



Minto Mine
Water Licence QZ14-031 & Quartz Mining Licence QML-0001
2015 Annual Report
Geochemical Monitoring Report

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Minto Mine
March 2016

Table of Contents

1	Geochemical Monitoring Program Objectives.....	1
2	ABA Program - Waste Rock and Overburden	2
2.1	Internal Frequency of Sampling – On-site Analysis	2
2.2	External Frequency of Sampling	2
2.3	Sample Preparation	2
2.4	Test Work and Evaluation	2
2.5	Discussion.....	2
2.6	Results.....	3
2.6.1	NPR.....	3
2.6.2	Paste pH	3
2.6.3	Sulphide Sulphur	4
3	Tailings	5
3.1	Frequency of Sampling and Sample Preparation.....	5
3.2	Test work and Evaluation.....	5
3.3	Results.....	5
4	Conclusion.....	6
5	References	6

List of Tables

Table 1.	NPR Results Summary for 2014 and 2015.....	3
Table 2.	Paste pH Results Summary for 2014 and 2015.	3
Table 3.	Sulphide Sulphur Results Summary for 2014 and 2015.	4

List of Figures

Figure 1.	Minto Waste Rock and Overburden Sulphide Sulfur vs NPR, 2015.	4
Figure 2.	Tailings Sulphide Sulphur vs NPR, 2015.	5

List of Appendices

Appendix A: Sample Location Images

Appendix B: 2015 Modified NP Method (MEND 1991) ABA Results for Waste Rock and Overburden

Appendix C: SGS Raw Lab Results

Appendix D: 2015 Modified NP Method (MEND 1991) ABA Results for Tailings

1 Geochemical Monitoring Program Objectives

This report is submitted to meet requirements under Minto Explorations Ltd., (a subsidiary of Capstone Mining Corporation), Minto Mine (Minto) Type “A” Water Licence QZ14-031-1 (WUL) and Quartz Mining Licence QML-0001.

The WUL specifically addresses the requirement in clause 95 which states *“The Licensee shall implement the updated Geochemical Monitoring Program, including the Waste Rock Verification Program, and the results from this program are to be included in the Annual Report.”*

The QML addresses the requirement in Schedule D – Annual Reporting Requirements, under the Environmental Monitoring section, subsection a) which states *“a summary of the programs undertaken for environmental monitoring and surveillance as outlined in the Environmental Monitoring, Surveillance and Reporting Plan”*.

Details regarding the Geochemical Monitoring Program can be found in Minto’s Environmental Monitoring, Surveillance and Reporting Plan (EMSRP) that was submitted to the Yukon Water Board and Yukon Government, Energy Mines and Resources Branch on December 3rd, 2015. In general, the Geochemical Monitoring Program is comprised of the following components:

- The Acid Base Accounting (ABA) Program, the primary focus of this document;
- The Waste Rock Management Verification Program; and
- Low Grade and Oxide Ore Metals Leaching Characterization Program (currently not implemented).

The objective of the ABA Program is to determine the Neutralization Potential Ratio, otherwise referred to as the NPR (Neutralizing Potential divided by Acid Potential [NP/AP]) for overburden and waste rock. An NPR value of 3 or greater generally indicates non-acid generating material. During 2015, 127 waste rock and overburden samples were collected and analyzed from the open pits and another 29 samples of waste rock was sampled from the Area 118 underground development. Open pit samples were collected from the Area 2 and Minto North pits.

A separate, parallel ABA program was administered to determine the NPR of the tailings solids. During 2015, 12 monthly samples were collected and analyzed from the mill.

The objective of the Waste Rock Management Verification Program is to verify that the on-site waste rock segregation system is performing as expected. The results of the Waste Rock Management Verification Program are available in the Annual Report and will therefore not be discussed further in this document.

There are currently no details or results for the Low Grade and Oxide Ore Metals Leaching Characterization Program as it is currently under development and therefore will not be discussed further in this document.

2 ABA Program - Waste Rock and Overburden

2.1 Internal Frequency of Sampling – On-site Analysis

On-site total carbon (C(T)) and total sulphur (S(T)) analysis are carried out on drill cuttings from every blast hole. Samples are collected for grade control purposes, and a portion of each sample is sent for S(T) and total carbon C(T) analyses at the on-site laboratory.

2.2 External Frequency of Sampling

External analysis were completed for composites samples from open pit mining. A sample of drill cuttings was collected from waste blasts with a frequency of approximately one sample for every seven holes drilled. Composite samples from each waste class for each blast are formed from approximately 4-5 individual samples.

External analysis were also carried out for underground ABA samples. The sampling procedure assembles a composite sample every 3300 tonnes (equivalent to approximately 50 m of development) using a grab sample or wall chipping technique.

2.3 Sample Preparation

All composite samples were reduced to 1-2 kg in mass using a riffle splitter. The resulting split sample was labeled according to the ABA Program sample naming standards and shipped to an accredited laboratory (SGS Canada Inc. [SGS], 6927 Antrim Avenue, Burnaby, BC, V5J 4M5). The labeling methodology was consistent with the Mine Environmental ABA Database throughout the reporting period.

2.4 Test Work and Evaluation

Internal samples are analyzed for S(T) and C(T) using an Eltra CS-800 induction furnace with infrared detectors. The resultant S(T) and C(T) data are converted to equivalent acid and neutralization potential and ultimately, NP:AP ratios are calculated. The calculated NP:AP ratios are used for characterization and segregation of waste rock on-site. This data is used for internal classification and waste rock segregation only, therefore, the results of that program will not be reported in this report.

SGS conducted ABA analysis using the MEND (1991) Modified NP method as detailed in the EMSRP for all external samples. Reported results were entered into the Mine Environmental ABA Database. Waste rock and overburden composite samples were also analyzed for total metals for the entire duration of the reporting period.

For the reporting period, the results obtained from SGS were compared against past results found in the Mine Environmental ABA Database and the results are presented in Section 2.5.

2.5 Discussion

Blasts are numbered by bench (denoted by the toe elevation) and by the sequential blast number for that bench (e.g. 784-01; 784 being the toe elevation of the bench and 01 being the first blast of the bench). Images depicting the location of all samples collecting during the reporting period are provided in Appendix A.

The primary lithology of the deposit is granodiorite. The granodiorite is divided into sub-units and classified as equigranular granodiorite (eG), porphyroblastic granodiorite (pG), and foliated granodiorite (fG). Locally, very highly-weathered granodiorite near the surface is described as residuum, and surface materials

comprised of organics and soil is termed overburden. Other minor lithological units are described as pegmatite (Peg), Andesite (And) and Aplite (Ap).

2.6 Results

The 156 samples collected in the reporting period were analyzed by SGS and results were reported according to the Modified NP method (MEND 1991). In the reporting period, the NPR values ranged from -6.10 to 102.10 with a mean NP/mean AP of 5.08 and a median of 18.70. A summary of the results for ABA analysis are attached as Appendix B. Additionally, the SGS raw lab result files are provided in Appendix C.

2.6.1 NPR

The 2015 NPR results are compared to the results from 2014 in Table 1, below.

Table 1. NPR Results Summary for 2014 and 2015.

NPR Values from SGS				
Period Ending	Minimum (NPR)	Maximum (NPR)	(Mean NP)/(Mean AP)	Median (NPR)
2014 (January to December, 2014)	0.60	167.20	5.31	23.80
2015 (January to December, 2015)	-6.10	102.10	5.08	18.70

During the reporting period, 20 samples returned NPR values below the threshold of 3.0. Of the 20 samples with a NPR value less than 3:

- 12 were found to have an increased sulphide sulphur content (and therefore AP) consequently decreasing the NPR;
- 3 samples represented material classified as NAG.
- 16 sample represented material that will be placed in the SAT dump.
- 1 sample represented overburden material from the early stages of Minto North Pit stripping. This one sample is responsible for the -6.1 NPR result, however, is likely geochemically inert due to the low sulphide sulphur content. The limited sulphide sulphur and the isolated nature of this single result indicate that it is unlikely to be a concern moving forward.

All waste rock and overburden was dispatched based on Minto's *Waste Rock and Overburden Management Plan*.

2.6.2 Paste pH

The paste pH results for 2015 were between 5.23 and 9.47 with a mean value of 8.70 and a median value of 8.78. The paste pH results for 2014 and 2015 are displayed in Table 2, below.

Table 2. Paste pH Results Summary for 2014 and 2015.

Paste pH from SGS				
Period Ending	Minimum (pH)	Maximum (pH)	Mean (pH)	Median (pH)
2014 (January to December, 2014)	6.44	9.43	8.56	8.66
2015 (January to December, 2015)	5.23	9.47	8.70	8.78

The results from 2015 are comparable to the 2014 results with the exception of one result which has a slightly lower paste pH (5.23). The 5.23 paste pH result corresponds to the organic-rich overburden sample which had a negative NPR (NPR -6.1 as described above); this sample also had higher organic carbon content than other

waste rock, and the slightly lower paste pH is consistent with organic-rich soil characteristics where little buffering capacity exists. As mentioned above, this material is likely geochemically inert as it has a low sulphur content (0.02%)-

2.6.3 Sulphide Sulphur

The sulphide sulphur content $S(S^{2-})$ results for 2015 ranged from <0.01 to 1.09%, with a mean value of 0.09% and a median value of 0.02% as summarized in Table 3. The sulphide sulphur content during 2015 was generally lower than what was found in 2014.

Table 3. Sulphide Sulphur Results Summary for 2014 and 2015.

Sulphide-Sulphur % from SGS				
Period Ending	Minimum ($S(S^{2-})$)	Maximum ($S(S^{2-})$)	Mean ($S(S^{2-})$)	Median ($S(S^{2-})$)
2014 (January to December, 2014)	<0.01	3.26	0.12	0.02
2015 (January to December, 2015)	<0.01	1.09	0.09	0.02

A total of 12 samples exceeded the sulphide sulphur threshold for construction rock of 0.3% during 2015. Furthermore, all 12 samples also had a NPR of less than 3.

Figure 1, below, is a plot of sulphide sulphur versus (vs) NPR for all samples analyzed during 2015. Figure 1 illustrates that 12 samples had sulphide sulphur content greater than 0.3% and 20 samples had a NPR threshold of less than 3.

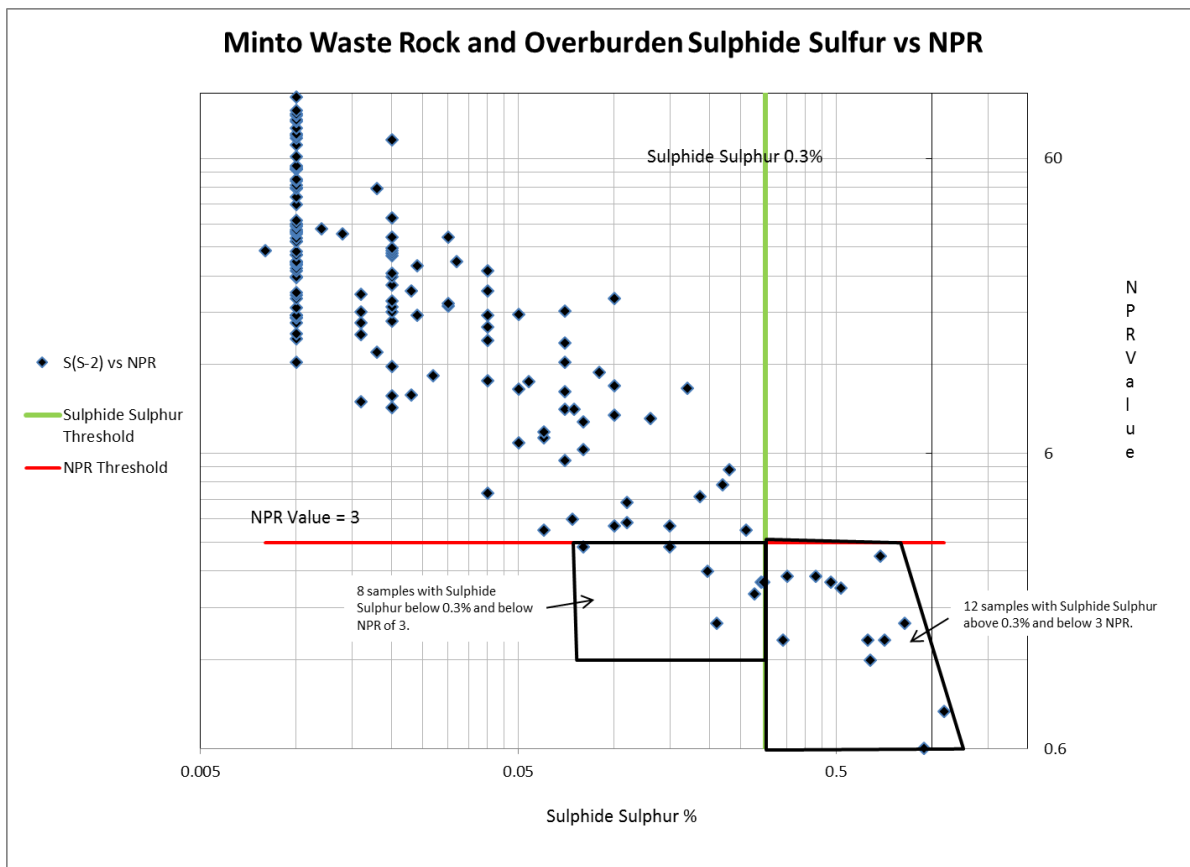


Figure 1. Minto Waste Rock and Overburden Sulphide Sulfur vs NPR, 2015.

3 Tailings

3.1 Frequency of Sampling and Sample Preparation

Minto collects a weekly sample of final tailings. The weekly samples have been filtered and dried in the onsite lab and then combined into a monthly sample which is then riffled down to produce a 1-2 kg composite. Samples are labelled according to the labeling protocol established in the Mine Environmental ABA Database.

3.2 Test work and Evaluation

Mirroring the waste rock and overburden analysis, SGS conducted ABA analysis using the MEND (1991) Modified NP method as detailed in the EMSRP. Reported results were entered into the Mine Environmental ABA Database. Monthly tailings composite samples were also analyzed for total metals for the entire duration of 2015.

3.3 Results

The results from the SGS laboratory tests indicate that 2015 tailings samples were within the threshold of NPR greater than 4 and contain lower than 0.3% sulphide sulphur content as presented in Figure 2, below. The tailings results are summarized in Appendix D and the raw lab results are presented in Appendix C.

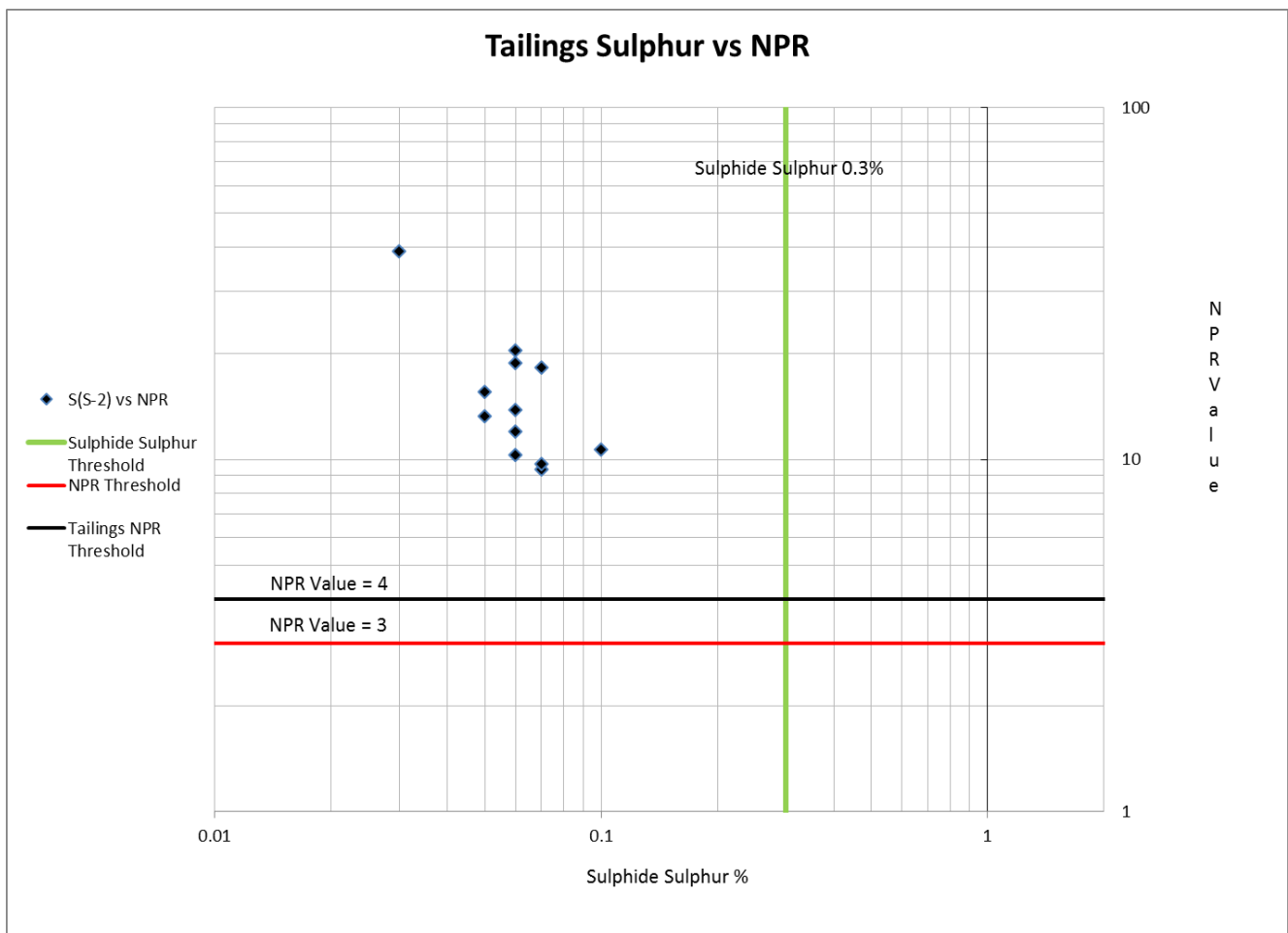


Figure 2. Tailings Sulphide Sulphur vs NPR, 2015.

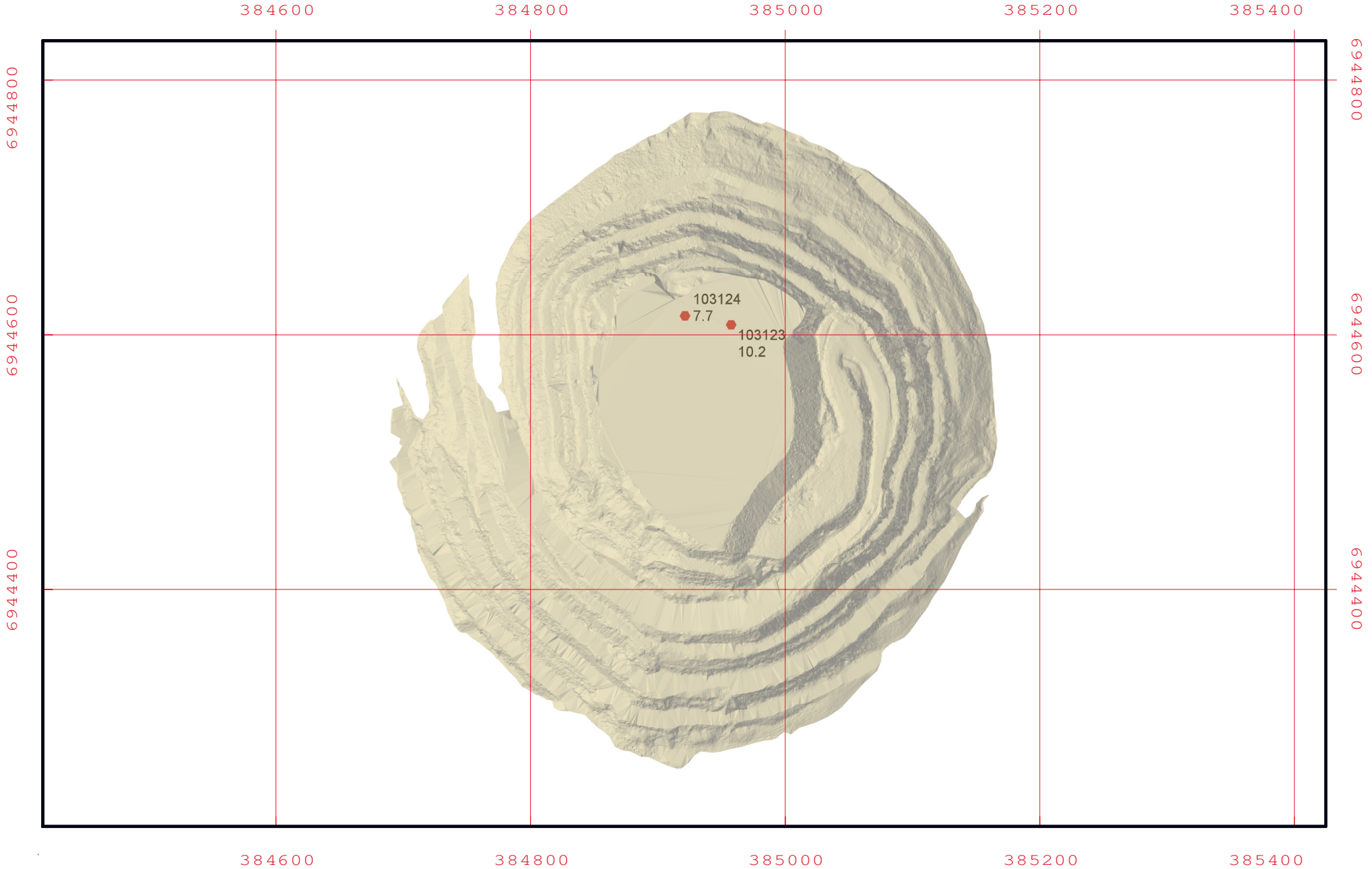
4 Conclusion


The results displayed in this report combined with the previous reporting periods are the foundation for the Mine Environmental ABA Database. Overburden and waste rock development will continue through the subsequent phases of mining and milling and will be sampled, analyzed and reported as required by the WUL and QML and in accordance with the EMSRP.

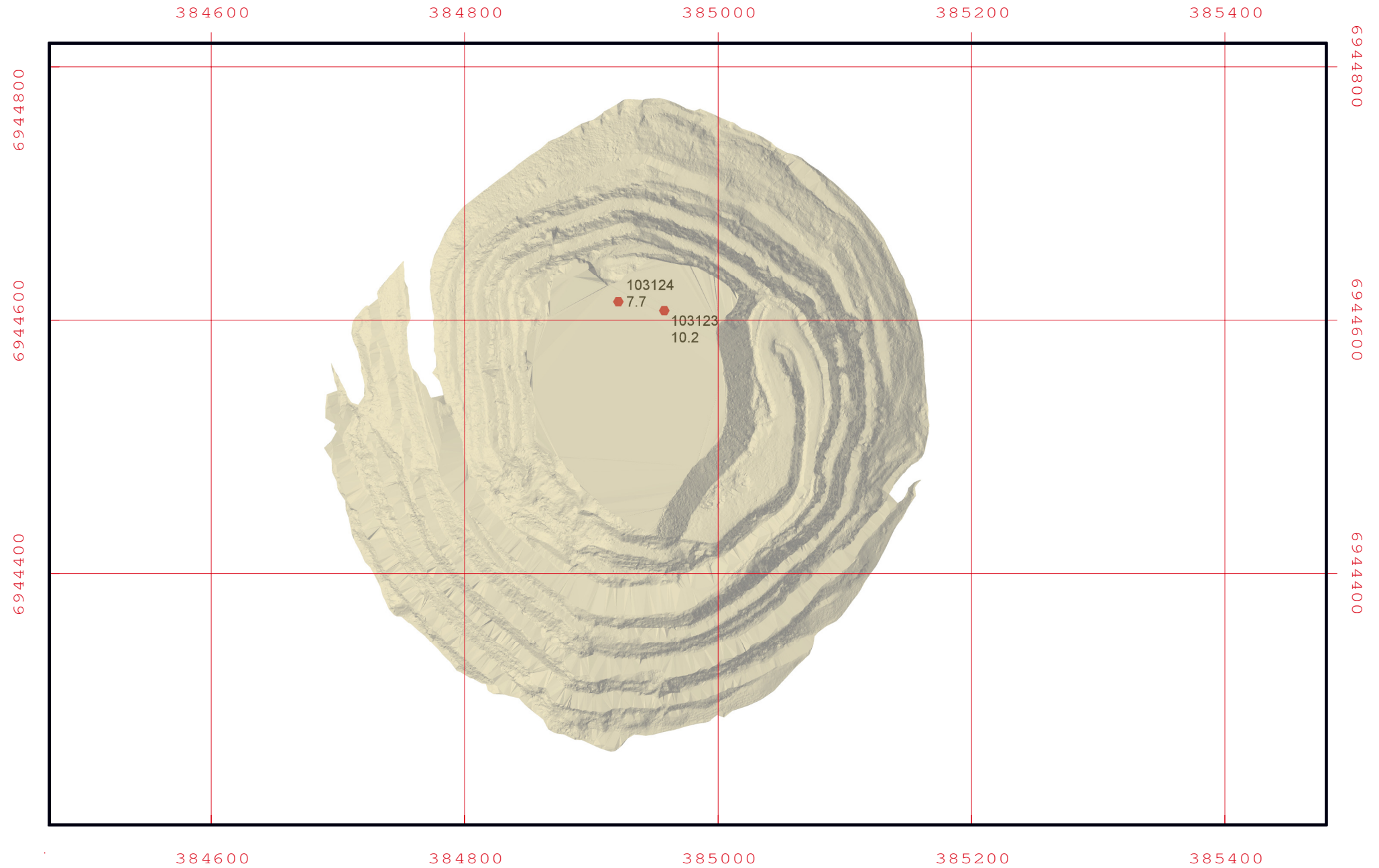
5 References


MEND. (1991). *Mine Environment Neutral Drainage Program: Acid Rock Drainage Prediction Manual, MEND Project 1.16.1 (b)*. Prepared by Coastech Research Inc., North Vancouver, B.C. March 1991.

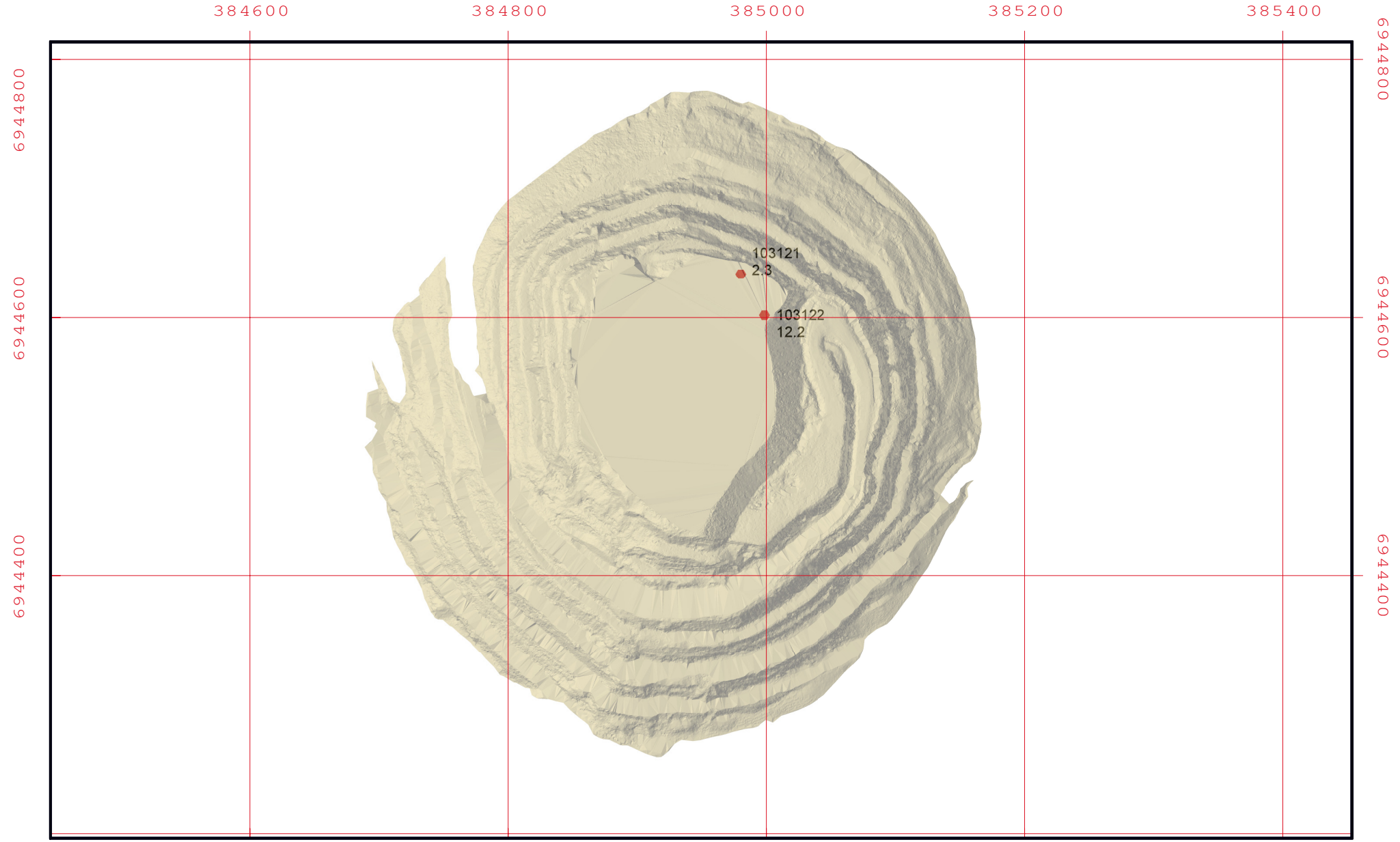
Appendix A: Sample Location Images




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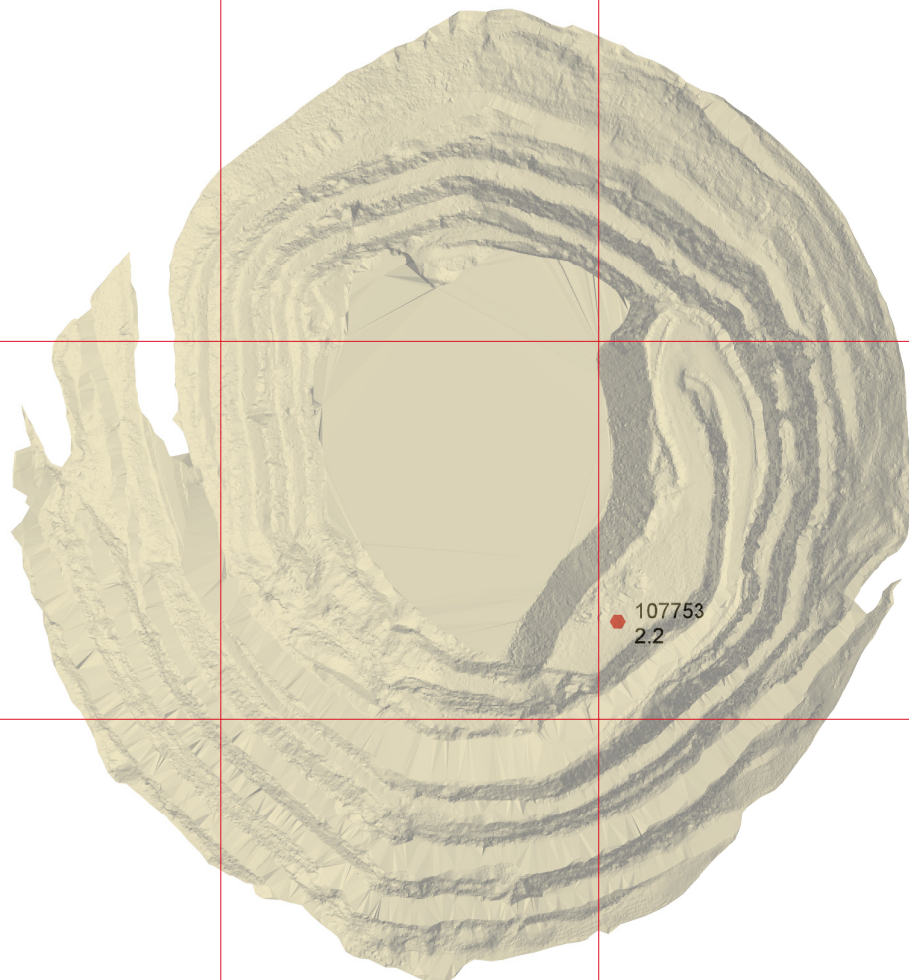
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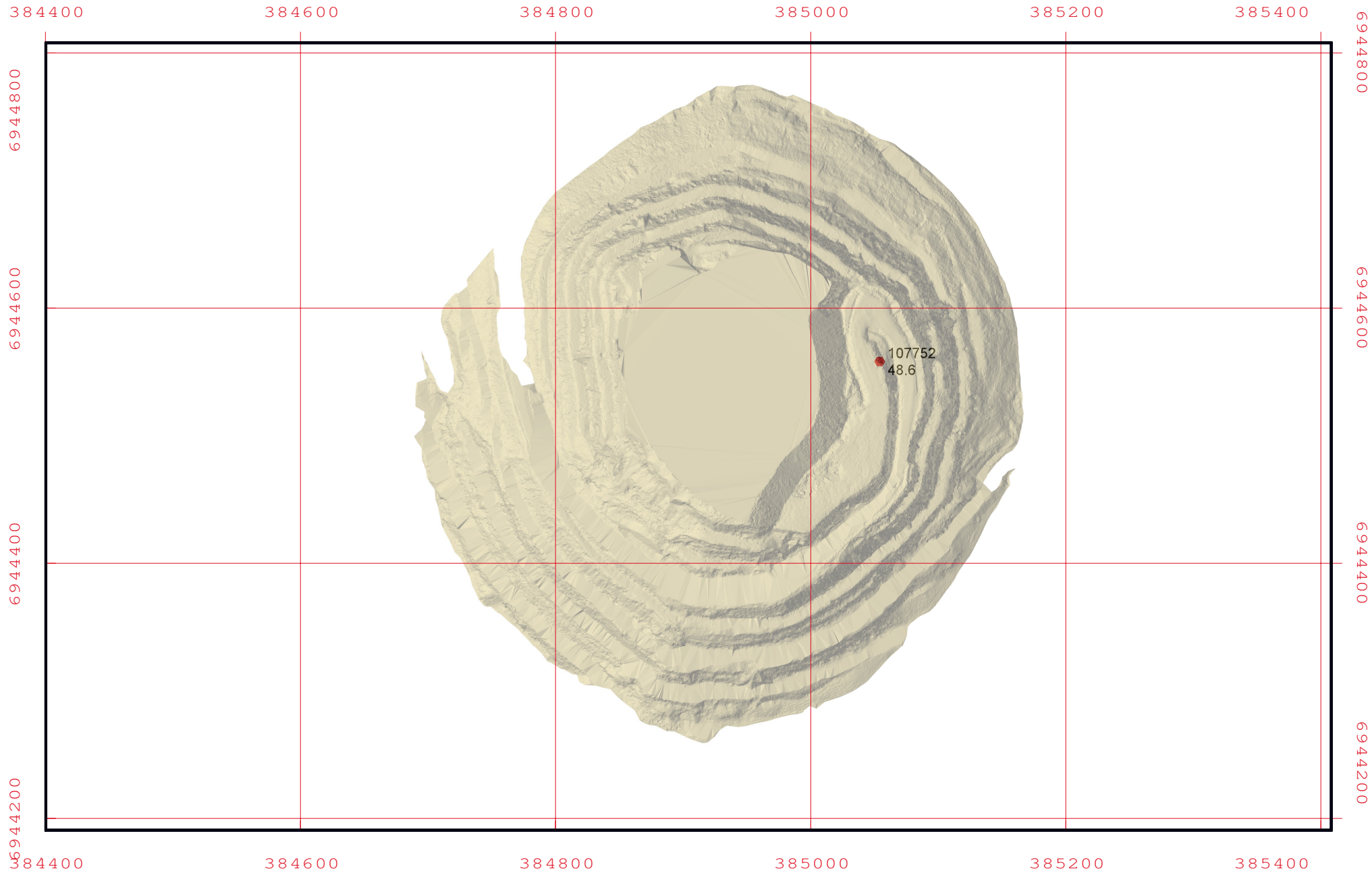
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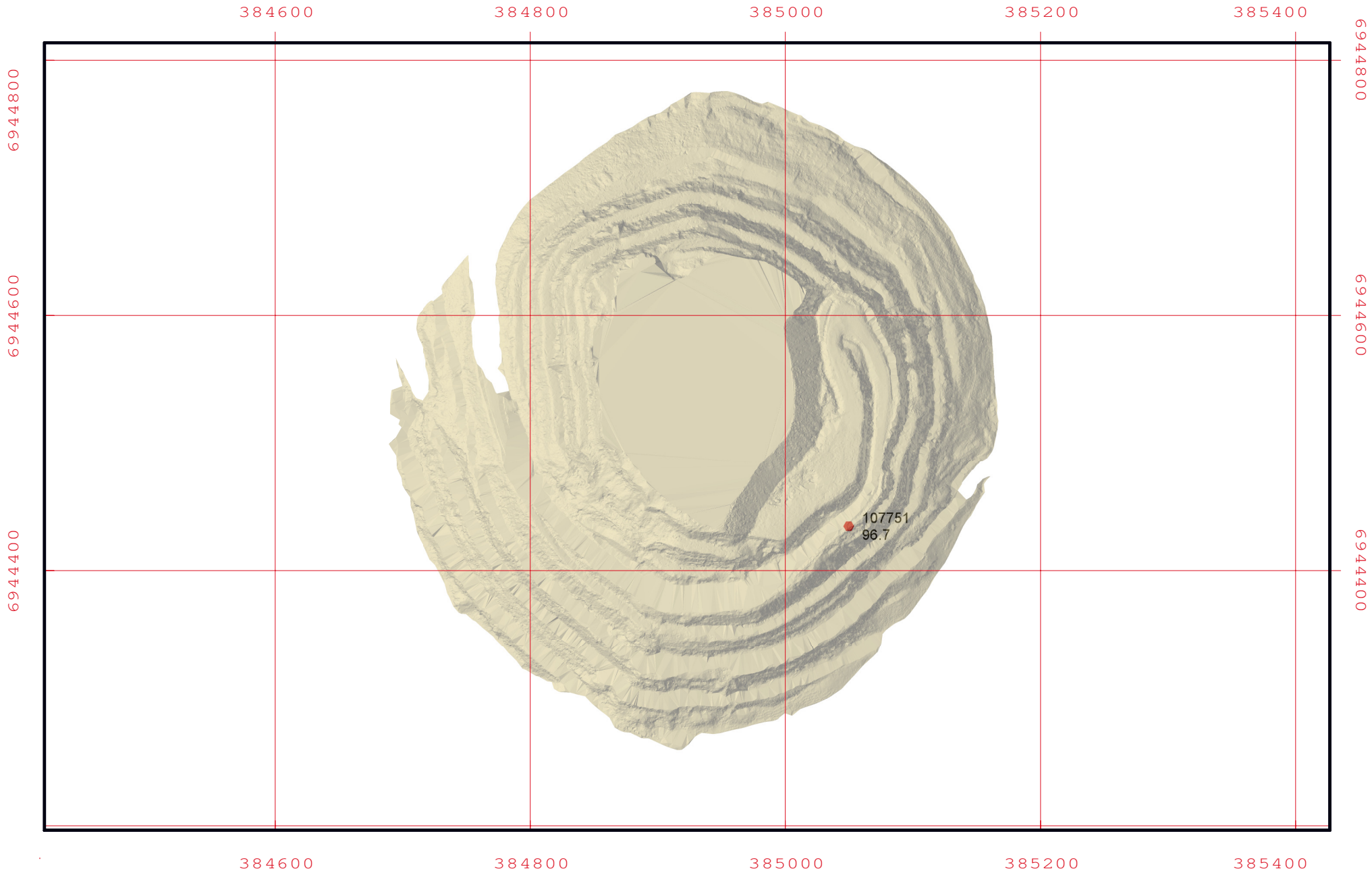
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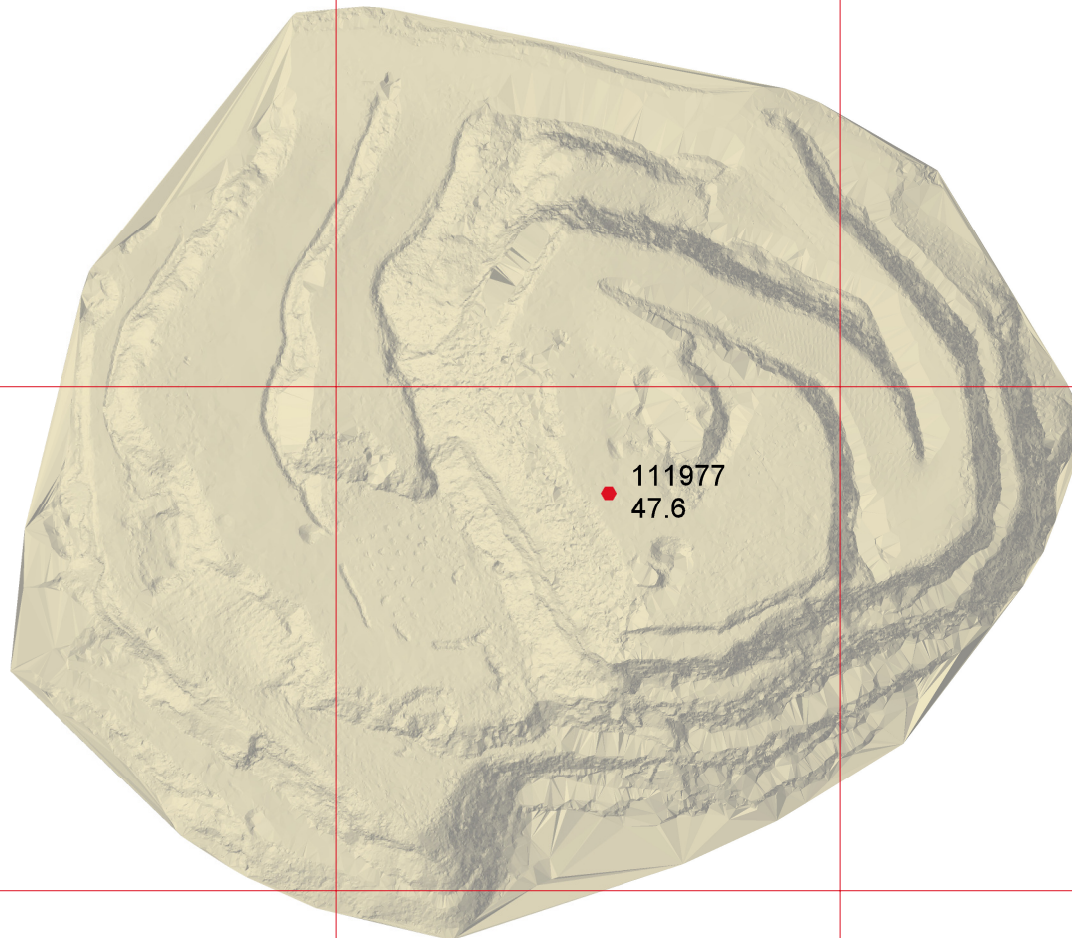
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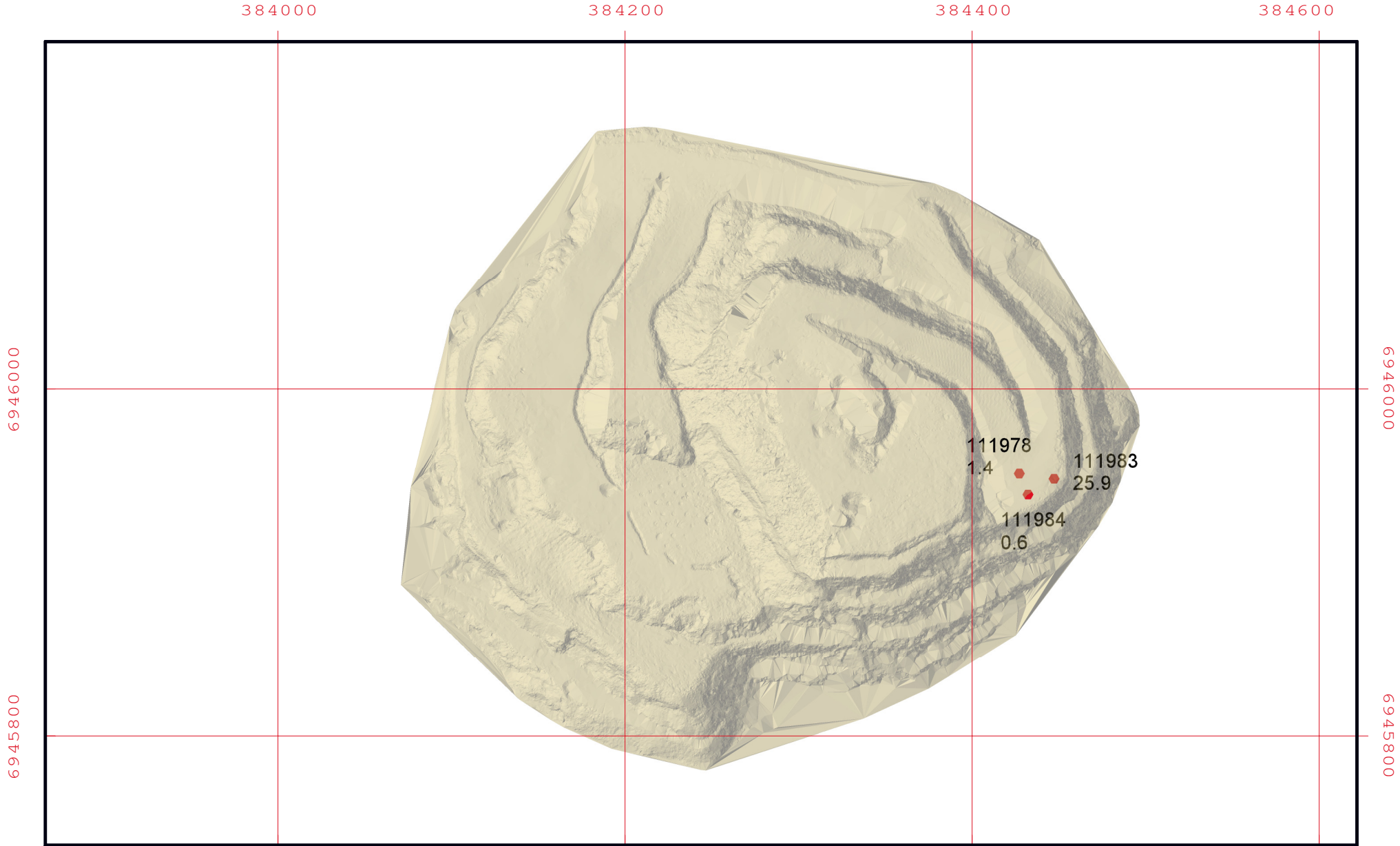
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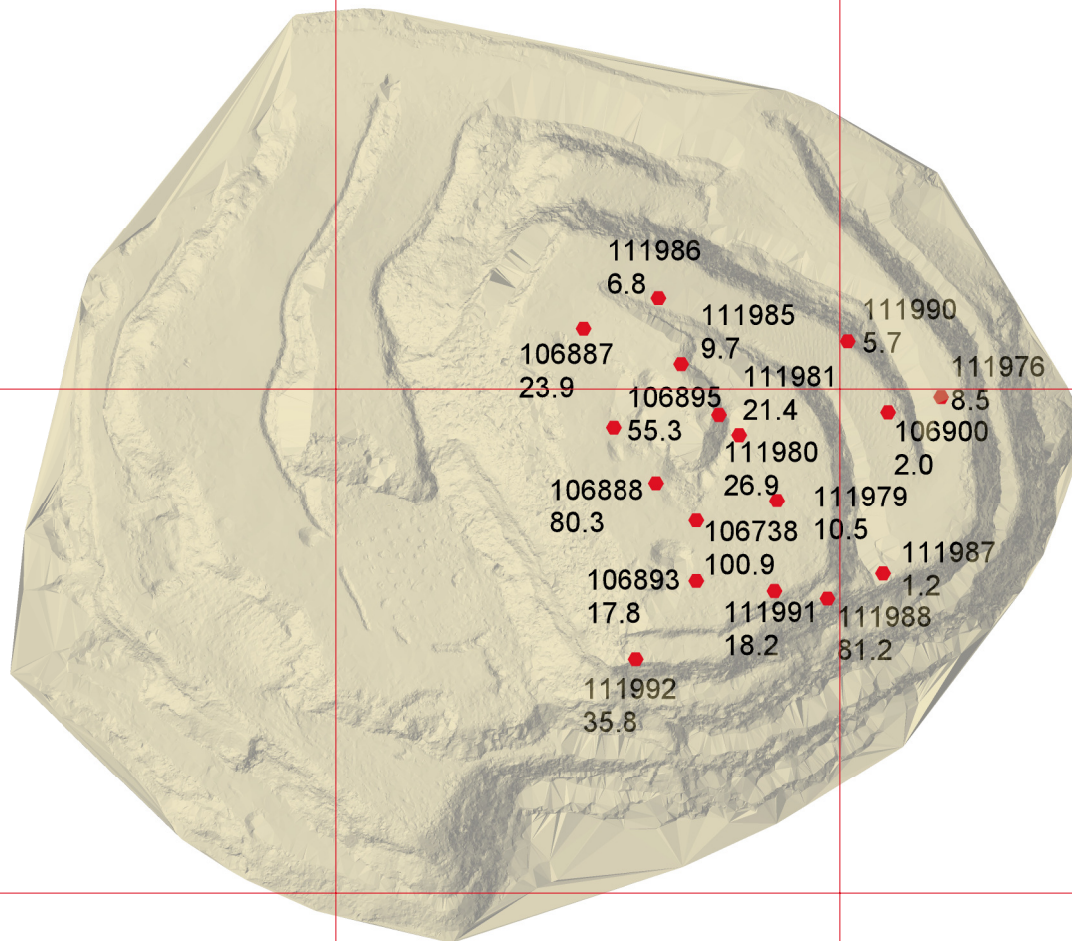
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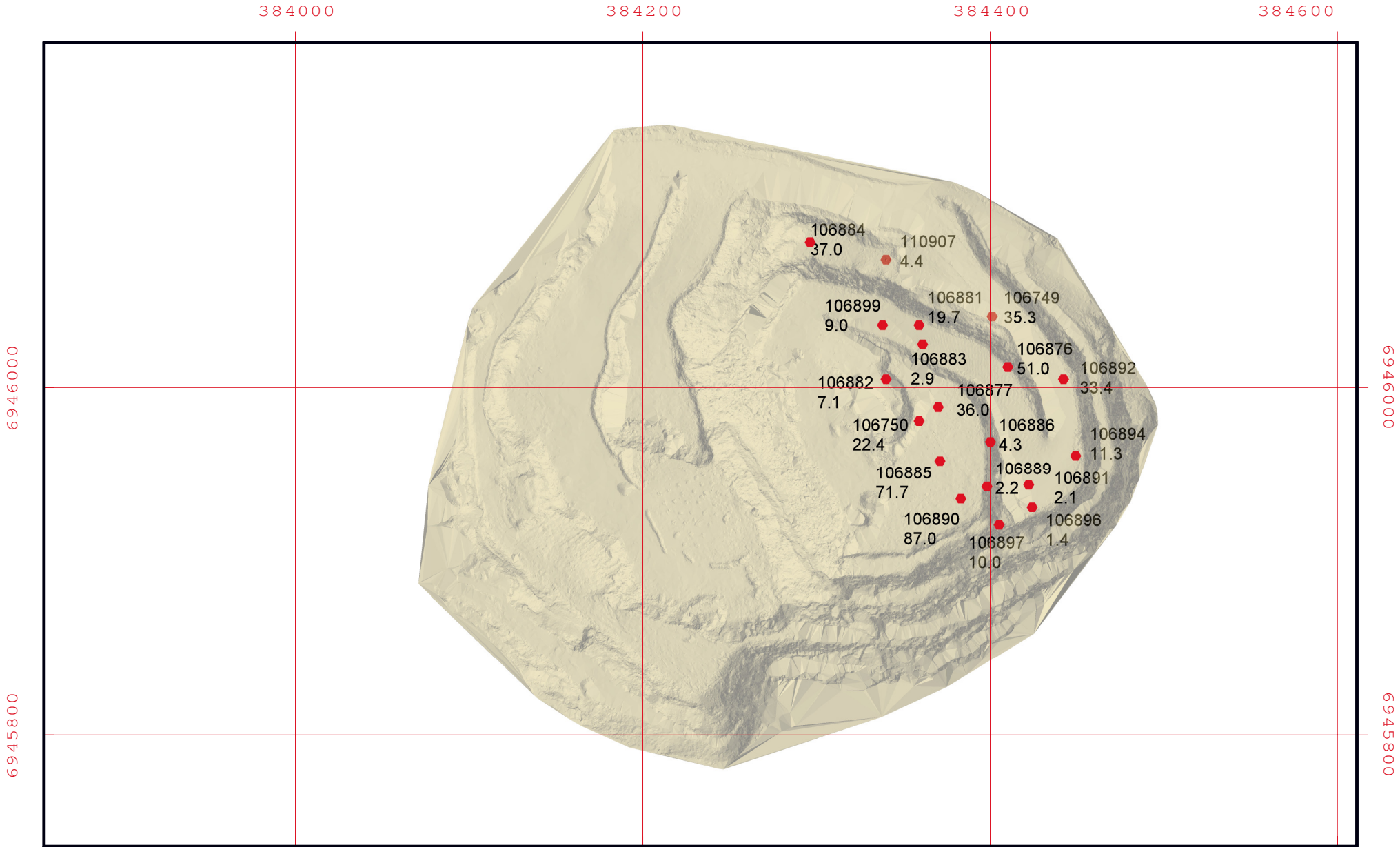
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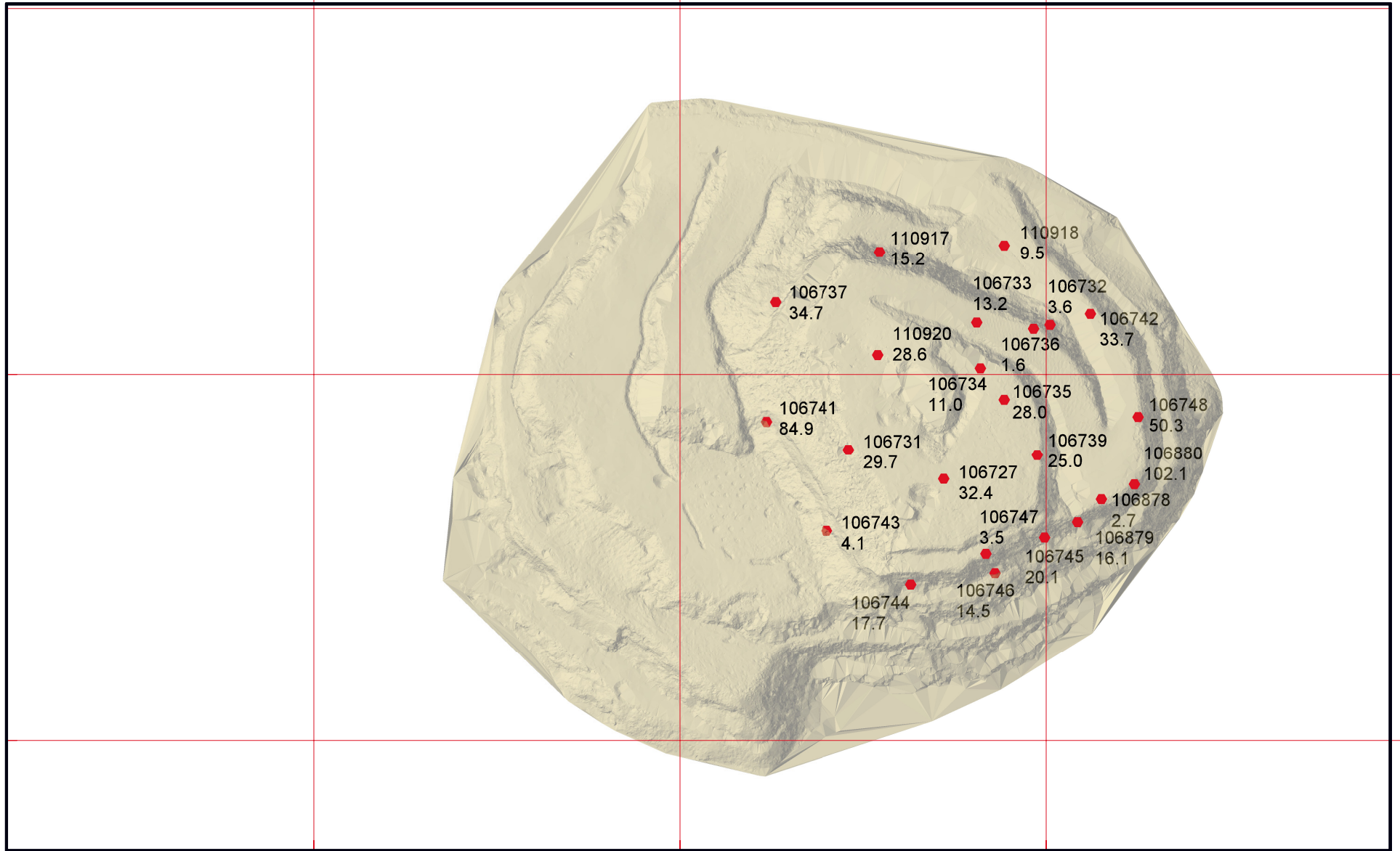
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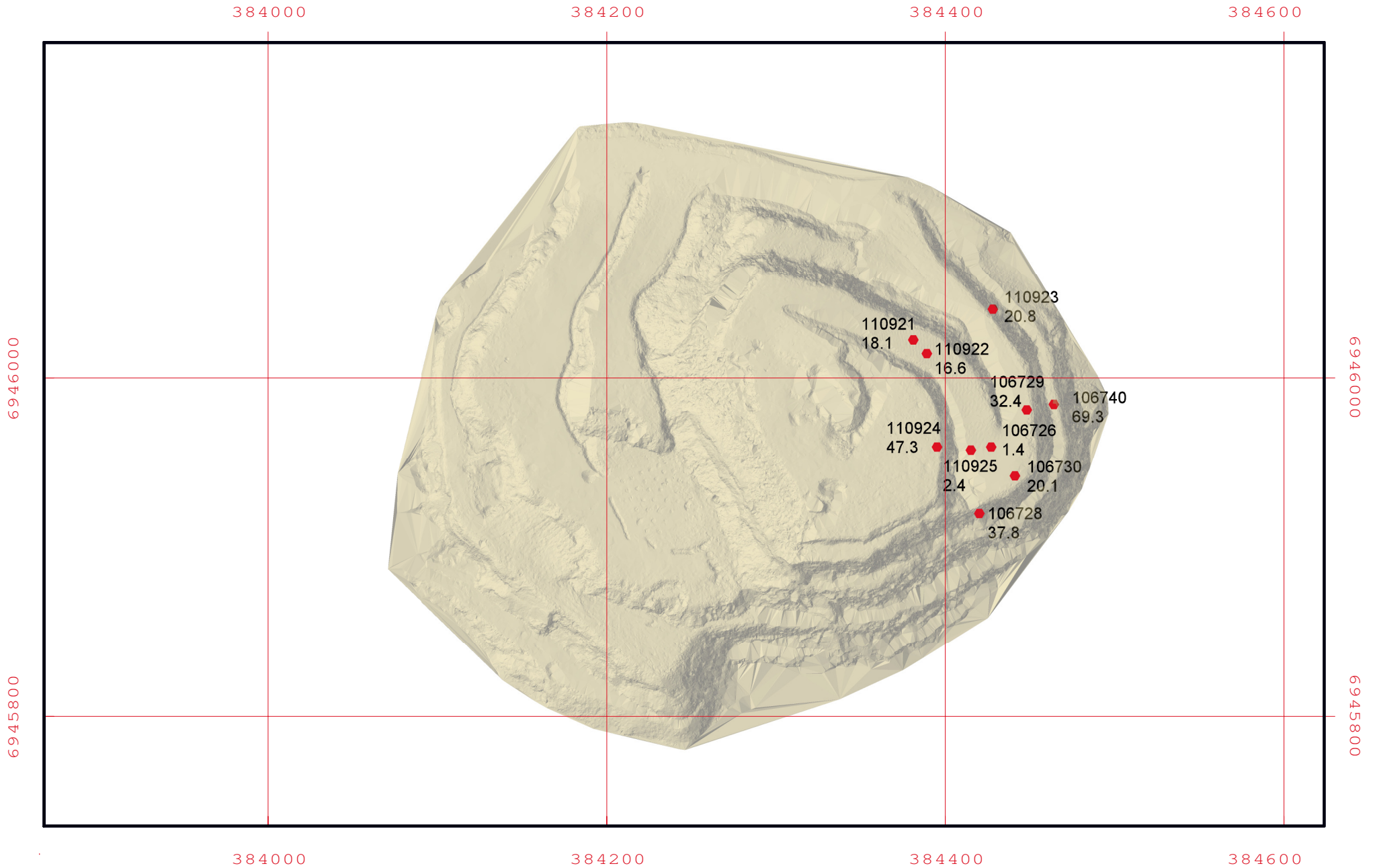



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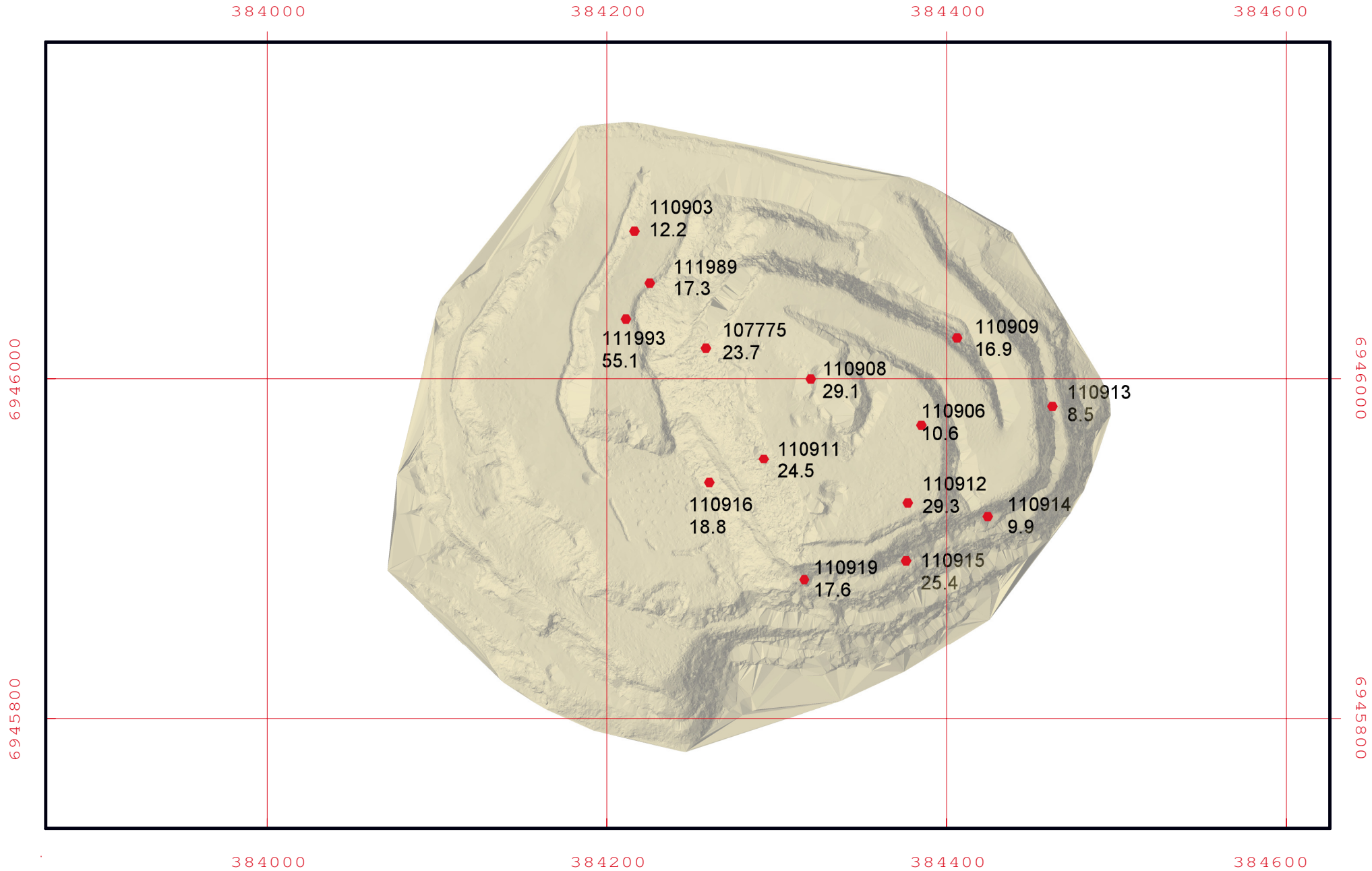
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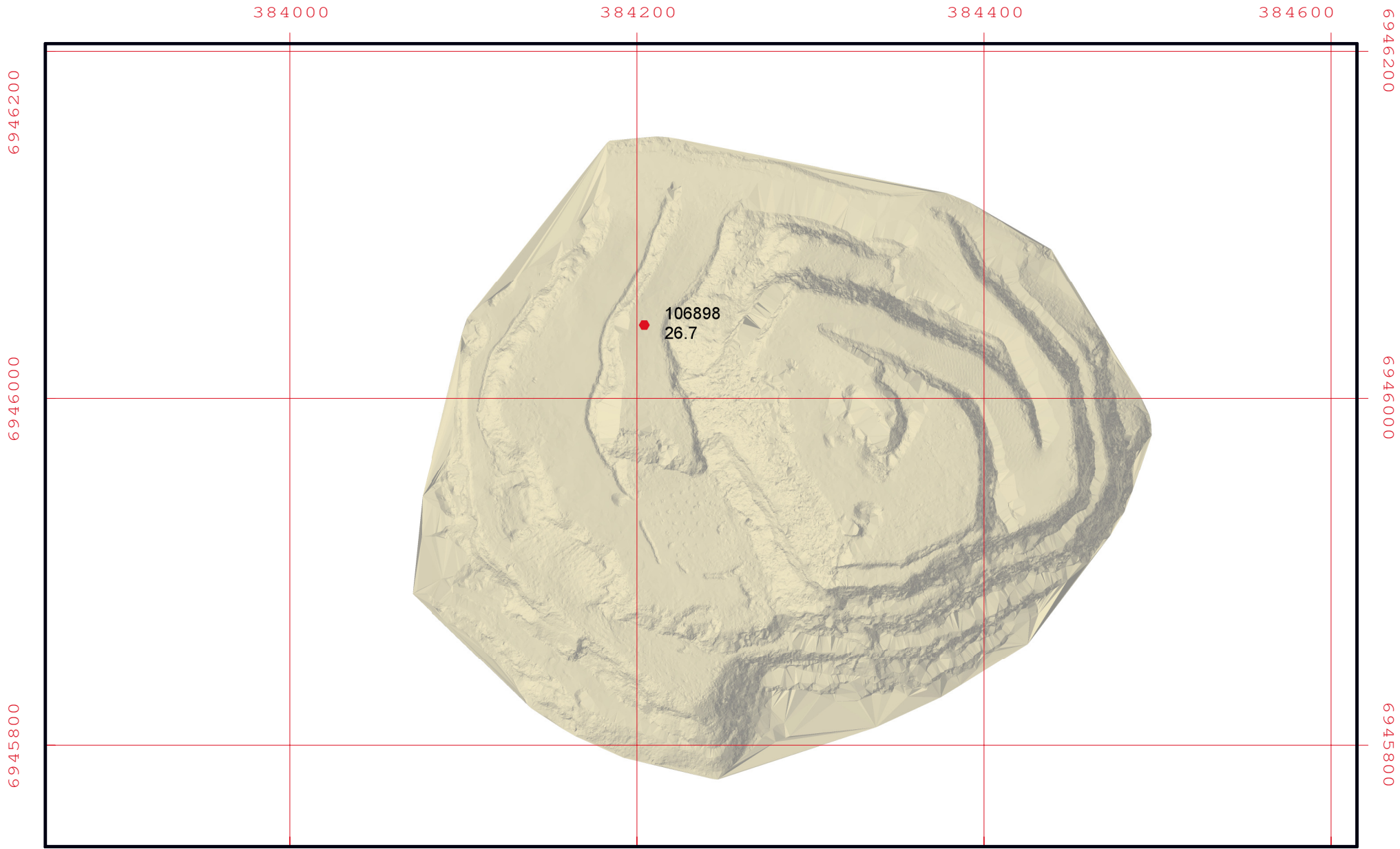
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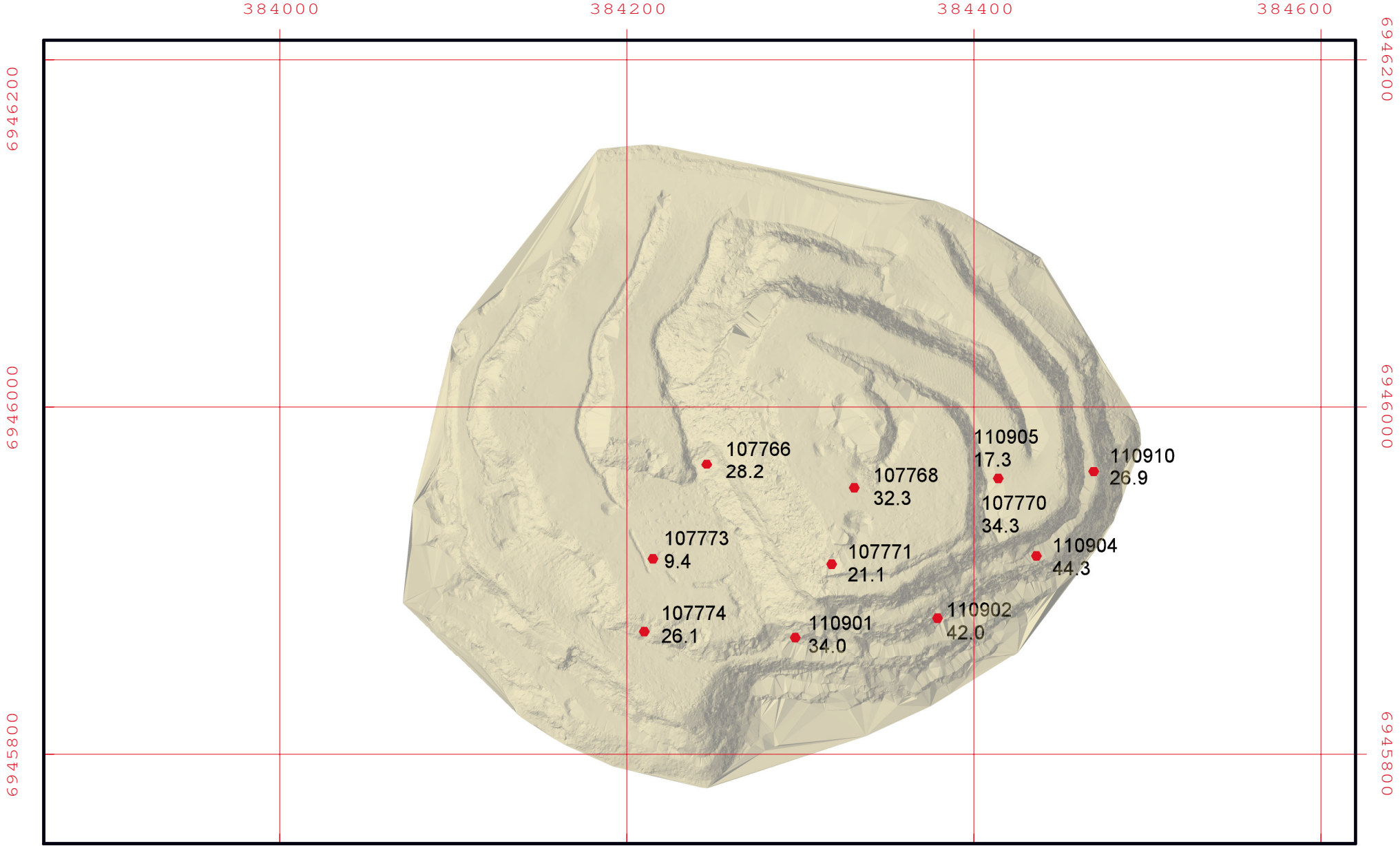
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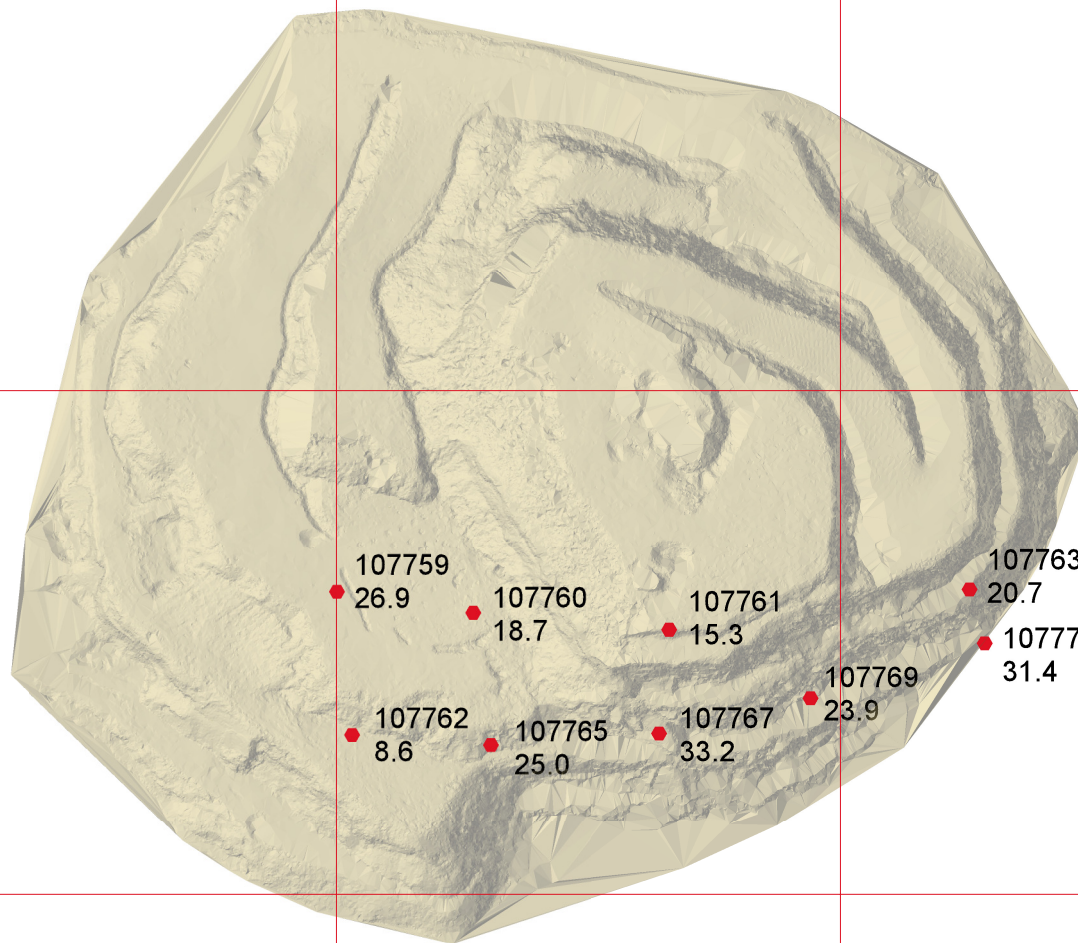
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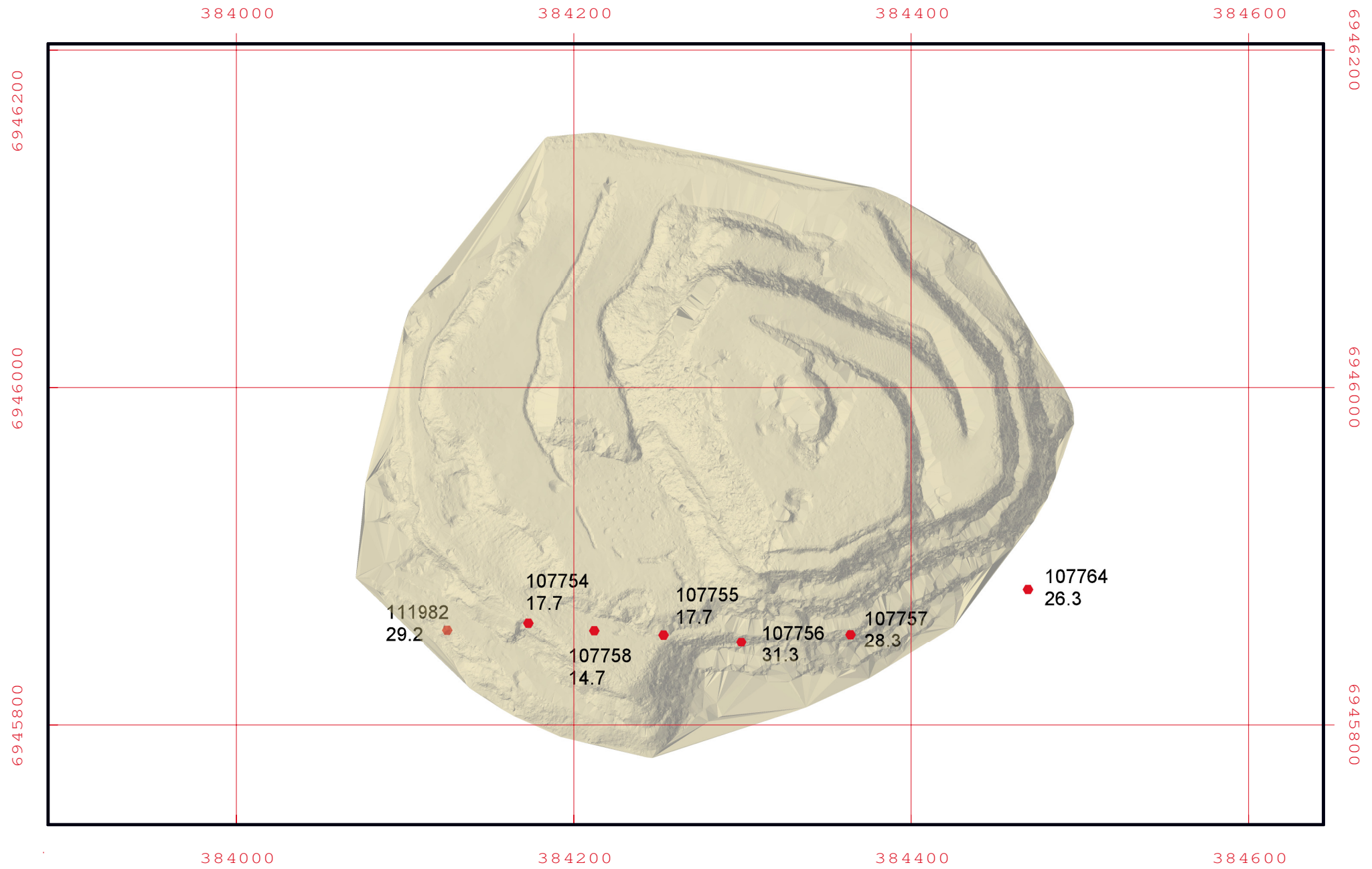
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Appendix B: 2015 Modified NP Method (MEND 1991) ABA Results for Waste Rock and Overburden

Appendix B. Summary Area 2 Pit and Minto North Pit ABA Analysis Results from SGS for 2015																
Sample Date	ABA ID	Sample Source	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C(T) %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test	
1/7/2015	103121	A2P	SAT	8.10	0.2	16.7	0.234	0.353	<0.01	0.35	11.0	18.5	14.0	2.3	Slight	
1/7/2015	103122	A2P	SAT	8.35	0.19	15.8	0.243	0.065	<0.01	0.07	2.0	19.2	22.7	12.2	Slight	
1/20/2015	103123	A2P	NAG	8.76	0.27	22.5	0.427	0.098	<0.01	0.10	3.1	23.5	28.2	10.2	Slight	
1/20/2015	103124	A2P	NAG	8.59	0.14	11.7	0.196	0.079	<0.01	0.08	2.5	13.1	16.5	7.7	Slight	
2/16/2015	103125	A2P	SAT	8.88	0.28	23.3	0.321	0.428	<0.01	0.43	13.4	22.9	16.9	2.3	Slight	
4/15/2015	107751	A2P	N/A	9.21	0.22	18.3	0.273	<0.005	<0.01	<0.01	<0.3	24.1	29.0	96.7	Slight	
4/22/2015	107752	A2P	N/A	9.18	0.15	12.5	0.21	0.054	0.04	0.01	0.4	15.2	20.8	48.6	Slight	
5/3/2015	107753	A2P	N/A	9.12	0.13	10.8	0.198	0.33	0.04	0.29	9.1	17.8	11.2	2.2	Slight	
8/7/2015	99470	MNP	OVB	5.23	<0.01	<0.8	1.92	0.022	<0.01	0.02	0.7	-4.2	-4.9	-6.1	None	
8/8/2015	107754	MNP	CGW	8.82	0.02	1.7	0.064	0.007	<0.01	<0.01	<0.3	5.3	5.3	17.7	None	
8/10/2015	107758	MNP	NAG	9.17	<0.01	<0.8	0.044	0.01	<0.01	0.01	0.3	4.6	4.3	14.7	None	
8/12/2015	107755	MNP	CGW	8.88	<0.01	<0.8	0.043	0.006	<0.01	<0.01	<0.3	5.3	5.3	17.7	None	
8/13/2015	107756	MNP	CGW	9.05	0.04	3.3	0.101	0.007	<0.01	<0.01	<0.3	9.4	9.4	31.3	None	
8/15/2015	107757	MNP	CGW	8.75	0.05	4.2	0.091	0.005	<0.01	<0.01	<0.3	8.5	8.5	28.3	None	
8/17/2015	107759	MNP	CGW	8.83	0.04	3.3	0.127	0.01	<0.01	0.01	0.3	8.4	8.1	26.9	None	
8/17/2015	107764	MNP	CGW	8.59	0.04	3.3	0.085	0.005	<0.01	<0.01	<0.3	7.9	7.9	26.3	None	
8/19/2015	107760	MNP	CGW	8.19	<0.01	<0.8	0.047	<0.005	<0.01	<0.01	<0.3	5.6	5.6	18.7	None	
8/22/2015	107761	MNP	CGW	7.74	<0.01	<0.8	0.105	0.005	<0.01	<0.01	<0.3	4.6	4.6	15.3	None	
8/24/2015	107763	MNP	CGW	7.88	0.02	1.7	0.12	0.006	<0.01	<0.01	<0.3	6.2	6.2	20.7	None	
8/26/2015	107762	MNP	NAG	8.93	0.01	0.8	0.029	0.02	<0.01	0.02	0.6	5.4	5.4	8.6	None	
8/28/2015	107765	MNP	CGW	8.72	0.01	0.8	0.048	0.009	<0.01	<0.01	<0.3	7.5	7.5	25.0	None	
8/29/2015	107766	MNP	CGW	8.84	0.06	5.0	0.103	0.011	<0.01	0.01	0.3	9.7	9.4	28.2	None	
8/31/2015	112511	MNP	OVB	8.39	<0.01	<0.8	0.141	0.011	<0.01	0.01	0.3	5.7	5.4	16.6	None	
9/3/2015	107767	MNP	CGW	9.16	0.07	5.8	0.094	0.011	<0.01	0.01	0.3	11.4	11.1	33.2	None	
9/5/2015	107768	MNP	CGW	8.85	0.05	4.2	0.094	0.011	<0.01	0.01	0.3	11.1	10.8	32.3	None	
9/6/2015	107769	MNP	CGW	9.28	0.04	3.3	0.085	0.011	<0.01	0.01	0.3	8.2	7.9	23.9	None	
9/8/2015	107770	MNP	CGW	8.71	0.04	3.3	0.09	0.009	<0.01	<0.01	<0.3	10.3	10.3	34.3	None	
9/12/2015	107771	MNP	CGW	9.24	0.02	1.7	0.042	0.01	<0.01	0.01	0.3	6.6	6.3	21.1	None	
9/12/2015	107772	MNP	CGW	9.10	0.05	4.2	0.174	0.01	<0.01	0.01	0.3	9.8	9.5	31.4	None	

Appendix B. Summary Area 2 Pit and Minto North Pit ABA Analysis Results from SGS for 2015																
Sample Date	ABA ID	Sample Source	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C(T) %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test	
9/12/2015	112514	MNP	OVB	6.97	<0.01	<0.8	0.173	0.009	<0.01	<0.01	<0.3	5.3	5.3	17.7	None	
9/21/2015	107773	MNP	CGW	9.20	0.02	1.7	0.039	0.021	<0.01	0.02	0.7	6.2	5.5	9.4	None	
9/21/2015	107774	MNP	NAG	9.06	0.06	5.0	0.158	0.013	<0.01	0.01	0.4	10.6	10.2	26.1	None	
9/21/2015	107775	MNP	CGW	8.24	0.06	5.0	0.173	0.012	<0.01	0.01	0.4	8.9	8.5	23.7	None	
9/23/2015	110901	MNP	CGW	9.05	0.07	5.8	0.115	0.009	<0.01	<0.01	<0.3	10.2	10.2	34.0	None	
9/24/2015	110902	MNP	CGW	9.18	0.09	7.5	0.113	0.009	<0.01	<0.01	<0.3	12.6	12.6	42.0	None	
9/26/2015	110903	MNP	CGW	7.37	<0.01	<0.8	0.118	0.011	<0.01	0.01	0.3	4.2	3.9	12.2	None	
9/28/2015	110904	MNP	CGW	9.04	0.11	9.2	0.138	0.008	<0.01	<0.01	<0.3	13.3	13.3	44.3	None	
9/28/2015	110905	MNP	CGW	8.03	0.02	1.7	0.209	0.012	<0.01	0.01	0.4	6.5	6.1	17.3	None	
10/9/2015	110906	MNP	CGW	9.03	0.11	9.2	0.153	0.04	<0.01	0.04	1.3	13.3	12.1	10.6	None	
10/9/2015	110907	MNP	CGW	8.56	0.01	0.8	0.013	0.04	<0.01	0.04	1.3	5.5	4.3	4.4	None	
10/10/2015	110908	MNP	CGW	8.46	0.04	3.3	0.091	0.01	<0.01	0.01	0.3	9.1	8.8	29.1	None	
10/10/2015	110909	MNP	CGW	8.76	0.04	3.3	0.055	0.018	<0.01	0.02	0.6	9.5	8.9	16.9	None	
10/10/2015	110910	MNP	CGW	8.61	0.05	4.2	0.091	0.012	<0.01	0.01	0.4	10.1	9.7	26.9	None	
10/11/2015	110911	MNP	CGW	8.38	0.16	13.3	0.185	0.022	<0.01	0.02	0.7	16.8	16.1	24.5	slight	
10/12/2015	110912	MNP	CGW	8.59	0.21	17.5	0.226	0.021	<0.01	0.02	0.7	19.2	18.5	29.3	slight	
10/26/2015	110913	MNP	CGW	8.48	0.19	15.8	0.206	0.07	<0.01	0.07	2.2	18.6	16.4	8.5	slight	
10/26/2015	110914	MNP	NAG	8.69	0.15	12.5	0.161	0.05	<0.01	0.05	1.6	15.5	13.9	9.9	slight	
10/26/2015	110915	MNP	CGW	9.03	0.08	6.7	0.105	0.014	<0.01	0.01	0.4	11.1	10.7	25.4	none	
10/26/2015	110916	MNP	CGW	8.68	0.07	5.8	0.085	0.017	<0.01	0.02	0.5	10.0	9.4	18.8	none	
10/26/2015	110917	MNP	CGW	8.47	0.02	1.7	0.056	0.016	<0.01	0.016	0.5	7.6	7.1	15.2	none	
10/27/2015	110918	MNP	CGW	8.00	<0.01	<0.8	0.081	0.023	<0.01	0.023	0.7	6.9	6.1	9.5	none	
10/28/2015	110919	MNP	CGW	9.04	0.1	8.3	0.128	0.024	<0.01	0.024	0.8	13.2	12.5	17.6	none	
10/30/2015	110921	MNP	CGW	8.58	0.03	2.5	0.056	0.016	<0.01	0.016	0.5	9.0	8.5	18.1	none	
10/30/2015	110922	MNP	NAG	8.57	0.01	0.8	0.022	0.016	<0.01	0.016	0.5	8.3	7.8	16.6	none	
10/31/2015	110920	MNP	CGW	8.83	0.14	11.7	0.18	0.019	<0.01	0.02	0.6	17.0	16.4	28.6	slight	
11/1/2015	110923	MNP	CGW	8.61	0.05	4.2	0.079	0.016	<0.01	0.016	0.5	10.4	9.9	20.8	none	
11/2/2015	106726	MNP	SAT	8.55	0.12	10.0	0.136	0.34	<0.01	0.34	10.6	15.3	4.7	1.4	none	
11/2/2015	110924	MNP	CGW	8.68	0.27	22.5	0.29	0.018	<0.01	0.018	0.6	26.6	26.0	47.3	none	

Appendix B. Summary Area 2 Pit and Minto North Pit ABA Analysis Results from SGS for 2015																
Sample Date	ABA ID	Sample Source	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C(T) %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test	
11/2/2015	110925	MNP	NAG	8.78	0.13	10.8	0.16	0.197	<0.01	0.197	6.2	15.0	8.8	2.4	none	
11/4/2015	106727	MNP	CGW	8.82	0.15	12.5	0.175	0.017	<0.01	0.02	0.5	17.2	16.7	32.4	none	
11/7/2015	106728	MNP	CGW	8.84	0.22	18.3	0.246	0.018	<0.01	0.02	0.6	21.3	20.7	37.8	none	
11/7/2015	106729	MNP	CGW	8.45	0.38	31.7	0.416	0.033	<0.01	0.03	1.0	33.4	32.4	32.4	slight	
11/7/2015	106730	MNP	SAT	8.19	0.76	63.3	0.816	0.103	<0.01	0.10	3.2	64.7	61.5	20.1	slight	
11/8/2015	106731	MNP	CGW	8.87	0.14	11.7	0.167	0.016	<0.01	0.02	0.5	14.9	14.4	29.7	none	
11/13/2015	106732	MNP	NAG	8.79	0.04	3.3	0.057	0.074	<0.01	0.074	2.3	8.3	6.0	3.6	none	
11/13/2015	106733	MNP	CGW	8.35	0.03	2.5	0.037	0.018	<0.01	0.018	0.6	7.4	6.9	13.2	none	
11/13/2015	106734	MNP	SAT	9.20	0.05	4.2	0.072	0.027	<0.01	0.027	0.8	9.3	8.4	11.0	none	
11/13/2015	106735	MNP	NAG	9.05	0.11	9.2	0.126	0.015	<0.01	0.02	0.5	13.1	12.7	28.0	none	
11/13/2015	106736	MNP	SAT	8.62	0.08	6.7	0.094	0.213	<0.01	0.21	6.7	10.9	4.2	1.6	none	
11/15/2015	106737	MNP	CGW	9.07	0.11	9.2	0.141	0.012	<0.01	0.012	0.4	13.0	12.6	34.7	none	
11/16/2015	106738	MNP	CGW	7.78	0.37	30.8	0.406	0.011	<0.01	0.01	0.3	34.7	34.4	100.9	Slight	
11/18/2015	106739	MNP	NAG	8.50	0.35	29.2	0.37	0.042	<0.01	0.04	1.3	32.8	31.5	25.0	Slight	
11/19/2015	106740	MNP	CGW	8.32	0.35	29.2	0.404	0.015	<0.01	0.02	0.5	32.5	32.0	69.3	Slight	
11/20/2015	106741	MNP	CGW	8.49	0.32	26.7	0.348	0.011	<0.01	0.01	0.3	29.2	28.9	84.9	Slight	
11/22/2015	106742	MNP	CGW	8.80	0.06	5.0	0.094	0.006	<0.01	<0.01	<0.3	10.1	10.1	33.7	None	
11/23/2015	106743	MNP	NAG	8.81	0.08	6.7	0.115	0.107	<0.01	0.11	3.3	13.6	10.3	4.1	None	
11/28/2015	106744	MNP	CGW	8.80	0.16	13.3	0.199	0.035	<0.01	0.04	1.1	19.4	18.3	17.7	Slight	
11/28/2015	106745	MNP	CGW	9.09	0.06	5.0	0.068	0.014	<0.01	0.01	0.4	8.8	8.4	20.1	None	
11/28/2015	106746	MNP	NAG	8.78	0.17	14.2	0.201	0.04	<0.01	0.04	1.3	18.1	16.9	14.5	Slight	
11/28/2015	106747	MNP	SAT	8.87	0.08	6.7	0.115	0.11	<0.01	0.11	3.4	12.0	8.6	3.5	None	
11/28/2015	106748	MNP	CGW	8.97	0.13	10.8	0.174	0.005	<0.01	<0.01	<0.3	15.1	15.1	50.3	Slight	
11/28/2015	106749	MNP	CGW	8.71	0.05	4.2	0.21	0.006	<0.01	<0.01	<0.3	10.6	10.6	35.3	None	
11/29/2015	106750	MNP	CGW	9.00	0.09	7.5	0.124	0.017	<0.01	0.02	0.5	11.9	11.4	22.4	None	
11/29/2015	106876	MNP	NAG	8.98	0.15	12.5	0.128	0.008	<0.01	<0.01	<0.3	15.3	15.3	51.0	None	
11/29/2015	106877	MNP	SAT	8.93	0.06	5.0	0.079	0.007	<0.01	<0.01	<0.3	10.8	10.8	36.0	None	
12/1/2015	106878	MNP	SAT	8.03	0.68	56.7	0.698	0.685	<0.01	0.69	21.4	58.8	37.4	2.7	Slight	
12/1/2015	106879	MNP	Waste	8.62	0.19	15.8	0.207	0.041	<0.01	0.04	1.3	20.6	19.3	16.1	Slight	

Appendix B. Summary Area 2 Pit and Minto North Pit ABA Analysis Results from SGS for 2015																
Sample Date	ABA ID	Sample Source	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C(T) %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test	
12/1/2015	106880	MNP	Waste	8.48	0.37	30.8	0.405	0.011	<0.01	0.01	0.3	35.1	34.8	102.1	Slight	
12/3/2015	106881	MNP	CGW	8.68	0.09	7.5	0.117	0.021	<0.01	0.02	0.7	12.9	12.2	19.7	None	
12/3/2015	106882	MNP	CGW	8.79	0.13	10.8	0.129	0.062	<0.01	0.06	1.9	13.7	11.8	7.1	None	
12/3/2015	106883	MNP	SAT	8.88	0.09	7.5	0.111	0.149	<0.01	0.15	4.7	13.3	8.6	2.9	None	
12/3/2015	106884	MNP	CGW	8.63	0.05	4.2	0.076	0.009	<0.01	<0.01	<0.3	11.1	11.1	37.0	None	
12/4/2015	106885	MNP	CGW	8.74	0.2	16.7	0.217	0.009	<0.01	<0.01	<0.3	21.5	21.5	71.7	Slight	
12/4/2015	106886	MNP	SAT	8.46	0.24	20.0	0.247	0.186	<0.01	0.186	5.8	25.0	19.2	4.3	Slight	
12/6/2015	106887	MNP	CGW	8.63	0.14	11.7	0.157	0.022	<0.01	0.02	0.7	16.4	15.7	23.9	Slight	
12/8/2015	106888	MNP	CGW	8.70	0.22	18.3	0.256	0.008	<0.01	<0.01	<0.3	24.1	24.1	80.3	Slight	
12/11/2015	106889	MNP	SAT	8.59	0.21	17.5	0.208	0.295	<0.01	0.295	9.2	20.1	10.9	2.2	Slight	
12/11/2015	106890	MNP	NAG	8.67	0.27	22.5	0.284	0.01	<0.01	0.010	0.3	27.2	26.9	87.0	Slight	
12/11/2015	106891	MNP	SAT	8.40	0.36	30.0	0.359	0.517	<0.01	0.517	16.2	33.2	17.0	2.1	Slight	
12/11/2015	106892	MNP	CGW	9.04	0.12	10.0	0.126	0.014	<0.01	0.014	0.4	14.6	14.2	33.4	Slight	
12/13/2015	106893	MNP	NAG	8.46	0.26	21.7	0.269	0.046	<0.01	0.05	1.4	25.6	24.2	17.8	Slight	
12/14/2015	106894	MNP	NAG	8.57	0.34	28.3	0.36	0.085	<0.01	0.09	2.7	29.9	27.2	11.3	Slight	
12/15/2015	106895	MNP	NAG	8.82	0.18	15.0	0.2	0.011	<0.01	0.01	0.3	19.0	18.7	55.3	Slight	
12/16/2015	106896	MNP	SAT	8.45	0.33	27.5	0.335	0.708	<0.01	0.71	22.1	30.6	8.5	1.4	Slight	
12/16/2015	106897	MNP	NAG	8.40	0.62	51.7	0.615	0.171	<0.01	0.17	5.3	53.3	48.0	10.0	Slight	
12/16/2015	106898	MNP	CGW	8.79	0.01	0.8	0.057	0.009	<0.01	0.01	0.3	7.5	7.2	26.7	None	
12/17/2015	106899	MNP	NAG	9.00	0.03	2.5	0.048	0.016	<0.01	0.016	0.5	4.5	4.0	9.0	None	
12/18/2015	106900	MNP	NAG	8.88	0.16	13.3	0.17	0.276	<0.01	0.276	8.6	17.6	9.0	2.0	None	
12/18/2015	111976	MNP	NAG	8.94	0.18	15.0	0.196	0.075	<0.01	0.075	2.3	20.0	17.7	8.5	None	
12/19/2015	111977	MNP	CGW	8.21	0.11	9.2	0.118	0.008	<0.01	0.01	0.3	11.9	11.7	47.6	None	
12/20/2015	111978	MNP	SAT	8.63	0.27	22.5	0.268	0.628	<0.01	0.63	19.6	26.8	7.2	1.4	Slight	
12/21/2015	111979	MNP	NAG	8.83	0.16	13.3	0.178	0.054	<0.01	0.054	1.7	17.8	16.1	10.5	Slight	
12/23/2015	111980	MNP	NAG	8.57	0.28	23.3	0.287	0.032	<0.01	0.032	1.0	26.9	25.9	26.9	Slight	
12/23/2015	111981	MNP	SAT	9.09	0.13	10.8	0.135	0.023	<0.01	0.023	0.7	15.4	14.7	21.4	None	
12/23/2015	111982	MNP	CGW	8.57	0.02	1.7	0.041	0.008	<0.01	0.008	0.3	7.3	7.1	29.2	None	
12/25/2015	111983	MNP	CGW	9.08	0.18	15.0	0.187	0.024	<0.01	0.024	0.8	19.4	18.7	25.9	Slight	

Appendix B. Summary Area 2 Pit and Minto North Pit ABA Analysis Results from SGS for 2015																
Sample Date	ABA ID	Sample Source	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C(T) %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test	
12/25/2015	111984	MNP	SAT	8.89	0.15	12.5	0.162	0.943	<0.01	0.943	29.5	17.1	-12.4	0.6	None	
12/25/2015	111985	MNP	NAG	8.53	0.21	17.5	0.22	0.072	<0.01	0.07	2.3	21.9	19.7	9.7	Slight	
12/25/2015	111986	MNP	CGW	8.82	0.1	8.3	0.13	0.06	<0.01	0.06	1.9	12.8	10.9	6.8	None	
12/26/2015	111987	MNP	SAT	8.59	0.26	21.7	0.257	0.642	<0.01	0.64	20.1	23.1	3.0	1.2	Slight	
12/26/2015	111988	MNP	NAG	8.92	0.18	15.0	0.213	0.008	<0.01	0.01	0.3	20.3	20.1	81.2	Slight	
12/27/2015	111989	MNP	CGW	8.81	0.01	0.8	0.03	0.01	<0.01	0.01	0.3	5.4	5.1	17.3	None	
12/28/2015	111990	MNP	NAG	8.90	0.08	6.7	0.138	0.066	<0.01	0.07	2.1	11.8	9.7	5.7	None	
12/29/2015	111991	MNP	NAG	8.54	0.5	41.7	0.498	0.074	<0.01	0.07	2.3	42.1	39.8	18.2	Slight	
12/29/2015	111992	MNP	CGW	9.06	0.11	9.2	0.143	0.011	<0.01	0.01	0.3	12.3	12.0	35.8	None	
12/30/2015	111993	MNP	CGW	8.83	0.14	11.7	0.181	0.009	<0.01	0.01	0.3	15.5	15.2	55.1	Slight	

Appendix B continued: Summary Area 118 Underground ABA Results from SGS for 2015																
Sample Date	ABA ID	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C-T %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test		
2/2/2015	97278	NAG	9.00	0.08	6.7	0.094	0.028	<0.01	0.03	0.9	10.9	16.1	19.4	Slight		
2/2/2015	97277	NAG	9.43	0.11	9.2	0.129	0.007	<0.01	<0.01	<0.3	11.8	16.8	55.8	Slight		
2/2/2015	97276	NAG	9.08	0.14	11.7	0.163	0.007	<0.01	<0.01	<0.3	15.3	18.3	60.8	Slight		
3/14/2015	97282	NAG	9.26	0.14	11.7	0.146	0.009	<0.01	0.01	0.3	16.5	18.5	66.7	Slight		
3/14/2015	97281	NAG	9.18	0.27	22.5	0.263	0.068	<0.01	0.07	2.1	26.5	28.1	14.2	Slight		
3/14/2015	97280	NAG	9.25	0.19	15.8	0.21	0.035	<0.01	0.04	1.1	17.0	22.2	21.3	Slight		
3/14/2015	97279	NAG	9.33	0.12	10.0	0.13	0.03	<0.01	0.03	0.9	16.4	16.8	18.9	Slight		
3/27/2015	97284	NAG	9.31	0.09	7.5	0.095	<0.005	<0.01	<0.01	<0.3	12.6	14.3	47.5	Slight		
3/27/2015	97283	NAG	9.22	0.12	10.0	0.128	0.009	<0.01	0.01	0.3	15.1	19.5	70.2	Slight		
4/9/2015	97285	NAG	9.05	0.22	18.3	0.23	0.261	<0.01	0.26	8.2	17.1	18.8	3.3	Slight		
4/10/2015	97286	NAG	8.82	0.12	10.0	0.122	0.149	<0.01	0.15	4.7	14.7	11.1	3.4	Slight		
4/11/2015	97287	NAG	9.24	0.1	8.3	0.105	0.006	<0.01	0.01	0.2	13.2	15.6	84.0	Slight		
5/8/2015	97291	NAG	9.11	0.13	10.8	0.141	<0.005	<0.01	<0.01	<0.3	14.7	17.0	56.7	Slight		

Appendix B continued: Summary Area 118 Underground ABA Results from SGS for 2015														
Sample Date	ABA ID	Waste Type	Paste pH	TIC %	CaCO ₃ NP	C-T %	S(T) %	S(SO ₄) %	S(S ²⁻) %	AP CaCO ₃ kg / tonne	NP Modified NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
5/16/2015	97292	SAT	8.36	0.29	24.2	0.323	0.522	0.04	0.48	15.1	27.8	18.4	2.2	Slight
5/23/2015	97293	SAT	8.33	0.43	35.8	0.456	0.862	0.04	0.82	25.7	29.9	16.1	1.6	Slight
6/4/2015	97294	NAG	9.06	0.17	14.2	0.173	0.024	0.03	<0.01	<0.3	18.6	22.8	75.8	Slight
6/9/2015	97295	NAG	8.09	0.16	13.3	0.173	0.039	0.03	<0.01	<0.3	16.5	21.8	72.5	Slight
6/13/2015	97296	NAG	8.28	0.3	25.0	0.316	0.171	0.04	0.13	4.1	26.3	28.2	7.9	Slight
6/20/2015	97297	NAG	8.39	0.18	15.0	0.187	0.135	0.04	0.10	3.0	17.9	21.0	8.1	Slight
6/27/2015	97299	NAG	8.42	0.45	37.5	0.46	0.232	<0.01	0.23	7.3	38.3	31.1	5.3	Slight
6/27/2015	97298	NAG	8.47	0.4	33.3	0.43	0.221	<0.01	0.22	6.9	32.2	25.3	4.7	Slight
7/7/2015	97300	SAT	8.58	0.42	35.0	0.448	1.09	<0.01	1.09	34.1	26.1	-8.0	0.8	Slight
7/15/2015	95002	NAG	9.12	0.14	11.7	0.143	0.075	<0.01	0.08	2.3	14.6	12.3	6.2	Slight
8/8/2015	95003	SAT	8.55	0.05	4.2	0.053	0.076	<0.01	0.08	2.4	6.8	4.4	2.9	None
8/18/2015	95004	NAG	9.27	0.08	6.7	0.099	0.052	<0.01	0.05	1.6	10.5	8.9	6.5	None
9/8/2015	95005	NAG	8.62	0.08	6.7	0.104	0.018	<0.01	0.02	0.6	10.2	9.6	18.1	None
9/15/2015	95006	NAG	9.47	0.02	1.7	0.038	0.016	<0.01	0.02	0.5	5.9	5.4	11.8	None
9/30/2015	95007	NAG	8.59	0.1	8.3	0.114	0.099	<0.01	0.10	3.1	10.5	7.4	3.4	None
10/8/2015	95008	NAG	8.70	0.03	2.5	0.042	0.064	<0.01	0.06	2.0	6.5	4.5	3.3	None

Appendix C: SGS Raw Lab Results

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS PROJECT # : 0643
Test : BC Research NP and Modified NP Procedures
Date : February 4, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	NP H2SO4/tonne	NP CaCO3/tonne	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc	CSA06V	CSA06V	CSA07V	Calc	Calc	Modified	BC Research	Calc	Calc	Calc	Sobek
LOD		0.2	0.01	#N/A	0.005	0.005	0.01	#N/A	#N/A	0.5	0.5	#N/A	#N/A	#N/A	#N/A
103117	Dec. 9, 2014	8.52	0.19	15.8	0.222	0.029	<0.01	0.03	0.9	19.1	23.0	23.5	22.6	25.9	Slight
103118	Dec. 24, 2014	8.40	0.16	13.3	0.2	0.034	<0.01	0.03	1.1	16.7	21.8	22.3	21.2	20.9	Slight
103119	Jan. 10, 2015	8.11	0.22	18.3	0.258	0.108	<0.01	0.11	3.4	21.2	25.7	26.3	22.9	7.8	Slight
103120	Jan. 10, 2015	8.43	0.1	8.3	0.145	0.209	<0.01	0.21	6.5	13.6	16.2	16.5	10.0	2.5	Slight
103121	Jan. 18, 2015	8.10	0.2	16.7	0.234	0.353	<0.01	0.35	11.0	18.5	24.5	25.0	14.0	2.3	Slight
103122	Jan. 18, 2015	8.35	0.19	15.8	0.243	0.065	<0.01	0.07	2.0	19.2	24.3	24.8	22.7	12.2	Slight
Final Tails	Oct 2014	7.78	0.41	34.2	0.422	0.056	<0.01	0.06	1.8	31.6	40.7	41.5	39.8	23.7	Slight
Final Tails	Nov 2014	7.89	0.32	26.7	0.344	0.065	<0.01	0.07	2.0	25.9	32.1	32.8	30.7	16.1	Slight
Final Tails	Dec 2014	7.90	0.34	28.3	0.366	0.075	<0.01	0.08	2.3	26.8	36.0	36.8	34.4	15.7	Slight
Duplicates															
103117	Dec. 9, 2014	8.38	0.18							18.6					Slight
103119					0.262	0.107									
Final Tails	Dec 2014						<0.01								
GTS-2A					1.97	0.358									
PD-1							4.36								
SY-4			0.89												
NBM-1										39.6					Slight
Expected Values			0.95		2.01	0.341	4.27			42.0					Slight
Tolerance +/-			0.06		0.15	0.030	0.52			3.0					

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : February 27, 2015

Sample ID	Sampling Date	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %
Method Code		ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD		0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01
103117	Dec. 9, 2014	0.06	1.11	20	138	1.17	113	180	2.09	0.3	6	0.64	573	0.09
103118	Dec. 24, 2014	0.05	1.01	20	212	0.98	110	70	2.11	0.43	5	0.64	569	0.08
103119	Jan. 10, 2015	0.55	1.05	20	113	1.09	95	1380	2.73	0.25	7	0.62	738	0.04
103120	Jan. 10, 2015	0.82	1.1	20	189	0.75	100	2780	3.24	0.54	6	0.68	874	0.07
103121	Jan. 18, 2015	1.68	1.23	20	194	0.92	100	4570	4.62	0.69	6	0.76	1200	0.05
103122	Jan. 18, 2015	0.35	1.32	20	329	0.89	106	849	3.22	0.78	7	0.81	679	0.06
Final Tails	Oct 2014	0.39	1.24	20	306	1.31	97	1000	3.86	0.71	6	0.79	732	0.06
Final Tails	Nov 2014	0.47	1.24	20	298	1.18	96	1020	4.26	0.64	6	0.78	756	0.05
Final Tails	Dec 2014	0.4	1.32	10	302	1.19	86	919	3.81	0.66	7	0.81	749	0.06
Duplicates														
103118	Dec. 24, 2014	0.05	1.08	20	219	0.95	108	71.8	2.25	0.46	6	0.67	607	0.08
CH4		2.12	1.77	20	291	0.62	102	1980	4.62	1.4	11	1.17	325	0.07
Expected Values		2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06
Tolerance (%)		10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3

Ni ppm	P %	S %	Sr ppm	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm
ICM14B 0.5	ICM14B 0.005	ICM14B 0.01	ICM14B 0.5	ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
4.7	0.064	0.01	305	0.09	45	62	0.7	3	0.4	0.08	0.07	17.1	5.7	0.25	6.2
4.4	0.064	<0.01	63.6	0.11	48	65	0.7	1	0.3	0.04	0.04	21.3	5.6	0.28	5.5
2.8	0.063	0.1	54.9	0.06	44	78	0.6	<1	0.3	0.17	0.18	25.3	5.7	0.31	6.7
3.1	0.087	0.23	42.4	0.11	61	85	0.7	<1	0.3	0.45	0.23	16.9	6.6	0.7	7.1
1.3	0.081	0.4	38	0.13	80	103	<0.5	<1	0.3	0.61	0.29	22.9	7.9	0.8	9.3
3.3	0.065	0.06	41.5	0.13	65	103	<0.5	<1	0.2	0.14	0.09	33.6	7.6	0.48	8.1
2.4	0.085	0.04	89.7	0.12	81	105	1.1	<1	0.3	0.21	0.35	21.5	7.6	0.56	8.2
2.7	0.081	0.05	75.6	0.12	83	121	0.9	<1	0.3	0.17	0.36	19.1	7.9	0.49	9.1
3.2	0.08	0.06	87.8	0.12	81	107	1.2	<1	0.3	0.11	0.34	21.6	7.8	0.5	8.6
5.1	0.067	<0.01	63.4	0.11	49	66	0.7	2	0.3	0.04	0.04	22.3	5.8	0.3	5.9
44.5	0.067	0.77	10	0.22	84	198	14.7	8	0.1	0.44	1.19	28.8	23.6	2.68	9.5
49.57	0.072	0.73	9.38	0.21	79.27	189.4	9	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72
12.52	27.4	13.4	23.3	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9

Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm
ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01	ICM14B 0.05	ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05
0.1	0.06	<0.01	0.02	8.8	0.08	6.19	0.43	5.1	13.9	0.08	3.9	<1	0.4	<0.05	0.21	<0.05
0.1	0.06	<0.01	<0.02	11.3	0.08	4.95	0.45	3.8	19.8	0.05	3.9	<1	0.6	<0.05	0.21	<0.05
0.1	<0.05	<0.01	0.03	13.4	0.05	5.61	0.27	4.4	14.3	<0.05	2.6	1	0.4	<0.05	0.17	0.13
0.1	0.06	<0.01	0.04	9.2	0.07	5.49	0.48	2.8	34.4	<0.05	3	2	0.5	<0.05	0.19	0.18
0.2	0.06	<0.01	0.06	12.4	0.06	6.35	0.47	3	41.7	<0.05	4.3	3	0.9	<0.05	0.21	0.19
0.1	<0.05	<0.01	0.02	17.5	0.05	4.8	0.35	3	40.5	<0.05	2.6	<1	0.5	<0.05	0.2	0.09
0.1	0.06	<0.01	0.08	11.1	0.1	7.27	0.46	2.8	34.9	<0.05	5	<1	1.2	<0.05	0.28	0.17
0.1	0.06	<0.01	0.08	9.9	0.09	7.34	0.45	2.7	31.5	<0.05	4.3	1	1.1	<0.05	0.24	0.17
0.1	0.07	<0.01	0.08	11.6	0.1	7.53	0.44	2.4	31.4	<0.05	4.6	<1	1.1	<0.05	0.28	0.15
0.1	0.06	<0.01	0.02	12	0.08	5.17	0.45	3.8	20.8	<0.05	4.2	<1	0.4	<0.05	0.21	<0.05
0.3	0.44	<0.01	0.1	14.9	0.07	2.75	0.21	8.2	70.6	0.33	8.6	2	0.6	<0.05	0.29	0.47
0.21	0.29	#N/A	0.1	14	#N/A	3.05	0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42
127.4	52.8	#N/A	62.1	11.8	#N/A	14.1	75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6

Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
0.1	0.02	0.05	0.1	0.05	0.1
1.8	0.08	0.25	0.3	5.73	0.6
2.5	0.13	0.22	0.3	5.46	0.6
4.8	0.12	0.48	0.3	3.61	0.3
3.3	0.38	0.36	0.8	4.89	0.5
4	0.45	0.36	0.8	4.72	0.4
3.9	0.26	0.33	0.5	4.24	0.4
2.7	0.26	0.61	<0.1	8.1	0.7
2.8	0.22	0.58	<0.1	6.7	0.6
3	0.23	0.61	<0.1	7.6	0.7
2.7	0.13	0.22	0.3	5.65	0.6
2	0.39	0.28	2.3	6	0.5
2.2	0.4	0.29	2.15	5.66	#N/A
21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Project
SGS PROJECT # : 0643
Test : Leachate Analysis by ICP-OES
Date : February 27, 2015

Sample ID		103118	NP Contribution
Al	mg/L	51.5	
Sb	mg/L	< 0.02	
As	mg/L	0.01	
Ba	mg/L	0.0843	
Be	mg/L	0.0063	
Bi	mg/L	0.26	
B	mg/L	1.32	
Cd	mg/L	0.009	
Ca	mg/L	459	11.5
Cr	mg/L	1.400	
Co	mg/L	0.036	
Cu	mg/L	1.090	
Fe	mg/L	126	
Pb	mg/L	0.016	
Li	mg/L	< 0.1	
Mg	mg/L	28.2	1.2
Mn	mg/L	7.3	
Mo	mg/L	0.02	
Ni	mg/L	0.253	
P	mg/L	0.536	
K	mg/L	35.0	0.9
Se	mg/L	< 0.01	
Si	mg/L	60.3	
Ag	mg/L	< 0.08	
Na	mg/L	24.1	1.0
Sr	mg/L	3.06	
S	mg/L	627	
Tl	mg/L	0.010	
Sn	mg/L	< 0.02	
Ti	mg/L	0.012	
U	mg/L	< 0.1	
V	mg/L	0.114	
Zn	mg/L	0.405	
Zr	mg/L	0.004	
NP from Ca, Mg, Na & K (kg CaCO3 Equiv./tonne)			14.6

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : December 23, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #/NA	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #/NA	Calc #/NA	Modified 0.5	Calc #/NA	Calc #/NA	Sobek #/NA
106726	Nov 17/15	8.55	0.12	10.0	0.136	0.34	<0.01	0.34	10.6	15.3	4.7	1.4	none
106727	Nov 17/15	8.82	0.15	12.5	0.175	0.017	<0.01	0.02	0.5	17.2	16.7	32.4	none
106728	Oct 10/15	8.84	0.22	18.3	0.246	0.018	<0.01	0.02	0.6	21.3	20.7	37.8	none
106729	Oct 10/15	8.45	0.38	31.7	0.416	0.033	<0.01	0.03	1.0	33.4	32.4	32.4	slight
106730	Oct 10/15	8.19	0.76	63.3	0.816	0.103	<0.01	0.10	3.2	64.7	61.5	20.1	slight
106731	Nov 13/15	8.87	0.14	11.7	0.167	0.016	<0.01	0.02	0.5	14.9	14.4	29.7	none
106732	Nov 15/15	8.79	0.04	3.3	0.057	0.074	<0.01	0.07	2.3	8.3	6.0	3.6	none
106733	Nov 15/15	8.35	0.03	2.5	0.037	0.018	<0.01	0.02	0.6	7.4	6.9	13.2	none
106734	Nov 15/15	9.20	0.05	4.2	0.072	0.027	<0.01	0.03	0.8	9.3	8.4	11.0	none
106735	Nov 15/15	9.05	0.11	9.2	0.126	0.015	<0.01	0.02	0.5	13.1	12.7	28.0	none
106736	Nov 15/15	8.62	0.08	6.7	0.094	0.213	<0.01	0.21	6.7	10.9	4.2	1.6	none
106737	Nov 17/15	9.07	0.11	9.2	0.141	0.012	<0.01	0.01	0.4	13.0	12.6	34.7	none
110921	Nov 7/15	8.58	0.03	2.5	0.056	0.016	<0.01	0.02	0.5	9.0	8.5	18.1	none
110922	Nov 7/15	8.57	0.01	0.8	0.022	0.016	<0.01	0.02	0.5	8.3	7.8	16.6	none
110923	Nov 7/15	8.61	0.05	4.2	0.079	0.016	<0.01	0.02	0.5	10.4	9.9	20.8	none
110924	Nov 25/15	8.68	0.27	22.5	0.29	0.018	<0.01	0.02	0.6	26.6	26.0	47.3	none
110925	Nov 17/15	8.78	0.13	10.8	0.16	0.197	<0.01	0.20	6.2	15.0	8.8	2.4	none
Final Tails Oct 2015	Oct-15	8.55	0.25	20.8	0.278	0.065	<0.01	0.07	2.0	19.8	17.8	9.7	slight
Duplicates													
106726		8.64	0.12							15.0			none
106732					0.057	0.072							
106734							<0.01						
106736			0.07										
QC													
GTS-2A						2	0.348						
RTS-3A								0.91					
TIC-L1			0.13										
NBM-1										40.8			Slight
Expected Values			0.1325		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.02		0.15	0.030	0.12			3.0			

Note:
 AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).
 NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.
 NET NP = NP - AP
 Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 11, 2016

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
106726	0.82	1.61	40	357	0.92	73	3260	2.49	0.5	9	0.95	503	0.06	3	0.096	0.38	468
106727	0.03	1.26	40	54	1.25	85	49.9	2.02	0.09	7	0.75	475	0.05	2.7	0.069	<0.01	110
106728	0.02	1.12	40	123	1.26	101	43.6	2.11	0.22	6	0.69	484	0.06	3.9	0.074	0.01	76.9
106729	0.08	1.04	40	133	1.55	91	206	2.05	0.28	6	0.57	578	0.04	3.7	0.068	0.02	102
106730	0.27	1.47	40	144	2.94	67	846	2.47	0.31	7	0.63	665	0.03	3.7	0.088	0.09	136
106731	0.03	1.13	40	162	1.04	100	38.5	2.09	0.27	6	0.73	496	0.06	3.3	0.07	<0.01	76
106732	0.46	1.27	40	257	0.51	91	1200	2.56	0.68	7	0.8	639	0.05	3.4	0.089	0.07	50.1
106733	0.07	1.06	40	208	0.5	89	155	2.35	0.43	6	0.63	482	0.06	3.4	0.084	<0.01	53.7
106734	0.08	1.09	50	235	0.6	110	216	2.19	0.61	6	0.71	603	0.07	3.3	0.076	0.02	41.2
106735	0.02	1.13	50	224	0.87	104	48.4	2.17	0.43	7	0.73	505	0.06	3.3	0.07	<0.01	89.6
106736	1.17	1.5	50	313	0.61	94	3570	2.97	0.74	8	0.89	737	0.05	3.1	0.089	0.24	69.4
106737	0.02	1.05	40	209	0.79	107	37.2	2.07	0.47	6	0.66	480	0.06	3.5	0.068	<0.01	51.7
110921	0.07	1.33	50	228	0.64	91	173	2.66	0.49	7	0.79	607	0.06	3.5	0.093	<0.01	59.6
110922	0.08	1.23	40	157	0.57	95	270	2.31	0.36	7	0.73	600	0.06	3.5	0.091	<0.01	48
110923	0.04	1.06	50	148	0.72	96	64.1	2.12	0.26	6	0.59	465	0.05	4.7	0.078	<0.01	56.8
110924	0.02	1.27	50	192	1.36	86	10.3	2.22	0.36	7	0.71	514	0.05	3.2	0.068	<0.01	109
110925	0.22	1.24	40	213	0.79	84	1050	2.47	0.43	8	0.83	530	0.05	2.9	0.072	0.22	52
Final Tails Oct 2015	0.86	1.31	40	278	0.85	83	2370	3.98	0.77	6	0.85	714	0.05	4.1	0.089	0.07	53.3
Duplicate																	
106737	0.03	1.03	40	203	0.78	101	36.2	2.05	0.47	6	0.66	475	0.06	3	0.066	<0.01	50.3
QC																	
CH4	2.15	1.73	50	293	0.58	111	1950	4.43	1.31	12	1.19	314	0.06	45	0.066	0.76	9
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73	9.38
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4	23.3

CLIENT : Minto Mines
 PROJECT : Minto Project
 SGS Project # : 0643
 Test : Metals by Aqua Regia Digestion with ICP-MS Finish
 Date : January 11, 2016

Sample ID	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	1	1	0.5	1	0.1	0.02	0.01	0.05	0.1	0.05	0.1	0.1	0.05	0.01	0.02	0.1
106726	0.12	63	78	0.8	1	0.4	0.14	0.3	23.8	6.1	0.36	7.2	<0.1	<0.05	<0.01	0.07	12.3
106727	0.1	49	53	1.4	1	0.6	<0.02	0.07	17	5.9	0.09	6.3	<0.1	0.08	<0.01	<0.02	8.6
106728	0.1	49	56	1.1	2	0.4	<0.02	0.05	19.6	5.9	0.16	5.6	<0.1	0.06	<0.01	<0.02	10.9
106729	0.06	43	57	0.9	1	0.4	0.03	0.07	16.4	5.8	0.27	5.3	<0.1	0.05	<0.01	<0.02	8.2
106730	0.04	48	72	0.7	2	0.6	0.11	0.12	33.5	6.4	0.67	7	<0.1	<0.05	<0.01	0.03	17.3
106731	0.1	50	59	1.2	2	0.4	<0.02	0.04	14.5	6.3	0.16	6	<0.1	0.07	<0.01	<0.02	7.7
106732	0.13	62	79	1.3	2	0.2	0.08	0.1	15.6	7.6	0.48	6.4	<0.1	0.06	<0.01	0.03	8.2
106733	0.11	58	62	2.8	<1	0.3	0.02	0.04	23.5	7.6	0.34	5.7	<0.1	0.13	<0.01	<0.02	13.2
106734	0.12	55	67	1.1	<1	0.2	0.03	0.05	29.5	5.7	0.33	5.5	<0.1	0.06	<0.01	0.02	15.4
106735	0.12	52	56	0.9	<1	0.3	<0.02	0.04	17.1	6.2	0.21	5.8	<0.1	0.05	<0.01	<0.02	8.9
106736	0.15	69	82	1	5	0.3	0.22	0.2	20.8	7.2	0.49	7.5	<0.1	<0.05	0.02	0.06	10.6
106737	0.11	52	65	1.2	<1	0.2	<0.02	0.07	14.8	5.9	0.24	5.5	<0.1	0.07	<0.01	<0.02	8.2
110921	0.13	64	72	1.5	2	0.3	0.03	0.07	21.5	7.6	0.31	6.8	<0.1	0.07	<0.01	0.02	11.5
110922	0.1	55	67	1.3	3	0.4	0.03	0.06	23.1	6.9	0.24	6.4	<0.1	0.07	<0.01	0.02	11.6
110923	0.09	53	58	2.4	2	0.3	<0.02	0.07	16.5	6.9	0.26	5.5	<0.1	0.09	<0.01	<0.02	9.1
110924	0.09	51	62	0.8	<1	0.3	<0.02	0.05	16.5	6.5	0.29	6.2	<0.1	<0.05	<0.01	<0.02	8.7
110925	0.1	54	67	0.7	<1	0.3	0.12	0.1	34.1	6.7	0.29	6.4	<0.1	<0.05	<0.01	0.04	17.7
Final Tails Oct 2015	0.13	76	121	1.4	<1	0.2	0.38	0.35	19.8	7.8	0.59	8	0.1	<0.05	0.01	0.09	10.2
Duplicate																	
106737	0.1	50	63	1.1	<1	0.3	<0.02	0.05	14.3	5.9	0.23	5.2	<0.1	0.06	<0.01	<0.02	7.7
QC																	
CH4	0.2	77	196	14.3	9	<0.1	0.6	1.14	28.5	24.1	2.47	9	0.2	0.38	<0.01	0.09	14.4
Expected Values	0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14
Tolerance (%)	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8

CLIENT : Minto Mines
 PROJECT : Minto Project
 SGS Project # : 0643
 Test : Metals by Aqua Regia Digestion with ICP-MS Finish
 Date : January 11, 2016

Sample ID	Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.05	0.05	0.2	0.2	0.05	0.1	1	0.3	0.05	0.02	0.05	0.1	0.02	0.05	0.1	0.05	0.1
106726	0.05	1.81	0.45	2.9	25.8	0.06	3.3	2	0.6	<0.05	0.18	0.21	3.8	0.15	0.33	0.3	4.98	0.4
106727	0.09	1.8	0.4	4.8	4.2	<0.05	4.1	<1	0.5	<0.05	0.19	<0.05	2	<0.02	0.31	0.1	6.24	0.6
106728	0.09	2.43	0.35	2.1	10.3	<0.05	3.8	<1	0.5	<0.05	0.2	<0.05	2.2	0.05	0.26	0.5	5.96	0.6
106729	0.11	2.03	0.19	2.2	14.5	<0.05	4.2	<1	0.4	<0.05	0.24	<0.05	1.6	0.07	0.26	0.2	7.25	0.7
106730	0.1	1.83	0.1	3.6	27.2	<0.05	4.4	<1	0.6	<0.05	0.29	0.07	4.1	0.11	0.28	0.2	8.73	0.7
106731	0.09	2.34	0.33	8	12.5	<0.05	3.6	<1	0.4	<0.05	0.19	<0.05	1.3	0.06	0.19	0.2	5.97	0.6
106732	0.07	2.94	0.38	2.8	38.4	<0.05	3.7	<1	0.6	<0.05	0.18	<0.05	2.1	0.22	0.29	0.2	5.3	0.5
106733	0.08	3.12	0.4	14.1	23.9	<0.05	3.4	<1	0.5	<0.05	0.2	<0.05	3.7	0.12	0.49	0.3	5.85	0.5
106734	0.07	2.66	0.48	2.4	31.9	<0.05	6.3	<1	0.6	<0.05	0.22	<0.05	5.4	0.18	0.22	0.2	5.96	0.5
106735	0.08	2.37	0.36	2.3	19.1	<0.05	3.5	<1	0.5	<0.05	0.2	<0.05	2.5	0.11	0.18	0.1	5.78	0.5
106736	0.06	2.4	0.49	2.6	41.2	<0.05	3.3	1	0.8	<0.05	0.19	0.15	3.3	0.29	0.3	0.3	4.96	0.4
106737	0.08	2.34	0.38	13.3	22.4	<0.05	3.5	<1	0.4	<0.05	0.17	<0.05	1.6	0.1	0.21	0.1	5.31	0.5
110921	0.1	3.38	0.4	2.3	25.4	<0.05	4.5	<1	0.6	<0.05	0.23	<0.05	3.2	0.13	0.37	0.3	6.66	0.6
110922	0.1	3.23	0.34	2.2	18.7	<0.05	4.1	<1	0.5	<0.05	0.24	<0.05	3	0.1	0.41	0.3	7.39	0.7
110923	0.1	3.11	0.34	2.4	13.7	0.07	3.8	<1	0.4	<0.05	0.21	<0.05	1.9	0.07	0.33	0.2	6.38	0.6
110924	0.09	1.84	0.24	1.8	19.4	<0.05	3.5	<1	0.5	<0.05	0.19	<0.05	1.9	0.1	0.15	0.1	6.14	0.6
110925	0.06	2.13	0.32	2.2	21.7	<0.05	3.7	<1	0.6	<0.05	0.23	0.06	7.3	0.12	0.26	0.2	5.35	0.4
Final Tails Oct 2015	0.08	4.29	0.36	2.9	39.8	<0.05	4.7	2	1.1	<0.05	0.23	0.24	3.7	0.29	0.47	<0.1	6.63	0.5
Duplicate																		
106737	0.08	2.33	0.35	13	22.1	<0.05	3.4	<1	0.4	<0.05	0.17	<0.05	1.5	0.11	0.22	0.1	5.14	0.5
QC																		
CH4	0.07	2.92	0.27	7.5	70.3	0.33	8.2	2	0.7	<0.05	0.28	0.49	2.1	0.37	0.31	2.8	6.09	0.4
Expected Values	#N/A	3.05	0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
Tolerance (%)	#N/A	14.1	75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : January 19, 2016

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
106738	23-Nov-15	7.78	0.37	30.8	0.406	0.011	<0.01	0.01	0.3	34.7	34.4	100.9	Slight
106739	23-Nov-15	8.50	0.35	29.2	0.37	0.042	<0.01	0.04	1.3	32.8	31.5	25.0	Slight
106740	23-Nov-15	8.32	0.35	29.2	0.404	0.015	<0.01	0.02	0.5	32.5	32.0	69.3	Slight
106741	23-Nov-15	8.49	0.32	26.7	0.348	0.011	<0.01	0.01	0.3	29.2	28.9	84.9	Slight
106742	27-Nov-15	8.80	0.06	5.0	0.094	0.006	<0.01	<0.01	<0.3	10.1	10.1	33.7	None
106743	27-Nov-15	8.81	0.08	6.7	0.115	0.107	<0.01	0.11	3.3	13.6	10.3	4.1	None
106744	30-Nov-15	8.80	0.16	13.3	0.199	0.035	<0.01	0.04	1.1	19.4	18.3	17.7	Slight
106745	30-Nov-15	9.09	0.06	5.0	0.068	0.014	<0.01	0.01	0.4	8.8	8.4	20.1	None
106746	30-Nov-15	8.78	0.17	14.2	0.201	0.04	<0.01	0.04	1.3	18.1	16.9	14.5	Slight
106747	30-Nov-15	8.87	0.08	6.7	0.115	0.11	<0.01	0.11	3.4	12.0	8.6	3.5	None
106748	2-Dec-15	8.97	0.13	10.8	0.174	0.005	<0.01	<0.01	<0.3	15.1	15.1	50.3	Slight
106749	2-Dec-15	8.71	0.05	4.2	0.21	0.006	<0.01	<0.01	<0.3	10.6	10.6	35.3	None
106750	2-Dec-15	9.00	0.09	7.5	0.124	0.017	<0.01	0.02	0.5	11.9	11.4	22.4	None
106876	2-Dec-15	8.98	0.15	12.5	0.128	0.008	<0.01	<0.01	<0.3	15.3	15.3	51.0	None
106877	2-Dec-15	8.93	0.06	5.0	0.079	0.007	<0.01	<0.01	<0.3	10.8	10.8	36.0	None
Duplicates													
106738		7.79								34.0			Slight
106739			0.35										
106740					0.403	0.011							
106745							<0.01						
QC													
GTS-2A					1.98	0.333							
RTS-3A							0.93						
SY-4			0.9							42.0			Slight
NBM-1													
Expected Values			0.95		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 19, 2016

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005
106738	0.03	1.31	50	57	1.76	77	34.8	1.97	0.09	7	0.66	497	0.04	2.7	0.06
106739	0.11	1.29	50	96	1.65	67	400	1.98	0.18	8	0.67	488	0.04	2.5	0.064
106740	0.02	1.06	50	105	1.65	90	54.5	1.91	0.23	6	0.54	512	0.05	3.4	0.059
106741	0.05	1.21	50	103	1.65	93	126	1.98	0.24	6	0.6	479	0.05	2.9	0.062
106742	0.02	0.96	50	147	0.7	94	21.7	1.9	0.36	6	0.61	431	0.06	3.1	0.068
106743	0.08	1.25	50	136	0.98	94	146	2.35	0.4	7	0.76	453	0.06	3.2	0.078
106744	0.06	1.12	50	143	1.06	83	113	2.18	0.42	7	0.7	468	0.06	3	0.08
106745	0.04	1.08	50	205	0.76	101	105	2.08	0.44	6	0.71	483	0.08	3.5	0.068
106746	0.28	1.2	50	159	1.14	95	692	2.31	0.43	8	0.73	500	0.06	3.3	0.079
106747	0.65	1.28	50	240	0.81	92	1750	2.84	0.58	8	0.86	651	0.08	3.8	0.093
106748	0.02	1.06	50	182	0.89	94	7.8	2.17	0.48	6	0.71	505	0.07	3.2	0.066
106749	0.07	1.11	60	181	0.73	104	91.3	2.19	0.45	7	0.69	501	0.07	3.2	0.08
106750	0.04	1.18	50	199	0.85	103	148	2.27	0.41	7	0.72	481	0.07	3.2	0.065
106876	0.02	1.13	50	225	0.89	89	21	2.23	0.6	6	0.73	520	0.08	3.4	0.08
106877	0.04	1.28	50	106	0.89	85	100	2.21	0.27	8	0.79	511	0.06	2.9	0.075
Duplicate															
106739	0.11	1.31	50	94	1.71	69	413	2	0.17	8	0.67	487	0.05	5.2	0.063
QC															
CH4	2.26	1.78	40	297	0.59	104	2020	4.5	1.37	13	1.17	309	0.06	45.9	0.063
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4

Sample ID	S %	Sr ppm	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.5	0.01	1	1	0.5	1	0.1	0.02	0.01	0.05	0.1	0.05	0.1
106738	<0.01	165	0.01	35	61	0.9	<1	0.6	0.03	0.06	17	5.8	0.15	6.6
106739	0.04	118	0.07	43	52	1.1	1	0.6	0.04	0.11	16.8	5.7	0.18	6.7
106740	<0.01	95.4	0.05	44	48	1.2	1	0.5	<0.02	0.04	13.9	4.9	0.25	5.5
106741	<0.01	98.4	0.05	43	68	1.4	<1	0.5	0.03	0.07	13	5.2	0.2	5.9
106742	<0.01	48	0.1	48	52	1.4	<1	0.3	<0.02	0.05	13.1	5.6	0.25	5.4
106743	0.1	92.8	0.13	59	59	1.9	2	0.4	<0.02	0.05	17.2	7.9	0.34	6.7
106744	0.03	60.7	0.1	54	59	1.4	3	0.4	<0.02	0.07	16.1	6.8	0.33	6.1
106745	0.01	41.5	0.14	54	57	1.4	4	0.3	0.03	0.07	14.9	5.9	0.27	5.5
106746	0.04	45.8	0.12	56	65	1.1	3	0.3	0.21	0.11	17.7	5.8	0.33	6.4
106747	0.12	42.6	0.15	66	79	1.4	<1	0.3	0.32	0.09	17.3	6.5	0.4	7
106748	<0.01	77.6	0.11	50	59	1.3	<1	0.3	<0.02	0.03	11.7	6.1	0.36	5.7
106749	<0.01	65.9	0.12	54	60	1.7	<1	0.3	<0.02	0.03	16.8	6.3	0.3	6.1
106750	0.02	68.1	0.14	58	60	1.2	<1	0.3	<0.02	0.03	16.6	6	0.24	6.4
106876	<0.01	53.6	0.13	55	64	1.3	<1	0.3	<0.02	0.04	13.6	6.7	0.4	6
106877	<0.01	76.8	0.15	54	58	0.9	<1	0.5	<0.02	0.05	17	6	0.2	7
Duplicate														
106739	0.04	121	0.07	44	52	1.1	<1	0.6	0.04	0.09	17.2	5.4	0.18	6.5
QC														
CH4	0.69	9.2	0.21	78	189	13	7	<0.1	0.54	1.19	26.3	22.8	2.53	9.4
Expected Values	0.73	9.38	0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72
Tolerance (%)	13.4	23.3	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9

Sample ID	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.1	0.05	0.01	0.02	0.1	0.01	0.05	0.05	0.2	0.2	0.05	0.1	1	0.3
106738	<0.1	<0.05	0.02	<0.02	8.6	0.1	1.74	<0.05	14.7	4.6	<0.05	3.4	<1	0.4
106739	<0.1	0.05	0.01	0.02	8.6	0.09	1.71	0.25	3.3	9	<0.05	3.8	<1	0.5
106740	<0.1	0.05	<0.01	<0.02	7.4	0.09	2.31	0.2	2.4	11.9	<0.05	4.2	<1	0.4
106741	<0.1	0.06	<0.01	<0.02	6.6	0.09	2.15	0.18	9.4	10.4	<0.05	3.5	<1	0.4
106742	<0.1	0.07	<0.01	<0.02	6.9	0.08	2.68	0.36	1.8	17.7	<0.05	3.7	<1	0.4
106743	<0.1	0.1	<0.01	<0.02	9.3	0.09	3.13	0.4	39.5	22.7	<0.05	3.7	<1	0.5
106744	<0.1	0.08	<0.01	<0.02	8.3	0.09	2.61	0.31	16.6	22.5	<0.05	4.2	<1	0.5
106745	<0.1	0.08	0.01	<0.02	8	0.08	2.66	0.4	2.1	20.4	<0.05	3.5	<1	0.5
106746	<0.1	<0.05	<0.01	0.02	9.4	0.07	2.47	0.36	3	21.5	<0.05	3.4	<1	0.5
106747	<0.1	0.07	0.02	0.05	8.9	0.1	2.51	0.5	2.6	27.6	<0.05	4.6	<1	0.7
106748	<0.1	0.07	<0.01	<0.02	6.3	0.08	2.43	0.42	1.8	22.6	<0.05	3.9	<1	0.4
106749	<0.1	0.09	<0.01	<0.02	9.2	0.08	3.81	0.46	2.1	23	<0.05	3.6	<1	0.5
106750	<0.1	<0.05	<0.01	<0.02	9	0.06	2.58	0.45	2.6	19.5	<0.05	3.6	<1	0.5
106876	<0.1	0.07	<0.01	<0.02	7.3	0.08	2.33	0.43	1.7	29.2	<0.05	4.4	<1	0.5
106877	<0.1	<0.05	<0.01	<0.02	8.5	0.06	2.21	0.58	2.9	14.3	<0.05	3.3	<1	0.5
Duplicate														
106739	<0.1	0.05	<0.01	0.03	8.8	0.09	2.17	0.24	3.3	8.8	<0.05	3.8	<1	0.5
QC														
CH4	0.2	0.34	0.02	0.1	13.2	0.06	2.48	0.17	7.9	68.5	0.33	8.3	2	0.7
Expected Values	0.21	0.29	#N/A	0.1	14	#N/A	3.05	0.19	8.24	67	0.34	8.53	1.57	0.6
Tolerance (%)	127.4	52.8	#N/A	62.1	11.8	#N/A	14.1	75	16.1	10.7	47.3	13.1	169.6	134.5

Sample ID	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.05	0.02	0.05	0.1	0.02	0.05	0.1	0.05	0.1
106738	<0.05	0.21	<0.05	1.8	0.02	0.22	0.1	6.62	0.7
106739	<0.05	0.2	<0.05	2.3	0.05	0.27	0.2	6.24	0.6
106740	<0.05	0.21	<0.05	1.3	0.06	0.23	0.2	6.84	0.7
106741	<0.05	0.19	<0.05	1.3	0.05	0.21	<0.1	6.3	0.6
106742	<0.05	0.16	<0.05	1.3	0.09	0.26	0.2	5.29	0.6
106743	<0.05	0.18	<0.05	3.1	0.11	0.61	0.3	5.65	0.6
106744	<0.05	0.19	<0.05	3	0.11	0.59	0.4	5.96	0.6
106745	<0.05	0.15	<0.05	1.9	0.11	0.25	1	5.03	0.5
106746	<0.05	0.18	<0.05	2.9	0.13	0.28	0.7	5.57	0.5
106747	<0.05	0.23	0.09	2.6	0.18	0.27	0.9	7.19	0.7
106748	<0.05	0.17	<0.05	1.2	0.11	0.25	0.2	5.51	0.5
106749	<0.05	0.17	<0.05	2.2	0.12	0.46	0.4	5.19	0.5
106750	<0.05	0.16	<0.05	2.4	0.11	0.19	0.4	4.68	0.4
106876	<0.05	0.18	<0.05	1.4	0.15	0.33	0.3	5.79	0.6
106877	<0.05	0.17	<0.05	3.4	0.08	0.34	0.3	4.59	0.4
Duplicate									
106739	<0.05	0.2	<0.05	2.3	0.05	0.25	0.1	6.37	0.6
QC									
CH4	<0.05	0.27	0.44	2.1	0.4	0.31	2.2	5.74	0.4
Expected Values	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
Tolerance (%)	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : January 26, 2016

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
106878	4-Dec-15	8.03	0.68	56.7	0.698	0.685	<0.01	0.69	21.4	58.8	37.4	2.7	Slight
106879	4-Dec-15	8.62	0.19	15.8	0.207	0.041	<0.01	0.04	1.3	20.6	19.3	16.1	Slight
106880	4-Dec-15	8.48	0.37	30.8	0.405	0.011	<0.01	0.01	0.3	35.1	34.8	102.1	Slight
106881	5-Dec-15	8.68	0.09	7.5	0.117	0.021	<0.01	0.02	0.7	12.9	12.2	19.7	None
106882	5-Dec-15	8.79	0.13	10.8	0.129	0.062	<0.01	0.06	1.9	13.7	11.8	7.1	None
106883	7-Dec-15	8.88	0.09	7.5	0.111	0.149	<0.01	0.15	4.7	13.3	8.6	2.9	None
106884	7-Dec-15	8.63	0.05	4.2	0.076	0.009	<0.01	<0.01	<0.3	11.1	11.1	37.0	None
106885	7-Dec-15	8.74	0.2	16.7	0.217	0.009	<0.01	<0.01	<0.3	21.5	21.5	71.7	Slight
106886	7-Dec-15	8.46	0.24	20.0	0.247	0.186	<0.01	0.19	5.8	25.0	19.2	4.3	Slight
106887	7-Dec-15	8.63	0.14	11.7	0.157	0.022	<0.01	0.02	0.7	16.4	15.7	23.9	Slight
106888	14-Dec-15	8.70	0.22	18.3	0.256	0.008	<0.01	<0.01	<0.3	24.1	24.1	80.3	Slight
106889	14-Dec-15	8.59	0.21	17.5	0.208	0.295	<0.01	0.30	9.2	20.1	10.9	2.2	Slight
106890	14-Dec-15	8.67	0.27	22.5	0.284	0.01	<0.01	0.01	0.3	27.2	26.9	87.0	Slight
106891	14-Dec-15	8.40	0.36	30.0	0.359	0.517	<0.01	0.52	16.2	33.2	17.0	2.1	Slight
106892	14-Dec-15	9.04	0.12	10.0	0.126	0.014	<0.01	0.01	0.4	14.6	14.2	33.4	Slight
Duplicates													
106878		8.22			0.698	0.661				58.6			Slight
106879							<0.01						
106882			0.12										
QC													
GTS-2A					1.97	0.338							
RTS-3A							1.04						
SY-4			0.9							40.9			Slight
NBM-1													
Expected Values			0.95		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
 PROJECT : Minto Project
 SGS Project # : 0643
 Test : Metals by Aqua Regia Digestion with ICP-MS Finish
 Date : January 26, 2016

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
106878	0.67	1.05	30	109	2.7	88	3240	2.46	0.32	4	0.38	428	0.03	3.2	0.077	0.75	150
106879	0.14	1.21	40	70	1.38	93	292	2.11	0.16	7	0.74	455	0.06	4.6	0.071	0.04	73.3
106880	0.02	1.07	40	169	1.77	99	37.1	2.14	0.41	6	0.54	474	0.05	3.4	0.065	<0.01	146
106881	0.18	1.32	40	246	0.77	97	441	2.46	0.6	8	0.82	497	0.06	3.7	0.085	0.02	68
106882	0.55	1.49	50	389	0.73	94	1040	2.85	0.75	9	0.93	538	0.06	3.9	0.068	0.07	54.4
106883	0.38	1.2	40	310	0.8	89	1630	2.59	0.63	9	0.82	502	0.07	5.7	0.095	0.16	41.6
106884	0.02	1.11	40	213	0.7	93	19.2	2.11	0.48	6	0.66	466	0.06	3.5	0.073	<0.01	55.3
106885	0.02	1.14	30	79	1.3	79	13.6	1.92	0.16	7	0.7	449	0.06	3.5	0.07	<0.01	118
106886	0.67	1.3	40	131	1.23	75	2140	2.33	0.28	9	0.78	470	0.04	3	0.079	0.2	104
106887	0.08	1.22	40	220	1.02	82	147	2.34	0.51	6	0.77	503	0.07	3.2	0.099	0.02	76.4
106888	0.02	1.2	40	125	1.35	87	14.8	2.24	0.24	7	0.74	488	0.06	3.5	0.074	<0.01	89.4
106889	0.89	1.32	30	155	1.06	81	3130	2.31	0.41	8	0.73	437	0.05	3	0.075	0.33	118
106890	0.02	1.4	40	164	1.47	76	24.8	2.23	0.32	8	0.76	486	0.06	3.4	0.07	<0.01	149
106891	0.73	1.39	30	55	1.63	54	3620	2.79	0.12	11	0.89	429	0.04	2.8	0.085	0.57	138
106892	0.08	1.06	40	193	0.9	88	40.2	2.16	0.48	6	0.72	479	0.08	3.5	0.077	<0.01	59.5
Duplicate																	
106881	0.17	1.33	40	251	0.76	94	437	2.48	0.63	9	0.82	501	0.06	4.5	0.085	0.02	66.5
QC																	
CH4	2.19	1.86	40	313	0.62	103	1920	4.63	1.38	13	1.22	304	0.07	49.4	0.068	0.73	9.8
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73	9.38
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4	23.3

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 26, 2016

Sample ID	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	1	1	0.5	1	0.1	0.02	0.01	0.05	0.1	0.05	0.1	0.1	0.05	0.01	0.02	0.1
106878	0.04	41	58	0.9	1	0.4	0.26	0.22	24.7	6.5	0.44	5.1	<0.1	<0.05	<0.01	0.12	13.1
106879	0.09	47	54	1.2	2	0.4	0.09	0.08	15.4	6	0.14	6.4	<0.1	0.07	<0.01	0.02	8.5
106880	0.07	42	57	0.8	<1	0.3	0.03	0.05	17.5	5.9	0.43	5.4	<0.1	<0.05	<0.01	<0.02	9.2
106881	0.13	61	73	1.3	<1	0.3	0.08	0.07	24.3	7.1	0.38	6.7	<0.1	0.06	<0.01	<0.02	13.1
106882	0.16	67	80	0.9	<1	0.2	0.26	0.08	18.5	7.6	0.36	7.8	<0.1	<0.05	<0.01	0.03	10
106883	0.15	64	73	3.4	<1	0.2	0.08	0.18	20.1	7.1	0.59	6.4	0.1	0.15	<0.01	0.06	9.9
106884	0.11	51	58	1.3	<1	0.3	<0.02	0.03	12.5	5.8	0.26	5.2	<0.1	0.05	<0.01	<0.02	6.4
106885	0.07	42	52	1.1	<1	0.3	<0.02	0.05	15.8	5.8	0.13	6.1	<0.1	0.06	<0.01	<0.02	8.3
106886	0.05	47	63	1	<1	0.5	0.26	0.15	20.4	6.2	0.29	7.3	<0.1	<0.05	<0.01	0.06	10.2
106887	0.12	56	64	1.4	<1	0.3	<0.02	0.04	22.4	7.4	0.28	6.4	0.1	0.07	<0.01	<0.02	12.1
106888	0.08	48	61	1.6	<1	0.4	<0.02	0.05	19.3	6.7	0.19	6.6	<0.1	0.08	<0.01	<0.02	9.9
106889	0.06	47	58	0.7	<1	0.4	0.9	0.16	27.1	5.4	0.42	6.8	<0.1	<0.05	<0.01	0.1	14.2
106890	0.06	44	61	0.8	<1	0.4	<0.02	0.03	33.8	6.1	0.24	6.7	<0.1	<0.05	<0.01	<0.02	17.4
106891	<0.01	39	85	0.7	<1	0.5	0.12	0.2	14.3	7.1	0.14	7.9	<0.1	<0.05	<0.01	0.1	7.1
106892	0.12	52	57	1.2	<1	0.2	<0.02	0.03	14.3	6.5	0.34	5.7	0.1	0.08	<0.01	<0.02	7.5
Duplicate																	
106881	0.13	62	73	1.5	<1	0.2	0.07	0.09	24.2	7.1	0.39	6.7	0.1	0.06	<0.01	<0.02	12.8
QC																	
CH4	0.22	81	199	14.5	9	<0.1	0.46	1.24	28.3	24.2	2.67	9.6	0.3	0.35	<0.01	0.1	14.2
Expected Values	0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14
Tolerance (%)	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 26, 2016

Sample ID	Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.05	0.05	0.2	0.2	0.05	0.1	1	0.3	0.05	0.02	0.05	0.1	0.02	0.05	0.1	0.05	0.1
106878	0.11	3.25	0.19	3	22.5	<0.05	4.1	3	1	<0.05	0.34	0.23	4.8	0.13	0.35	0.2	10	0.7
106879	0.09	2.77	0.29	3.1	7.3	<0.05	3.7	<1	0.5	<0.05	0.19	<0.05	1.9	0.04	0.24	0.2	5.51	0.5
106880	0.11	2.51	0.23	1.6	22.8	<0.05	4.2	<1	0.5	<0.05	0.22	<0.05	2.1	0.11	0.23	0.1	6.94	0.6
106881	0.08	4.12	0.43	17.4	32.8	<0.05	3.5	<1	0.6	<0.05	0.2	<0.05	5.3	0.16	0.48	0.2	5.47	0.5
106882	0.04	2.4	0.39	1.7	39.1	<0.05	2.6	1	0.6	<0.05	0.13	0.23	2.7	0.2	0.16	0.2	3.26	0.2
106883	0.08	2.65	0.48	2.1	35.4	<0.05	3	1	0.6	<0.05	0.2	0.07	3.7	0.21	0.63	0.6	5.33	0.5
106884	0.07	2.43	0.32	2.6	20.7	<0.05	3.3	<1	0.5	<0.05	0.16	<0.05	1.6	0.1	0.22	0.2	4.74	0.4
106885	0.09	1.97	0.28	2.6	7.1	<0.05	3.6	<1	0.5	<0.05	0.2	<0.05	1.6	0.04	0.19	0.2	6.16	0.6
106886	0.09	1.87	0.19	8.2	15.6	<0.05	3.4	2	0.6	<0.05	0.23	0.18	4.1	0.08	0.38	0.1	6.5	0.6
106887	0.09	2.17	0.37	2.6	26	<0.05	3.8	<1	0.5	<0.05	0.22	<0.05	3.8	0.12	0.39	0.3	6.24	0.6
106888	0.1	2.03	0.26	3.2	11.6	<0.05	3.7	<1	0.5	<0.05	0.21	<0.05	2.6	0.06	0.37	<0.1	6.14	0.6
106889	0.1	3.48	0.22	2.8	24.2	<0.05	3.9	2	1	<0.05	0.31	0.27	6	0.14	0.5	0.1	7.87	0.6
106890	0.08	1.75	0.16	2	16.2	<0.05	3.1	<1	0.4	<0.05	0.24	<0.05	5.7	0.08	0.19	<0.1	5.83	0.5
106891	0.06	1.61	<0.05	4.3	8.2	<0.05	2.7	3	0.5	<0.05	0.21	0.24	1.1	0.04	0.15	<0.1	6	0.4
106892	0.09	2.35	0.36	1.5	24.5	<0.05	4.1	<1	0.5	<0.05	0.19	<0.05	1.4	0.11	0.27	0.3	5.65	0.6
Duplicate																		
106881	0.08	4.19	0.44	19.2	33.4	<0.05	3.5	<1	0.5	<0.05	0.2	<0.05	5.2	0.17	0.46	0.2	5.51	0.5
QC																		
CH4	0.07	2.92	0.19	8	72.3	0.28	8.4	2	0.7	<0.05	0.3	0.52	2.3	0.39	0.33	2.4	6.26	0.5
Expected Values	#N/A	3.05	0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
Tolerance (%)	#N/A	14.1	75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : BC Research NP and Modified NP Procedures
Date : April 30, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	NP H2SO4/tonne	NP CaCO3/tonne	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc	CSA06V	CSA06V	CSA07V	Calc	Calc	Modified	BC Research	Calc	Calc	Calc	Sobek
LOD		0.2	0.01	#N/A	0.005	0.005	0.01	#N/A	#N/A	0.5	0.5	#N/A	#N/A	#N/A	#N/A
103123	31-Jan-15	8.76	0.27	22.5	0.427	0.098	<0.01	0.10	3.1	23.5	30.6	31.3	28.2	10.2	Slight
103124	31-Jan-15	8.59	0.14	11.7	0.196	0.079	<0.01	0.08	2.5	13.1	18.6	19.0	16.5	7.7	Slight
103125	18-Feb-15	8.88	0.28	23.3	0.321	0.428	<0.01	0.43	13.4	22.9	29.6	30.3	16.9	2.3	Slight
97276	3-Feb-15	9.08	0.14	11.7	0.163	0.007	<0.01	<0.01	<0.3	15.3	17.9	18.3	18.3	60.8	Slight
97277	3-Feb-15	9.43	0.11	9.2	0.129	0.007	<0.01	<0.01	<0.3	11.8	16.4	16.8	16.8	55.8	Slight
97278	3-Feb-15	9.00	0.08	6.7	0.094	0.028	<0.01	0.03	0.9	10.9	16.7	17.0	16.1	19.4	Slight
Jan 2015 Tails	18-Feb-15	8.56	0.29	24.2	0.317	0.058	<0.01	0.06	1.8	22.3	33.3	34.0	32.2	18.8	Slight
Feb 2015 Tails	23-Mar-15	8.44	0.33	27.5	0.35	0.108	0.01	0.10	3.1	21.7	32.1	32.8	29.7	10.7	Slight
Duplicates															
103123		8.80	0.29		0.436	0.102				23.4					Slight
Feb 2015 Tails							<0.01								
QC															
GTS-2A					1.97	0.358									
RTS-3A							0.95								
SY-4			0.9												
NBM-1										39.7					Slight
Expected Values			0.95		2.01	0.341	0.98			42.0					Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0					

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : April 30, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01
103123	0.64	0.89	<10	230	1.1	136	1630	2.28	0.45	6	0.57	544	0.07	7	0.06	0.11
103124	0.43	1.09	<10	284	0.69	117	1250	2.42	0.75	6	0.61	442	0.06	6.2	0.059	0.09
103125	2.49	0.8	<10	231	1.06	119	7920	2.67	0.45	4	0.47	444	0.05	5.8	0.038	0.5
97276	0.02	0.99	<10	154	0.79	120	30.3	2.2	0.46	6	0.7	544	0.07	6	0.061	<0.01
97277	0.02	0.92	<10	165	0.72	114	19.2	1.96	0.52	5	0.61	483	0.07	6	0.062	<0.01
97278	0.27	1.09	<10	402	0.65	115	382	2.53	0.7	5	0.72	627	0.07	6.1	0.081	0.03
Jan 2015 Tails	0.45	1.23	<10	263	1.09	89	968	3.88	0.59	7	0.75	699	0.06	6.8	0.072	0.07
Feb 2015 Tails	0.84	1.09	<10	289	1.03	99	2760	4.36	0.62	6	0.68	665	0.06	7.2	0.072	0.13
Duplicates																
97276	0.03	0.98	<10	152	0.79	116	22.6	2.16	0.44	6	0.68	532	0.07	5.9	0.062	<0.01
QC																
CH4	2.26	1.86	<10	302	0.61	108	2100	4.65	1.43	13	1.2	312	0.06	51.8	0.068	0.74
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4

Sr ppm	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm
ICM14B 0.5	ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1
106	0.07	44	86	1.1	<1	0.2	0.42	0.17	28	5.2	0.28	5.1	<0.1	0.05	<0.01	0.03	13.4
51.8	0.13	46	71	0.8	<1	0.2	0.14	0.16	5.33	5.2	0.4	5.8	<0.1	<0.05	<0.01	<0.02	2.7
63.6	0.08	45	79	0.9	<1	0.2	0.68	0.56	28.3	4.6	0.23	5.1	<0.1	<0.05	<0.01	0.05	13.1
46.6	0.1	45	82	1.1	<1	0.2	<0.02	0.04	16.4	5.5	0.26	5.6	<0.1	0.05	<0.01	<0.02	8.5
39.9	0.11	43	71	1	<1	0.2	<0.02	0.04	17.6	4.9	0.26	4.9	<0.1	<0.05	<0.01	<0.02	8.5
37.8	0.17	63	88	1.4	<1	0.2	0.04	0.05	17.8	6	0.3	5.7	<0.1	0.07	<0.01	<0.02	9
71.3	0.11	71	101	1.8	<1	0.2	0.14	0.26	21.8	6.8	0.45	7.7	<0.1	0.05	0.02	0.06	10.4
69.7	0.12	76	103	1.9	<1	0.2	0.4	0.35	21	7.3	0.46	7.7	<0.1	0.06	0.02	0.08	9.7
46.2	0.1	45	79	1.1	<1	0.2	<0.02	0.04	15.3	5.6	0.26	5.6	<0.1	<0.05	<0.01	<0.02	8.2
9.6	0.22	81	201	12.9	8	<0.1	0.44	1.1	30.5	21.5	2.3	9.2	0.3	0.32	<0.01	0.09	13.9
9.38	0.21	79.27	189.4	9	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14
23.3	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8

Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.01	ICM14B 0.05	ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
0.09	9.93	0.39	2.6	19.5	<0.05	3.8	1	0.6	<0.05	0.24	0.11	3.7	0.12	0.38	0.6	6.38	0.6
0.03	5.34	0.86	4.1	36.3	<0.05	1.7	<1	0.5	<0.05	0.08	0.14	0.6	0.21	0.13	0.8	2.44	0.2
0.06	5.32	0.29	3	19.7	<0.05	2.4	5	0.6	<0.05	0.17	0.61	3.3	0.12	0.39	0.6	4.45	0.4
0.05	4.44	0.37	2.6	19.8	<0.05	2.5	<1	0.4	<0.05	0.12	<0.05	1.9	0.11	0.32	<0.1	3.83	0.4
0.06	4.66	0.38	2.2	24.6	<0.05	2.5	<1	0.4	<0.05	0.13	<0.05	1.8	0.12	0.29	<0.1	3.9	0.4
0.06	4.81	0.42	1.7	32.6	<0.05	3.2	<1	0.5	<0.05	0.15	<0.05	2.2	0.17	0.18	<0.1	4.54	0.4
0.07	6.26	0.47	2.3	30.5	<0.05	3.5	<1	1.1	<0.05	0.2	0.14	2.9	0.21	0.45	<0.1	6.03	0.5
0.08	8.84	0.53	2.6	32	<0.05	3.6	2	1.1	<0.05	0.22	0.23	2.7	0.22	0.48	<0.1	6.4	0.5
0.06	4.56	0.37	2.8	20	<0.05	2.5	<1	0.4	<0.05	0.13	<0.05	1.7	0.11	0.3	<0.1	3.93	0.4
0.06	2.47	0.29	7.4	71.2	0.34	7.5	2	0.6	<0.05	0.26	0.42	1.9	0.35	0.25	2.4	5.38	0.4
#N/A	3.05	0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
#N/A	14.1	75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : BC Research NP and Modified NP Procedures
Date : July 15, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	NP H2SO4/tonne	NP CaCO3/tonne	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	BC Research 0.5	Calc #N/A	Calc #N/A	Calc #N/A	Sobek #N/A
97279	14-Mar-15	9.33	0.12	10.0	0.13	0.03	<0.01	0.03	0.9	16.4	17.4	17.8	16.8	18.9	Slight
97280	14-Mar-15	9.25	0.19	15.8	0.21	0.035	<0.01	0.04	1.1	17.0	22.8	23.3	22.2	21.3	Slight
97281	14-Mar-15	9.18	0.27	22.5	0.263	0.068	<0.01	0.07	2.1	26.5	29.6	30.3	28.1	14.2	Slight
97282	14-Mar-15	9.26	0.14	11.7	0.146	0.009	<0.01	0.01	0.3	16.5	18.4	18.8	18.5	66.7	Slight
97283	11-Mar-15	9.22	0.12	10.0	0.128	0.009	<0.01	0.01	0.3	15.1	19.4	19.8	19.5	70.2	Slight
97284	11-Mar-15	9.31	0.09	7.5	0.095	<0.005	<0.01	<0.01	<0.3	12.6	14.0	14.3	14.3	47.5	Slight
97285	16-May-15	9.05	0.22	18.3	0.23	0.261	<0.01	0.26	8.2	17.1	26.5	27.0	18.8	3.3	Slight
97286	16-May-15	8.82	0.12	10.0	0.122	0.149	<0.01	0.15	4.7	14.7	15.4	15.8	11.1	3.4	Slight
97287	16-May-15	9.24	0.1	8.3	0.105	0.006	<0.01	0.01	0.2	13.2	15.4	15.8	15.6	84.0	Slight
97291	16-May-15	9.11	0.13	10.8	0.141	<0.005	<0.01	<0.01	<0.3	14.7	16.7	17.0	17.0	56.7	Slight
107751	17-Apr-15	9.21	0.22	18.3	0.273	<0.005	<0.01	<0.01	<0.3	24.1	28.4	29.0	29.0	96.7	Slight
March 2015 Tails	17-Apr-15	8.27	0.38	31.7	0.401	0.066	<0.01	0.07	2.1	26.4	36.8	37.5	35.4	18.2	Slight
April 2015 Tails	16-May-15	8.60	0.35	29.2	0.381	0.06	<0.01	0.06	1.9	26.3	37.5	38.3	36.4	20.4	Slight
Duplicates															
97281			0.25												
97282					0.142	0.008									
97291							<0.01								
107751	9.14									24.2					Slight
QC															
GTS-2A					2	0.334									
PD-1							4.15								
SY-4			0.91												
NBM-1										40.6					Slight
Expected Values			0.95		2.01	0.341	4.27			42.0					Slight
Tolerance +/-			0.06		0.15	0.030	0.51			3.0					

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : July 15, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
97279	0.11	1.29	40	385	0.73	119	289	2.56	0.78	8	0.87	518	0.07	6.4	0.112	0.03	44.7
97280	0.08	1.32	40	403	0.71	108	281	2.98	0.87	7	0.83	630	0.06	5.7	0.081	0.03	42.5
97281	0.19	1.33	40	353	1.08	104	432	2.77	0.73	8	0.84	584	0.06	5.8	0.073	0.07	51.3
97282	0.03	1.26	40	371	0.74	117	65	2.41	0.71	7	0.77	532	0.07	6	0.074	<0.01	48.8
97283	0.08	1.28	40	366	0.65	117	149	2.6	0.71	7	0.78	514	0.06	6.2	0.079	<0.01	44.7
97284	0.02	1.38	50	488	0.55	113	19.4	2.63	0.89	8	0.87	537	0.08	6	0.08	<0.01	40.4
97285	1.57	1.14	40	303	0.72	113	3820	2.78	0.83	5	0.75	618	0.06	6.2	0.072	0.25	72.8
97286	0.46	1.56	40	308	0.8	121	1690	2.9	0.97	8	1.12	652	0.07	18.8	0.094	0.15	81
97287	0.02	1.33	40	386	0.48	111	21.9	2.5	1.05	8	0.79	521	0.07	6.2	0.07	<0.01	43.9
97291	0.02	1.02	40	222	0.77	121	7.9	2.2	0.64	5	0.64	523	0.07	6.4	0.077	<0.01	90
107751	0.02	1.05	40	128	1.18	113	11.9	2.14	0.27	7	0.71	542	0.08	6.8	0.063	<0.01	77.7
March 2015 Tails	0.79	1.15	40	251	1.06	94	2080	4.6	0.69	6	0.73	797	0.07	7.4	0.071	0.06	63.2
April 2015 Tails	0.62	1.2	40	307	1	96	1730	3.94	0.77	6	0.77	748	0.05	6.9	0.078	0.06	65.3
Duplicates																	
97285	1.6	1.17	40	294	0.71	113	3810	2.88	0.84	6	0.77	636	0.07	6.2	0.072	0.26	71.7
QC																	
OREAS 901	0.3	1.01	50	94	0.09	24	1500	3.92	0.55	3	0.13	305	0.02	36.6	0.061	0.03	21.2
Expected Values	0.276	0.992	#N/A	86	0.091	23.0	1440	3.70	0.512	3.1	0.124	300	0.01	34.7	0.059	0.033	21.0
Tolerance (%)	19.06	12.52	#N/A	24.53	37.47	20.87	10.09	10.68	14.88	98.65	30.16	11.67	#N/A	13.60	31.19	85.76	15.95

Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm
ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01	ICM14B 0.05
0.15	63	77	1.3	<1	0.2	0.03	0.04	20.8	6.8	0.44	6.7	<0.1	0.05	<0.01	0.03	9.9	0.1	4.66
0.14	64	71	1.3	<1	0.2	0.02	0.05	22	7.5	0.44	6.7	<0.1	<0.05	<0.01	0.03	10.6	0.09	4.45
0.11	57	71	1.2	<1	0.2	0.04	0.22	31.9	7.6	0.41	6.9	<0.1	<0.05	<0.01	0.04	15.4	0.1	4.64
0.12	55	66	1.1	<1	0.2	<0.02	0.04	31.1	6.8	0.4	6.5	<0.1	<0.05	<0.01	0.03	15.5	0.1	4.83
0.13	58	63	1.1	<1	0.2	0.04	0.05	21.9	6.8	0.41	6.7	<0.1	<0.05	<0.01	0.03	10.4	0.09	4.86
0.15	63	65	1	<1	0.2	<0.02	0.02	16.3	6.7	0.41	6.8	<0.1	<0.05	<0.01	0.03	7.8	0.09	4.56
0.14	56	102	1.4	<1	0.2	0.13	0.21	19.1	7	0.44	5.6	<0.1	0.05	<0.01	0.08	9.1	0.09	4.52
0.18	74	83	4.5	<1	0.3	0.13	0.04	24.9	8.6	0.76	7.3	0.1	0.17	<0.01	0.04	11.8	0.09	5.34
0.17	56	95	0.8	<1	0.1	<0.02	0.05	34.3	6.2	0.44	6.4	<0.1	<0.05	<0.01	<0.02	17.6	0.06	4.65
0.12	50	72	1.6	<1	0.2	<0.02	0.05	18.6	6.2	0.35	5.1	<0.1	0.08	<0.01	<0.02	9.5	0.1	4.78
0.08	43	65	1.2	<1	0.4	<0.02	0.03	22.7	6.2	0.21	5.8	<0.1	0.07	<0.01	0.02	10.9	0.1	4.59
0.12	74	114	1.9	<1	0.2	0.42	0.49	21.4	8.6	0.64	8.4	<0.1	<0.05	0.01	0.09	10.4	0.08	7.99
0.13	77	114	1.9	<1	0.2	0.3	0.53	22.3	8.2	0.69	8	<0.1	0.05	0.01	0.09	10.7	0.09	6.61
0.14	55	100	1.2	<1	0.2	0.13	0.2	19.5	6.9	0.44	5.7	<0.1	0.05	<0.01	0.08	9.2	0.09	4.52
<0.01	22	19	32.9	73	4.3	4.42	0.04	85.2	74.2	0.91	2.9	<0.1	0.89	0.01	0.21	39.2	0.23	3.04
0.01	21	20.2	31.6	66	4.49	4.35	0.05	78	73	0.97	3.15	0.11	0.8	0.02	0.21	38.1	0.22	3.23
#N/A	#N/A	22.38	13.96	13.79	15.57	11.15	#N/A	15.77	16.85	22.89	17.94	237.27	#N/A	#N/A	33.81	10.66	21.36	13.87

Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
0.32	1.8	35.8	<0.05	5	<1	1	<0.05	0.25	<0.05	2.4	0.24	0.33	<0.1	7.45	0.7
0.43	1.7	36.5	<0.05	5.2	<1	1	<0.05	0.24	<0.05	2.8	0.25	0.23	<0.1	7.14	0.6
0.31	3.1	30.1	<0.05	5.7	<1	0.8	<0.05	0.29	<0.05	2.9	0.2	0.23	<0.1	7.98	0.7
0.32	2.3	30.6	<0.05	4.9	<1	0.9	<0.05	0.27	<0.05	3.1	0.21	0.23	<0.1	7.16	0.7
0.33	2.4	31.1	<0.05	5.1	<1	0.8	<0.05	0.25	<0.05	2.6	0.21	0.49	<0.1	7.04	0.6
0.36	1.7	36.4	<0.05	5.5	<1	1.1	<0.05	0.2	<0.05	1.8	0.26	0.39	<0.1	5.87	0.6
0.31	1.8	36.1	<0.05	3.8	3	0.6	<0.05	0.21	0.19	2.3	0.23	0.2	<0.1	6.88	0.6
0.36	2.4	48.7	<0.05	5.6	1	0.7	<0.05	0.26	0.07	3.2	0.44	0.44	<0.1	6.83	0.6
0.36	1.7	49.9	<0.05	2.4	<1	0.5	<0.05	0.18	<0.05	3.9	0.29	0.18	<0.1	4.69	0.4
0.27	1.3	28.2	<0.05	4	<1	0.5	<0.05	0.2	<0.05	1.8	0.16	0.24	<0.1	6.58	0.7
0.25	3.4	13.3	<0.05	4.4	<1	0.6	<0.05	0.23	<0.05	2.7	0.08	0.28	0.2	6.83	0.7
0.42	3.1	34.8	<0.05	4.7	2	1.1	<0.05	0.23	0.21	3.5	0.31	0.47	<0.1	6.49	0.5
0.42	3	39.6	0.05	5.1	1	1.1	<0.05	0.26	0.17	3.6	0.32	0.47	<0.1	7.26	0.6
0.31	1.8	36.7	<0.05	3.9	3	0.6	<0.05	0.21	0.18	2.3	0.23	0.2	<0.1	6.84	0.6
0.09	14.2	23.5	1.34	5.3	3	0.5	<0.05	0.75	0.07	9.4	0.35	6.45	1	19.6	1.5
0.1	14.6	23.9	1.47	5.55	2.68	0.58	0.02	0.77	0.076	9.13	0.34	5.84	1.1	18.8	1.49
#N/A	13.42	12.09	18.50	14.50	103.28	139.31	#N/A	16.49	174.47	12.74	24.71	12.14	#N/A	10.66	26.78

CLIENT : Minto Mines
PROJECT : Minto Project
SGS PROJECT # : 0643
Test : Leachate Analysis by ICP-OES
Date : July 15, 2015

Sample ID		97281	NP Contribution	97291	NP Contribution
Al	mg/L	60.2		37.1	
Sb	mg/L	< 0.02		< 0.02	
As	mg/L	0.03		< 0.01	
Ba	mg/L	0.0829		0.108	
Be	mg/L	0.0077		0.0055	
Bi	mg/L	0.35		0.25	
B	mg/L	2.35		1.47	
Cd	mg/L	0.013		0.007	
Ca	mg/L	771	19.2	392	9.8
Cr	mg/L	1.69		0.704	
Co	mg/L	0.044		0.029	
Cu	mg/L	1.53		0.041	
Fe	mg/L	174		96.4	
Pb	mg/L	0.024		< 0.007	
Li	mg/L	< 0.1		< 0.1	
Mg	mg/L	35.6	1.5	23.8	1.0
Mn	mg/L	10.8		10.8	
Mo	mg/L	< 0.01		0.02	
Ni	mg/L	0.239		0.270	
P	mg/L	0.645		0.143	
K	mg/L	44.2	1.1	31.9	0.8
Se	mg/L	< 0.01		< 0.01	
Si	mg/L	79.0		52.0	
Ag	mg/L	< 0.08		< 0.08	
Na	mg/L	24.2	1.1	19.8	0.9
Sr	mg/L	2.89		6.33	
S	mg/L	886		419	
Tl	mg/L	0.007		0.008	
Sn	mg/L	< 0.02		< 0.02	
Ti	mg/L	0.029		0.007	
U	mg/L	0.2		0.2	
V	mg/L	0.223		0.068	
Zn	mg/L	0.420		0.368	
Zr	mg/L	0.010		0.003	
NP from Ca, Mg, Na & K (kg CaCO3 Equiv/tonne)			22.9		12.4

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : BC Research NP and Modified NP Procedures
Date : July 20, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	NP H2SO4/tonne	NP CaCO3/tonne	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	BC Research 0.5	Calc #N/A	Calc #N/A	Calc #N/A	Sobek #N/A
97292	16-May-15	8.36	0.29	24.2	0.323	0.522	0.04	0.48	15.1	27.8	32.8	33.5	18.4	2.2	Slight
97293	23-May-15	8.33	0.43	35.8	0.456	0.862	0.04	0.82	25.7	29.9	40.9	41.8	16.1	1.6	Slight
97294	9-Jun-15	9.06	0.17	14.2	0.173	0.024	0.03	<0.01	<0.3	18.6	22.3	22.8	22.8	75.8	Slight
97295	9-Jun-15	8.09	0.16	13.3	0.173	0.039	0.03	<0.01	<0.3	16.5	21.3	21.8	21.8	72.5	Slight
97296	13-Jun-15	8.28	0.3	25.0	0.316	0.171	0.04	0.13	4.1	26.3	31.6	32.3	28.2	7.9	Slight
97297	20-Jun-15	8.39	0.18	15.0	0.187	0.135	0.04	0.10	3.0	17.9	23.5	24.0	21.0	8.1	Slight
107752	20-May-15	9.18	0.15	12.5	0.21	0.054	0.04	0.01	0.4	15.2	20.8	21.3	20.8	48.6	Slight
107753	20-May-15	9.12	0.13	10.8	0.198	0.33	0.04	0.29	9.1	17.8	19.8	20.3	11.2	2.2	Slight
May Final Tails	May, 2015	8.42	0.28	23.3	0.306	0.078	0.05	0.03	0.9	22.6	33.6	34.3	33.4	39.1	Slight
Duplicates															
97292		8.33			0.316	0.51				27.4					Slight
97294			0.15												
97295							0.03								
QC															
GTS-2A					2.01	0.339									
PD-1							4.28								
SY-4			0.9												
NBM-1										39.6					Slight
Expected Values			0.95		2.01	0.341	4.27			42.0					Slight
Tolerance +/-			0.06		0.15	0.030	0.51			3.0					

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : July 20, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
97292	2.12	1.47	<10	393	1.1	122	6340	2.93	1.2	6	0.94	804	0.06	6.3	0.118	0.47	62.8
97293	4.62	1.21	10	306	1.2	132	>10000	3.83	0.93	5	0.75	684	0.05	6.7	0.066	0.79	54.3
97294	0.16	1.14	<10	219	0.8	111	457	2.29	0.46	7	0.74	528	0.06	5.7	0.07	0.02	52.4
97295	0.2	0.88	<10	150	0.72	128	812	1.85	0.3	6	0.55	428	0.05	6.1	0.052	0.04	50.6
97296	1.29	1.22	<10	313	1.06	128	3150	2.62	0.83	6	0.73	555	0.05	9	0.07	0.16	71.6
97297	0.7	1.33	20	287	0.88	129	1610	2.61	0.9	6	0.8	653	0.07	6.4	0.086	0.12	55.6
107752	0.2	1.22	10	255	0.8	117	655	2.48	0.59	7	0.84	565	0.07	6.4	0.071	0.05	76.1
107753	1.78	1.41	<10	271	0.78	122	5560	3.73	0.97	7	0.86	624	0.07	6.3	0.079	0.29	51.9
May Final Tails	0.66	1.34	10	303	0.92	94	2310	4.21	0.84	6	0.8	747	0.06	6.1	0.083	0.07	65.4
Duplicate																	
97293	4.93	1.22	10	303	1.19	132	>10000	3.88	0.93	5	0.76	693	0.05	6.6	0.065	0.73	53.5
QC																	
OREAS 901	0.26	1.08	20	98	0.08	25	1480	3.48	0.57	3	0.15	295	0.03	36.3	0.062	0.03	21.2
Expected Values	0.276	0.992	#N/A	86	0.091	23.0	1440	3.70	0.512	3.1	0.124	300	0.01	34.7	0.059	0.033	21.0
Tolerance (%)	19.06	12.52	#N/A	24.53	37.47	20.87	10.09	10.68	14.88	98.65	30.16	11.67	#N/A	13.60	31.19	85.76	15.95

Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm
ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01	ICM14B 0.05
0.19	89	119	1.9	<1	0.2	0.43	0.22	32.1	6.7	0.76	7.2	0.1	0.05	<0.01	0.1	16.2	0.1	13.9
0.15	73	124	1.4	<1	0.2	0.97	0.64	17.6	7.3	0.58	6.9	0.1	<0.05	<0.01	0.15	8.7	0.07	5.37
0.08	51	72	1.4	<1	0.2	0.05	0.04	20.2	6.2	0.31	5.9	<0.1	0.06	<0.01	0.03	10.1	0.09	4.76
0.05	37	52	1.1	<1	0.2	0.09	0.07	15.9	4.6	0.2	4.7	<0.1	<0.05	<0.01	0.03	7.7	0.07	5.02
0.13	61	84	1.3	<1	0.2	0.5	0.12	24.8	6.2	0.51	6.1	0.1	<0.05	<0.01	0.04	12.4	0.07	6.58
0.15	62	91	1.7	<1	0.2	0.23	0.11	29.8	7.1	0.56	6	0.1	0.06	<0.01	0.04	15.5	0.09	7.26
0.11	56	75	1.5	<1	0.3	0.14	0.07	27.8	6.5	0.39	6	0.1	0.05	<0.01	0.03	14.9	0.07	5.26
0.16	67	86	1.6	<1	0.2	1.06	0.18	21.4	6.8	0.53	7.6	0.1	0.05	<0.01	0.08	10.7	0.07	5.29
0.14	76	104	1.9	<1	0.2	0.32	0.34	19.1	7.6	0.66	7.8	<0.1	<0.05	0.01	0.08	9.3	0.09	6.39
0.15	70	122	1.4	<1	0.2	1.03	0.68	17.6	7.3	0.56	6.8	0.1	0.05	0.02	0.15	8.8	0.07	5.42
0.01	23	21	33.6	66	3.8	4.38	0.05	81.6	68.3	1.12	3	0.1	0.98	<0.01	0.21	39.2	0.24	3.11
0.01	21	20.2	31.6	66	4.49	4.35	0.05	78	73	0.97	3.15	0.11	0.8	0.02	0.21	38.1	0.22	3.23
#N/A	#N/A	22.38	13.96	13.79	15.57	11.15	#N/A	15.77	16.85	22.89	17.94	237.27	#N/A	#N/A	33.81	10.66	21.36	13.87

Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
0.71	3.2	56.6	<0.05	4.9	4	0.8	<0.05	0.32	0.36	5.3	0.36	0.44	<0.1	7.46	0.6
0.64	3.1	42.4	<0.05	4.1	6	0.7	<0.05	0.2	0.65	3	0.31	0.32	<0.1	5.31	0.4
0.37	2.3	19.9	<0.05	3.9	<1	0.6	<0.05	0.23	<0.05	2.1	0.13	0.27	<0.1	5.95	0.6
0.28	2.7	12.3	<0.05	2.9	<1	0.5	<0.05	0.2	<0.05	1.7	0.08	0.23	<0.1	5.08	0.4
0.53	2.8	38.4	<0.05	3	2	0.5	<0.05	0.21	0.24	3.3	0.24	0.9	<0.1	4.91	0.4
0.73	3.2	42.9	<0.05	3.9	1	0.7	<0.05	0.25	0.14	5.1	0.29	0.34	<0.1	6.06	0.5
0.46	2.7	25.2	<0.05	4.8	<1	0.5	<0.05	0.22	0.06	3.9	0.16	0.17	0.9	5.29	0.5
0.82	3.1	42.5	<0.05	3.9	4	0.6	<0.05	0.2	0.29	3.8	0.31	0.89	0.5	4.73	0.4
0.7	2.7	37.5	<0.05	4.4	2	1	<0.05	0.25	0.2	3.4	0.29	0.53	<0.1	6.33	0.6
0.69	3.3	41.8	<0.05	4	7	0.8	<0.05	0.2	0.8	2.9	0.31	0.34	0.1	5.3	0.5
0.1	13.8	26.2	1.45	4.8	2	0.5	<0.05	0.84	0.07	9.3	0.35	6.32	1.1	19.2	1.6
0.1	14.6	23.9	1.47	5.55	2.68	0.58	0.02	0.77	0.076	9.13	0.34	5.84	1.1	18.8	1.49
#N/A	13.42	12.09	18.50	14.50	103.28	139.31	#N/A	16.49	174.47	12.74	24.71	12.14	#N/A	10.66	26.78

CLIENT : Minto Mines
PROJECT : Minto Project
SGS PROJECT # : 0643
Test : Leachate Analysis by ICP-OES
Date : July 20, 2015

Sample ID		97294	NP Contribution
Al	mg/L	44.0	
Sb	mg/L	< 0.02	
As	mg/L	< 0.01	
Ba	mg/L	0.106	
Be	mg/L	0.0075	
Bi	mg/L	0.14	
B	mg/L	1.29	
Cd	mg/L	0.009	
Ca	mg/L	487	12.2
Cr	mg/L	0.425	
Co	mg/L	0.032	
Cu	mg/L	12.5	
Fe	mg/L	114	
Pb	mg/L	0.016	
Li	mg/L	< 0.1	
Mg	mg/L	34.3	1.4
Mn	mg/L	8.90	
Mo	mg/L	< 0.01	
Ni	mg/L	0.175	
P	mg/L	0.872	
K	mg/L	35.9	0.9
Se	mg/L	< 0.01	
Si	mg/L	54.4	
Ag	mg/L	< 0.08	
Na	mg/L	18.4	0.8
Sr	mg/L	2.65	
S	mg/L	665	
Tl	mg/L	0.007	
Sn	mg/L	< 0.02	
Ti	mg/L	0.033	
U	mg/L	< 0.1	
V	mg/L	0.103	
Zn	mg/L	0.504	
Zr	mg/L	0.004	
NP from Ca, Mg, Na & K (kg CaCO3 Equiv/tonne)			15.3

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : September 28, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
95002	15-Jul-15	9.12	0.14	11.7	0.143	0.075	<0.01	0.08	2.3	14.6	12.3	6.2	Slight
95003	8-Aug-15	8.55	0.05	4.2	0.053	0.076	<0.01	0.08	2.4	6.8	4.4	2.9	None
97298	27-Jun-15	8.47	0.4	33.3	0.43	0.221	<0.01	0.22	6.9	32.2	25.3	4.7	Slight
97299	27-Jun-15	8.42	0.45	37.5	0.46	0.232	<0.01	0.23	7.3	38.3	31.1	5.3	Slight
97300	7-Jul-15	8.58	0.42	35.0	0.448	1.09	<0.01	1.09	34.1	26.1	-8.0	0.8	Slight
99470	10-Aug-15	5.23	<0.01	<0.8	1.92	0.022	<0.01	0.02	0.7	-4.2	-4.9	-6.1	None
107754	10-Aug-15	8.82	0.02	1.7	0.064	0.007	<0.01	<0.01	<0.3	5.3	5.3	17.7	None
107755	14-Aug-15	8.88	<0.01	<0.8	0.043	0.006	<0.01	<0.01	<0.3	5.3	5.3	17.7	None
107756	14-Aug-15	9.05	0.04	3.3	0.101	0.007	<0.01	<0.01	<0.3	9.4	9.4	31.3	None
June 2015 Tails	June 2015	8.34	0.27	22.5	0.295	0.071	<0.01	0.07	2.2	20.8	18.6	9.4	Slight
July 2015 Tails	July 2015	8.46	0.27	22.5	0.311	0.063	<0.01	0.06	2.0	20.2	18.2	10.3	Slight
Duplicates													
97298		8.49								32.3			Slight
97299					0.469	0.239							
97300			0.43										
107756							<0.01						
QC													
GTS-2A					1.97	0.338							
RTS-3A							0.92						
SY-4			0.91										
NBM-1										41.6			Slight
Expected Values			0.95		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : September 28, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01
95002	0.24	1.3	30	289	0.73	138	460	2.53	0.82	6	0.84	554	0.07	9.2	0.085	0.07
95003	0.07	1.39	40	381	0.41	156	215	2.91	1.08	6	0.84	585	0.08	7.8	0.085	0.08
97298	1.83	1.14	40	314	1.36	128	3350	3.19	0.78	6	0.71	653	0.05	7.1	0.071	0.22
97299	1.96	1.29	30	367	1.58	126	3660	3.1	0.88	6	0.81	656	0.05	6.6	0.091	0.24
97300	4.23	1.09	30	154	1.04	128	>10000	5.34	0.71	5	0.66	783	0.04	11.2	0.052	1.08
99470	0.2	1.54	20	151	0.23	93	93	2.53	0.12	9	0.42	283	0.02	13	0.059	<0.01
107754	0.02	1.13	30	332	0.42	129	75.6	2.24	0.72	6	0.68	487	0.07	7.2	0.074	<0.01
107755	0.02	0.97	30	192	0.5	101	41.3	1.95	0.46	5	0.64	466	0.06	5.8	0.077	<0.01
107756	0.02	1.11	30	213	0.69	113	19.7	2.27	0.48	7	0.72	511	0.07	6.6	0.084	<0.01
June 2015 Tails	0.89	1.33	30	250	0.89	118	2350	4.51	0.77	6	0.82	750	0.06	7.9	0.082	0.07
July 2015 Tails	0.75	1.28	30	279	0.95	103	1860	4.35	0.75	6	0.81	739	0.06	7.3	0.08	0.06
Duplicates																
97300	4.16	1.06	40	154	1.02	125	>10000	5.25	0.7	5	0.65	763	0.04	11.3	0.053	1.06
QC																
CH4	2.28	1.89	40	316	0.62	115	2040	4.7	1.44	12	1.23	327	0.06	49.9	0.066	0.67
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4

Sr ppm	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm
ICM14B 0.5	ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01
37.7	0.15	58	93	1.7	<1	0.2	0.06	0.13	21.1	7.8	0.42	6.3	<0.1	0.06	<0.01	0.03	11	0.07
25.2	0.2	72	103	1.7	<1	0.2	<0.02	<0.01	22.1	7.5	0.6	6.9	0.1	<0.05	<0.01	<0.02	11.2	0.06
61.2	0.14	77	106	1.4	<1	0.2	0.52	0.21	20.6	6.9	0.46	6.7	0.1	0.06	0.02	0.07	10.8	0.08
73.2	0.15	71	104	1.5	<1	0.3	0.55	0.27	24	7.7	0.51	7.2	0.2	0.06	0.02	0.06	12.4	0.09
34.2	0.12	74	104	2.1	<1	0.1	2.74	1.04	12.2	7.4	0.76	8.6	0.1	0.07	0.05	0.13	6.1	0.05
21.6	0.1	60	51	0.9	11	0.3	0.11	0.07	15.1	6.8	0.67	6.4	<0.1	<0.05	0.02	<0.02	7.5	0.04
26.1	0.14	55	55	1.4	4	0.2	<0.02	0.03	20.8	6.3	0.38	5.1	<0.1	0.06	<0.01	<0.02	11.6	0.07
34.1	0.12	50	58	1.7	3	0.2	<0.02	0.02	15.9	5.8	0.25	4.7	<0.1	0.08	<0.01	<0.02	8.8	0.08
39.2	0.13	55	58	2.4	<1	0.2	<0.02	0.03	15.5	6.6	0.31	5.6	0.1	0.1	<0.01	<0.02	8.4	0.08
56.1	0.13	76	121	1.6	<1	0.2	0.47	0.41	17.1	7.8	0.57	8.5	0.1	<0.05	0.04	0.09	8.8	0.07
65.8	0.13	77	118	1.6	<1	0.2	0.3	0.4	17.8	8.2	0.55	8.5	0.1	<0.05	0.02	0.08	9.1	0.07
34.7	0.12	75	105	2.1	<1	0.2	2.79	0.92	12.5	7.1	0.75	8.4	0.1	0.08	0.06	0.13	6.3	0.05
9.4	0.22	82	200	16.3	8	0.1	0.42	1.09	30	23.6	2.54	9.3	0.3	0.44	<0.01	0.1	15.2	0.07
9.38	0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14	#N/A
23.3	23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8	#N/A

Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.05	ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
5.89	0.45	4.6	38.7	<0.05	4.4	<1	1.2	<0.05	0.19	<0.05	2.7	0.24	0.27	<0.1	5.33	0.5
6.75	0.67	3.2	55.9	<0.05	3.4	<1	1.4	<0.05	0.17	<0.05	3.2	0.39	0.75	<0.1	4.18	0.4
5.66	0.34	4.5	35.6	0.09	3.6	4	1.4	<0.05	0.23	0.45	2.6	0.21	0.35	<0.1	6.36	0.6
6.5	0.36	4	40.6	<0.05	4	4	1.3	<0.05	0.25	0.48	3.1	0.24	0.31	<0.1	7.01	0.6
4.97	0.43	5.8	35.9	<0.05	3.9	11	1.3	<0.05	0.15	0.8	3.2	0.42	0.19	<0.1	3.79	0.3
3.72	1.72	6	14.3	0.25	2.8	<1	1	<0.05	0.12	<0.05	1.5	0.11	0.32	0.1	2.72	0.3
5.75	0.43	1	32.4	<0.05	4.1	<1	1.1	<0.05	0.18	<0.05	2.2	0.18	0.21	0.4	4.92	0.5
4.23	0.42	1.6	22	<0.05	3.3	<1	0.9	<0.05	0.16	<0.05	1.7	0.12	0.24	0.5	4.66	0.5
5.29	0.46	1.6	21.5	<0.05	3.7	<1	1	<0.05	0.18	<0.05	1.8	0.1	0.3	0.6	5.32	0.5
6.81	0.37	3	36.8	<0.05	4.4	2	1.5	<0.05	0.2	0.24	3.5	0.27	0.32	<0.1	5.62	0.5
6.32	0.36	2.7	36.9	<0.05	4.3	2	1.5	<0.05	0.21	0.18	3	0.27	0.36	<0.1	5.75	0.5
4.71	0.45	6	35.4	<0.05	3.9	10	1.2	<0.05	0.14	0.72	3.3	0.43	0.18	<0.1	3.65	0.3
2.92	0.26	8.2	71.5	0.35	8.2	2	1.3	<0.05	0.29	0.35	2.1	0.39	0.31	3.1	5.99	0.5
3.05	0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
14.1	75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : September 28, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
95004	18-Aug-15	9.27	0.08	6.7	0.099	0.052	<0.01	0.05	1.6	10.5	8.9	6.5	None
107757	16-Aug-15	8.75	0.05	4.2	0.091	0.005	<0.01	<0.01	<0.3	8.5	8.5	28.3	None
107758	17-Aug-15	9.17	<0.01	<0.8	0.044	0.01	<0.01	0.01	0.3	4.6	4.3	14.7	None
107759	17-Aug-15	8.83	0.04	3.3	0.127	0.01	<0.01	0.01	0.3	8.4	8.1	26.9	None
107760	30-Aug-15	8.19	<0.01	<0.8	0.047	<0.005	<0.01	<0.01	<0.3	5.6	5.6	18.7	None
107761	30-Aug-15	7.74	<0.01	<0.8	0.105	0.005	<0.01	<0.01	<0.3	4.6	4.6	15.3	None
107762	30-Aug-15	8.93	0.01	0.8	0.029	0.02	<0.01	0.02	0.6	5.4	5.4	8.6	None
107763	30-Aug-15	7.88	0.02	1.7	0.12	0.006	<0.01	<0.01	<0.3	6.2	6.2	20.7	None
107764	30-Aug-15	8.59	0.04	3.3	0.085	0.005	<0.01	<0.01	<0.3	7.9	7.9	26.3	None
Duplicates													
107757		8.82			0.094	<0.005	<0.01			8.4			None
107759			0.05										
QC													
GTS-2A					1.98	0.334							
RTS-3A							0.97						
SY-4			0.91										
NBM-1										40.9			Slight
Expected Values			0.95		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : September 28, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
95004	0.69	1.28	40	345	0.51	131	1020	2.91	1.02	6	0.76	574	0.07	7.3	0.076	0.05	30.1
107757	0.02	1.14	30	176	0.66	110	19.9	2.35	0.48	7	0.73	524	0.07	7.1	0.083	<0.01	37.6
107758	0.12	1.25	40	331	0.35	112	335	2.42	0.92	7	0.77	460	0.06	6.7	0.084	0.01	34
107759	0.04	1.1	30	210	0.61	117	93.3	2.3	0.52	6	0.71	506	0.07	7.3	0.087	<0.01	37.3
107760	0.02	1.06	30	156	0.51	114	50	2.15	0.41	6	0.59	454	0.07	7.3	0.08	<0.01	39.3
107761	0.02	1.06	30	122	0.53	108	34.7	2	0.27	6	0.55	424	0.06	7.1	0.07	<0.01	53.7
107762	0.37	1.49	30	311	0.4	109	1340	2.87	1.05	7	0.85	480	0.06	6.5	0.105	0.02	29.2
107763	0.03	1.26	30	182	0.6	103	61.3	2.47	0.42	7	0.73	555	0.06	7.4	0.086	<0.01	44.6
107764	0.03	1.05	30	159	0.6	103	45.4	2.19	0.44	6	0.65	483	0.07	6.6	0.08	<0.01	41.1
Duplicates																	
107759	0.04	1.08	30	209	0.62	117	90.6	2.26	0.51	6	0.69	497	0.07	7.2	0.087	<0.01	36.2
QC																	
OREAS 901	0.27	0.93	40	81	0.08	21	1400	3.6	0.52	3	0.12	285	0.02	33.9	0.061	0.03	18.8
Expected Values	0.276	0.992	#N/A	86	0.091	23.0	1440	3.70	0.512	3.1	0.124	300	0.01	34.7	0.059	0.033	21.0
Tolerance (%)	19.06	12.52	#N/A	24.53	37.47	20.87	10.09	10.68	14.88	98.65	30.16	11.67	#N/A	13.60	31.19	85.76	15.95

Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm
ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01	ICM14B 0.05
0.17	68	90	1.1	<1	0.2	0.38	0.1	23.7	6.9	0.51	6.7	0.1	<0.05	<0.01	0.03	11.8	0.07	5.48
0.13	57	66	1.8	2	0.3	<0.02	0.05	16.3	6.5	0.27	5.6	0.1	0.09	<0.01	<0.02	8.5	0.09	5.3
0.17	67	68	1.4	5	0.2	0.02	0.05	29	6.6	0.59	5.9	0.1	0.05	0.02	0.04	16.1	0.08	7.03
0.13	54	59	1.7	2	0.2	<0.02	0.03	18.6	6.5	0.28	5.4	0.1	0.08	<0.01	<0.02	9.6	0.09	5.75
0.13	49	52	1.9	3	0.3	<0.02	0.06	17.1	6	0.21	5.1	<0.1	0.09	<0.01	<0.02	9.2	0.08	5.29
0.11	47	51	2.1	3	0.3	<0.02	0.04	17.9	6.1	0.2	5.3	<0.1	0.07	<0.01	<0.02	9.5	0.07	4.92
0.18	79	87	2.2	10	0.2	0.06	0.14	34.7	8.8	0.66	6.9	0.1	0.08	0.01	0.07	18.5	0.09	8.39
0.13	56	61	2.1	2	0.4	0.05	0.06	19.6	7.3	0.31	6.1	0.1	0.08	<0.01	<0.02	10.2	0.09	4.75
0.12	52	58	1.8	1	0.4	<0.02	0.03	19.5	6.3	0.26	5.3	<0.1	0.09	<0.01	<0.02	10.1	0.09	4.83
0.12	54	57	1.7	2	0.3	<0.02	0.03	19.2	6.5	0.28	5.3	0.1	0.08	<0.01	<0.02	10.1	0.08	5.41
<0.01	21	19	28.4	67	4.8	4.11	0.05	81.2	73.5	0.78	2.8	<0.1	0.88	<0.01	0.21	38.6	0.22	3.03
0.01	21	20.2	31.6	66	4.49	4.35	0.05	78	73	0.97	3.15	0.11	0.8	0.02	0.21	38.1	0.22	3.23
#N/A	#N/A	22.38	13.96	13.79	15.57	11.15	#N/A	15.77	16.85	22.89	17.94	237.27	#N/A	#N/A	33.81	10.66	21.36	13.87

Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.05	ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
0.53	1.9	48.4	<0.05	3.7	1	1.3	<0.05	0.18	0.12	3.2	0.3	0.24	<0.1	4.83	0.4
0.45	1.8	22.4	<0.05	4.1	<1	0.9	<0.05	0.19	<0.05	1.4	0.1	0.22	0.3	5.83	0.6
0.59	1.4	48.2	<0.05	4.8	<1	1.5	<0.05	0.19	<0.05	4.3	0.25	0.53	0.4	5.33	0.5
0.44	1.7	23.3	<0.05	4	<1	0.9	<0.05	0.19	<0.05	1.9	0.11	0.29	0.4	5.51	0.6
0.5	1.9	17.8	<0.05	3.5	<1	0.9	<0.05	0.17	<0.05	1.8	0.09	0.29	0.2	5.24	0.5
0.62	2.6	12.7	<0.05	3.3	<1	0.9	<0.05	0.16	<0.05	1.8	0.06	0.28	0.1	4.79	0.5
0.62	2.1	54	<0.05	4.4	<1	1.7	<0.05	0.26	<0.05	4.7	0.3	0.8	0.3	6.79	0.6
0.71	5.3	21.3	<0.05	4.5	<1	1	<0.05	0.2	<0.05	1.8	0.1	0.26	0.1	6.02	0.6
0.52	1.7	20.7	<0.05	4	<1	1	<0.05	0.2	<0.05	2.1	0.1	0.26	0.2	6.21	0.6
0.42	2	23.2	<0.05	3.9	<1	1	<0.05	0.19	<0.05	2	0.11	0.29	0.4	5.48	0.6
<0.05	13	23.8	1.21	5.2	3	0.9	<0.05	0.74	<0.05	8.7	0.34	5.92	0.9	18.3	1.5
0.1	14.6	23.9	1.47	5.55	2.68	0.58	0.02	0.77	0.076	9.13	0.34	5.84	1.1	18.8	1.49
#N/A	13.42	12.09	18.50	14.50	103.28	139.31	#N/A	16.49	174.47	12.74	24.71	12.14	#N/A	10.66	26.78

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting
Date : October 28, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
95005	8-Sep-15	8.62	0.08	6.7	0.104	0.018	<0.01	0.02	0.6	10.2	9.6	18.1	None
95006	15-Sep-15	9.47	0.02	1.7	0.038	0.016	<0.01	0.02	0.5	5.9	5.4	11.8	None
107765	1-Sep-15	8.72	0.01	0.8	0.048	0.009	<0.01	<0.01	<0.3	7.5	7.5	25.0	None
107766	3-Sep-15	8.84	0.06	5.0	0.103	0.011	<0.01	0.01	0.3	9.7	9.4	28.2	None
107767	5-Sep-15	9.16	0.07	5.8	0.094	0.011	<0.01	0.01	0.3	11.4	11.1	33.2	None
107768	8-Sep-15	8.85	0.05	4.2	0.094	0.011	<0.01	0.01	0.3	11.1	10.8	32.3	None
107769	8-Sep-15	9.28	0.04	3.3	0.085	0.011	<0.01	0.01	0.3	8.2	7.9	23.9	None
107770	9-Sep-15	8.71	0.04	3.3	0.09	0.009	<0.01	<0.01	<0.3	10.3	10.3	34.3	None
107771	13-Sep-15	9.24	0.02	1.7	0.042	0.01	<0.01	0.01	0.3	6.6	6.3	21.1	None
107772	13-Sep-15	9.10	0.05	4.2	0.174	0.01	<0.01	0.01	0.3	9.8	9.5	31.4	None
112511	11-Sep-15	8.39	<0.01	<0.8	0.141	0.011	<0.01	0.01	0.3	5.7	5.4	16.6	None
112514	12-Sep-15	6.97	<0.01	<0.8	0.173	0.009	<0.01	<0.01	<0.3	5.3	5.3	17.7	None
August 2015 Tails	August 2015	8.68	0.26	21.7	0.315	0.062	<0.01	0.06	1.9	23.2	21.3	12.0	Slight
Duplicates													
95005		8.68				0.054	0.008				11.2		None
107765			0.06										
107768													
107771							<0.01						
QC													
GTS-2A					2.04	0.344							
RTS-3A							0.93						
SY-4			0.89										
NBM-1										39.6			Slight
Expected Values			0.95		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.06		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : October 28, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
95005	0.16	1.12	30	215	0.91	115	341	2.21	0.43	5	0.67	501	0.1	6.3	0.073	0.03	47.6
95006	0.03	1.19	30	298	0.6	117	37.8	2.24	0.68	6	0.7	552	0.11	6.4	0.077	<0.01	39.4
107765	0.09	1.36	30	166	0.77	111	166	2.33	0.35	7	0.67	526	0.06	6.5	0.094	<0.01	93.1
107766	0.02	1.17	30	118	0.85	109	6.4	2.02	0.25	6	0.62	463	0.06	6.2	0.076	<0.01	79.1
107767	0.02	1.2	30	188	0.85	97	6.8	2.24	0.46	7	0.73	504	0.08	5.8	0.072	<0.01	62.4
107768	0.03	1.33	30	103	1.03	105	27.9	2.08	0.2	8	0.63	477	0.06	5.9	0.073	<0.01	84.2
107769	0.04	1.12	30	167	0.8	98	52.8	2.24	0.47	6	0.71	512	0.09	5.9	0.087	<0.01	45
107770	0.02	1.41	20	136	0.82	81	13.7	2.47	0.27	8	0.73	547	0.06	5.6	0.078	<0.01	84.9
107771	0.03	1.13	30	140	0.79	95	13.1	2.03	0.32	7	0.63	448	0.09	6.1	0.076	0.01	60.9
107772	0.02	1.13	30	225	0.75	112	23.6	2.26	0.54	6	0.68	527	0.08	7.6	0.081	<0.01	41.4
112511	0.07	1.23	30	171	0.63	105	142	2.17	0.37	6	0.6	469	0.08	6.7	0.082	<0.01	56.2
112514	0.07	1.24	20	146	0.47	111	144	2.37	0.38	7	0.62	540	0.07	7.4	0.093	<0.01	43.3
August 2015 Tails	0.71	1.35	30	275	1.01	100	1970	4.21	0.72	7	0.8	692	0.06	7.3	0.09	0.06	83.2
Duplicate																	
112514	0.07	1.25	30	152	0.47	115	148	2.39	0.38	7	0.63	545	0.07	7.7	0.095	<0.01	44.1
QC																	
CH4	2.16	1.86	30	304	0.61	110	2020	4.66	1.38	13	1.19	313	0.08	51.1	0.068	0.67	10.9
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73	9.38
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4	23.3

Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm	Nb ppm
ICM14B 0.01	ICM14B 1	ICM14B 1	ICM14B 0.5	ICM14B 1	ICM14B 0.1	ICM14B 0.02	ICM14B 0.01	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1	ICM14B 0.1	ICM14B 0.05	ICM14B 0.01	ICM14B 0.02	ICM14B 0.1	ICM14B 0.01	ICM14B 0.05	ICM14B 0.05
0.14	55	87	1.8	<1	0.3	0.08	0.07	14.4	5.7	0.24	5.5	0.1	0.08	<0.01	0.02	7.9	0.07	4.72	0.58
0.16	56	86	1.9	<1	0.2	<0.02	0.03	25.4	5.6	0.37	5.6	0.1	0.07	<0.01	0.02	13.9	0.08	4.63	0.78
0.11	58	68	2.2	9	0.4	0.03	0.06	21.3	6.8	0.21	6.2	<0.1	0.09	0.02	<0.02	12.3	0.1	5.05	0.52
0.09	48	54	1.8	2	0.3	<0.02	0.03	16.5	5.6	0.17	5.4	<0.1	0.08	<0.01	<0.02	8.8	0.09	4.5	0.5
0.13	56	62	1.7	2	0.3	<0.02	0.04	16.5	6.3	0.32	5.6	0.1	0.08	<0.01	<0.02	9	0.09	4.2	0.59
0.09	50	59	2.2	2	0.4	<0.02	0.05	17.1	5.9	0.14	6.1	<0.1	0.08	<0.01	<0.02	9.6	0.08	4.31	0.45
0.14	58	72	2.1	<1	0.3	<0.02	0.08	20.1	6.9	0.33	5.7	0.1	0.11	<0.01	<0.02	10.7	0.11	4.77	0.82
0.09	58	65	1.9	3	0.4	<0.02	0.05	18.7	6.8	0.21	6.4	0.1	0.08	<0.01	<0.02	9.8	0.11	3.61	0.41
0.12	50	57	2.1	2	0.3	<0.02	0.04	16.1	5.9	0.18	5.2	0.1	0.08	<0.01	<0.02	8.9	0.08	4.2	0.6
0.12	57	64	2	<1	0.2	<0.02	0.04	18.6	6.4	0.32	5.2	0.1	0.08	<0.01	<0.02	10.6	0.09	6.3	0.63
0.12	54	57	2.3	3	0.3	0.02	0.06	20.2	6.2	0.28	5.5	<0.1	0.08	<0.01	<0.02	11.1	0.09	5	1
0.11	61	77	2.6	1	0.3	0.05	0.05	19.7	6.7	0.33	5.3	<0.1	0.09	<0.01	<0.02	8.8	0.09	5.37	1.12
0.13	80	117	2.1	<1	0.3	0.36	0.37	21.6	7.7	0.55	8.2	0.1	<0.05	0.01	0.08	11.1	0.08	7.37	0.55
0.11	64	79	2.6	<1	0.3	0.06	0.05	20	7	0.34	5.4	<0.1	0.1	<0.01	<0.02	8.9	0.09	5.4	1.1
0.21	83	210	16.1	7	<0.1	0.47	1.11	30	22.3	2.51	8.6	0.3	0.37	0.02	0.09	15.1	0.06	2.67	0.28
0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14	#N/A	3.05	0.19
23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8	#N/A	14.1	75

Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B 0.2	ICM14B 0.2	ICM14B 0.05	ICM14B 0.1	ICM14B 1	ICM14B 0.3	ICM14B 0.05	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.02	ICM14B 0.05	ICM14B 0.1	ICM14B 0.05	ICM14B 0.1
3.9	18.1	0.09	3.6	<1	1.1	<0.05	0.16	<0.05	1.5	0.11	0.19	<0.1	4.91	0.5
2	30.7	0.05	4.3	<1	1.1	<0.05	0.19	<0.05	3.1	0.2	0.49	<0.1	5.26	0.5
3.1	15.8	<0.05	3.8	<1	1	<0.05	0.2	<0.05	3.1	0.09	0.55	0.2	6.16	0.6
3	10.1	<0.05	3.5	<1	0.9	<0.05	0.19	<0.05	1.4	0.05	0.21	0.1	5.85	0.6
2	20.1	<0.05	3.8	<1	1	<0.05	0.2	<0.05	1.5	0.11	0.39	0.3	6	0.6
8.3	8.1	<0.05	3.6	<1	0.9	<0.05	0.18	<0.05	1.7	0.04	0.24	0.1	5.57	0.5
3.9	24.4	<0.05	4.2	<1	1.1	<0.05	0.22	<0.05	2.5	0.13	0.46	0.6	6.79	0.7
2.8	11.6	<0.05	4.4	<1	0.9	<0.05	0.23	<0.05	1.8	0.07	0.22	0.2	6.78	0.7
4.4	13.2	<0.05	3.5	<1	1	<0.05	0.18	<0.05	1.5	0.07	0.25	0.3	5.57	0.6
1.4	23.6	<0.05	4.1	<1	0.9	<0.05	0.2	<0.05	1.6	0.12	0.2	0.5	5.88	0.6
2.5	17.1	<0.05	3.9	<1	1	<0.05	0.2	<0.05	2.2	0.09	0.36	<0.1	6.11	0.6
2.2	21.9	<0.05	3.5	<1	0.9	<0.05	0.17	<0.05	3.5	0.12	0.46	<0.1	5.27	0.6
3.1	34.6	<0.05	4.5	2	1.6	<0.05	0.24	0.21	3.6	0.27	0.4	<0.1	6.54	0.5
2.3	22.6	<0.05	3.6	<1	1	<0.05	0.18	<0.05	3.6	0.12	0.46	<0.1	5.3	0.6
8.7	63.4	0.3	8	2	1.1	<0.05	0.28	0.4	2.1	0.39	0.28	1.6	5.65	0.4
8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines **Test** : Modified Acid-Base Accounting
PROJECT : Minto Mines **Date** : November 13, 2015
SGS Project # : 0643

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
095007	30-Sep-15	8.59	0.1	8.3	0.114	0.099	<0.01	0.10	3.1	10.5	7.4	3.4	None
095008	8-Oct-15	8.70	0.03	2.5	0.042	0.064	<0.01	0.06	2.0	6.5	4.5	3.3	None
107773	21-Sep-15	9.20	0.02	1.7	0.039	0.021	<0.01	0.02	0.7	6.2	5.5	9.4	None
107774	21-Sep-15	9.06	0.06	5.0	0.158	0.013	<0.01	0.01	0.4	10.6	10.2	26.1	None
107775	21-Sep-15	8.24	0.06	5.0	0.173	0.012	<0.01	0.01	0.4	8.9	8.5	23.7	None
110901	25-Sep-15	9.05	0.07	5.8	0.115	0.009	<0.01	<0.01	<0.3	10.2	10.2	34.0	None
110902	25-Sep-15	9.18	0.09	7.5	0.113	0.009	<0.01	<0.01	<0.3	12.6	12.6	42.0	None
110903	30-Sep-15	7.37	<0.01	<0.8	0.118	0.011	<0.01	0.01	0.3	4.2	3.9	12.2	None
110904	30-Sep-15	9.04	0.11	9.2	0.138	0.008	<0.01	<0.01	<0.3	13.3	13.3	44.3	None
110905	30-Sep-15	8.03	0.02	1.7	0.209	0.012	<0.01	0.01	0.4	6.5	6.1	17.3	None
110906	9-Oct-15	9.03	0.11	9.2	0.153	0.04	<0.01	0.04	1.3	13.3	12.1	10.6	None
110907	9-Oct-15	8.56	0.01	0.8	0.013	0.04	<0.01	0.04	1.3	5.5	4.3	4.4	None
110908	10-Oct-15	8.46	0.04	3.3	0.091	0.01	<0.01	0.01	0.3	9.1	8.8	29.1	None
110909	10-Oct-15	8.76	0.04	3.3	0.055	0.018	<0.01	0.02	0.6	9.5	8.9	16.9	None
110910	10-Oct-15	8.61	0.05	4.2	0.091	0.012	<0.01	0.01	0.4	10.1	9.7	26.9	None
Sept 2015 Tails	Sept 2015	8.68	0.28	23.3	0.308	0.055	<0.01	0.06	1.7	23.8	22.1	13.8	Slight
Duplicates													
95007			0.09							10.7			
95008					0.041	0.063							
107775							<0.01						
QC													
GTS-2A					1.97	0.339							
RTS-3A							0.96						
TIC-L1			0.12										
NBM-1										40.9			Slight
Expected Values			0.1325		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.02		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : November 13, 2015

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
95007	0.67	1.12	30	260	0.74	109	1660	2.52	0.67	6	0.67	590	0.09	6	0.078	0.11	41
95008	0.77	1.1	30	279	0.53	121	1390	2.83	0.76	5	0.64	571	0.12	6.4	0.073	0.07	32.4
107773	0.11	1.17	20	203	0.6	114	250	2.44	0.6	7	0.67	501	0.09	6.1	0.091	0.02	45.4
107774	0.16	1.32	30	299	0.71	208	401	2.56	0.7	7	0.66	537	0.07	11.6	0.089	<0.01	48.5
107775	0.06	1.25	30	156	0.83	114	73.3	2.33	0.37	7	0.64	547	0.07	7.1	0.084	<0.01	70
110901	0.13	1.26	20	148	0.96	112	72.5	2.39	0.4	7	0.69	559	0.08	6.4	0.082	<0.01	68.4
110902	0.04	1.18	20	140	0.96	96	68.6	2.28	0.42	7	0.66	524	0.08	5.9	0.081	<0.01	57.1
110903	0.08	1.18	20	143	0.45	110	158	2.31	0.38	7	0.59	572	0.06	7	0.084	<0.01	58.9
110904	0.03	1.21	30	167	0.89	114	18.3	2.38	0.39	8	0.68	564	0.07	6.8	0.078	<0.01	48.8
110905	0.04	1.34	20	169	0.64	108	30	2.41	0.33	8	0.65	541	0.06	7.9	0.083	<0.01	76.9
110906	0.13	1.35	20	132	1.05	106	408	2.45	0.37	8	0.7	607	0.08	5.9	0.088	0.04	76.3
110907	0.08	1.62	20	225	0.62	103	295	3.1	0.65	8	0.77	603	0.06	6.1	0.117	0.03	78.7
110908	0.04	1.41	30	155	0.89	116	45.2	2.49	0.34	7	0.69	589	0.08	6.6	0.096	<0.01	82.8
110909	0.05	1.36	30	198	0.71	102	193	2.49	0.46	8	0.66	583	0.07	6	0.083	0.01	67
110910	0.07	1.54	30	163	0.86	99	124	2.83	0.42	9	0.78	694	0.07	6.3	0.098	<0.01	59.6
Sept 2015 Tails	0.65	1.32	30	324	1	90	1900	4.12	0.74	7	0.75	703	0.06	7.3	0.097	0.06	71.5
Duplicate																	
107773	0.1	1.21	20	209	0.62	120	250	2.56	0.62	6	0.7	518	0.09	6.3	0.093	0.02	47.4
QC																	
CH4	2.08	1.86	30	288	0.65	105	2000	4.77	1.43	14	1.15	340	0.08	49.9	0.068	0.64	10.8
Expected Values	2.13	1.85	#N/A	293	0.61	103.8	2000	4.79	1.43	12.6	1.18	324	0.06	49.57	0.072	0.73	9.38
Tolerance (%)	10.9	11.35	#N/A	14.3	14.1	12.4	10.1	10.52	11.74	29.84	12.3	11.5	50.3	12.52	27.4	13.4	23.3

Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm	Lu ppm	Mo ppm
ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
0.01	1	1	0.5	1	0.1	0.02	0.01	0.05	0.1	0.05	0.1	0.1	0.05	0.01	0.02	0.1	0.01	0.05
0.16	61	96	1.7	<1	0.2	0.34	0.19	18.5	6.5	0.36	5.9	<0.1	0.09	<0.01	0.03	9.8	0.08	6.02
0.18	67	87	1.8	<1	0.2	0.3	0.17	16.2	6.3	0.35	6.2	<0.1	0.09	<0.01	0.02	8.7	0.08	5.11
0.16	64	61	1.8	2	0.3	<0.02	0.05	22.1	6.3	0.4	5.9	<0.1	0.09	<0.01	0.03	12.1	0.11	6.33
0.15	64	74	1.3	11	0.3	0.02	0.14	27.4	358	0.38	6.4	<0.1	0.05	3.93	0.03	16.9	0.08	10.4
0.13	61	64	1.9	<1	0.3	0.02	0.04	19	10.7	0.27	6.2	<0.1	0.09	0.03	<0.02	9.8	0.11	5.13
0.14	60	67	1.7	1	0.4	<0.02	0.05	19.2	8.8	0.27	6.3	0.1	0.1	<0.01	<0.02	10	0.11	5.35
0.14	58	61	1.7	2	0.3	<0.02	0.05	17.9	7.1	0.28	5.9	<0.1	0.1	0.03	<0.02	9.7	0.1	6.26
0.11	56	69	2.1	<1	0.3	0.04	0.05	18.6	7.8	0.32	5.6	<0.1	0.09	0.02	<0.02	9.4	0.08	5.48
0.11	57	66	1.5	2	0.3	<0.02	0.05	17.4	7.9	0.25	5.9	<0.1	0.09	0.05	<0.02	9.3	0.09	4.83
0.11	59	62	2.1	3	0.4	<0.02	0.05	16.7	7.3	0.32	6.3	<0.1	0.1	0.02	<0.02	9	0.1	5.02
0.12	61	69	1.9	1	0.5	0.06	0.05	21.8	7.3	0.24	6.8	<0.1	0.11	<0.01	0.03	11.6	0.11	4.86
0.18	78	75	1.9	<1	0.4	0.02	0.05	26.5	11.4	0.36	7.4	0.1	0.09	0.01	0.02	15.1	0.1	5.44
0.14	66	68	2.2	<1	0.4	<0.02	0.05	23	7.4	0.21	6.9	<0.1	0.11	0.02	<0.02	12	0.11	4.94
0.14	64	64	1.9	<1	0.3	<0.02	0.08	20.2	7.6	0.27	6.7	<0.1	0.09	<0.01	<0.02	10.8	0.09	5.33
0.14	70	77	2	4	0.5	<0.02	0.08	23.8	8.2	0.32	8	<0.1	0.11	<0.01	0.02	12.1	0.12	5.07
0.14	93	128	2	<1	0.2	0.3	0.32	20.2	8.2	0.57	9	0.1	0.06	0.02	0.09	10.5	0.08	6.58
0.17	68	63	1.9	2	0.3	<0.02	0.07	22	6.4	0.41	6	<0.1	0.1	<0.01	0.03	12	0.11	6.28
0.24	84	200	20.3	10	<0.1	0.44	1.13	29	23.7	2.59	9.7	0.2	0.43	<0.01	0.1	14.7	0.08	2.64
0.21	79.27	189.4	11.7	8.14	0.11	0.51	1.17	28.18	23.56	2.6	8.72	0.21	0.29	#N/A	0.1	14	#N/A	3.05
23.3	13.2	11.3	17.7	13.1	241.3	19.7	12.1	16.1	11.1	14.8	12.9	127.4	52.8	#N/A	62.1	11.8	#N/A	14.1

Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
0.05	0.2	0.2	0.05	0.1	1	0.3	0.05	0.02	0.05	0.1	0.02	0.05	0.1	0.05	0.1
0.64	3.6	27.6	0.05	3.9	2	0.6	<0.05	0.19	0.18	2.7	0.19	0.34	0.2	4.92	0.5
0.58	2.4	30.9	<0.05	3.9	1	0.5	<0.05	0.16	0.22	1.8	0.21	0.34	0.1	4.54	0.5
0.84	2.3	26.9	<0.05	4.2	<1	0.7	<0.05	0.23	<0.05	3.5	0.17	0.59	0.4	6.16	0.7
0.88	6.1	29.2	<0.05	4.5	<1	0.8	<0.05	0.2	<0.05	3.7	0.17	0.29	1690	5.27	0.5
1.1	10.3	16	<0.05	4.6	<1	0.6	<0.05	0.23	<0.05	2.3	0.09	0.32	55.5	6.32	0.7
0.84	5	16.5	<0.05	4.1	<1	0.6	<0.05	0.23	0.05	2.3	0.09	0.41	22.2	6.34	0.7
0.65	3	18	<0.05	4	<1	0.5	<0.05	0.2	<0.05	2.5	0.1	0.39	10.8	5.67	0.7
0.92	2.5	19.4	<0.05	3.7	<1	0.4	<0.05	0.17	<0.05	3.2	0.11	0.43	11.8	4.48	0.5
0.48	5.2	15.4	<0.05	4.5	<1	0.5	<0.05	0.2	<0.05	2	0.09	0.23	13.1	5.6	0.6
0.94	2.5	14.9	<0.05	4.6	<1	0.5	<0.05	0.22	<0.05	1.8	0.09	0.3	3.6	5.89	0.6
0.71	5.6	15	<0.05	4.7	<1	0.6	<0.05	0.25	<0.05	3.5	0.1	0.53	4.6	6.77	0.7
0.67	2.3	29.9	<0.05	4.7	<1	0.7	<0.05	0.25	<0.05	4.3	0.16	0.53	2.6	6.41	0.7
0.9	3	14.3	<0.05	4.8	<1	0.6	<0.05	0.24	<0.05	2.7	0.08	0.46	2.6	6.62	0.8
0.69	2.9	19.3	<0.05	4.7	<1	0.6	<0.05	0.22	<0.05	2.4	0.12	0.35	2.3	5.85	0.6
0.76	3.1	19.5	<0.05	5.7	<1	0.6	<0.05	0.26	<0.05	2.7	0.11	0.36	1.9	7.02	0.8
0.67	3	33.6	<0.05	4.7	2	1.2	<0.05	0.24	0.21	3.4	0.28	0.48	1.4	6.28	0.5
0.85	2.7	27.6	<0.05	4.2	<1	0.7	<0.05	0.23	<0.05	3.4	0.17	0.59	0.4	6.27	0.7
0.32	7.9	63.8	0.35	8.7	2	0.7	<0.05	0.29	0.46	2.1	0.39	0.37	2.6	5.87	0.5
0.19	8.24	67	0.34	8.53	1.57	0.6	0.3	0.27	0.42	2.2	0.4	0.29	2.15	5.66	#N/A
75	16.1	10.7	47.3	13.1	169.6	134.5	51.7	28.4	39.6	21.2	22.6	52.9	21.6	12.2	#N/A

CLIENT : Minto Mines
PROJECT : Minto Mines
SGS Project # : 0643
Test : Modified Acid-Base Accounting **DRAFT COPY**
Date : December 10, 2015

Sample ID	Sampling Date	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP	Net NP	IP:AP Ratio (NP/AP)	Fizz Test
Method Code		Sobek	CSB02V	Calc #N/A	CSA06V 0.005	CSA06V 0.005	CSA07V 0.01	Calc #N/A	Calc #N/A	Modified 0.5	Calc #N/A	Calc #N/A	Sobek #N/A
110911	Oct 12/15	8.38	0.16	13.3	0.185	0.022	<0.01	0.02	0.7	16.8	16.1	24.5	slight
110912	Oct 13/15	8.59	0.21	17.5	0.226	0.021	<0.01	0.02	0.7	19.2	18.5	29.3	slight
110913	Oct 26/15	8.48	0.19	15.8	0.206	0.07	<0.01	0.07	2.2	18.6	16.4	8.5	slight
110914	Oct 26/15	8.69	0.15	12.5	0.161	0.05	<0.01	0.05	1.6	15.5	13.9	9.9	slight
110915	Oct 26/15	9.03	0.08	6.7	0.105	0.014	<0.01	0.01	0.4	11.1	10.7	25.4	none
110916	Oct 26/15	8.68	0.07	5.8	0.085	0.017	<0.01	0.02	0.5	10.0	9.4	18.8	none
110917	Oct 26/15	8.47	0.02	1.7	0.056	0.016	<0.01	0.02	0.5	7.6	7.1	15.2	none
110918	Oct 27/15	8.00	<0.01	<0.8	0.081	0.023	<0.01	0.02	0.7	6.9	6.1	9.5	none
110919	Nov 4/15	9.04	0.1	8.3	0.128	0.024	<0.01	0.02	0.8	13.2	12.5	17.6	none
110920	Nov 4/15	8.83	0.14	11.7	0.18	0.019	<0.01	0.02	0.6	17.0	16.4	28.6	slight
Duplicates													
110911	Oct 12/15	8.74			0.188	0.024							slight
110920	Nov 4/15						<0.01						
110914	Oct 26/15		0.15										
QC													
GTS-2A					1.96	0.349							
RTS-3A							0.97						
TIC-L1			0.11										
NBM-1										40.3			Slight
Expected Values			0.1325		2.01	0.341	0.98			42.0			Slight
Tolerance +/-			0.02		0.15	0.030	0.12			3.0			

Note:

AP = Acid potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is determined from calculated sulphide sulphur content: S(T) - S(SO4).

NP = Neutralization potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = NP - AP

Carbonate NP is calculated from TIC originating from carbonate minerals and is expressed in kg CaCO3/tonne.

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 1, 2016

Sample ID	Ag ppm	Al %	B ppm	Ba ppm	Ca %	Cr ppm	Cu ppm	Fe %	K %	Li ppm	Mg %	Mn ppm	Na %	Ni ppm	P %	S %	Sr ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.01	10	5	0.01	1	0.5	0.01	0.01	1	0.01	2	0.01	0.5	0.005	0.01	0.5
110911	0.04	1.53	20	80	1.73	96	90	2.05	0.17	8	0.73	511	0.35	13.9	0.072	<0.01	132
110912	0.04	1.23	<10	102	1.27	83	72.2	2.07	0.24	7	0.67	465	0.05	2.8	0.075	<0.01	82.8
110913	0.1	1.11	<10	168	1.01	90	367	2.2	0.37	7	0.64	505	0.05	3.1	0.076	0.06	69.1
110914	0.09	1.08	<10	142	0.98	98	260	2.11	0.33	7	0.68	466	0.05	3.3	0.078	0.04	50.6
110915	0.03	1.01	<10	164	0.85	94	62.5	2.09	0.41	6	0.67	457	0.07	3.6	0.087	<0.01	58.1
110916	0.03	0.98	<10	106	0.78	102	17.6	1.8	0.23	6	0.53	422	0.05	3.1	0.065	<0.01	62.3
110917	0.03	1.1	<10	176	0.59	112	27.7	2.23	0.45	7	0.64	485	0.06	3.7	0.083	<0.01	49.2
110918	0.07	1.16	<10	184	0.57	89	139	2.3	0.34	6	0.55	493	0.05	7.3	0.107	<0.01	60.7
110919	0.06	1.11	<10	144	0.98	86	101	2.05	0.35	7	0.68	459	0.06	3.1	0.076	0.01	63.1
110920	0.02	1.2	<10	175	1.04	91	55.5	2.29	0.44	7	0.74	516	0.06	7.7	0.084	<0.01	70.5
Duplicate																	
110915	0.05	1.03	10	161	0.87	96	60.9	2.12	0.42	6	0.68	462	0.07	3.5	0.085	<0.01	58.2
QC																	
OREAS901	0.28	0.93	<10	94	0.08	23	1440	3.58	0.51	3	0.13	288	0.02	35.4	0.062	0.03	19.7
Expected Values	0.276	0.992	#N/A	86	0.091	23.0	1440	3.70	0.512	3.1	0.124	300	0.01	34.7	0.059	0.033	21.0
Tolerance (%)	19.06	12.52	#N/A	24.53	37.47	20.87	10.09	10.68	14.88	98.65	30.16	11.67	#N/A	13.60	31.19	85.76	15.95

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 1, 2016

Sample ID	Ti %	V ppm	Zn ppm	Zr ppm	As ppm	Be ppm	Bi ppm	Cd ppm	Ce ppm	Co ppm	Cs ppm	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	La ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	1	1	0.5	1	0.1	0.02	0.01	0.05	0.1	0.05	0.1	0.1	0.05	0.01	0.02	0.1
110911	0.1	49	92	3.5	10	0.5	0.07	0.4	18	13.2	0.14	7	0.1	0.17	0.01	0.08	9.6
110912	0.09	48	55	1.6	3	0.4	0.03	0.05	18.9	6	0.2	6	<0.1	0.07	0.02	<0.02	10
110913	0.07	49	60	1.2	1	0.4	0.03	0.06	17.2	6	0.29	5.4	<0.1	0.05	<0.01	<0.02	9.1
110914	0.1	51	55	1.3	2	0.3	0.02	0.09	14.7	5.8	0.24	5.3	<0.1	0.05	<0.01	<0.02	8
110915	0.12	54	56	1.7	1	0.3	<0.02	0.05	15.7	5.9	0.23	5	<0.1	0.08	<0.01	<0.02	8.2
110916	0.08	41	51	1.3	2	0.3	<0.02	0.05	11.6	5	0.14	4.8	<0.1	0.06	<0.01	<0.02	6.2
110917	0.11	55	59	1.9	<1	0.3	<0.02	0.05	17.8	6.2	0.27	5.2	<0.1	0.08	<0.01	<0.02	9.8
110918	0.09	59	60	4.4	2	0.4	0.03	0.1	21.7	7	0.42	5.3	<0.1	0.15	0.01	<0.02	11.4
110919	0.12	51	60	2	2	0.3	<0.02	0.06	17.9	6	0.26	5.5	0.1	0.09	<0.01	<0.02	9.6
110920	0.1	55	59	1.6	<1	0.3	<0.02	0.04	18.5	6.5	0.25	5.6	<0.1	0.08	<0.01	<0.02	10.1
Duplicate																	
110915	0.13	54	55	1.9	1	0.3	<0.02	0.05	15.9	6	0.23	5	0.1	0.08	<0.01	<0.02	8.4
QC																	
OREAS901	<0.01	21	20	31	63	4.5	4.15	0.05	74.9	69.8	0.84	2.9	<0.1	0.84	0.01	0.19	36.7
Expected Values	0.01	21	20.2	31.6	66	4.49	4.35	0.05	78	73	0.97	3.15	0.11	0.8	0.02	0.21	38.1
Tolerance (%)	#N/A	#N/A	22.38	13.96	13.79	15.57	11.15	#N/A	15.77	16.85	22.89	17.94	237.27	#N/A	#N/A	33.81	10.66

CLIENT : Minto Mines
PROJECT : Minto Project
SGS Project # : 0643
Test : Metals by Aqua Regia Digestion with ICP-MS Finish
Date : January 1, 2016

Sample ID	Lu ppm	Mo ppm	Nb ppm	Pb ppm	Rb ppm	Sb ppm	Sc ppm	Se ppm	Sn ppm	Ta ppm	Tb ppm	Te ppm	Th ppm	Tl ppm	U ppm	W ppm	Y ppm	Yb ppm
Method Code	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B	ICM14B
LOD	0.01	0.05	0.05	0.2	0.2	0.05	0.1	1	0.3	0.05	0.02	0.05	0.1	0.02	0.05	0.1	0.05	0.1
110911	0.1	2.62	1.56	5.9	6.9	0.17	4.8	<1	400	<0.05	0.23	<0.05	1.7	0.03	0.28	0.2	7.14	0.7
110912	0.08	2.05	0.35	6.2	11.3	<0.05	3.8	<1	0.6	<0.05	0.2	<0.05	2.5	0.06	0.31	0.2	5.94	0.6
110913	0.09	3.08	0.24	6.7	17.7	<0.05	4.1	<1	0.5	<0.05	0.2	<0.05	1.7	0.09	0.18	0.1	6.13	0.6
110914	0.08	2.53	0.39	4.3	15.4	<0.05	3.6	<1	0.5	<0.05	0.17	<0.05	1.6	0.08	0.18	0.2	5.3	0.5
110915	0.09	3.1	0.52	6.3	18.4	<0.05	3.7	<1	0.4	<0.05	0.18	<0.05	1.8	0.09	0.29	0.9	5.58	0.6
110916	0.07	3.08	0.31	12.4	9.3	<0.05	3.2	<1	0.4	<0.05	0.15	<0.05	1	0.04	0.18	<0.1	4.77	0.5
110917	0.08	2.99	0.45	5.1	21	<0.05	3.8	<1	0.4	<0.05	0.18	<0.05	2	0.1	0.28	0.1	5.49	0.5
110918	0.11	3.68	0.45	6.7	18.6	0.11	4.5	<1	0.5	<0.05	0.25	<0.05	3.4	0.1	0.63	0.2	7.45	0.7
110919	0.08	3.04	0.51	22.7	16.1	<0.05	3.3	<1	2.7	<0.05	0.18	<0.05	2.4	0.08	0.41	0.3	5.39	0.5
110920	0.09	2.24	0.42	3.3	19.4	<0.05	3.8	<1	0.5	<0.05	0.19	<0.05	2.4	0.09	0.34	0.1	5.82	0.6
Duplicate																		
110915	0.09	3.11	0.53	7.7	18.5	<0.05	3.8	<1	0.5	<0.05	0.18	<0.05	1.8	0.09	0.29	0.7	5.78	0.6
QC																		
OREAS901	0.22	2.96	0.06	14.3	22.9	1.31	5.2	3	0.5	<0.05	0.74	0.06	8.7	0.32	5.94	0.9	18.7	1.5
Expected Values	0.22	3.23	0.1	14.6	23.9	1.47	5.55	2.68	0.58	0.02	0.77	0.076	9.13	0.34	5.84	1.1	18.8	1.49
Tolerance (%)	21.36	13.87	#N/A	13.42	12.09	18.50	14.50	103.28	139.31	#N/A	16.49	174.47	12.74	24.71	12.14	#N/A	10.66	26.78

Appendix D: 2015 Modified NP Method (MEND 1991) ABA Results for Tailings

Appendix D. 2015 Summary Tailings Analysis Results from SGS												
Monthly Tails Sample ID	Paste pH	TIC %	CaCO3 NP	C(T) %	S(T) %	S(SO4) %	S(S-2) %	AP	NP Modified	Net NP	NP:AP Ratio (NP/AP)	Fizz Test
January Tailings	8.56	0.29	24.2	0.317	0.058	<0.01	0.06	1.8	22.3	32.2	18.8	Slight
February Tailings	8.44	0.33	27.5	0.35	0.108	0.01	0.10	3.1	21.7	29.7	10.7	Slight
March Tailings	8.27	0.38	31.7	0.401	0.066	<0.01	0.07	2.1	26.4	35.4	18.2	Slight
April Tailings	8.60	0.35	29.2	0.381	0.06	<0.01	0.06	1.9	26.3	36.4	20.4	Slight
May Tailings	8.42	0.28	23.3	0.306	0.078	0.05	0.03	0.9	22.6	33.4	39.1	Slight
June Tailings	8.34	0.27	22.5	0.295	0.071	<0.01	0.07	2.2	20.8	18.6	9.4	Slight
July Tailings	8.46	0.27	22.5	0.311	0.063	<0.01	0.06	2.0	20.2	18.2	10.3	Slight
August Tailings	8.68	0.26	21.7	0.315	0.062	<0.01	0.06	1.9	23.2	21.3	12.0	Slight
September Tailings	8.68	0.28	23.3	0.308	0.055	<0.01	0.06	1.7	23.8	22.1	13.8	Slight
October Tailings	8.55	0.25	20.8	0.278	0.065	<0.01	0.07	2.0	19.8	17.8	9.7	slight
November Tailings	8.71	0.29	24.2	0.31	0.054	<0.01	0.05	1.7	22.4	20.7	13.3	Slight
December Tailings	8.58	0.24	20.0	0.272	0.045	<0.01	0.05	1.4	21.9	20.5	15.6	Slight