72-Adequate vegetation coverage on embankment	X		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers DATE OF INSPECTION: April 4, 2011

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number:

Xstrata Zinc Canada
Final Drill Site Inspection

xstrata zinc

Drillhole Number: WS-11-32

Drilling Dates: April 2 - April 6, 2011

UTM Location: N: 5525280 E: 638940

Drill Contractor: Major Drilling

General Appearance of Site (circle one): CLEAN DIRTY

			Yes	No	NA	Comment (e.g. quantity, severity)
Drill Site	Collar	Casing removed		x		
		Casing cut to ground level		x		
		Casing cap	x			
		Damaged Casing		x		
		Making Water		x		
		Cap labelled with hole number	x			
	Debris	All equipment removed from the site	x			
		All litter removed from site (absorbant matting, boxes,etc.)	x			
		All rock cuttings contained in sump	x			
		Sump covered with soil and contoured	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
	Site	Tree stumps cut to ground level	x			
		Collar picket in place with metal tag	x			
Pump Site	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, food wrappers, etc.)	x			
	Spill	Oil		x		
		Grease		x		
		Diesel		x		
		Other		x		
		Dirty ice, snow and/or soil		x		
Access Road	Site	No hanging trees left along trail	x			
		Cut wood trimmed and stacked by roadside		x		not required
	Debris	All equipment removed from the site	x			
		All litter removed from site (wire, absorbant matting, etc.)	x			

Additional Inspection Required:

Further Clean-up Required:

Comments

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: F-11-141A
Drilling Dates: April 8 - April 11, 2011
UTM Location: N: 5526191 E: 641123
Drill Contractor: Major Drilling
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers — DATE OF INSPECTION: April 9, 2011

MODEL/TYPE OF DRILL USED: — OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake — Contract Number:

April 9/2011

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: F-11-141
Drilling Dates: April 7 - April 8, 2011
UTM Location: N: 5526191 E: 641123
Drill Contractor: Major Drilling
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers DATE OF INSPECTION: April 7, 2011

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number:

April 7/2011

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: F-140

Drilling Dates: March 8 - March 16 , 2011

UTM Location: N: 5526350 E: 641020

Drill Contractor: Major Drilling

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable		Comment
	Yes	No	
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: ______________

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers DATE OF INSPECTION: March 12, 2011

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number:

Signature of Contractor: ________________ March 17/2011

Signature of Inspector: ________________ March 17/2011

Signature of Geology Supervisor: ________________ ________________

Hole: ________________

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: ___F-139A______________

Drilling Dates: ___Feb 28 to March 7, 2011_____________

UTM Location: N: _5526320____________E: ___640770___________________

Drill Contractor: ___Major Drilling_______________________________

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: F-139A

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers DATE OF INSPECTION: March 4, 2011

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number:

Signature of Contractor: March 4/2011

Signature of Inspector: D. Cullen March 4/2011

Signature of Geology Supervisor: ______

Hole: F-139A

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: ___F-139______________
Drilling Dates: ___Feb 27, 2011 to Feb 28, 2011____________
UTM Location: N: _5526320___________E: ___640770__________________
Drill Contractor: ___Major Drilling___________________________
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: F-139

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling	
SUPERVISOR: Andre Demers	DATE OF INSPECTION: Feb 27, 2011
MODEL/TYPE OF DRILL USED:	OTHER EQUIPMENT:
INSPECTION PERFORMED BY: D.Cullen	
Corrective Action Required - Comments and/or suggestions:	
Project: Sturgeon Lake	Contract Number:

Signature of Contractor: [signature] FEB 27/2011

Signature of Inspector: [signature] FEB 27/2011

Signature of Geology Supervisor: ____________

Hole: F-139

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: ___23-333______________

Drilling Dates: ___Feb 24 - Feb 26, 2011____________

UTM Location: N: _5527743____________E: ___654170__________________

Drill Contractor: ___Major Drilling____________________________

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: 23-333

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers — DATE OF INSPECTION: Feb26, 2011

MODEL/TYPE OF DRILL USED: — OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake — Contract Number:

Signature of Contractor: ______________ FEB 26/11

Signature of Inspector: ______________ FEB 26/11

Signature of Geology Supervisor: ______________

23-333

Hole: F.

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: ___23-332______________

Drilling Dates: ___Feb 20 - Feb 24, 2011____________

UTM Location: N: _5527965___________ E: ___654140__________________

Drill Contractor: ___Major Drilling____________________________

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable		Comment
	Yes	No	
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: 23-332

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers — DATE OF INSPECTION: Feb21, 2011

MODEL/TYPE OF DRILL USED: — OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake — Contract Number:

Signature of Contractor: [signature] FEB 23/11

Signature of Inspector: [signature] FEB 23/11

Signature of Geology Supervisor:

Hole: 23-332

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: 23-2010-331
Drilling Dates: Oct 25, 2010 to Oct 28, 2010
UTM Location: N: 5526178 E: 653118
Drill Contractor: Major

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	x		
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: ______________

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major

SUPERVISOR: A. Monych DATE OF INSPECTION: Oct 27, 2010

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Contract Number:

Signature of Contractor: Allen Monych Oct 27/10

Signature of Inspector: Des Cullen Oct 27/10

Signature of Geology Supervisor: Des Cullen Oct 27/10.

Hole: ______________

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: 17-2010-85 Drill 1493

Drilling Dates: ____

UTM Location: N: ____ E: ____

Drill Contractor: ____

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	✓		
2-Personnel wearing approved safety glasses	✓		
3-Personnel wearing approved safety boots	✓		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	✓		
5-Personnel wearing approved hearing protection	✓		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	✓		
7-Other fire prevention equipment available and clearly labelled	✓		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	✓		
9-All exits are clear	✓		
10-Work area is clean and free of obstacles	✓		
11-No oil or ice build-up on floor	✓		
12-Adequate lighting, and in good repair	✓		
13-Drill tower well supported	✓		
14-Stiff legs and cable affixed to tower	✓		
15-Helper's basket in good condition	✓		
16-Rod handler in good working condition	✓		
17-Hydraulic hoses in good condition	✓		
18-Protective guards around moving parts (drill, pump, cable)	✓		
19-Protective guard on roof of drill shack	✓		
20-Core tube cable in good repair	✓		
21-Electrical equipment in good working order (e.g. generator, lighting)	✓		
22-Drill switches labelled	✓		
23-Appropriate fuel containers used and maintained	✓		
24-Easy access to pump site	✓		
25-Proper storage of propane, indoor and outdoor	✓		
26-Propane tanks properly transported, in vertical position	✓		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	✓		
28-Safety harness properly affixed and in good condition	✓		
29-Protective sheath on axe	✓		
30-Hand tools clean, tidy and in good repair	✓		
31-Chainsaw equipped with brake, guard, handle. In good repair	✓		
32-Drill rods properly stored	✓		
33-Heating system in good repair	✓		
34-Propane torch and coils equipped with regulator	✓		
35-Guards on all light bulbs	✓		
36-Visible safety signs (emergency exit, PPE)	✓		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	✓		

Hole: 17-2010-85

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	✓		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	✓		
40-Appropriate medical facilities have been selected to treat injuries	✓		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	✓		
42-Complete first aid kit on-site for treating minor injuries	✓		
43-Stretcher and emergency blanket available on-site	✓		
PUMPING STATION			
44-Access to pump site	✓		
45-Tidy and obstacle-free area	✓		
46-No oil or ice build-up on floor	✓		
47-Adequat fuel container and supply	✓		
48-Proper indoor/outdoor propane storage	✓		
49-Waterline heating system	✓		
50-Safety information clearly visible (e.g. emergency exit, PPE)	✓		
51-Emergency response plan posted and familiar to personnel	✓		
52-Spill response procedure and contact phone numbers posted	✓		
53-Propane tanks correctly stored outdoors (attached and identified)	✓		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	✓		
55-Pump equipped with drip tray and/or absorbant matting	✓		
55-Pump protected from runoff caused by adverse weather	✓		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	✓		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	✓		
59-Warnings and labels clearly visible on all chemicals	✓		
60-Garbage	✓		
61-Absence of site contamination	✓		
62-Biodegradable oil used	✓		
63-Motors equipped with drip tray and/or absorbant matting	✓		
64-Damaged equipment regularly retired	✓		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	✓		
66-Diesel fuel stored at least 4m away from drill set-up	✓		
67-Complete spill kit at drill on-site	✓		
68-Complete spill kit at pump site(s)	✓		
69-Fines and other material prevented from entering waterbody	✓		
70-Shoreline buffer of 20m	✓		
71-Access to waterbody limited to 5m maximum	✓		
72-Adequate vegetation coverage on embankment	✓		

NAME OF CONTRACTOR:

SUPERVISOR: DATE OF INSPECTION:

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: STEVE SIETAIENIUK ; Az

Corrective Action Required - Comments and/or suggestions:

Project: Contract Number:

Signature of Contractor: Allen Mongd Date: Oct 22/10

Signature of Inspector: Date: 22-Oct-10

Signature of Geology Supervisor: Date: 22-Oct-10

Hole: 17-2010-85

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: 17-2010-84 Drill 1469

Drilling Dates:

UTM Location: N: E:

Drill Contractor:

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	✓		
2-Personnel wearing approved safety glasses	✓		
3-Personnel wearing approved safety boots	✓		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	✓		
5-Personnel wearing approved hearing protection	✓		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	✓		
7-Other fire prevention equipment available and clearly labelled	✓		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	✓		
9-All exits are clear	✓		
10-Work area is clean and free of obstacles	✓		
11-No oil or ice build-up on floor	✓		
12-Adequate lighting, and in good repair	✓		
13-Drill tower well supported	✓		
14-Stiff legs and cable affixed to tower	✓		
15-Helper's basket in good condition	✓		
16-Rod handler in good working condition	✓		
17-Hydraulic hoses in good condition	✓		
18-Protective guards around moving parts (drill, pump, cable)	✓		
19-Protective guard on roof of drill shack	✓		
20-Core tube cable in good repair	✓		
21-Electrical equipment in good working order (e.g. generator, lighting)	✓		
22-Drill switches labelled	✓		
23-Appropriate fuel containers used and maintained	✓		
24-Easy access to pump site	✓		
25-Proper storage of propane, indoor and outdoor	✓		
26-Propane tanks properly transported, in vertical position	✓		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	✓		
28-Safety harness properly affixed and in good condition	✓		
29-Protective sheath on axe	✓		
30-Hand tools clean, tidy and in good repair	✓		
31-Chainsaw equipped with brake, guard, handle. In good repair	✓		
32-Drill rods properly stored	✓		
33-Heating system in good repair	✓		
34-Propane torch and coils equipped with regulator	✓		
35-Guards on all light bulbs	✓		
36-Visible safety signs (emergency exit, PPE)	✓		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	✓		

Hole: 17-2010-84

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	✓		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	✓		
40-Appropriate medical facilities have been selected to treat injuries	✓		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	✓		
42-Complete first aid kit on-site for treating minor injuries	✓		
43-Stretcher and emergency blanket available on-site	✓		
PUMPING STATION			
44-Access to pump site	✓		
45-Tidy and obstacle-free area	✓		
46-No oil or ice build-up on floor	✓		
47-Adequat fuel container and supply	✓		
48-Proper indoor/outdoor propane storage	✓		
49-Waterline heating system	✓		
50-Safety information clearly visible (e.g. emergency exit, PPE)	✓		
51-Emergency response plan posted and familiar to personnel	✓		
52-Spill response procedure and contact phone numbers posted	✓		
53-Propane tanks correctly stored outdoors (attached and identified)	✓		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	✓		
55-Pump equipped with drip tray and/or absorbant matting	✓		
55-Pump protected from runoff caused by adverse weather	✓		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	✓		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	✓		
59-Warnings and labels clearly visible on all chemicals	✓		
60-Garbage	✓		
61-Absence of site contamination	✓		
62-Biodegradable oil used	✓		
63-Motors equipped with drip tray and/or absorbant matting	✓		
64-Damaged equipment regularly retired	✓		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	✓		
66-Diesel fuel stored at least 4m away from drill set-up	✓		
67-Complete spill kit at drill on-site	✓		
68-Complete spill kit at pump site(s)	✓		
69-Fines and other material prevented from entering waterbody	✓		
70-Shoreline buffer of 20m	✓		
71-Access to waterbody limited to 5m maximum	✓		
72-Adequate vegetation coverage on embankment	✓		

NAME OF CONTRACTOR:

SUPERVISOR: DATE OF INSPECTION:

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY:

Corrective Action Required - Comments and/or suggestions:

Project: Contract Number:

Signature of Contractor: Allen Moyd Date: Oct 22/10

Signature of Inspector: [signature] Date: 22-Oct-10

Signature of Geology Supervisor: [signature] Date: 22-Oct-10

Hole: 17-2010-84

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: 17-2010-83
Drilling Date Oct 7, 2010
UTM Location: 5527612N 650594E
Drill Contractor: Major
General State of Drill Site (circle one): <u>EXCELLENT</u> GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable		Comment
	Yes	No	
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition			no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition			
29-Protective sheath on axe			no axe on site
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: 16-2010-512

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m		x	
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment		x	

NAME OF CONTRACTOR: Major

SUPERVISOR: Al Monych — DATE OF INSPECTION: Oct 15, 2010

MODEL/TYPE OF DRILL USED: — OTHER EQUIPMENT:

INSPECTION PERFORMED BY: R.Tuomi

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake — Contract Number: # 720

Signature of Contractor: Allen Monych — Oct 15/2010

Signature of Inspector: — Oct 15/2010

Signature of Geology Supervisor: — Oct 16/2010

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: 17-2010-82
Drilling Dates: Sept 27, 2010 to Oct 6, 2010
UTM Location: N: 5527582 E: 650016
Drill Contractor: Major
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable		Comment
	Yes	No	
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition			no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition			
29-Protective sheath on axe			
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m		x	
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment		x	

NAME OF CONTRACTOR: Major

SUPERVISOR: Al Monych DATE OF INSPECTION: Oct 5, 2010

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: R.Tuomi

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number: #720

Signature of Contractor: Allen Monych Oct 5/2010

Signature of Inspector: [signature] Oct 5/2010

Signature of Geology Supervisor: [signature] Oct 5/2010

Hole: 16-2010-512

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

Drillhole Number: ___16-513_______________

Drilling Dates: ___March 17 - April 1 , 2011_____________

UTM Location: N: _5526906_____________E: ___648955___________________

Drill Contractor: ___Major Drilling___________________________

General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition	N/A		no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition	x		
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

Hole: ________________

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m	x		
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment	x		

NAME OF CONTRACTOR: Major Drilling

SUPERVISOR: Andre Demers DATE OF INSPECTION: March 30, 2011

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number:

Signature of Contractor: [signature] APRIL 3/2011

Signature of Inspector: [signature] APRIL 3/2011

Signature of Geology Supervisor: ____________

Hole: ____________

16-2010-512

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: 16-2010-512
Drilling Dates: Sept 27, 2010 to 14 Oct , 2010
UTM Location: N: 5527494 E: 648871
Drill Contractor: Major
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition			no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition			Not applicable
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m		x	Built up pad of crushed rock
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment		x	Built up pad of crushed rock

NAME OF CONTRACTOR: Major

SUPERVISOR: Al Monych DATE OF INSPECTION: Oct 4, 2010

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number: #720

Signature of Contractor: Allan Monyd OCT 14/2010

Signature of Inspector: [signature] Oct 15/2010

Signature of Geology Supervisor: [signature] Oct 15/2010

Hole: 16-2010-512

16-2010-512

XSTRATA ZINC CANADA

DIAMOND DRILL SITE SAFETY INSPECTION

xstrata zinc

Drillhole Number: 16-2010-512
Drilling Dates: Sept 27, 2010 to 14 Oct, 2010
UTM Location: N: 5527494 E: 648871
Drill Contractor: Major
General State of Drill Site (circle one): EXCELLENT GOOD PASSABLE POOR

Items for Consideration during Inspection	Acceptable Yes	Acceptable No	Comment
PPE (Personal Protective Equipment)			
1-Personnel wearing certified hard hat	x		
2-Personnel wearing approved safety glasses	x		
3-Personnel wearing approved safety boots	x		
4-Personnel wearing appropriate Work Clothing (e.g. snug fit, gloves...)	x		
5-Personnel wearing approved hearing protection	x		
FIRE PREVENTION EQUIPMENT			
6-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
7-Other fire prevention equipment available and clearly labelled	x		
WORK ENVIRONMENT:			
8-Drill rig easily accessible	x		
9-All exits are clear	x		
10-Work area is clean and free of obstacles	x		
11-No oil or ice build-up on floor	x		
12-Adequate lighting, and in good repair	x		
13-Drill tower well supported	x		
14-Stiff legs and cable affixed to tower	x		
15-Helper's basket in good condition			no basket
16-Rod handler in good working condition	x		
17-Hydraulic hoses in good condition	x		
18-Protective guards around moving parts (drill, pump, cable)	x		
19-Protective guard on roof of drill shack	x		
20-Core tube cable in good repair	x		
21-Electrical equipment in good working order (e.g. generator, lighting)	x		
22-Drill switches labelled	x		
23-Appropriate fuel containers used and maintained	x		
24-Easy access to pump site	x		
25-Proper storage of propane, indoor and outdoor	x		
26-Propane tanks properly transported, in vertical position	x		
EQUIPEMENT:			
27-Appropriate ladders used (grounded, extending 1m past contact)	x		
28-Safety harness properly affixed and in good condition			Not applicable
29-Protective sheath on axe	x		
30-Hand tools clean, tidy and in good repair	x		
31-Chainsaw equipped with brake, guard, handle. In good repair	x		
32-Drill rods properly stored	x		
33-Heating system in good repair	x		
34-Propane torch and coils equipped with regulator	x		
35-Guards on all light bulbs	x		
36-Visible safety signs (emergency exit, PPE)	x		
37-Appropriate mobile equipment available and in good repair (reverse warning sound, fire extinguisher...)	x		

EMERGENCY PLAN			
38-Emergency response plan posted and familiar to personnel	x		
39-Spill response procedure and contact phone numbers posted at the drill and pump site(s)	x		
40-Appropriate medical facilities have been selected to treat injuries	x		
41-Reliable, working means of communication (e.g. sat phone, cell phone, radio...)	x		
42-Complete first aid kit on-site for treating minor injuries	x		
43-Stretcher and emergency blanket available on-site	x		
PUMPING STATION			
44-Access to pump site	x		
45-Tidy and obstacle-free area	x		
46-No oil or ice build-up on floor	x		
47-Adequat fuel container and supply	x		
48-Proper indoor/outdoor propane storage	x		
49-Waterline heating system	x		
50-Safety information clearly visible (e.g. emergency exit, PPE)	x		
51-Emergency response plan posted and familiar to personnel	x		
52-Spill response procedure and contact phone numbers posted	x		
53-Propane tanks correctly stored outdoors (attached and identified)	x		
54-Sufficient, strategically placed fire extinguishers. Monthly inspection and yearly maintenance up to date.	x		
55-Pump equipped with drip tray and/or absorbant matting	x		
55-Pump protected from runoff caused by adverse weather	x		
57-Maximum draw of 15% of initial water volume or 15cm of water level from body of water	x		
ENVIRONMENT			
58-Material safety data sheets for all chemicals on-site	x		
59-Warnings and labels clearly visible on all chemicals	x		
60-Garbage	x		
61-Absence of site contamination	x		
62-Biodegradable oil used	x		
63-Motors equipped with drip tray and/or absorbant matting	x		
64-Damaged equipment regularly retired	x		
65-Oil, grease and propane containers equipped with drip trays and/or absormant matting	x		
66-Diesel fuel stored at least 4m away from drill set-up	x		
67-Complete spill kit at drill on-site	x		
68-Complete spill kit at pump site(s)	x		
69-Fines and other material prevented from entering waterbody	x		
70-Shoreline buffer of 20m		x	Built up pad of crushed rock
71-Access to waterbody limited to 5m maximum	x		
72-Adequate vegetation coverage on embankment		x	Built up pad of crushed rock

NAME OF CONTRACTOR: Major

SUPERVISOR: Al Monych DATE OF INSPECTION: Oct 4, 2010

MODEL/TYPE OF DRILL USED: OTHER EQUIPMENT:

INSPECTION PERFORMED BY: D.Cullen

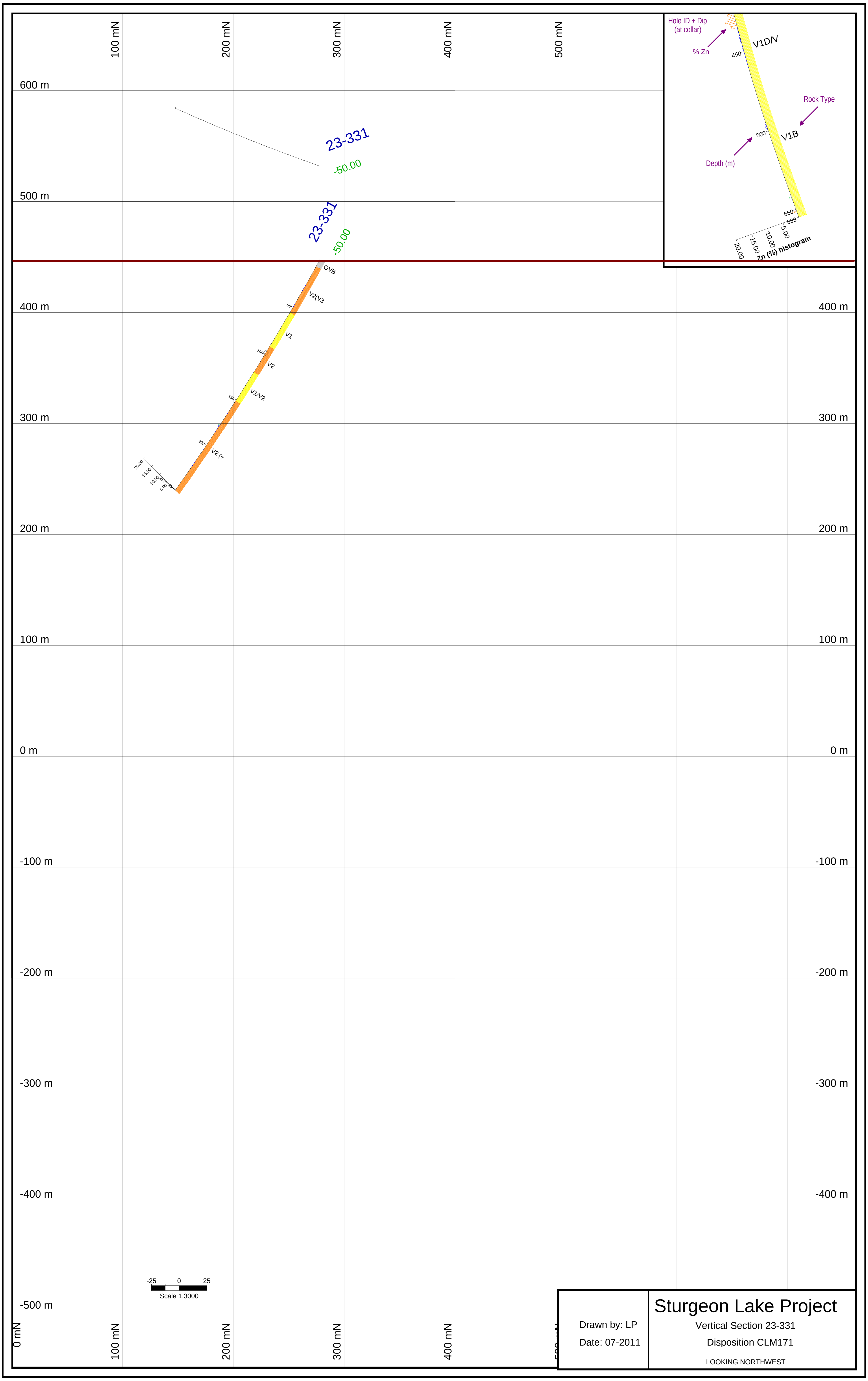
Corrective Action Required - Comments and/or suggestions:

Project: Sturgeon Lake Contract Number: #720

Signature of Contractor: Allen Monych OcT 14/2010

Signature of Inspector: [signature] OcT 15/2010

Signature of Geology Supervisor: [signature] OcT 15/2010



Drawn by: LP

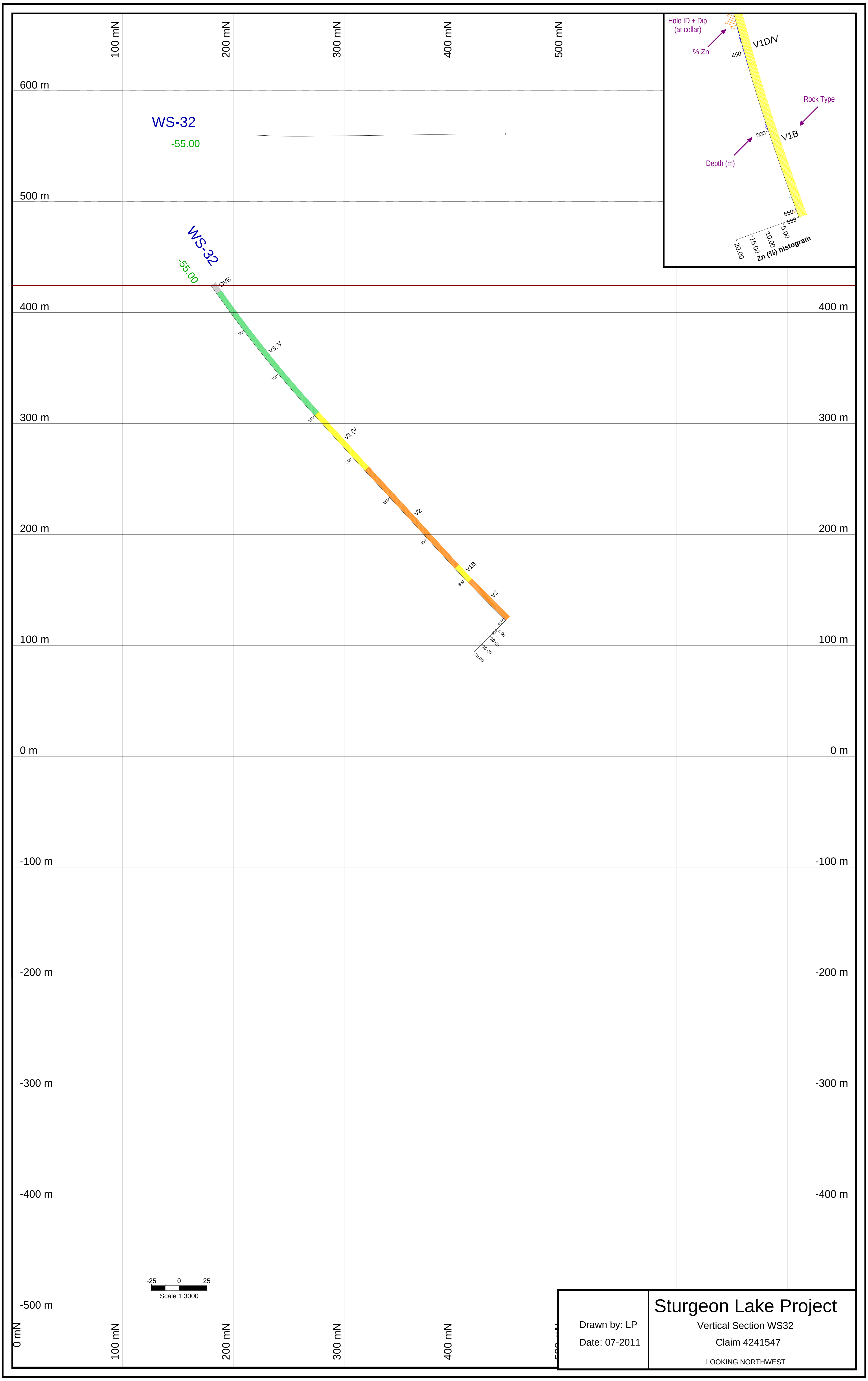
Date: 07-2011

Sturgeon Lake Project

Vertical Section 23-331

Disposition CLM171

LOOKING NORTHWEST



Drawn by: LP

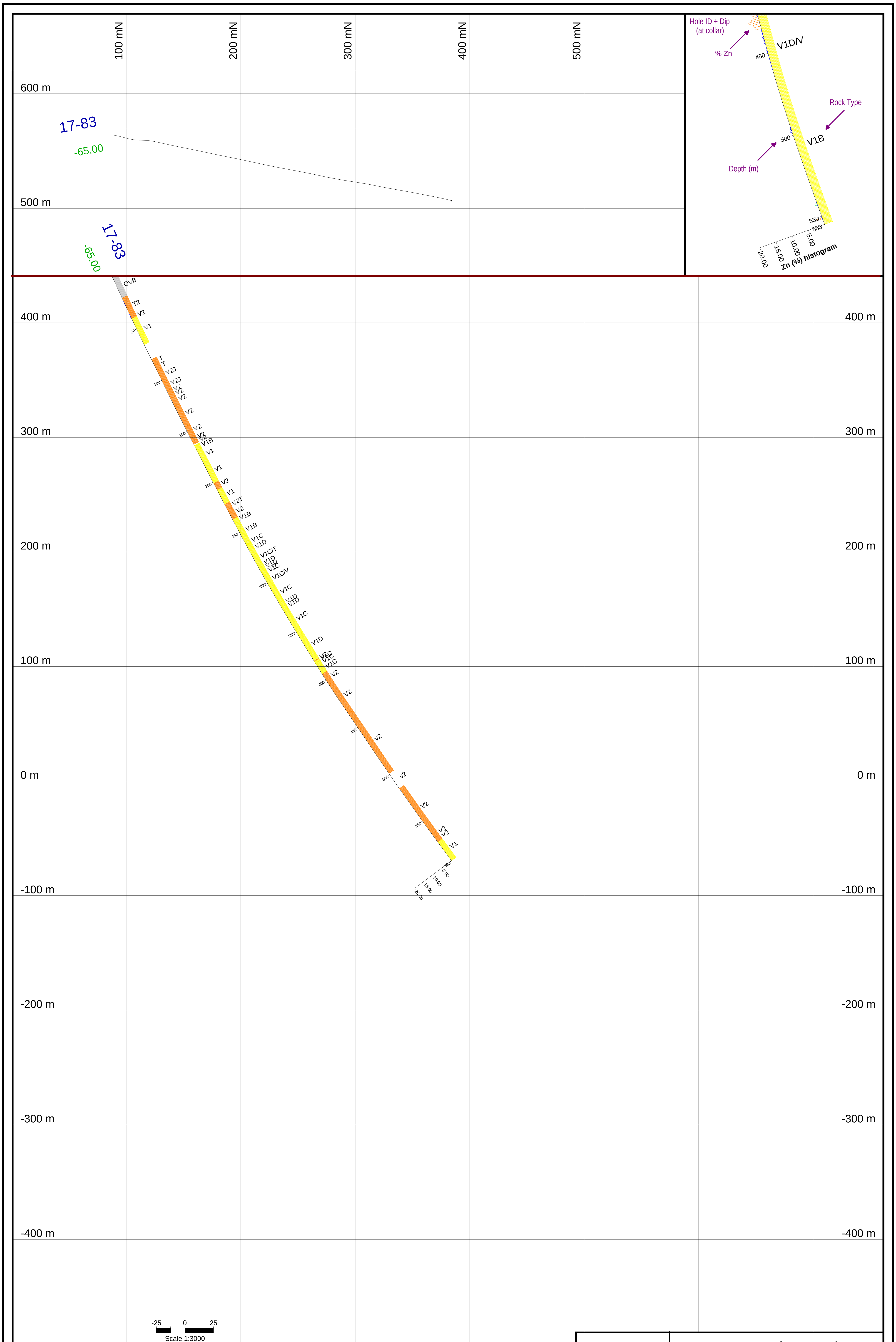
Date: 07-2011

Sturgeon Lake Project

Vertical Section WS32

Claim 4241547

LOOKING NORTHWEST



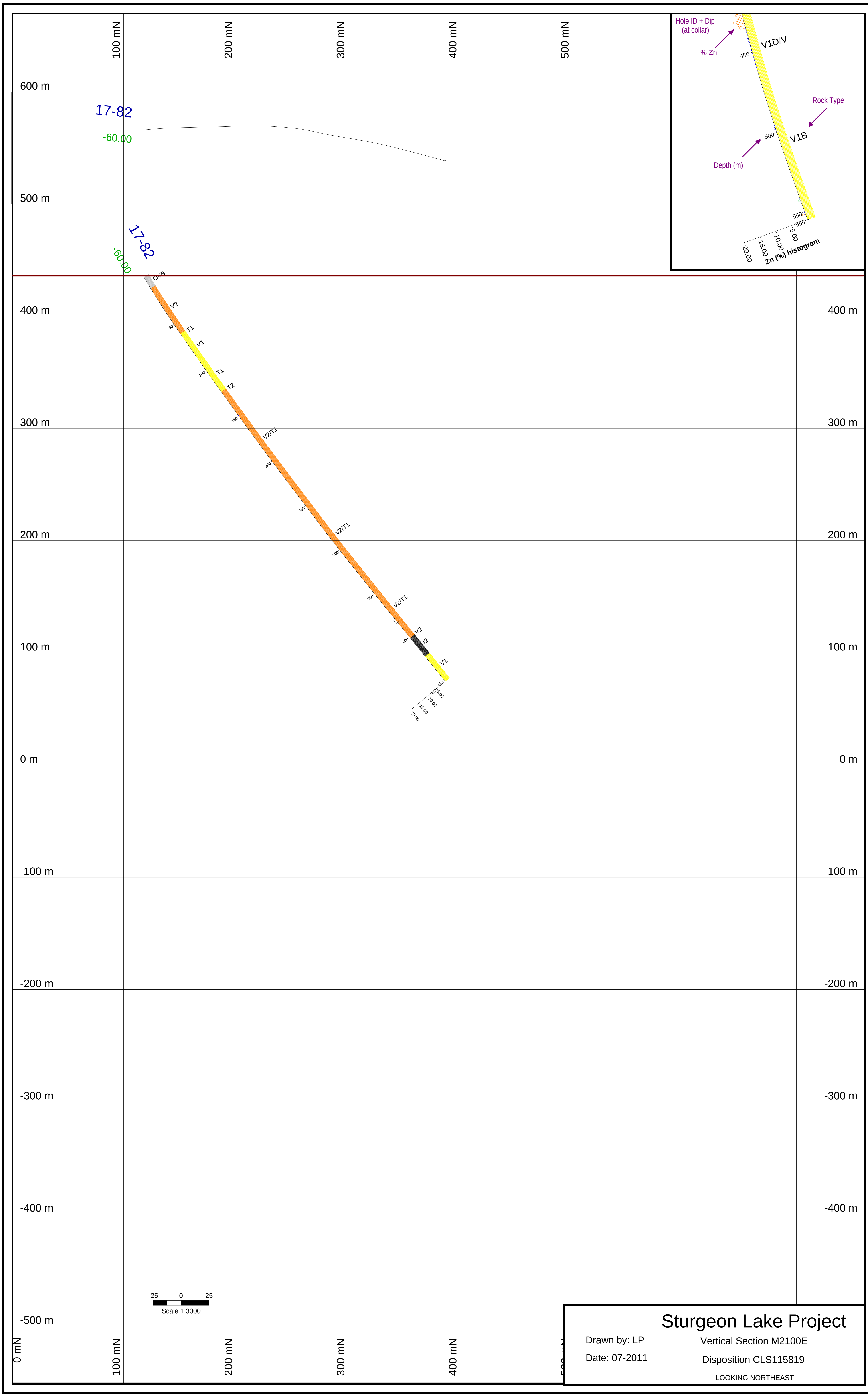
Sturgeon Lake Project

Vertical Section M2700E

Disposition CLS115819

Drawn by: LP

Date: 07-2011



Drawn by: LP

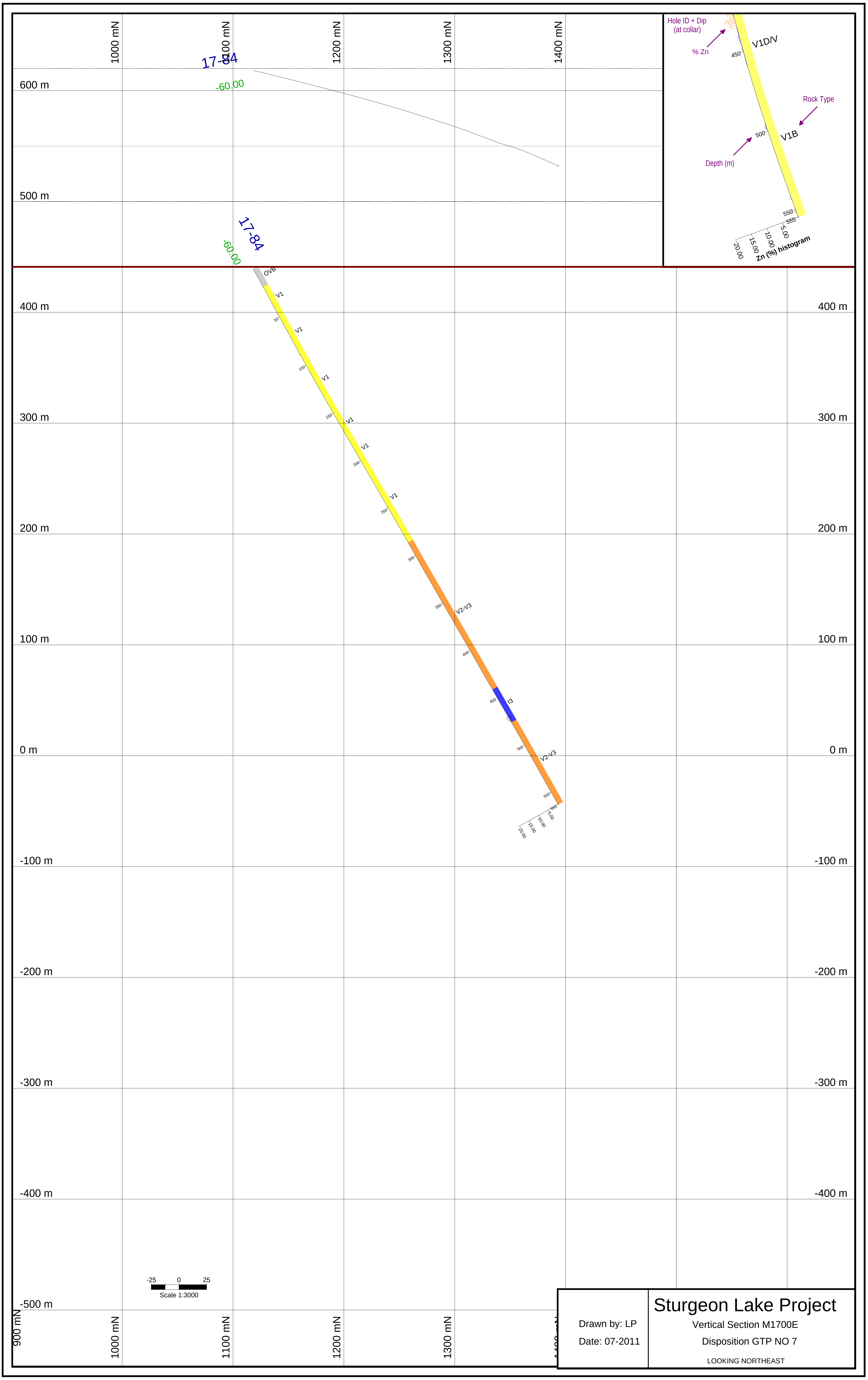
Date: 07-2011

Sturgeon Lake Project

Vertical Section M2100E

Disposition CLS115819

LOOKING NORTHEAST



Drawn by: LP

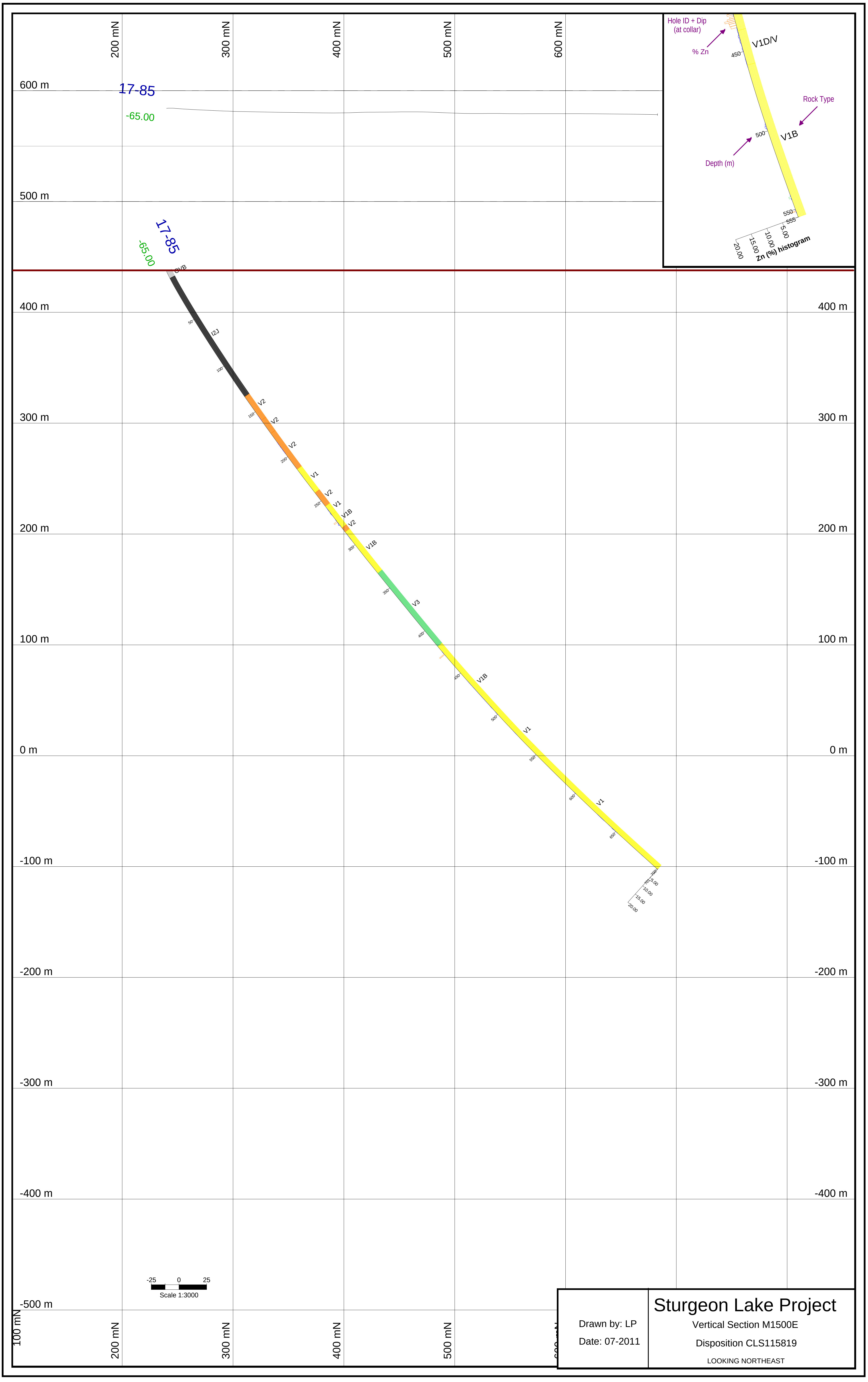
Date: 07-2011

Sturgeon Lake Project

Vertical Section M1700E

Disposition GTP NO 7

LOOKING NORTHEAST



Drawn by: LP

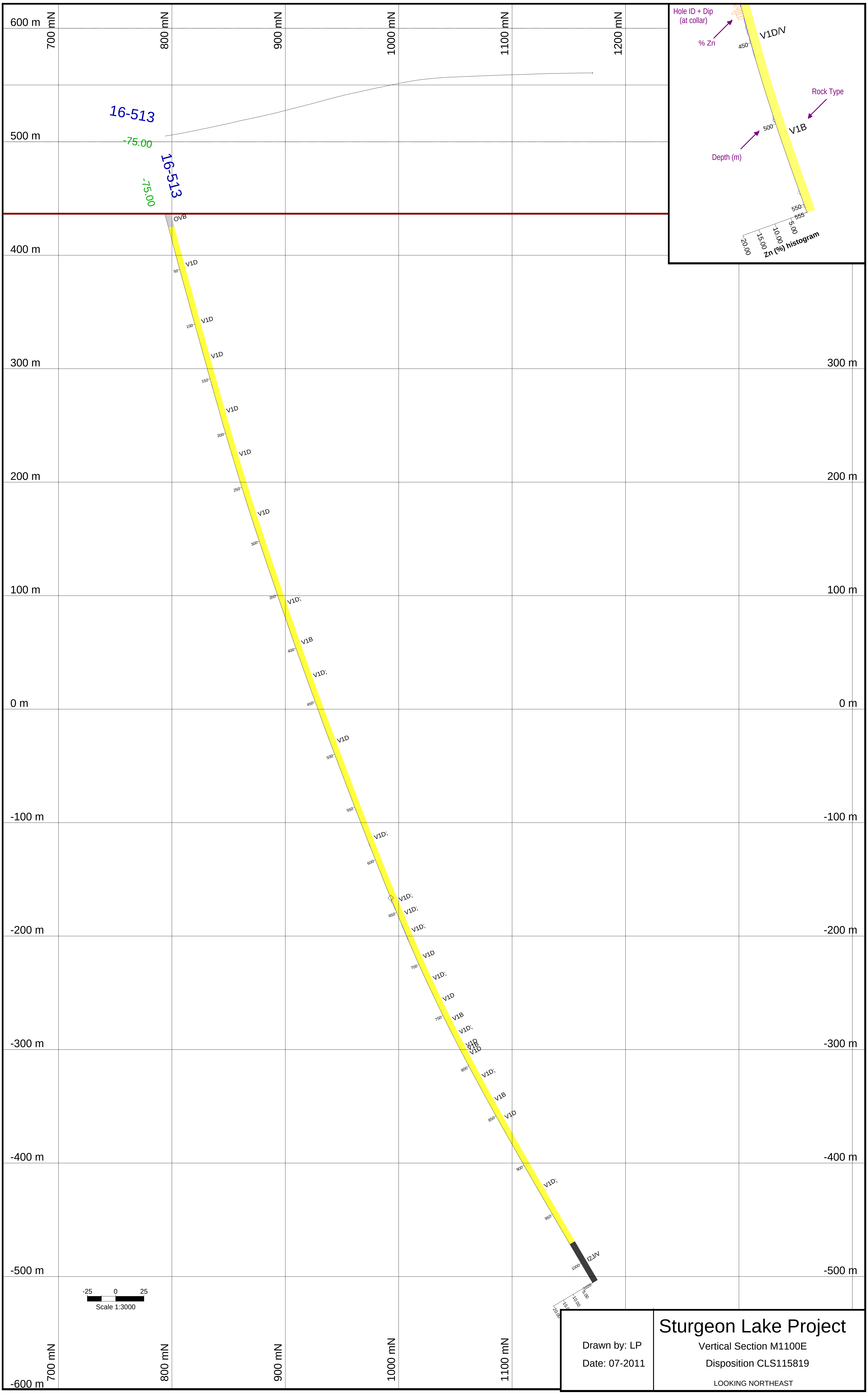
Date: 07-2011

Sturgeon Lake Project

Vertical Section M1500E

Disposition CLS115819

LOOKING NORTHEAST



Drawn by: LP

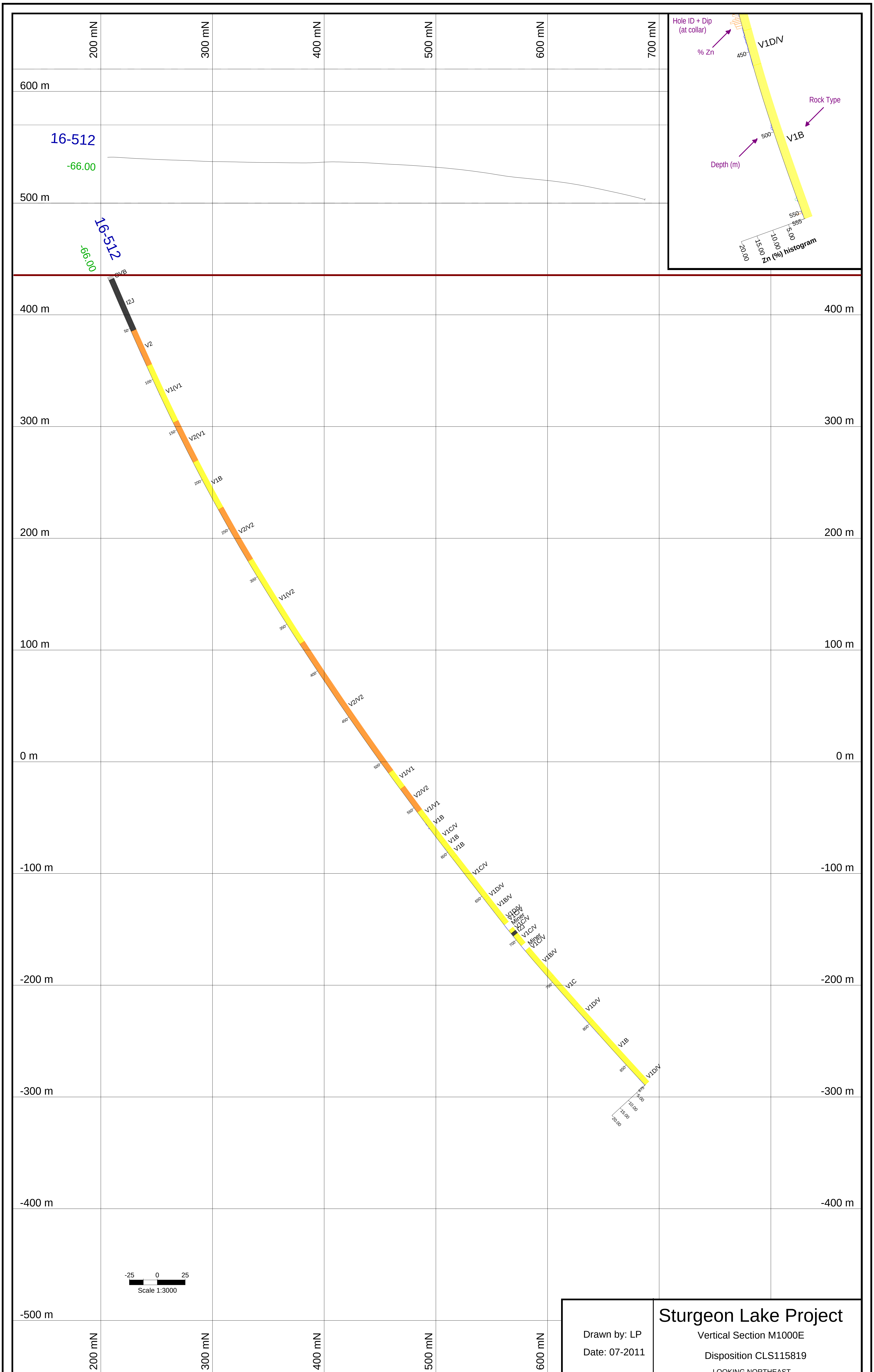
Date: 07-2011

Sturgeon Lake Project

Vertical Section M1100E

Disposition CLS115819

LOOKING NORTHEAST



Drawn by: LP

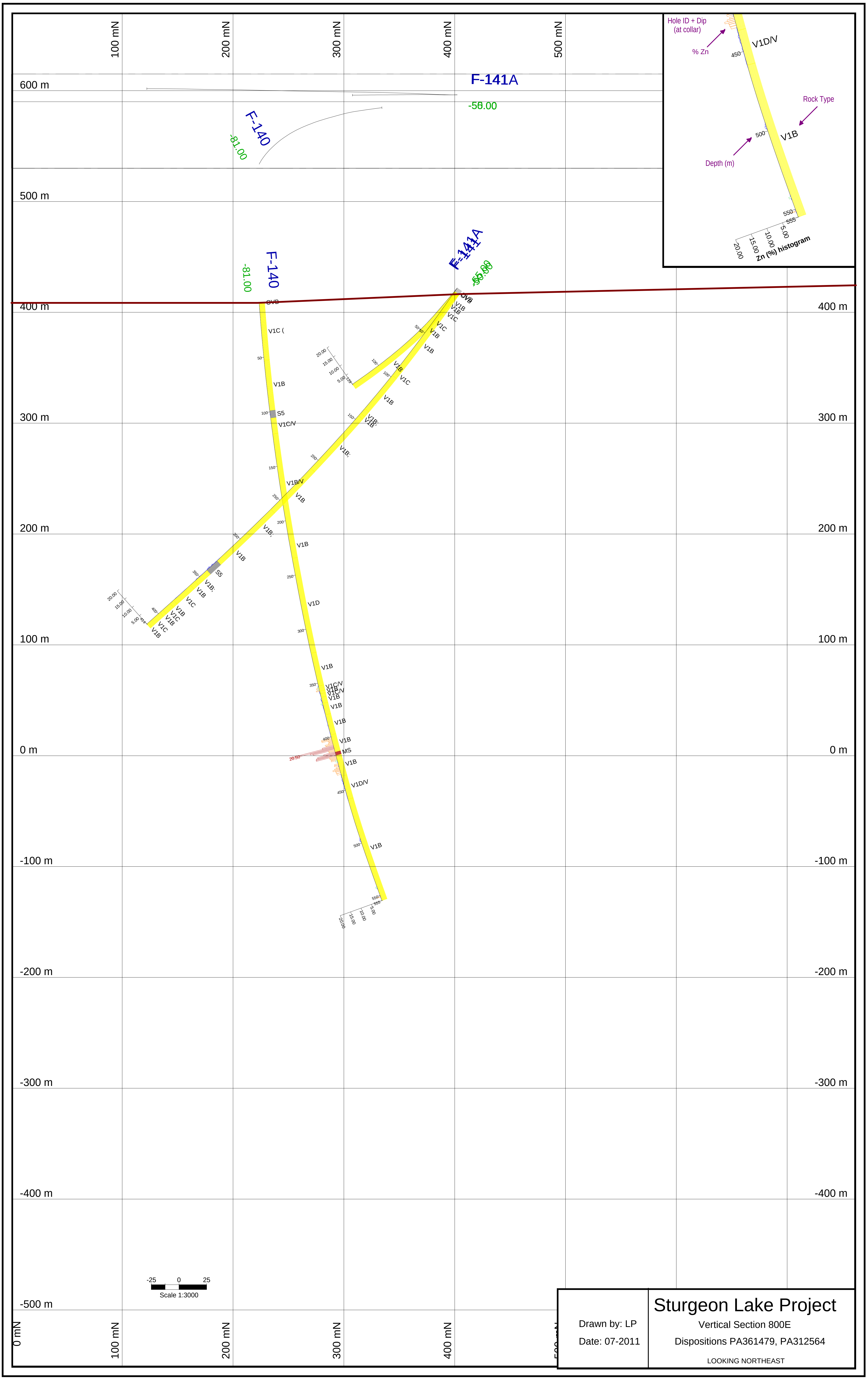
Date: 07-2011

Sturgeon Lake Project

Vertical Section M1000E

Disposition CLS115819

LOOKING NORTHEAST



Sturgeon Lake Project

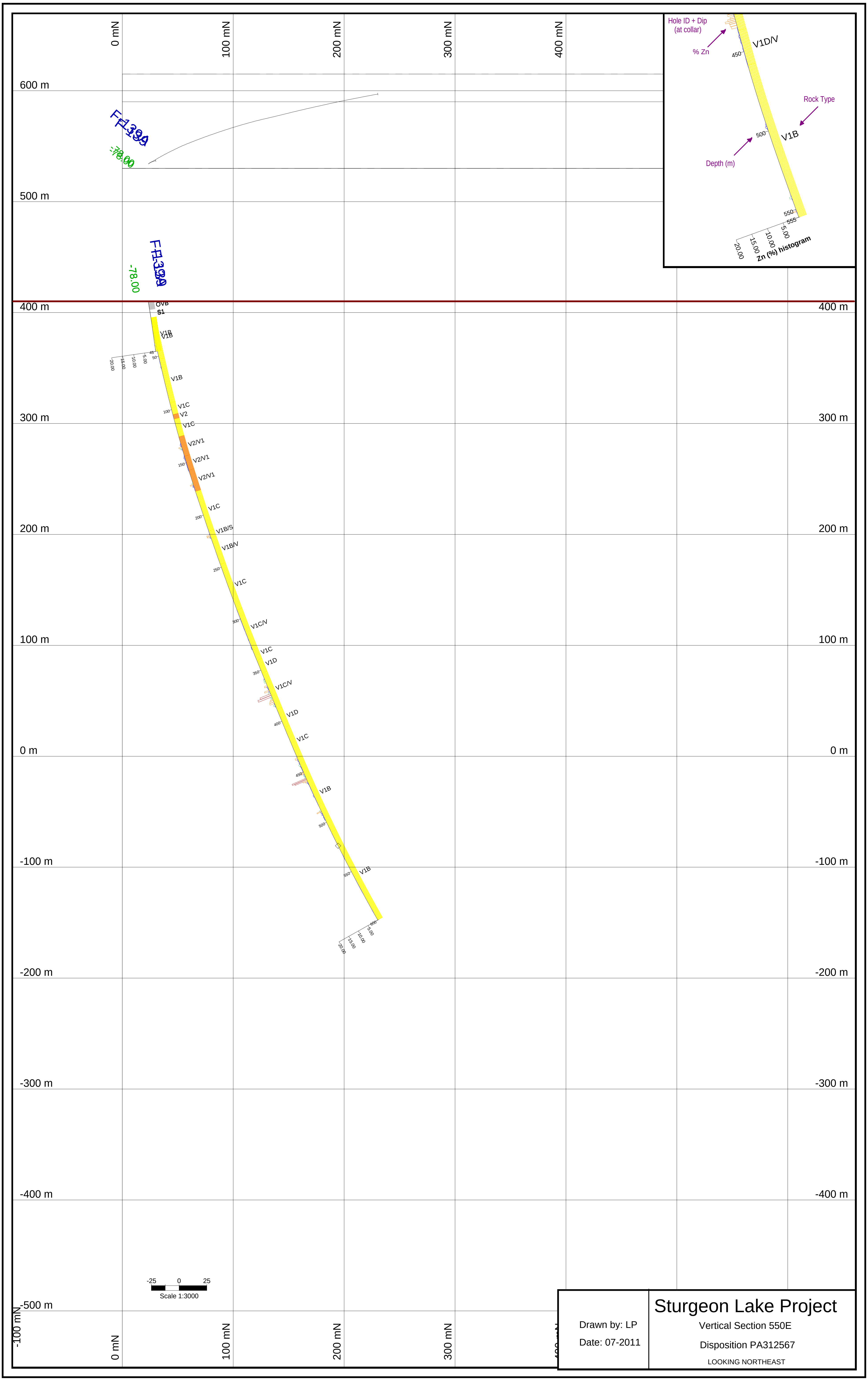
Vertical Section 800E

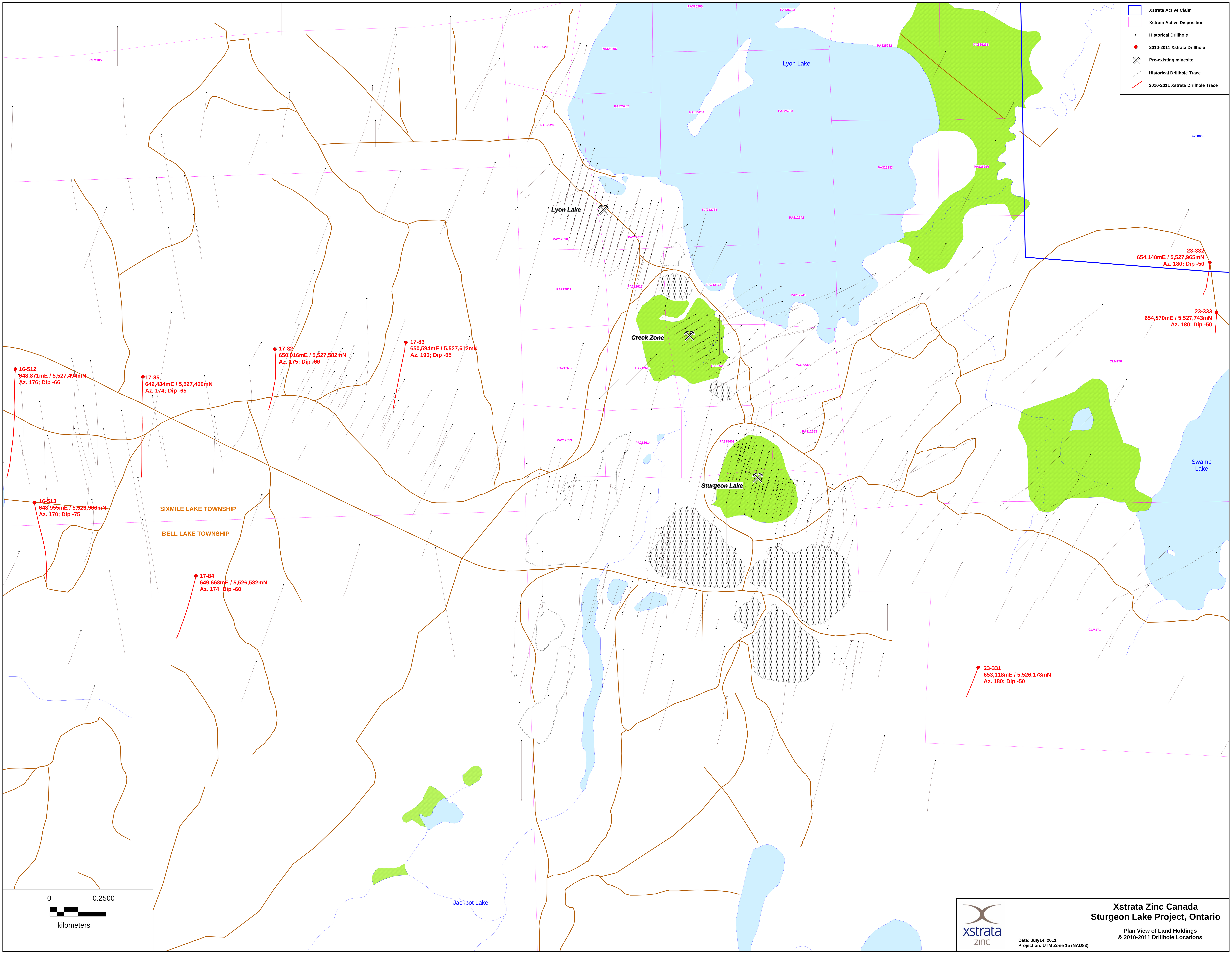
Dispositions PA361479, PA312564

LOOKING NORTHEAST

Drawn by: LP

Date: 07-2011

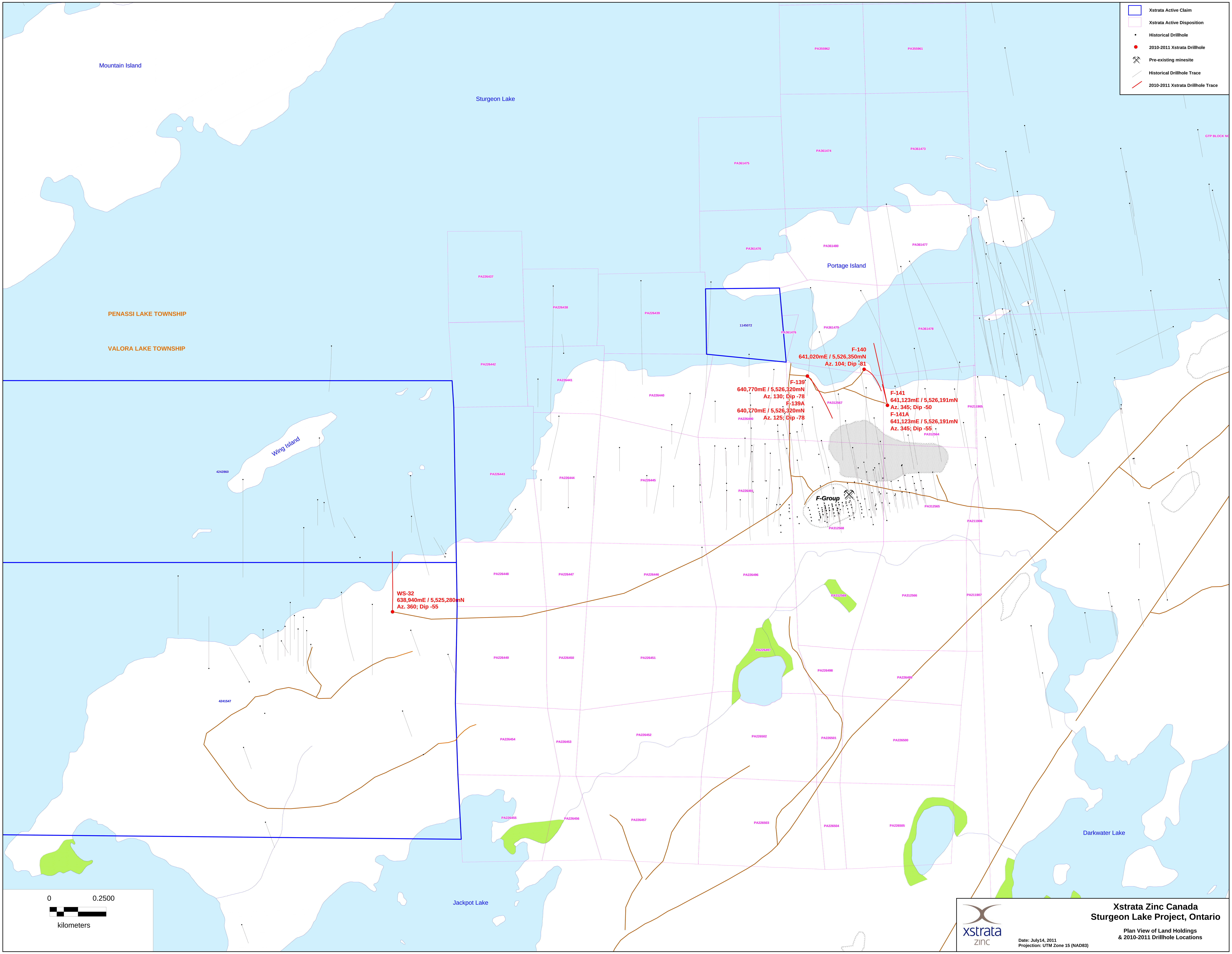

Sturgeon Lake Project
Vertical Section 550E
Disposition PA312567
LOOKING NORTHEAST
Drawn by: LP
Date: 07-2011
Scale 1:3000
-25
0
25
Hole ID + Dip (at collar)
% Zn
Rock Type
Depth (m)
Zn (%) histogram
-78.00
0 mN
100 mN
200 mN
300 mN
400 mN
600 m
500 m
400 m
300 m
200 m
100 m
0 m
-100 m
-200 m
-300 m
-400 m
-500 m
-100 mN
OVB
S1
V1B
V1C
V2
V2/V1
V1B/S
V1B/V
V1C/V
V1D
V1D/V

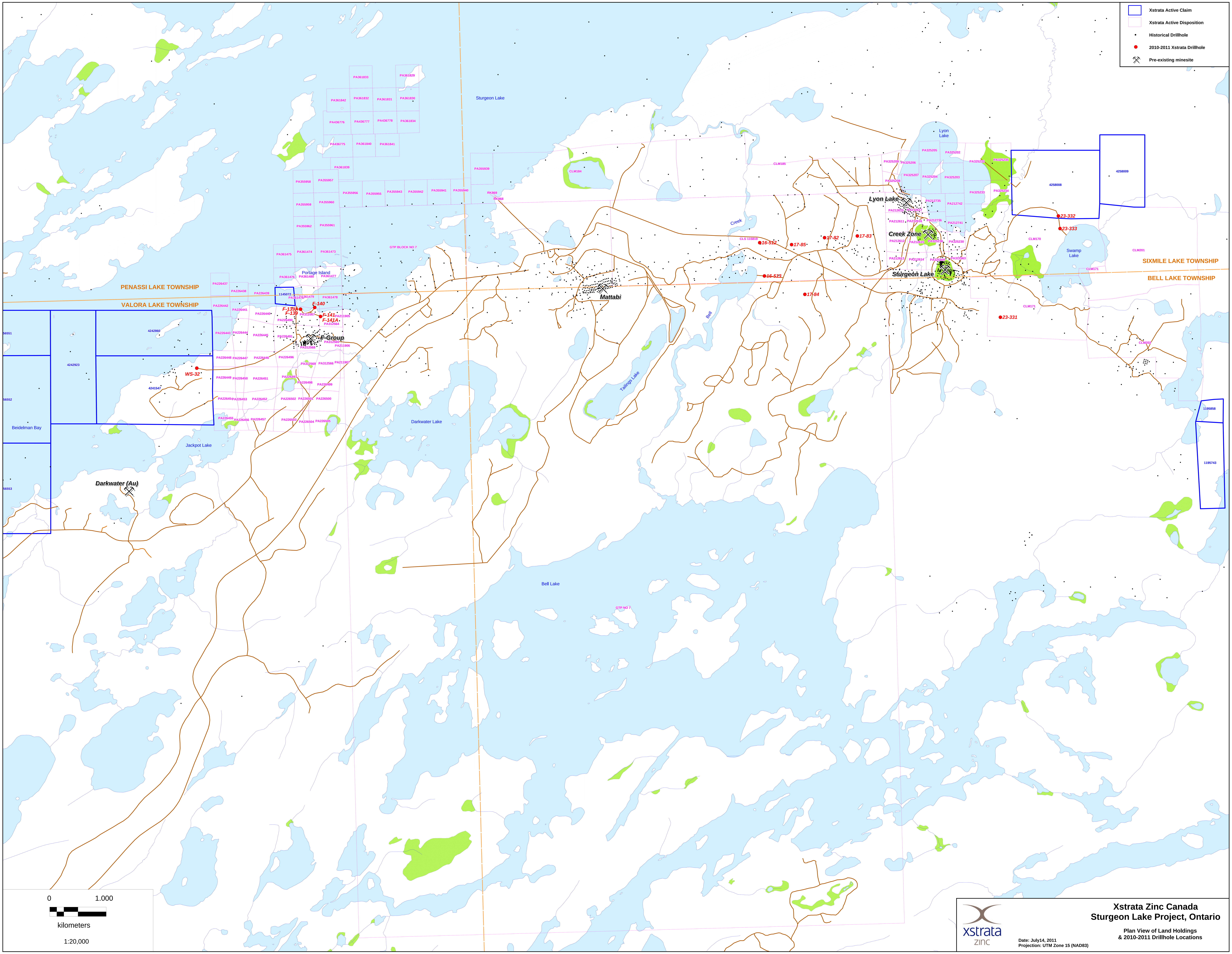


Xstrata Zinc Canada
Sturgeon Lake Project, Ontario

Plan View of Land Holdings
& 2010-2011 Drillhole Locations

Date: July14, 2011
Projection: UTM Zone 15 (NAD83)


Xstrata Active Claim
Xstrata Active Disposition
Historical Drillhole
2010-2011 Xstrata Drillhole
Pre-existing minesite
Historical Drillhole Trace
2010-2011 Xstrata Drillhole Trace
Mountain Island
Sturgeon Lake
Portage Island
PENASSI LAKE TOWNSHIP
VALORA LAKE TOWNSHIP
Wing Island
F-140
641,020mE / 5,526,350mN
Az. 104; Dip -81
F-139
640,770mE / 5,526,320mN
Az. 130; Dip -78
F-139A
640,770mE / 5,526,320mN
Az. 125; Dip -78
F-141
641,123mE / 5,526,191mN
Az. 345; Dip -50
F-141A
641,123mE / 5,526,191mN
Az. 345; Dip -55
F-Group
WS-32
638,940mE / 5,525,280mN
Az. 360; Dip -55
Jackpot Lake
Darkwater Lake
0
0.2500
kilometers
xstrata zinc
Xstrata Zinc Canada
Sturgeon Lake Project, Ontario
Plan View of Land Holdings
& 2010-2011 Drillhole Locations
Date: July14, 2011
Projection: UTM Zone 15 (NAD83)



Xstrata Active Claim
Xstrata Active Disposition
Historical Drillhole
2010-2011 Xstrata Drillhole
Pre-existing minesite
Sturgeon Lake
Lyon Lake
Creek Zone
Sturgeon Lake
Mattabi
F-Group
Darkwater (Au)
Portage Island
PENASSI LAKE TOWNSHIP
VALORA LAKE TOWNSHIP
SIXMILE LAKE TOWNSHIP
BELL LAKE TOWNSHIP
Darkwater Lake
Jackpot Lake
Beidelman Bay
Bell Lake
Tailings Lake
Swamp Lake
Creek
Bell
F-139A
F-139
F-140
F-141
F-141A
WS-32
16-512
16-513
17-85
17-82
17-83
17-84
23-331
23-332
23-333
0
1.000
kilometers
1:20,000
Xstrata Zinc Canada
Sturgeon Lake Project, Ontario
Plan View of Land Holdings
& 2010-2011 Drillhole Locations
Date: July14, 2011
Projection: UTM Zone 15 (NAD83)
xstrata
zinc