Appendix 3-A

Ajax Geochemical Characterization Study

KGHM

Ajax Geochemical Characterization Study

Project No. J933-4

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Executive Summary

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The Ajax geochemical characterization program was designed to determine the metal leaching and acid rock drainage (ML/ARD) potential of mine rock, ore and tailings that will be produced during the operating life of the project. Characterization of Ajax materials was achieved through static and kinetic test work designed to meet the requirements for the Application of the Environmental Assessment Certificate through the British Columbia Environmental Assessment Office.

The geochemical characterization data has been correlated with the main geologic units encountered in the Ajax open pit. Rock types in the pit are generally classified as one of five major mine rock units; the Iron Mask Hybrid (IMH), Sugarloaf Diorite (SLD), Mafic Volcanics (MAFV), Picrite (PICR) and Sugarloaf Volcanic Hybrid (SVHYB). Tailings and ore materials were analyzed separately to understand characteristics that may drive the aqueous geochemistry in their respective storage facilities. Lastly, Overburden (OVBN) samples were studied to assess the suitability of this material as benign cover and/or construction material.

Mine Rock Solid Phase Geochemistry

A total of 1048 static test samples (856 mine rock; 192 ore) were collected from drill core for the static testing. Static test work included acid-base accounting (ABA), net acid generation (the NAG test, an independent measure of acid production potential), and solid-phase metal analyses. Mineralogical investigations were also conducted in support of the ABA analysis.

ABA tests indicate that the Ajax mine rock has low sulphide sulphur content, typically below 0.02%. Sulphide S is most commonly present as pyrite, but chalcopyrite and molybdenite are also occasionally observed. Overall, the IMH unit represents the mine rock type with the lowest sulphur content. The remainder of the mine rock will be comprised of rock units that have slightly higher median sulphide S concentrations with the MAFV unit showing the highest median value of 0.21%. Sulphide content in the SLD appears to be related to degree of albitization, with the most weakly altered population showing the highest median sulphide S concentrations (0.12%). In the deeper portions of the pit, primary gypsum ($CaSO_4*2H_2O$) is a relatively common mineral, irrespective of rock type. This phase does not generate aid upon dissolution, however can lead to elevated dissolved sulphate concentrations in contact water.

All static test samples have alkaline paste pH indicating that mine rock from the Ajax deposit will initially contain available neutralizing potential (NP) to buffer acid. The Sobek

NP values for all the Ajax samples are notably higher than carbonate neutralization potential (CaNP) values due to the presence of non-carbonate NP in the form of magnesium- and/or calcium-rich silicate minerals. The availability of reactive silicate (non-carbonate) NP is observable in all mine rock types but is particularly pronounced in the MAFV and PICR units due to the higher abundance of mafic silicate minerals. Under the most conservative scenario, CaNP values are applied along with non-SO_4 sulphur values (non-SO_4 S = total S – sulphate S) to calculate the carbonate net potential ratio (CaNPR) which is used to determine the likelihood of a sample to be potentially acid generating (PAG) or not potentially acid generating (NPAG). Based to a CaNPR cut-off value of 2 and block model tonnages, approximately 88% of the mine rock is estimated to be non-potentially acid generating (NPAG). CaNP depletion calculations indicate that half of the carbonate minerals in PAG mine rock will be exhausted after around 40 years after emplacement while all carbonate is expected to be consumed after 300-700 years, depending on mine rock type. Following the depletion of carbonate, the kinetic test results indicate that reactive silicates will continue to provide buffering capacity. Given the abundance of different phases contributing to NP and the overall dominance of NPAG over PAG material at the Ajax mine, adequate mine rock management should inhibit the generation of net acidity in mine rock storage facilities (MRSF).

The ARD data set indicates that ore samples have similar ML/ARD characteristics as mine rock from the corresponding geologic unit. The most notable exception is increased abundance of copper sulphide minerals in the ore samples, which increases the Cu concentrations. On average, ore samples also have increasing sulphur and carbonate content with increasing ore grade, however, total sulphur content generally remains below 0.6%. Around 30% of the low- and medium-grade ore materials that will be temporarily stored in an ore stockpile, were determined to be PAG based on the conservative CaNPR criterion. This relatively low number, along with the presence of carbonate minerals in all analyzed samples suggests that net acid generation from the ore stockpile is not expected during the life of mine.

Laboratory Weathering

Kinetic testing was conducted to estimate metal loading rates and acid generation potential for the Ajax geological materials. Fourteen unsaturated columns and ten humidity cells were initiated at the SGS laboratory in Burnaby, British Columbia. Three unsaturated columns contained ore, and the remaining columns consisted of mine rock samples from the IMH, PICR, MAFV, SLD, and SVHYB units. Samples from the SLD and PICR column tests were further split and four humidity cells were treated to remove CaNP with the objective of determining the availability of the non-carbonate NP to buffer pH following

carbonate mineral depletion. Laboratory kinetic tests were initiated at different times where the longest experiments, containing material from all major lithologies, have been operational for more than 2 years.

The unsaturated columns and untreated humidity cells have produced leachate pH values ranging from 7 to 8.5. Thus, on the 2-4 year time-sale of enhanced weathering conditions, no ARD is indicated in any of the major mine rock types. The leachate from the CaNP-depleted humidity cells has pH values ranging from 5 to 8. Silicate minerals are buffering the pH between 5 and 6 in the CaNP depleted, high-S SLD humidity cell. The silica (Si) and Mg release rates in this cell are considerably higher than in the corresponding untreated cell, which suggests an accelerated silicate weathering rate. Conversely, the CaNP-depleted humidity cell containing typical S content is buffered at pH > 7. The CaNP-depleted PICR humidity cells have been initiated more recently and conclusive geochemical data is not yet available.

Metal leaching rates from the kinetic tests are relatively low and quite similar between lithologies. Although still low, the kinetic tests indicate the SLD may have a slightly higher leaching potential for most metals than the other lithologies. Another distinct signature is that the silicate-buffered high-S SLD humidity cell with a pH<6.0 produces the highest dissolved metal (Cd, Cu, Ni, Zn) and the lowest oxyanion (As, Mo, Se and V) leach rates of all the cells. The MAFV/PICR cell produces the highest leach rates for As and also produces relatively high Mo and Ni leaching rates. The IMH columns produce either the lowest or close to lowest leaching rates for all the elements considered except for V, which is released at the highest rate by this material type.

Field Bin Drainage Quality

Field bins at the Ajax site have been in place since 2007 and the mine rock they contain had been exposed to natural weathering process in the historic Ajax East and West pits for at least 15 years prior to field bin construction. To provide a frame of reference, the field bin data have been compared against BC Water quality guidelines (BC WQG) for freshwater aquatic life. However, an exceedance of the guidelines in near-source drainage does not necessarily imply a guideline exceedance in a receiving water body that contains aquatic life. Rather, the combined water quality and quantity contributed by various sources (*i.e.,* groundwater, surface runoff, mine drainage, *etc.*) at a given location will control whether individual guidelines are exceeded.

All of the field bins produced leachate with a pH averaging about 8, demonstrating that after at least 15 years of subaerial exposure, mine rock is not actively producing acidic drainage. The sulphate concentrations from the SLD field bins were often elevated (up to 1,030 mg/L) while sulphate concentrations remained relatively low (10 – 100 mg/L) in the

IMH field bins. Initially, the concentrations of nitrate were elevated but have steadily dropped over time.

The IMH mine rock produced dissolved metal concentrations typically below or very close to the BC WQG. The Se concentrations from all of the field bins consistently exceed the corresponding BC WQG by up to an order of magnitude with the exception of the PICR field bin which occasionally releases leachates with Se falling below the guidelines. Arsenic concentrations in the field bin leachates show a non-lithological, bimodal distribution with one SLD and one IMH field bin producing values consistently below the BC WQG while all other field bin leachates exceed the guideline. The Mo concentrations have approached, but not exceeded, the guideline of 1 mg/L. The elevated Se, As, Mo and V concentrations are consistent with oxyanion mobility in near-neutral pH environments.

The fact that no single lithology has low release rates from all parameters of concern (POC) complicates the mine rock management strategy. The kinetic test data indicates that the IMH unit presents the lowest risk for neutral leaching relative to the other major rock types with the exception of V, making this material the most suitable candidate for the construction of covers and the outer layers of the MRSFs. However, this material also has the potential for the release of Se and As at levels above BC WQG, thus, placement outside the project's water management should not be undertaken without consideration of potential impacts. Water quality models presented in the EA Application provide insight into the sensitivity of downstream water quality from MRSF seepage and runoff.

Site Water Chemistry

On several occasions water samples were collected from: existing Ajax mine rock seepage, pit lake, and pore-water recovered from monitoring wells in backfilled mine rock and analyzed for a range of parameters. These sites have been exposed to actual weathering conditions far longer than 15 years and provide useful information with respect to understanding kinetic test results and estimating future Ajax mine drainage chemistry.

Overall, geochemical findings obtained from kinetic testing are supported by the available mine water quality. Sulphate concentrations from site water samples are variably elevated and are comparable to those from the SLD field bins. The seeps show a similar tendency for elevated Se concentrations as the field bins with the concentrations being comparable to the highest concentrations measured from the SLD and IMH field bins. Copper and As concentrations also exceed BC WQG in the seeps. Dissolved V and Mo show trends in the site seeps that differ from those observed in the field bins with the former being lower then BC WQG in all seep samples. Conversely, in contrast to observations from field bins, Mo is identified as another POC, particularly in pit lake and mine rock pore-water where BC WQG are exceeded consistently.

Tailings Geochemistry

Static and kinetic testing was conducted on Ajax flotation tailings samples produced from metallurgical testwork conducted in October 2009, January 2013, November 2013, and September 2014. Static test results indicate that the tailings have a low average S content (near 0.23 %S) and an average CaNP value of around 65 kg $CaCO_3$/t. The acid-base balance provides sufficient acid buffering capacity to classify tailings materials as NPAG.

Five humidity cells, and two unsaturated columns were initiated at SGS laboratories for the Ajax flotation tailings. Additionally, three saturated columns are being operated at the Lorax laboratory to assess the tailings leachate characteristics under suboxic conditions.

Tailings kinetic tests show a mean stable leachate pH of 8. As expected, the metal leaching rates from the tailings are relatively low. Dissolved Mo, Cu, Se and V show the highest release rates from the laboratory kinetic test conducted on tailings material. Of these, Se and SO_4 were the only species exceeding BC WQG in field bin drainage.

Overburden Geochemistry

Twenty overburden samples collected from within the currently and previously proposed pit limits underwent static testing including ABA, solid-phase metal analysis, and shake flask extraction (SFE).

Sulphur species in the overburden unit primarily comprise sulphate minerals and acid-insoluble phases with only three of the studied samples containing detectable sulphide sulphur. Though a relatively large percentage of the total carbon content contained in overburden samples occurs in the form of organic carbon (~25%), sufficient carbon is hosted in carbonate minerals contributing to NPAG NPR values of 21 or higher. Therefore no net acid generation is expected from this unit after excavation.

Shake flask extracts were found to be consistently neutral, where only sulphate and Se exceeded BC contaminated site guidelines in two samples. A regression analysis suggested that Se is generally associated with soluble sulphate salts or carbonate mineral, while As maybe released in response to the dissolution of Mn oxides and/or phosphate-bearing minerals.

Table of Contents

KGHM

Table of Contents

DISCLAIMER i

EXECUTIVE SUMMARY ii

TABLE OF CONTENTS vii

1. INTRODUCTION
- 1.1 OBJECTIVES AND STUDY DESIGN 1-1
- 1.2 REPORT STRUCTURE 1-5

2. GEOLOGY
- 2.1 REGIONAL GEOLOGY 2-1
  - 2.1.1 INTRUSIONS OF THE IRON MASK BATHOLITH 2-1
  - 2.1.2 DEPOSIT TYPES AND MINERALIZATION OF THE IRON MASK BATHOLITH 2-1
- 2.2 LOCAL GEOLOGY OF THE AJAX DEPOSIT 2-3
  - 2.2.1 MAJOR ROCK UNITS IN AJAX DEPOSIT 2-3
    - 2.2.1.1 IRON MASK HYBRID 2-4
    - 2.2.1.2 SUGARLOAF DIORITE (AND SUGARLOAF VOLCANIC HYBRID) 2-4
    - 2.2.1.3 MAFIC VOLCANICS 2-4
    - 2.2.1.4 PICRITE 2-5
  - 2.2.2 ALTERATION AND VEINING 2-5
    - 2.2.2.1 ALBITE ALTERATION 2-5
    - 2.2.2.2 PROPYLITIC ALTERATION 2-5
    - 2.2.2.3 K-FELDSPAR ALTERATION 2-5
    - 2.2.2.4 BIOTITE & HEMATITE ALTERATION 2-5
    - 2.2.2.5 SERPENTINE ALTERATION 2-6
    - 2.2.2.6 VEINING 2-6
  - 2.2.3 ROCK TYPES IDENTIFIED IN AJAX GEOLOGY LOGS 2-6
  - 2.2.4 GEOMET UNITS USED IN THE AJAX BLOCK MODEL 2-7
  - 2.2.5 SPATIAL DISTRIBUTION OF THE MAJOR ROCK UNITS IN THE AJAX PIT 2-8

3. STUDY METHODOLOGY
- 3.1 SAMPLE SELECTION AND FIELD METHODS 3-1
  - 3.1.1 SUMMARY OF STUDY HISTORY AND METHODS 3-1
  - 3.1.2 MINE ROCK AND ORE TONNAGES 3-3
  - 3.1.3 STATIC TEST PROGRAMS 3-4
    - 3.1.3.1 DOWNHOLE SAMPLING PROGRAM 3-6
  - 3.1.4 KINETIC TEST PROGRAMS 3-8
    - 3.1.4.1 MINE ROCK FIELD WEATHERING BINS 3-8
    - 3.1.4.2 ORE AND MINE ROCK LABORATORY KINETIC TESTS 3-12
    - 3.1.4.3 FLOTATION TAILINGS LABORATORY KINETIC TESTS 3-19
- 3.2 ANALYTICAL METHODS 3-27
  - 3.2.1 MINERALOGICAL IDENTIFICATION 3-27
  - 3.2.2 PARTICLE SIZE DISTRIBUTION 3-27
  - 3.2.3 STATIC GEOCHEMICAL TESTING 3-27
- 3.3 QUALITY ASSURANCE / QUALITY CONTROL 3-28
  - 3.3.1 STATIC TESTING PROGRAMS 3-28
  - 3.3.2 KINETIC TEST PROGRAMS 3-29

4. MINERALOGICAL IDENTIFICATION
- 4.1 MINE ROCK LITHOLOGIES 4-2
  - 4.1.1 IRON MASK HYBRID 4-2
  - 4.1.2 MAFIC VOLCANICS AND PICRITE 4-5
  - 4.1.3 SUGARLOAF DIORITE 4-7

4.1.4 CARBONATE MINERALOGY 4-11
4.1.5 ORE AND TAILINGS 4-13

5. SOLID PHASE GEOCHEMISTRY
5.1 STATIC TEST DRILL CORE SAMPLES 5-1
5.1.1 ACID-BASE ACCOUNTING 5-1
5.1.1.1 MINE ROCK LITHOLOGIES 5-13
5.1.1.2 DOWN HOLE GEOCHEMICAL VARIABILITY 5-18
5.1.2 NET ACID GENERATION TEST 5-22
5.1.3 SOLID PHASE METALS 5-24
5.1.3.1 MINE ROCK AND ORE 5-24
5.1.3.2 MINE ROCK LITHOLOGIES 5-28
5.2 KINETIC TEST PROGRAMS SAMPLES 5-34
5.2.1 MINE ROCK 5-34
5.2.1.1 LABORATORY KINETIC TEST SAMPLES 5-34
5.2.1.2 FIELD KINETIC TEST SAMPLES 5-40
5.2.2 ORE AND TAILINGS LABORATORY KINETIC TEST SAMPLES 5-44
5.3 OVERBURDEN SAMPLES 5-53

6. KINETIC TEST RESULTS
6.1 LABORATORY KINETIC TEST PROGRAM 6-1
6.1.1 MINE ROCK 6-2
6.1.1.1 ACID-BASE BALANCE 6-2
6.1.1.2 SULPHIDE OXIDATION RATES 6-7
6.1.1.3 NP DEPLETION RATES 6-11
6.1.1.4 AVAILABILITY OF NON-CARBONATE NP 6-19
6.1.1.5 DISSOLVED METALS 6-25
6.1.2 ORE AND TAILINGS 6-34
6.1.2.1 ACID-BASE BALANCE 6-34
6.1.2.2 SULPHIDE OXIDATION RATES 6-35
6.1.2.3 NP DEPLETION RATES 6-39
6.1.2.4 DISSOLVED METALS 6-39
6.1.2.5 PRELIMINARY SATURATED COLUMN RESULTS 6-50
6.2 FIELD KINETIC PROGRAM (DRAINAGE QUALITY) 6-51
6.3 SITE DRAINAGE WATER QUALITY 6-60

7. GEOCHEMICAL IMPLICATIONS FOR MINE ROCK MANAGEMENT
7.1 OPERATIONAL NP DETERMINATION 7-1
7.2 NP DEPLETION TIME ESTIMATES 7-4
7.3 OPERATIONAL AP DETERMINATION 7-7
7.4 OPERATIONAL PAG DEFINITION 7-7

8. CONCLUSIONS

9. CLOSURE

REFERENCES R-1

APPENDIX A STATIC SAMPLE DESCRIPTIONS AND TEST PROCEDURES
- **APPENDIX A.1 STATIC SAMPLE DESCRIPTIONS**
- **APPENDIX A.2 SGS STATIC TESTING PROCEDURES**

APPENDIX B MINERALOGICAL TEST RESULTS
- **APPENDIX B-1.1 FIELD BIN XRD REPORT**
- **APPENDIX B-1.2 FIELD BIN PETROGRAPHY REPORT**
- **APPENDIX B-1.3 LAB KINETIC TEST XRD REPORT**
- **APPENDIX B-1.4 LAB KINETIC TEST PETROGRAPHY REPORT**
- **APPENDIX B-1.5 AJAX CARB CORRECTION FACTOR MEMORANDUM**
- **APPENDIX B-2.1 TAILINGS XRD REPORT**

APPENDIX C STATIC TEST RESULTS
- **APPENDIX C-1 MINE ROCK & ORE**
  - APPENDIX C-1-1 ABA RESULTS - MINE ROCK BY LITHOLOGY
  - APPENDIX C-1.2 ABA RESULTS - ORE BY GRADE
  - APPENDIX C-1.3 METALS RESULTS - MINE ROCK BY LITHOLOGY
  - APPENDIX C-1.4 METAL RESULTS - ORE BY GRADE
  - APPENDIX C-1.5 NAG TEST RESULTS COMPARISON
  - APPENDIX C-1.6 KINETIC TEST SAMPLE ABA RESULTS
  - APPENDIX C-1.7 KINETIC TEST METALS RESULTS
  - APPENDIX C-1.8 KINETIC TEST PSD
  - APPENDIX C-1.9 FIELD BIN ABA RESULTS
  - APPENDIX C-1.10 FIELD BIN METALS RESULTS
  - APPENDIX C-1.11 SUMMARY FIELD BIN PSD
- **APPENDIX C-2 TAILINGS**
  - APPENDIX C-2.1 ABA RESULTS
  - APPENDIX C-2.2 METALS RESULTS
  - APPENDIX C-2.3 SUPERNATANT
  - APPENDIX C-2.4 PSD
- **APPENDIX C-3 OVERBURDEN**
  - APPENDIX C-3.1 OVERBURDEN SAMPLE DESCRIPTIONS
  - APPENDIX C-3.2 ABA RESULTS
  - APPENDIX C-3.3 TAILINGS
  - APPENDIX C-3.4 SFE
- **APPENDIX C-4 MODIFIED NP MEMORANDUM**

APPENDIX D KINETIC TEST RESULTS
- **APPENDIX D-1.1 KINETIC CELLS PREPARATION AND OPERATION**
- **APPENDIX D-1.2 LAB TEST LEACHATE**
- **APPENDIX D-1.3 SGS LAB LETTER MAY 17 12**
- **APPENDIX D-1.4 LAB KINETIC TEST LEACHATE LOADING RATES**
- **APPENDIX D-2.1 FIELD KINETIC TEST RESULTS**

APPENDIX E RESULTS OF QUALITY ASSURANCE / QUALITY CONTROL PROGRAM

APPENDIX F CROSS SECTIONS
- **APPENDIX F-1 PIT OUTLINE WITH SECTION LINES**
- **APPENDIX F-2 CROSS-SECTIONS BY GEOMET UNIT**
- **APPENDIX F-3 CROSS-SECTIONS BY ALTERATION**

APPENDIX G SITE WATER QUALITY

LIST OF FIGURES

FIGURE 1-1 MAP OF THE AJAX DEVELOPMENT 1-2

FIGURE 1-2 SCHEMATIC DIAGRAM OF THE PROCESS USED TO CHARACTERIZE THE METAL LEACHING AND ACID ROCK DRAINAGE POTENTIAL OF AJAX MINE MATERIALS 1-4

FIGURE 2-1 REGIONAL GEOLOGICAL MAP OF THE IRON MASK BATHOLITH SHOWING THE LOCATION OF THE PROPOSED AJAX PIT. MODIFIED FROM LOGAN AND MIHALYNUK (2006). 2-2

FIGURE 2-2 PIT WALL EXPOSURES OF ROCK UNITS WITH CROSS SECTION LOCATIONS 2-10

FIGURE 2-3 GEOLOGICAL SECTION 1 2-11

FIGURE 2-4 GEOLOGICAL SECTION 2 2-12

FIGURE 2-5 GEOLOGICAL SECTION 3 2-13

FIGURE 2-6 GEOLOGICAL SECTION 4 2-14

FIGURE 2-7 GEOLOGICAL SECTION 5 2-15

FIGURE 3-1 CONTINUOUS SAMPLING OF DRILL CORE AN-08-034 (SECTION 2050E) TO ASSESS THE GEOCHEMICAL VARIABILITY OF THE SLD UNIT. 3-7

FIGURE 3-2 PHOTOGRAPHS OF THE KINETIC FIELD BINS AT THE FORMER AJAX WEST PIT. 3-9

FIGURE 3-3 PHOTOGRAPH OF FIELD BIN SET UP AT AJAX WEST PIT 3-10

FIGURE 3-4 PHOTOGRAPH SHOWING LEACHATE COLLECTION SYSTEM FOR THE FIELD WEATHERING BINS. 3-11

FIGURE 3-5 PHOTOGRAPH SHOWING MESH PLACEMENT OVER DRAIN AT BOTTOM OF LEACH BIN. 3-11

FIGURE 3-6 PHOTOGRAPH SHOWING AJAX MINE ROCK AND ORE UNSATURATED COLUMN TESTS AT SGS LABORATORY. 3-17

FIGURE 3-7 PHOTOGRAPH SHOWING AJAX MINE ROCK HUMIDITY CELL TESTS AT SGS LABORATORY. 3-19

FIGURE 3-8 AJAX FLOTATION TAILINGS (T2) UNSATURATED COLUMN KINETIC TEST AT SGS LABORATORY. 3-21

FIGURE 3-9 PARTICLE SIZE DISTRIBUTION FOR AJAX TAILINGS SAMPLES. 3-22

FIGURE 3-10 FLOWSHEETS OF THE METALLURGICAL PROCESSES EMPLOYED FOR A) KM2345 (2009 TAILINGS), B) KM3680 (JAN. 2013 TAILINGS), AND C) KM3889 (NOV. 2013 TAILINGS). 3-26

FIGURE 4-1 TERNARY DIAGRAM SHOWING THE RELATIVE MOLAR PROPORTIONS OF FE+MN, MG AND CA IN CARBONATE MINERALS MEASURED BY ELECTRON MICROPROBE. 4-12

FIGURE 5-1 CANP VERSUS PASTE PH FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-2

FIGURE 5-2 PASTE PH VERSUS TOTAL S FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT. 5-4

FIGURE 5-3 TOTAL SULPHUR VERSUS SULPHIDE SULPHUR FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-5

FIGURE 5-4 INSOLUBLE SULPHUR VERSUS COPPER FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-6

FIGURE 5-5 SULPHATE SULPHUR VERSUS ELEVATION BY LITHOLOGICAL GROUPINGS (A THROUGH C)..... 5-7

FIGURE 5-6 CANP VALUES VERSUS NP VALUES FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-9

FIGURE 5-7 TOTAL CARBON VERSUS TOTAL INORGANIC CARBON CONTENTS IN MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-10

FIGURE 5-8 NON-SO_4 SULPHUR VERSUS NPR, EXPRESSED AS A) CANPR AND B) BULK NPR FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-12

FIGURE 5-9 NON-SO_4 S VERSUS CANPR FOR THE MINE ROCK AT THE AJAX DEPOSIT. 5-17

FIGURE 5-10 PLOT SHOWING PASTE PH VALUES WITH DOWNHOLE DEPTH BY ORE GRADE AND SLD LITHOLOGY FROM DRILL HOLE AN-08-034..... 5-19

FIGURE 5-11 PLOTS SHOWING NON-SO_4 S AND CARBONATE NP VERSUS DOWNHOLE DEPTH FOR SLD MINE ROCK AND ORE SAMPLES FROM DRILL HOLE AN-08-034 5-19

FIGURE 5-12 PLOTS SHOWING CANPR AND BULK NPR VERSUS DOWNHOLE DEPTH FOR SLD LITHOLOGIES AND ORE FROM DRILL HOLE AN-08-034..... 5-20

FIGURE 5-13 PLOT SHOWING TOTAL SULPHUR AND CARBONATE NP VALUES WITH DOWNHOLE DEPTH FOR MINE ROCK AND ORE FROM DRILL HOLE AM-07-007 5-21

FIGURE 5-14 PLOT SHOWING CANPR WITH DOWNHOLE DEPTH BY ORE GRADE AND LITHOLOGY FOR DRILL HOLE AM-07-007 5-21

FIGURE 5-15 NAG PH VERSUS A) CANPR AND B) BULK NPR FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-23

FIGURE 5-16 NON-SO_4 SULPHUR VALUES VERSUS AQUA-REGIA AG, AS, CU, CO, MO AND SE FOR MINE ROCK AND ORE ATTHE AJAX DEPOSIT..... 5-26

FIGURE 5-17 AQUA-REGIA FE VALUES VERSUS AQUA-REGIA CO, CR, NI AND V FOR THE DIFFERENT GRADES OF THE AJAX DEPOSIT..... 5-27

FIGURE 5-18 NON-SO_4 SULPHUR VALUES VERSUS AQUA-REGIA AG, AS, CU, CO, MO, AND SE FOR THE VARIOUS MINE ROCK LITHOLOGIES OF THE AJAX DEPOSIT 5-31

FIGURE 5-19 AQUA-REGIA FE VALUES VERSUS AQUA-REGIA CO, CR, NI, V, CU AND ZN FOR THE VARIOUS MINE ROCK LITHOLOGIES OF THE AJAX DEPOSIT 5-32

FIGURE 5-20 AQUA-REGIA FE VALUES VERSUS AQUA-REGIA AL, MG AND MN FOR THE VARIOUS MINE ROCK LITHOLOGIES OF THE AJAX DEPOSIT 5-33

FIGURE 5-21 SAMPLE LOCATION MAP..... 5-54

FIGURE 5-22 SHAKE FLASK EXTRACTION LEACHATE CONCENTRATIONS OF AS VS MN AND P 5-55

FIGURE 5-23 SHAKE FLASK EXTRACTION LEACHATE CONCENTRATIONS OF SE VS CA, MG, SR, NA & SO_4 5-56

FIGURE 6-1 PH VALUES IN LEACHATES FROM AJAX MINE ROCK COLUMN TESTS..... 6-4

FIGURE 6-2 TOTAL ALKALINITY IN LEACHATES FROM AJAX MINE ROCK COLUMN TESTS..... 6-5

FIGURE 6-3 PH VALUES IN SLD DUPLICATE AND PRE-TREATED HUMIDITY CELL LEACHATES..... 6-6

FIGURE 6-4 ALKALINITY PRODUCTION RATES IN SLD DUPLICATE AND PRE-TREATED HUMIDITY CELL LEACHATES 6-6

FIGURE 6-5 SULPHATE IN LEACHATES FROM AJAX MINE ROCK COLUMN TESTS 6-8

FIGURE 6-6 CALCULATED FRACTION OF TOTAL SULPHUR REMAINING IN UNSATURATED MINE ROCK COLUMN SAMPLES FROM THE AJAX DEPOSIT 6-9

FIGURE 6-7 SULPHATE PRODUCTION RATES IN SLD DUPLICATE AND PRE-TREATED HUMIDITY CELL LEACHATES 6-10

FIGURE 6-8 CALCULATED FRACTION OF TOTAL SULPHUR REMAINING IN DUPLICATE AND PRE-TREATED HUMIDITY CELLS FROM THE AJAX DEPOSIT 6-11

FIGURE 6-9 CMR VALUES IN LEACHATES FROM AJAX MINE ROCK COLUMN TESTS 6-17

FIGURE 6-10 SHORT- AND LONG-TERM DEPLETION RATES RELATIVE TO ORIGINAL SOLID PHASE SULPHUR CONTENT 6-18

FIGURE 6-11 CMR VALUES IN LEACHATES FROM AJAX MINE ROCK COLUMN TESTS 6-19

FIGURE 6-12 MAJOR ION RELEASE RATES (MOLAR) IN LEACHATES FROM THE UNTREATED AND PRE-TREATED AJAX HUMIDITY CELLS 6-22

FIGURE 6-13 MOLAR CA/MG AND CA/SI RATIOS IN LEACHATES FROM THE PRE-TREATED AJAX HUMIDITY CELLS 6-24

FIGURE 6-14 CUMULATIVE MOLAR RATIOS OF CA/SO_4, MG/ SO_4 K/ SO_4 AND SI/ SO_4 6-25

FIGURE 6-15 DISSOLVED CU IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-27

FIGURE 6-16 DISSOLVED NI IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-28

FIGURE 6-17 DISSOLVED AS IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-29

FIGURE 6-18 DISSOLVED MO IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-30

FIGURE 6-19 DISSOLVED SE IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-31

FIGURE 6-20 DISSOLVED V IN LEACHATE FROM AJAX MINE ROCK LABORATORY KINETIC TESTS 6-32

FIGURE 6-21 COPPER PRODUCTION RATES IN SLD DUPLICATE AND PRE-TREATED HUMIDITY CELL LEACHATES 6-33

FIGURE 6-22 VANADIUM PRODUCTION RATES IN SLD DUPLICATE AND PRE-TREATED HUMIDITY CELL LEACHATES 6-34

FIGURE 6-23 LEACHATE PH FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-36

FIGURE 6-24 ALKALINITY PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-37

FIGURE 6-25 SULPHATE PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-38

FIGURE 6-26 CALCULATED FRACTION OF TOTAL SULPHUR REMAINING IN ORE AND TAILINGS COLUMNS AND HUMIDITY CELLS FROM THE AJAX DEPOSIT 6-41

FIGURE 6-27 CMR VALUES IN ORE AND TAILINGS COLUMNS AND HUMIDITY CELLS FROM THE AJAX DEPOSIT 6-42

FIGURE 6-28 COPPER PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-43

FIGURE 6-29 NICKEL PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-44

FIGURE 6-30 ZINC PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-45

FIGURE 6-31 ARSENIC PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-46

FIGURE 6-32 MOLYBDENUM PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-47

FIGURE 6-33 SELENIUM PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-48

FIGURE 6-34 VANADIUM PRODUCTION RATES FOR AJAX ORE AND TAILINGS LABORATORY KINETIC TEST CELLS 6-49

FIGURE 6-35 ALKALINITY AND SULPHATE CONCENTRATIONS IN LEACHATES FROM THE SATURATED TAILINGS (NOV. 2013 TAILS) COLUMN 6-50

FIGURE 6-36 CONCENTRATIONS OF POC (AS, SE, MO, V, CU) IN LEACHATES FROM THE SATURATED TAILINGS (NOV. 2013 TAILS) COLUMN 6-51

FIGURE 6-37 PH, SULPHATE, NITRATE AND NITRATE VALUES IN LEACHATE FROM AJAX FIELD KINETIC TESTS. SHORT- AND LONG-DASHED ORANGE LINES REPRESENT 30D AVERAGE AND MAXIMUM BC WQ GUIDELINES, RESPECTIVELY 6-55

FIGURE 6-38 DISSOLVED METAL (AL, FE, CD, CU) CONCENTRATIONS IN LEACHATE FROM AJAX FIELD KINETIC TESTS. SHORT- AND LONG-DASHED ORANGE LINES REPRESENT 30D AVERAGE AND MAXIMUM BC WQ GUIDELINES, RESPECTIVELY 6-56

FIGURE 6-39 DISSOLVED CONCENTRATIONS ELEMENTS TYPICALLY IN THE FORM OF OXYANIONS (AS, MO, SE AND V) IN LEACHATE FROM AJAX FIELD KINETIC TESTS. SHORT- AND LONG-DASHED ORANGE LINES REPRESENT 30D AVERAGE AND MAXIMUM BC WQ GUIDELINES, RESPECTIVELY. 6-57

FIGURE 6-40 COMPARISON OF RELATIVE LOADS CALCULATED FOR AJAX MINE ROCK FIELD BINS AND UNSATURATED COLUMNS FOR THE MAJOR LITHOLOGIES. 6-59

FIGURE 6-41 LOCATION OF AJAX MINE INFLUENCED WATER QUALITY MONITORING STATIONS 6-61

FIGURE 6-42 SULPHATE CONCENTRATIONS AT AJAX MINE ROCK AND PIT LAKE WATER QUALITY MONITORING SITES 6-63

FIGURE 6-43 ARSENIC CONCENTRATIONS AT AJAX MINE ROCK AND PIT LAKE WATER QUALITY MONITORING SITES 6-64

FIGURE 6-44 MOLYBDENUM CONCENTRATIONS AT AJAX MINE ROCK AND PIT LAKE WATER QUALITY MONITORING SITES 6-65

FIGURE 6-45 SELENIUM CONCENTRATIONS AT AJAX MINE ROCK AND PIT LAKE WATER QUALITY MONITORING SITES 6-66

FIGURE 6-46 COPPER CONCENTRATIONS AT AJAX MINE ROCK AND PIT LAKE WATER QUALITY MONITORING SITES 6-67

FIGURE 7-1 CANP VERSUS MODIFIED NP IN THE MAJOR AJAX MINE ROCK UNITS 7-3

FIGURE 7-2 TOTAL CARBON VERSUS TOTAL INORGANIC CARBON IN A SUBSET OF AJAX STATIC TEST SAMPLES 7-3

FIGURE 7-3 SHORT- AND LONG–TERM DEPLETION RATES RELATIVE TO ORIGINAL SOLID PHASE SULPHUR CONTENT 7-4

FIGURE 7-4 ESTIMATED TIME TO DEPLETE NP IN PAG MATERIAL FROM THE MAJOR MINE ROCK UNITS AND ORE 7-6

FIGURE 7-5 TOTAL S VERSUS NON-SO_4 S FOR DEEP (BELOW 700 MASL) AND SHALLOW (ABOVE 700 MASL) AJAX STATIC TEST SAMPLES 7-7

LIST OF TABLES

TABLE 2-1 GEOMET UNITS USED IN AJAX BLOCK MODEL 2-8

TABLE 3-1 ANALYSES CONDUCTED FOR THE AJAX GEOCHEMICAL ASSESSMENT 3-2

TABLE 3-2 PROPORTION OF MINE ROCK AND ORE FOR THE AJAX DEPOSIT ACCORDING TO LITHOLOGY 3-3

TABLE 3-3 DISTRIBUTION OF STATIC MINE ROCK SAMPLES ACCORDING TO LITHOLOGICAL DESCRIPTIONS AND SIMPLIFIED GROUPED UNITS 3-5

TABLE 3-4 CONTENTS OF FIELD WEATHERING BINS AT THE AJAX DEPOSIT 3-9

TABLE 3-5 LIST OF GEOLOGIC MATERIAL SUBJECTED TO LABORATORY KINETIC TESTS 3-13

TABLE 3-6 LABORATORY KINETIC TEST SET-UP AND OPERATING PROCEDURES 3-16

TABLE 3-7 DESCRIPTION OF LABORATORY KINETIC TESTS FOR AJAX FLOTATION TAILINGS 3-20

TABLE 3-8 DESCRIPTION OF FLOTATION TAILINGS USED IN LABORATORY KINETIC TESTS 3-22

TABLE 3-9 GEOLGOGICAL BREAKDOWN OF THE FIVE ORE BLENDS USED TO PRODUCE THE NOVEMBER 2013 TAILINGS SAMPLE 3-24

TABLE 3-10 GEOLOGICAL BREAKDOWN OF THE TWO ORE BLENDS USED TO PRODUCE THE SEPTEMBER 2014 TAILINGS SAMPLES 3-25

TABLE 4-1 MINERALOGICAL ANALYSES FOR IMH KINETIC TEST SUB-SAMPLES 4-4

TABLE 4-2 MINERALOGICAL ANALYSES FOR MAFV/ PICR KINETIC TEST SAMPLES 4-6

TABLE 4-3 MINERALOGICAL ANALYSES FOR SLD SUB-SAMPLES - COLUMN 2 AND ASSOCIATED HUMIDITY CELLS 4-8

TABLE 4-4 MINERALOGICAL ANALYSES FOR SLD SUB-SAMPLES – COLUMN 3, ASSOCIATED HUMIDITY CELL AND FIELD BINS 4-9

TABLE 4-5 MINERALOGICAL ANALYSES FOR SLD ORE AND FLOTATION TAILINGS 4-14

TABLE 5-1 RESULTS OF ACID-BASE ACCOUNTING TESTS 5-3

TABLE 5-2 NUMBER OF PAG AND NPAG NPR VALUES FOR MINE ROCK AND ORE SAMPLES FROM THE AJAX DEPOSIT 5-11

TABLE 5-3 DISTRIBUTION OF PAG AND NPAG NPR VALUES FOR AJAX MINE ROCK LITHOLOGIES . 5-14

TABLE 5-4 STATISTICAL RANGE OF ABA VALUES FOR LITHOLOGIES OF THE AJAX DEPOSIT 5-15

TABLE 5-5 RESULTS OF AQUA-REGIA ANALYSIS FOR SOLID PHASE METAL DETERMINATION OF MINE ROCK AND ORE SAMPLES 5-25

TABLE 5-6 SOLID PHASE METAL RESULTS FOR AJAX LITHOLOGIES 5-29

TABLE 5-7 GRAIN SIZE DISTRIBUTION FOR THE AJAX MINE ROCK LABORATORY KINETIC TEST SUB-SAMPLES 5-35

TABLE 5-8 ACID-BASE ACCOUNTING RESULTS FOR AJAX LABORATORY KINETIC TEST SAMPLES 5-38

TABLE 5-9 SOLID PHASE METAL DETERMINATION FOR AJAX MINE ROCK LABORATORY KINETIC TEST SAMPLES 5-39

TABLE 5-10 PARTICLE SIZE DISTRIBUTION OF FIELD KINETIC TEST SUB-SAMPLES 5-40

TABLE 5-11 COMPARISON OF FIELD BIN ABA RESULTS TO THE STATIC TEST DATASET DISTRIBUTION 5-43

TABLE 5-12 COMPARISON OF FIELD BIN SOLID PHASE METAL RESULTS TO THE STATIC TEST DATASET DISTRIBUTION 5-43

TABLE 5-13 WHOLE ROCK ANALYSIS FOR AJAX FIELD KINETIC TEST SUB-SAMPLES 5-44

TABLE 5-14 RESULTS OF GRAIN SIZE ANALYSIS FOR SLD ORE AND TAILINGS LABORATORY KINETIC TEST SUB-SAMPLES 5-45

TABLE 5-15 ACID-BASE ACCOUNTING RESULTS FOR AJAX ORE LABORATORY KINETIC TEST SUB-SAMPLES 5-46

TABLE 5-16 ACID-BASE ACCOUNTING RESULTS FOR AJAX TAILINGS LABORATORY KINETIC TEST SUB-SAMPLES 5-47

TABLE 5-17 SOLID PHASE METAL RESULTS FOR AJAX ORE LABORATORY KINETIC TEST SUB-SAMPLES 5-48

TABLE 5-18 SOLID-PHASE METAL RESULTS FOR TAILINGS LABORATORY KINETIC TEST SUB SAMPLES 5-49

TABLE 5-19 SHAKE FLASK EXTRACTION RESULTS FOR THE AJAX 2009 TAILINGS AND ORE FEED SAMPLE 5-50

TABLE 5-20 GEOCHEMICAL RESULTS OF TAILINGS SUPERNATANTS 5-52

TABLE 6-1 COMPARISON OF CMR AND CANPR VALUES FOR AJAX KINETIC TEST SAMPLES WITH STABLE CMRS 6-14

TABLE 6-2 CALCULATION OF TIME ESTIMATED TO DEPLETE NP FROM SELECTED KINETIC TEST SAMPLES 6-16

TABLE 6-3 RELATIVE REACTIVITIES OF MINERALS GROUPED AFTER THEIR ACID-NEUTRALIZATION CAPACITY (AFTER SVERDRUP AND WARFVINGE, 1988 AND KWONG, 1993) 6-20

TABLE 6-4 SILICATE MINERALS IN SLD 6-21

TABLE 6-5 STABILIZED LOADING RATES FOR UNECONOMIC MINE ROCK CELLS 6-33

TABLE 6-6 STABILIZED LOADING RATES FROM ORE AND TAILINGS KINETIC TEST CELLS 6-40

TABLE 6-7 STATISTICAL DISTRIBUTION OF LEACHATE RESULTS FROM FIELD KINETIC TESTS 6-53

TABLE 7-1 OPERATIONAL DETERMINATION OF NP 7-2

TABLE 7-2 DEFINITION OF PAG MINE ROCK AND ORE 7-8

1. Introduction

KGHM

1. Introduction

Lorax Environmental Services Ltd. (Lorax) was retained by KGHM Ajax Mining Inc. (KAM) to complete a geochemical characterization of geological materials that may be exposed during mining of the Ajax deposit in support of the Ajax Project Environmental Assessment Study.

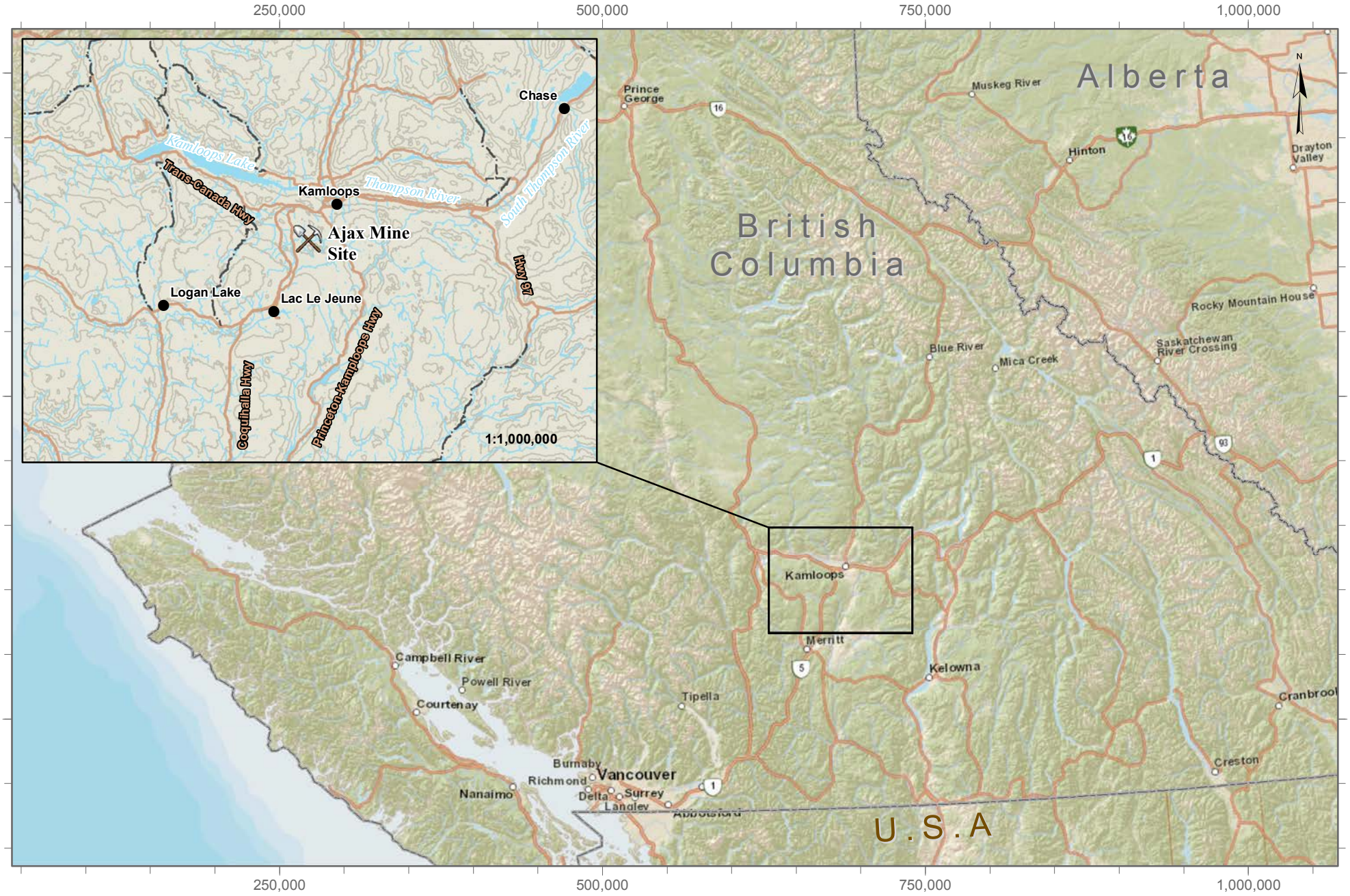
The Ajax deposit encompasses the historic Ajax East and Ajax West pits of the former Afton Mine. The Ajax Project is located on the south side of the Thompson River Valley, about 10 km west of Kamloops in south central British Columbia, Canada (Figure 1-1). The proposed pits are accessed by Lac Le Jeune highway approximately 8.3 km southwards from the intersection of Lac Le Jeune highway and Copperhead Drive off of the Trans-Canada Highway (Highway 1).

Mining in the area began in 1989, with the Ajax East and West open pit mines operated intermittently until 1997. During the periods of production, it is estimated that 17 Mt were mined and 13 Mt were milled. The open pits have since been partially back-filled and reclaimed. The existing mine rock storage facilities (MRSF) were also covered and vegetated.

1.1 Objectives and Study Design

The geochemical characterization program for the Ajax Project was designed to evaluate the potential acid rock drainage and metal leaching (ML/ARD) behaviour of the mine rock, ore and tailings that will be generated during mining operations and to identify any mineralogical controls on metal leaching. Mine rock is hereby defined as uneconomic disturbed rock that will not undergo processing and will be stored in MRSF on site. The information provided in this report will ultimately be used to develop site-specific source-drainage water quality predictions and an ML/ARD management plan. To develop the appropriate models and predictions concerning the ML/ARD potential of mine rock, a series of characterization techniques are carried out on Ajax samples. These techniques include:

- Static testing;
- Laboratory- and field- based kinetic testing; and,
- Assessment of current near-source drainage water quality characteristics.



LEGEND

- Ajax Mine Site
- Cities/Communities
- Gravel Road
- Paved Road

DATE SAVED:	Jul 24, 2015
DRAWN BY:	VV
REVIEWED:	BM
VERSION:	1

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

1:4,000,000

0 50 100
Kilometers

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Study Characterization**

TITLE: Mine Location Map

PROJECT #: J933

FIGURE: 1-1

P:\J933 Ajax\Drafting\MXD\Fig1-1_mine location.mxd

The overall approach uses the three types of information together to develop an understanding of the ML/ARD characteristics of the site (Figure 1-2). Static test work is conducted to determine the acid generating potential and elemental composition of a mine materials upon exposure to weathering. This solid phase geochemical characterization involves acid-base accounting (ABA) techniques, which measure the acid production (AP) and neutralization potential (NP) of a sample, and the ratio of the NP to AP, the net neutralization potential ratio (NPR), provides an indication of whether Ajax samples will ultimately be non-potentially acid generating (NPAG) or potentially acid generating (PAG). A NPR of 2 is a commonly used cut-off value to discriminate between PAG and NPAG samples. Solid-phase elemental analysis is used to constrain the presence of elements (metals and metalloids) that may be present at elevated concentrations. While not a direct measure for the leaching potential of the individual solid-phase species, a common reference point used to define "enrichment" of a species is its average crustal abundance. Mineralogical investigations are conducted in support of ABA analysis and gives valuable insight into the mineralogical association of POC which, in turn, may support the understanding of leaching characteristics in a given geochemical regime. Static testing can be carried out on many samples, giving an improved statistical coverage of the whole deposit, in contrast to the more labour- and time-intensive kinetic tests.

Kinetic testing is used to mimic the natural weathering processes that act on mine materials contained in surface storage facilities in order to help predict loading rates released during water-rock interaction. These weathering experiments may be conducted in the laboratory or in the field. Laboratory-based weathering experiments typically utilize unsaturated columns and humidity cells, while field based kinetic tests can be conducted on a variety of scales and can be composed of field weathering bins or larger scale test pads. The former are operated under relatively high water/rock ratios and contain crushed rock of a standardized maximum particle size leading to enhanced weathering kinetics that generally exceed those seen in the field on a per mass basis.

Field-based experiments are advantageous as they more closely resemble the actual conditions of the mine rock piles, including site-specific climatic conditions, scale, and grain-size. However, they are not the highly controlled and monitored experiments performed in laboratories and, therefore, the data from field-based experiments is used to validate and guide adjustments to the more quantitative laboratory-based data. The obtained data from kinetic testing and geochemical modelling is then validated with site drainage data, if available.

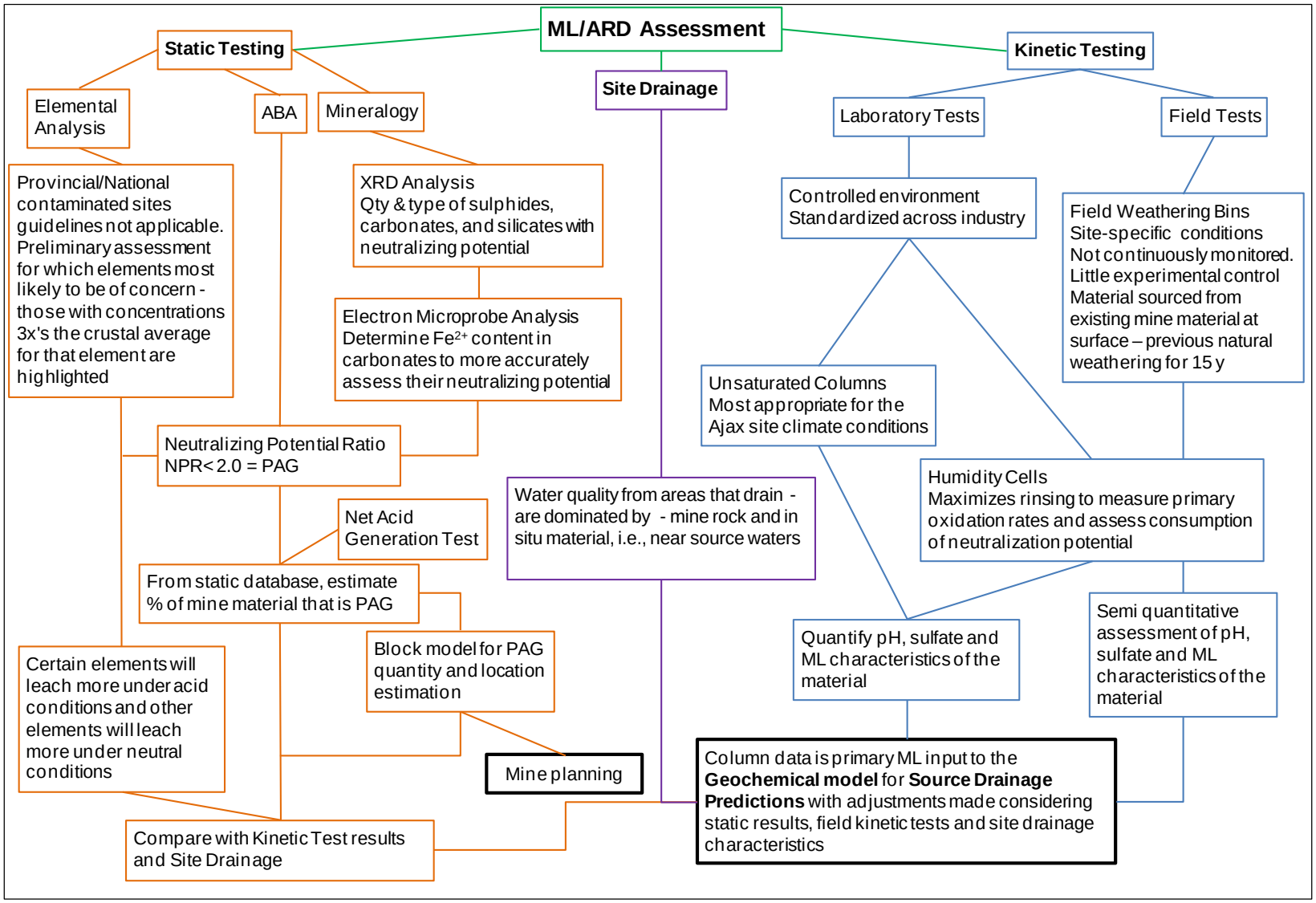


Figure 1-2: Schematic Diagram of the Process used to Characterize the Metal Leaching and Acid Rock Drainage Potential of Ajax Mine Materials

1.2 Report Structure

This report compiles the results of the static and kinetic testing that has been carried out on rock from the Ajax site and forms the backbone of information that will be used to develop near-source drainage water quality predictions (geochemical source terms). It discusses the results of the Geochemical Characterization Program and encompasses relevant data and discussion from the *Phase I ML/ARD Geochemical Characterization Study - Ajax* and DM/Audra Deposits (Lorax, 2007). Following this introduction, Chapter 2 outlines the regional and deposit geology. The sample selection methodology and analytical investigations are discussed in Chapter 3. The results of the mineralogical, static and kinetic test work are presented in Chapters 4, 5 and 6, respectively.

2. Geology

2. Geology

The geologic setting, genesis and petrology of a mineral deposit have a controlling influence on the geochemical characteristics of rock that is disturbed during the development of a deposit.

2.1 Regional Geology

The regional geology of the Ajax area is dominated by the Upper Triassic Iron Mask batholith, which lies in the southern part of the Quesnel trough, also known as the Nicola belt (MINFILE 092INE012, 2007). The Iron Mask batholith (~20 km long and 5 km wide) intruded a sequence of mafic and intermediate composition flows and volcaniclastic rocks of the Nicola Group. Near the contact with the Iron Mask batholith, the Nicola Group rocks are commonly made up of basalt to andesite flows and flow breccias.

2.1.1 Intrusions of the Iron Mask Batholith

The Iron Mask batholith is an intrusive complex that trends northwest through the region (Figure 2-1). It is situated along the southwest side of a regional northwest trending fracture zone and is itself cut by numerous northwesterly faults. The batholith comprises several major bodies, namely (from old to young) the Pothook, the Iron Mask, the Cherry Creek, and the Sugarloaf units (Logan and Mihalynuk, 2006). Evidence indicates that the IMH unit was derived mainly from the assimilation of Nicola Group volcanic rocks into the Pothook intrusive breccia. The Cherry Creek phase dominates the north and east margins of the Iron Mask intrusive complex. The Sugarloaf phase outcrops as lenticular bodies along the western/southwestern margin of the batholith.

2.1.2 Deposit Types and Mineralization of the Iron Mask Batholith

The Iron Mask batholith is a Cu-Au enriched, silica-saturated alkalic intrusive complex. Mineralization consists primarily of fracture controlled chalcopyrite ($CuFeS_2$) and bornite (Cu_5FeS_4) associated with magnetite (Fe_3O_4), while pyrite (FeS_2) and pyrrhotite (FeS) occur peripherally. Mineralization is hosted in all different phases of the batholith.

The Iron Mask Batholith is host to more than 20 known mineralized deposits and mineral occurrences. Five copper-gold open pits have been mined since the 1970's (AMEC, 2009; Wardrop, 2009) including Ajax East, Ajax West, and the Afton, Pothook and Crescent deposits which are approximately 10 km northwest of the Ajax area. These sites were reclaimed and ARD concerns have not been reported to date. The New Afton underground mine in the Afton Deposit began production again in June, 2012.

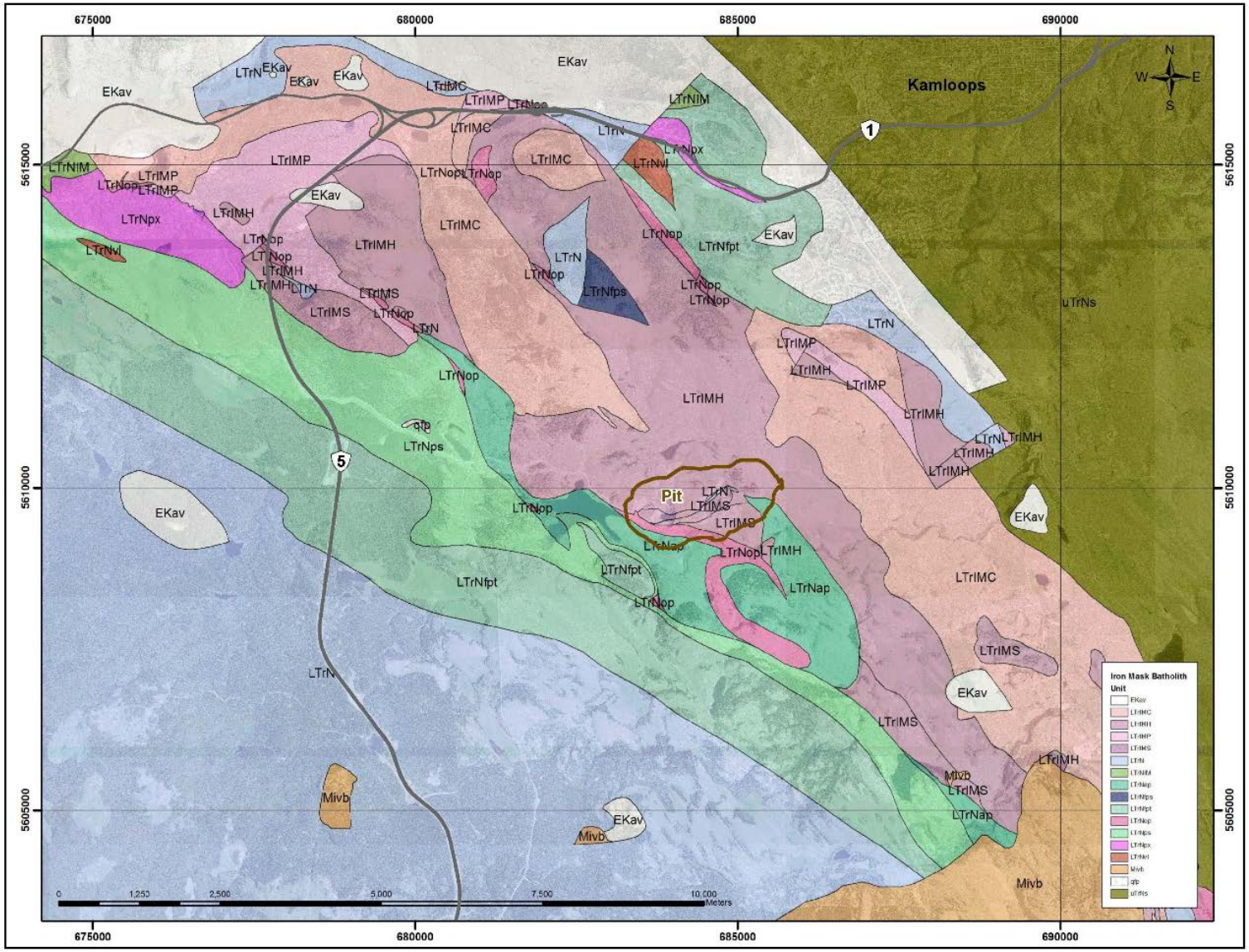


Figure 2-1: Regional geological map of the Iron Mask Batholith showing the location of the proposed Ajax Pit. Modified from Logan and Mihalynuk (2006).

The Ajax deposit is located on the southwest side of the Iron Mask batholith, localized at the contact between medium to coarse-grained IMH and SLD (Figure 2-1). Copper-gold mineralization associated with the Iron Mask batholith is classified as alkalic copper-gold porphyry deposits and is associated with the Cherry Creek and Sugarloaf phases. Mineralization of the Ajax deposit is associated with the Sugarloaf diorite and Sugarloaf hybrid phases. Mineralization is generally localized along major fault zones and associated with albite and K-feldspar alteration.

Chalcopyrite is the dominant copper mineral in the area, occurring as veins, veinlets, fracture fillings, disseminations and isolated blebs in the host rock. Bornite, chalcocite, copper carbonates and native copper are present locally in supergene zones in the Afton and Ajax areas. Pyrite is also abundant, occurring as isolated sulphides and with chalcopyrite. Magnetite occurs as disseminations associated with potassic alteration. Minor molybdenum and palladium mineralization have been identified in the Rainbow and Ajax West areas. The albite alteration is in part controlled by fault and vein structures. Minor palladium mineralization is associated with copper near the contacts between the IMH and SLD units and also the SLD and MAFV units.

2.2 Local Geology of the Ajax Deposit

The geology of the Iron Mask batholith and its ore deposits have been studied and described extensively by Cockfield (1948), Carr (1957), Carr and Reed (1976), Preto (1967, 1972), Northcote (1974, 1976, 1977), Hoiles (1978), Kwong (1982, 1987) and Kwong *et al*. (1982) Ross (1993), Snyder and Russell (1993, 1995), Snyder (1994), Lang and Stanley (1995), Ross *et al*. (1995), and Nixon (2004). The Ajax property is a combination of three resource areas: the Ajax West Pit, the Ajax East Pit (both pits were formerly mined in the 80's and 90's) and the Ajax East Extension.

The following sections describe the major rock units and the alteration mineral assemblages associated with each unit. A list of all descriptive rock types used during the geologic logging is presented along with the geomet units defined in the geologic block model of the Ajax pit.

2.2.1 Major Rock Units in Ajax Deposit

There are five major rock units within the Ajax deposit:

1. Iron Mask Hybrid – IMH
2. Sugarloaf Diorite – SLD
3. Sugarloaf Volcanic Hybrid – SVHYB
4. Mafic Volcanics – MAFV
5. Picrite – PICR

The following sections provide a brief description for each of the major rock units.

2.2.1.1 Iron Mask Hybrid

The IMH unit is thought to represent the assimilation of Nicola Volcanic rocks into the intruding Pothook diorite (Logan and Mihalynuk, 2006). Compositionally, it is dioritic to gabbroic, consisting of coarse, interlocking subhedral pyroxene, plagioclase and magnetite crystals. The rock may contain up to 10% magnetite and is strongly magnetic. It generally shows weak propylitic alteration, with local albite or K-feldspar alteration. The unit is typically unmineralized but can contain localized pyrite and chalcopyrite, especially near the contact with Sugarloaf units.

2.2.1.2 Sugarloaf Diorite (and Sugarloaf Volcanic Hybrid)

The SLD unit is commonly a fine-grained porphyritic hornblende diorite located along the contact between the Nicola Group volcanics and the IMH (Logan and Mihalynuk, 2006). The SLD is the main host to copper-gold mineralization in the Ajax deposit. The unit is light to medium grey in colour and typically consists of up to 25% euhedral hornblende phenocrysts (1 to 10 mm) and up to 20% tabular plagioclase phenocrysts (1 to 5 mm) in a fine- to medium-grained plagioclase rich groundmass. Where unaltered, the rock may contain up to 5% fine, anhedral magnetite.

Albite alteration shows variable intensity and is commonly near zones of mineralization within the unit. The SLD may show strong albite alteration, obliterating original textures. Sulphide mineralization, may consist of 1 to 10% combined pyrite and chalcopyrite with minor molybdenite (MoS_2), tetrahedrite ($Cu_{12}Sb_4S_{13}$) and bornite. Up to 3% irregular calcite veins may be present locally.

Where SLD has partially assimilated blocks of mafic (Nicola) volcanics a heterogeneous, mixed rock has resulted. This rock is generally referred to as the SVHYB. It has a similar alteration and mineralization assemblage to that of the SLD.

2.2.1.3 Mafic Volcanics

A thick sequence of Nicola Group MAFV rocks lies to the south of, and structurally below, the SLD within the ultimate Ajax open pit. These rocks include various fine-grained and pyroxene porphyritic MAFV described as basaltic to andesitic clinopyroxene phyric flows and flow breccias, light green massive tuffs and bedded ash to lapilli tuffs. The unit is medium to dark green and non to weakly magnetic.

2.2.1.4 Picrite

PICR occurs as wedges or slivers caught up in major fault-related northwest trending, northeast dipping structural corridors within the Iron Mask batholith and are believed to have intruded into the Nicola Group Volcanics. The PICR is generally dark green in colour, fine-grained and strongly magnetic and may contain up to 10% ovoid 1to8mm diameter relict olivine phenocrysts, now altered to serpentine and magnetite. The matrix generally consists of serpentine and tremolite-actinolite. These rocks are enriched in chromium and nickel. Minor (<1 %) chalcopyrite and pyrite may occur locally, typically near the contacts with SLD and SVHYB, but the PICR is generally unmineralized. The rock may be cut by up to 3% irregular calcite veins and fractures within the unit are often filled in with talc. PICR are often interlayered with dark green, fine-grained MAFV, often containing 1 to 3mm pyroxene phenocrysts.

2.2.2 Alteration and Veining

2.2.2.1 Albite Alteration

Albite alteration is often found within the SLD and SVHYB units, but is also occasionally seen in other major units when in close proximity to the SLD. Intense albite alteration destroys rock textures, obscuring the original rocktype. The albite alteration is in part controlled by fault and vein structures. Intense albitization is interpreted to have rendered the Sugarloaf units impermeable to mineralized fluids. As a result there is a rough negative relationship between the presence and degree of albite alteration and the sulphide content.

2.2.2.2 Propylitic Alteration

Propylitic (chlorite, epidote and carbonate) alteration is common across all units, varying from weak to strong in intensity and is typically pervasive. Carbonate alteration is most commonly seen in the SLD and SVHYB units, but has been noted across all rock types and appears to be a regional alteration type.

2.2.2.3 K-Feldspar Alteration

Potassium feldspar alteration is commonly found in the SLD and SVHYB units. It is typically patchy or haloing fractures and can vary from weak to strong in intensity.

2.2.2.4 Biotite & Hematite Alteration

Lesser amounts of biotite and hematite alteration are also seen within the SLD, SVHYB and MAFV units at Ajax.

2.2.2.5 Serpentine Alteration

The PICR unit is often moderately to strongly serpentinite altered, giving the unit a dark bluish green appearance. Fractures within the unit are often filled in with talc.

2.2.2.6 Veining

Carbonate veins are common throughout all units on the Ajax property. Albite and potassium feldspar veins are typically observed in the SLD and SVHYB units, but are occasionally noted in the IMH or MAFV units as well, typically near the contacts with the Sugarloaf units. Chlorite, dolomite, epidote, hematite, magnetite and occasional quartz veining have been observed in all units. Talc and/or serpentinite veining has been noted in the PICR unit. Gypsum and anhydrite veining have been observed at depth, typically beginning at 100m to 200m below surface.

2.2.3 Rock Types identified in Ajax Geology Logs

A total of 19 rock types have been identified by field geologists to describe the rock encountered by drilling within the ultimate Ajax Pit limits. In addition to the five major rock types discussed above, 14 rock types are used in the geologic logs to describe core from in Ajax pit. The additional units have limited spatial extent in the Ajax Pit and fall into one of three categories:

1. "hybrid" units which resulted from the intermixing of two major rock types such as Mafic Volcanic / Picrite Hybrid (MVPH) or Picrite / Sugarloaf Hybrid (PSLD). The major unit that has characteristics that are most apparent in the hybrid rock is listed first in the hybrid's name.
2. Textural or genetic variations of the major rock type such as Mafic Tuff (MAFT) rather than MAFV or the degree of albite alteration within the SLD.
3. Small scale intrusive dykes.

The complete list of the rock types recorded in the geologic logs for the Ajax deposit are listed below with the major units presented in bold text.

1. **Mafic Volcanics – MAFV**
2. Mafic Tuff – MAFT
3. **Picrite – PICR**
4. Mafic Volcanic/Picrite Hybrid – MVPH
5. Picrite/Mafic Volcanic Hybrid – PMHY
6. Pyroxene Plagioclase Porphyry – PXPP

7. Mafic Intrusive - MAFI
8. **Iron Mask Hybrid – IMH**
9. Aplite – APL
10. **Sugarloaf Diorite (weakly albitized) – SLD weak**
11. **Sugarloaf Diorite (moderately albitized) – SLD mod**
12. **Sugarloaf Diorite (strongly albitized) – SLD strong**
13. Sugarloaf/Picrite Hybrid – SLPH
14. Picrite/Sugarloaf Hybrid – PSLD
15. Iron Mask/Sugarloaf Hybrid – IMHSL
16. **Sugarloaf Volcanic Hybrid – SVHYB**
17. Late Sugarloaf Diorite – LSLD
18. Monzonite – MONZ
19. Latite – LAT

A variety of steeply dipping, unmineralized dykes intrude the main rock types in the Ajax area. Dykes are composed of aplites, monzonites, latites and fine-grained mafic rocks. In terms of rock volume, these dykes represent a very small fraction of the overall rock quantities that will be mined. Aplite dykes are observed within the IMH unit but are not observed cutting any other units. All units are cut by late dykes including Monzonite, Latite and Lamprophyre. The dykes may be up to 5 m wide but are more typically < 2 m. The dykes are steeply dipping, with variable azimuths, but are most commonly along similar orientations to regional faulting.

Pyroxene-Plagioclase Porphyry dykes were also identified below the Ajax West pit, between the SLD and MAFV units. The unit is generally medium to dark grey, consisting of up to 20% subhedral 1-5mm pyroxene phenocrysts in a finer matrix of pale grey 1-3 mm plagioclase and dark fibrous amphibole. Plagioclase shows sericite alteration and the pyroxene phenocrysts have generally been replaced by amphibole.

2.2.4 Geomet Units used in the Ajax Block Model

The final set of terms used to describe the rock in the Ajax deposit are the ***geomet units*** (n = 13) representing the modeled rock types that are included in the January 2014 geologic block model (Table 2-1). The geomet units are an expanded set of the original 5 rock units that include the degree of albitization in the SLD and the geographic location of the SLD, SVHYB and MAFV rock units within the pit (*i.e.*, east or west).

The geomet units are applied in the block model on the scale of the 15 m x 15 m x 15 m blocks. These units are tracked to derive mine rock production schedules (*e.g.*, Section 3.1.1). In areas of the deposit near contacts between two or more lithologies that are in close proximity, the most dominant rock type is assigned to the block.

Table 2-1:
Geomet Units used in Ajax Block Model

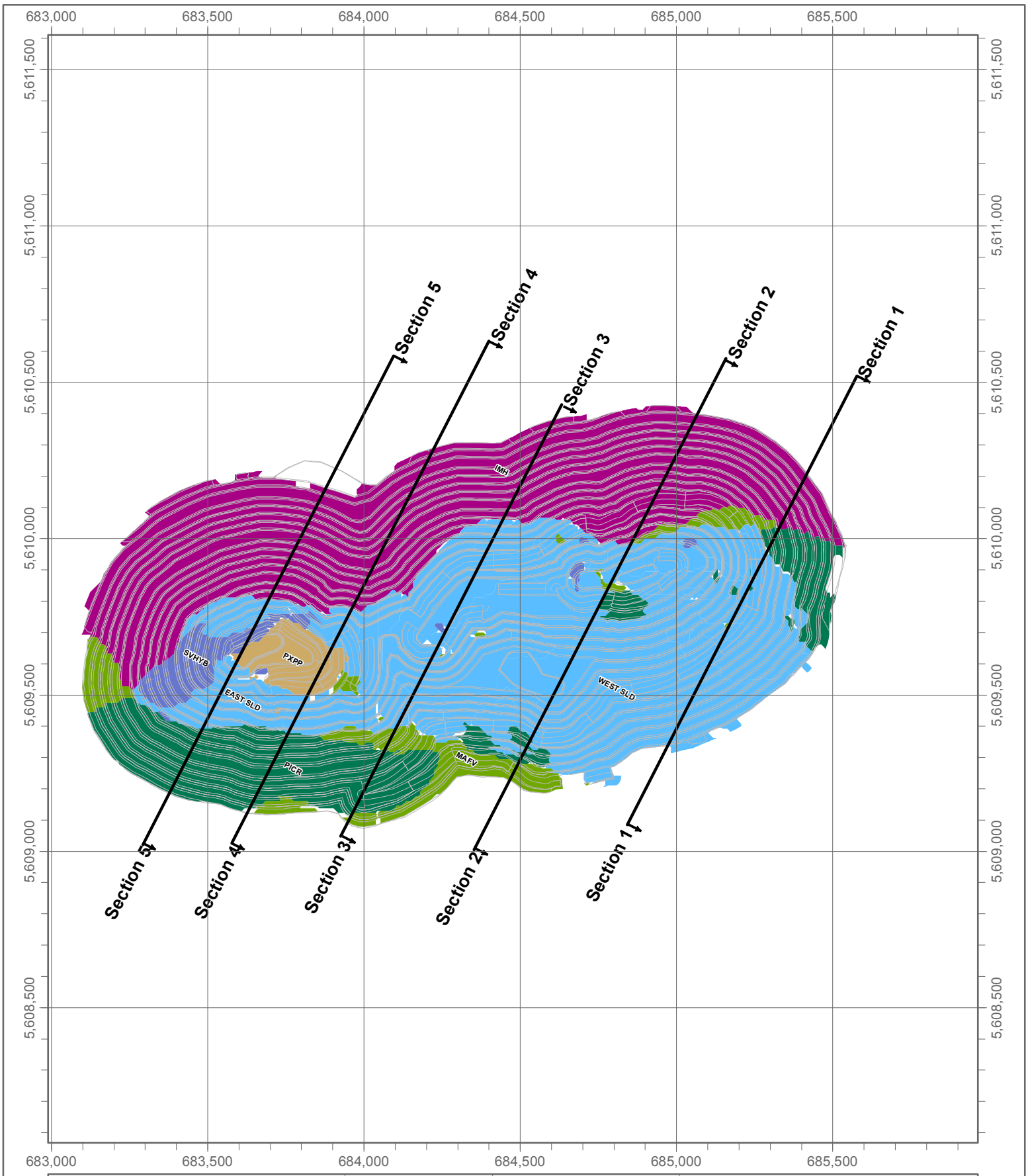
Geomet Unit	Unit #
West SLD, weak or absent albitization	1
West SLD, moderate albitization	2
West SLD, strong albitization	3
IMH (east and west)	4
West SVHYB, weak or absent albitization	5
West SVHYB, moderate albitization	6
PICR (east and west)	7
West MAFV	8
East SLD, weak or absent albitization	9
East SLD, moderate albitization	10
East SLD, strong albitization	11
East MAFV	12
East SVHYB	13

2.2.5 Spatial Distribution of the Major Rock Units in the Ajax Pit

The Ajax deposit lies at the contact between the IMH and the SLD. Ore is primarily hosted by the SLD or in units immediately adjacent to the contact with the SLD. As a result, the SLD is the central unit within the ultimate pit limits (Figure 2-2). The IMH is the dominant unit in the northern portion of the pit. The MAFV and PICR units are spatially associated and will be exposed on the ultimate pit wall in the southeast and southwest portions of the pit. The SVHYB is positioned adjacent to the SLD and the MAFV. The pyroxene plagioclase porphyry unit will be exposed in the deepest extent of the ultimate pit's eastern lobe. However, very little of this unit will be mined from the pit.

The presence of NPAG minerals gypsum and anhydrite has been documented in the lower portions of the pit. Based on the occurrence of these minerals documented in the geologic logs, a roughly horizontal undulating boundary varying between the 700 m and 900 m elevation demarcates the upper extent of the occurrence of gypsum and anhydrite (Figure 2-3 to Figure 2-5).

The SLD is the predominant unit in the eastern portion of the pit (Figure 2-3), where it is overlain by the PICR along the northern portion of the pit, which also separates it from the IMH. Further to the east the SLD and the IMH are in immediate contact and the PICR is absent Figure 2-4. In the central portion of the pit, the SVHYB unit overlies a portion of the contact between the SLD and IMH Figure 2-5). MAFV and PICR are present along the southern margin of the pit Figure 2-6 and Figure 2-7. In the western portion of the pit, the IMH and PICR are the major mine rock units and the SLD and the SVHYB comprise the majority of ore (Figure 2-6). Refer to Appendix F-2 and Appendix F-3 for the full suite of geologic cross-sections depicting the spatial distribution of geomet units and alteration, respectively.



LEGEND

Geology

- Iron Mask Hybrid
- Mafic Volcanic
- Picrite
- Pyroxene Plag Porphry
- Sugarloaf Diorite
- Sugarloaf/Volcanic Hybrid
- Pit Contours (15m)

DATE SAVED:	Jul 24, 2015
DRAWN BY:	GM
REVIEWED:	BM
VERSION:	1

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

1:16,000

0 75 150 225 Meters

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT:

Ajax Geochemical Characterization Study

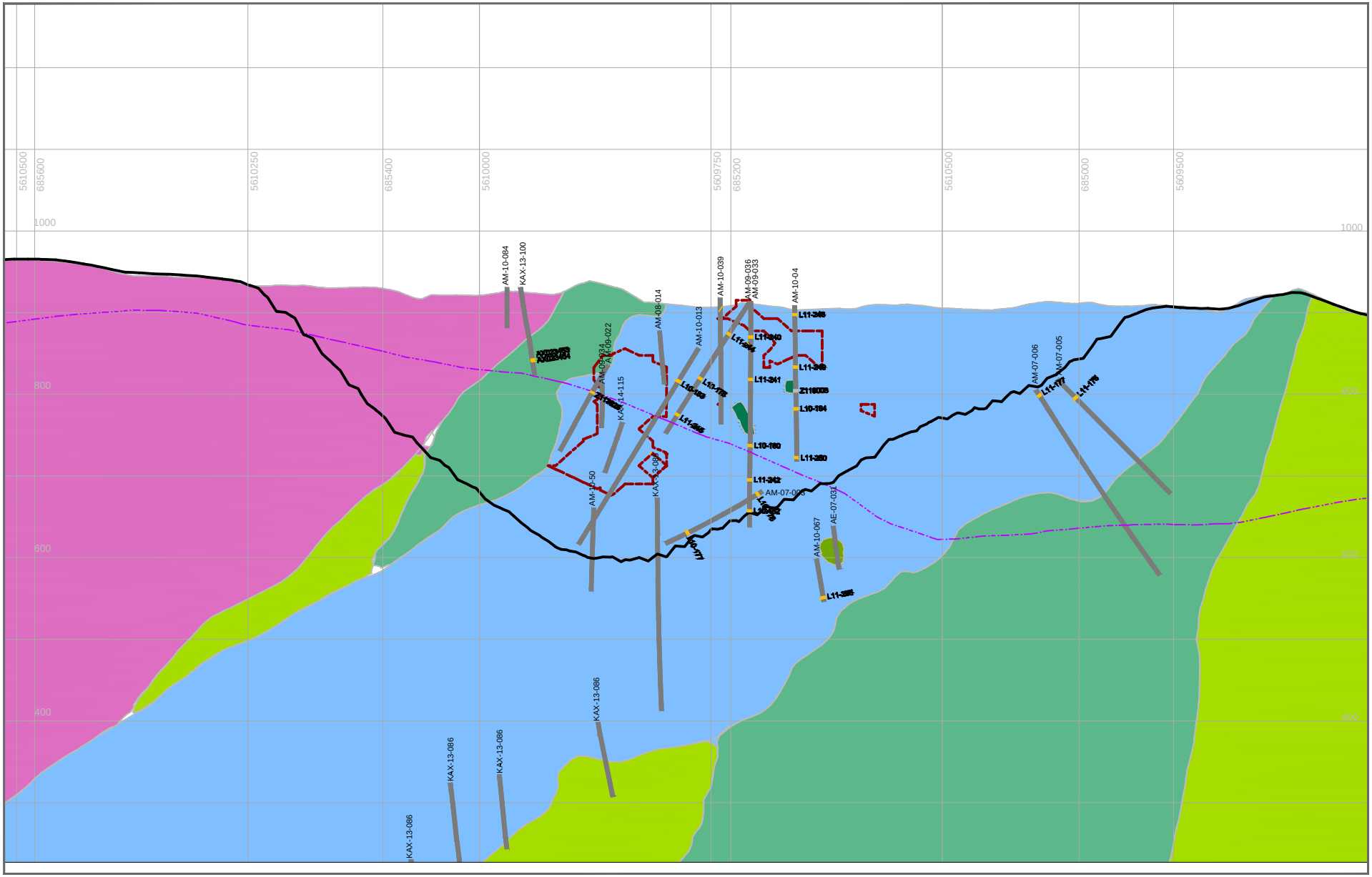
TITLE:

Geology of Ultimate Pit Wall and Section Locations

PROJECT #: J933-1

FIGURE: 2-2

P:\J933 Ajax\Drafting\MXD\Geochem Characterization Report\Fig 2-2_Geology of Ultimate Pit and Section Locations_20150723.mxd



LEGEND

- MAFV Mafic Volcanics
- PICR Picrite
- SLD Sugarloaf Diorite
- IMH Iron Mask Hybrid
- Pit
- Gypsum/Anhydrite Surface
- Ore Body
- Drillholes
- Lorax ARD Sample

DATE SAVED:	Jul 24, 2015
DRAWN BY:	AL
REVIEWED:	BM
VERSION:	1

Vertical Exxageration: 1X
Units: Metres
Scale 1:7500

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Characterization**

TITLE: Geological Section 1

PROJECT #: J933

FIGURE: 2-3

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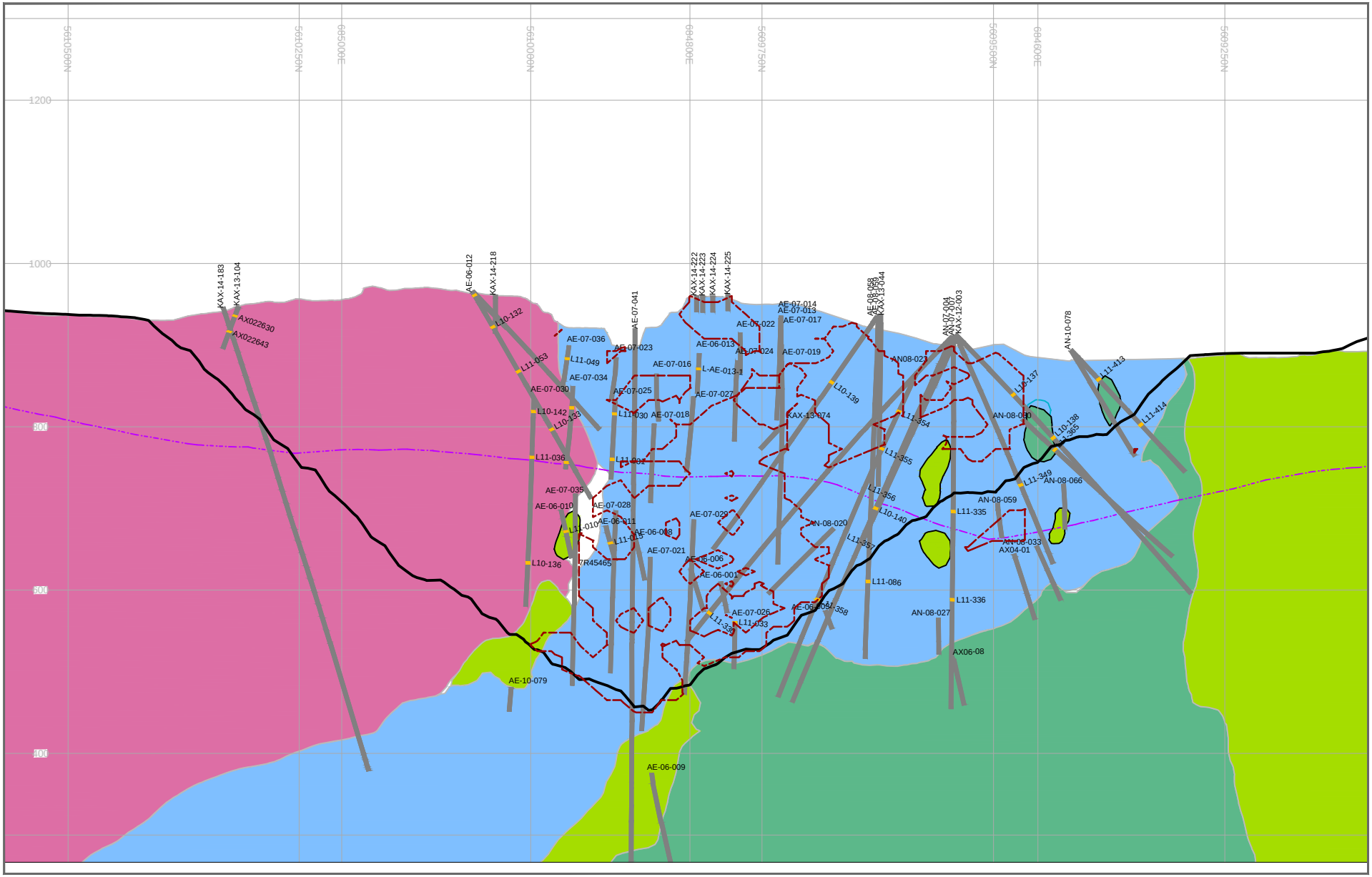

LEGEND

- MAFV Mafic Volcanics
- PICR Picrite
- SLD Sugarloaf Diorite
- IMH Iron Mask Hybrid
- Pit
- Gypsum/Anhydrite Surface
- Ore Body
- Test Drillholes
- Lorax ARD Sample

DATE SAVED:	Jul 24, 2015
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VERSION:	1

Vertical Exxageration: *1X*
Units: *Metres*
Scale: *1:7500*

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Characterization**

TITLE: Geological Section 2

PROJECT #: J933

FIGURE: 2-4

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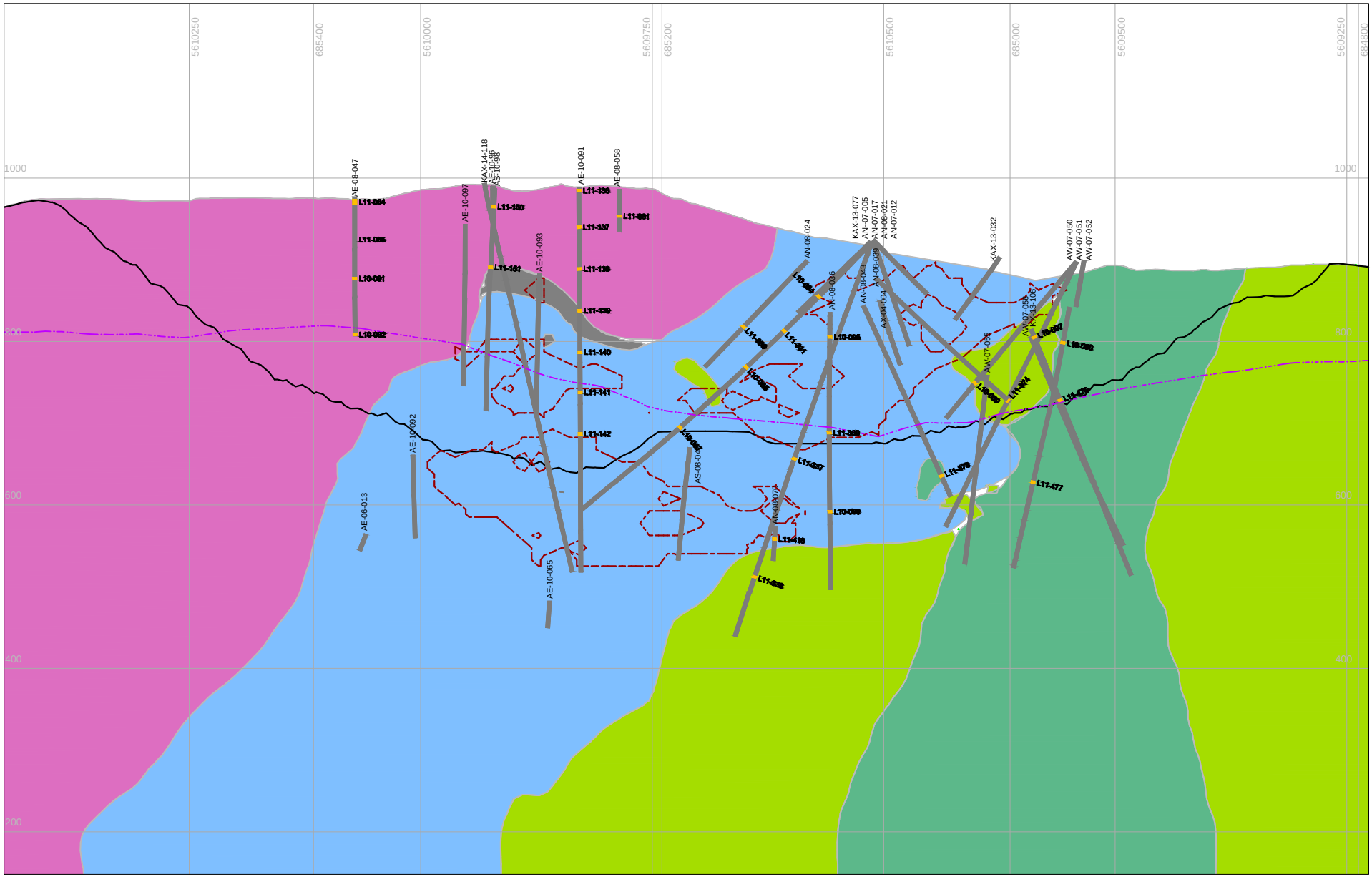

LEGEND

- MAFV Mafic Volcanics
- PICR Picrite
- SLD Sugarloaf Diorite
- IMH Iron Mask Hybrid
- Pit
- Gypsum/Anhydrite Surface
- Ore Body
- Drillholes
- Lorax ARD Sample

DATE SAVED:	Jul 24, 2015
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REVIEWED:	BM
VERSION:	1

Vertical Exxageration: *1X*
Units: *Metres*
Scale 1:7500

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Characterization**

TITLE: Geological Section 3

PROJECT #: J933

FIGURE: 2-5

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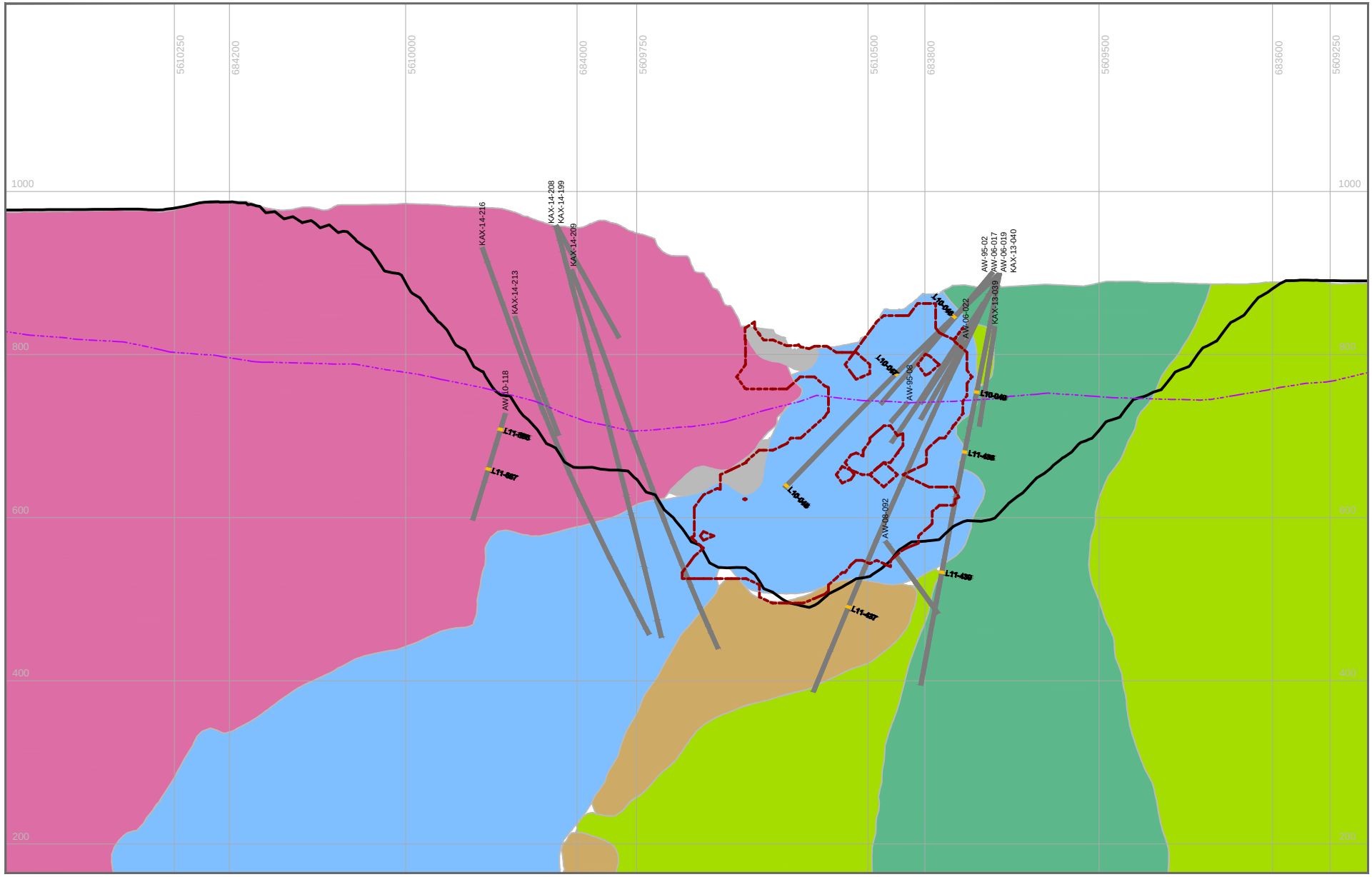

LEGEND

- MAFV Mafic Volcanics
- PICR Picrite
- SLD Sugarloaf Diorite
- IMH Iron Mask Hybrid
- PXPP Proxene Plag Porphyry
- Pit
- Gypsum/Anhydrite Surface
- Ore Body
- Drillholes
- Lorax ARD Sample

DATE SAVED:	Jul 24, 2015
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REVIEWED:	BM
VERSION:	1

Vertical Exxageration: *1X*
Units: *Metres*
Scale 1:7500

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Characterization**

TITLE: Geological Section 4

PROJECT #: J933

FIGURE: 2-6

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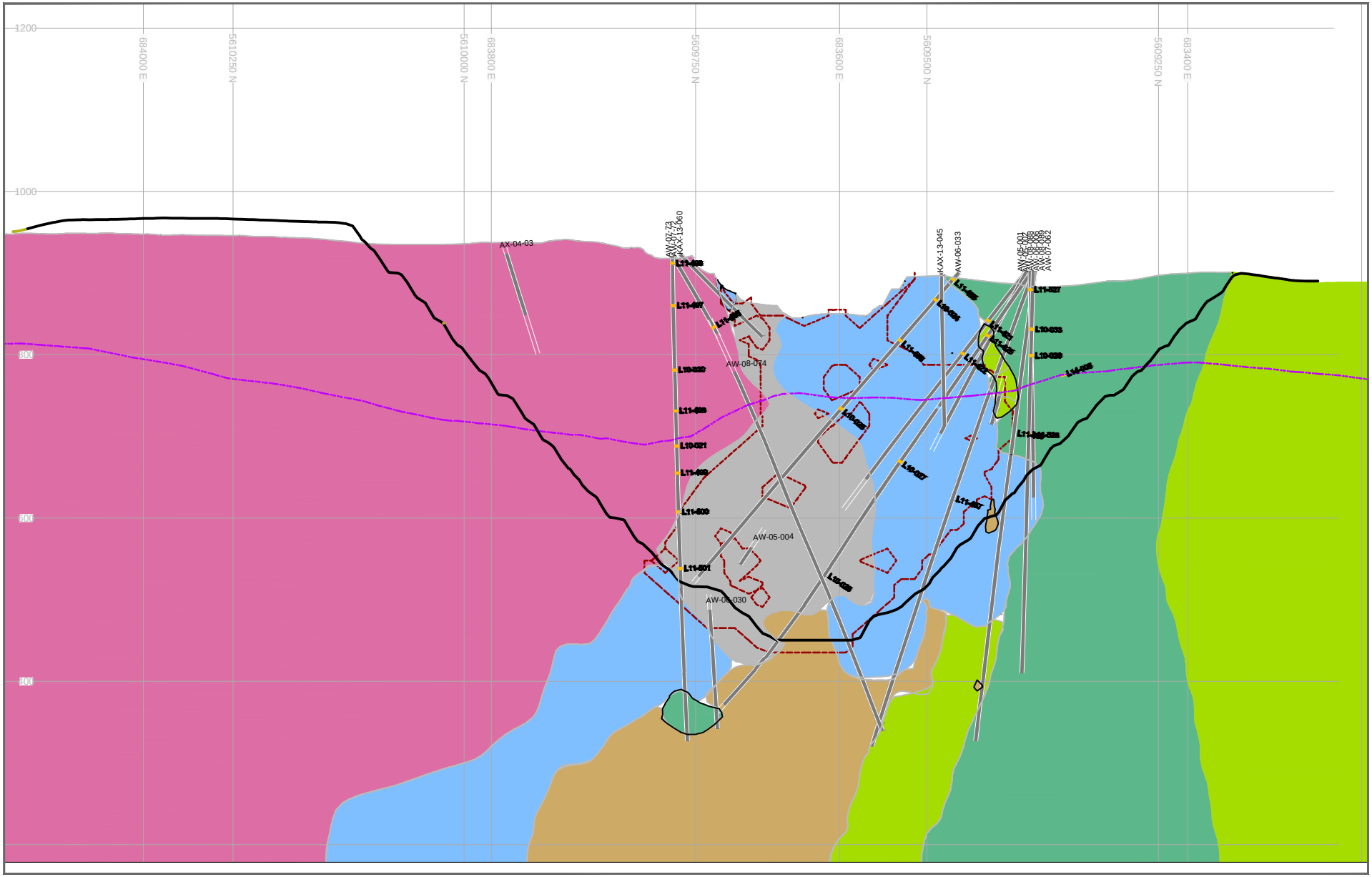

LEGEND

- MAFV Mafic Volcanics
- PICR Picrite
- SLD Sugarloaf Diorite
- IMH Iron Mask Hybrid
- PXPP Pyroxene Plag Porphry
- Pit
- Gypsum/Anhydrite Surface
- Ore Body
- Test Drillholes
- Lorax ARD Sample

DATE SAVED:	Jul 24, 2015
DRAWN BY:	AL
REVIEWED:	BM
VERSION:	1

Vertical Exxageration: *1X*
Units: *Metres*
Scale: *1:7500*

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Characterization**

TITLE: Geological Section 5

PROJECT #: J933

FIGURE: 2-7

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3. Study Methodology

3. Study Methodology

3.1 Sample Selection and Field Methods

3.1.1 Summary of Study History and Methods

Two main phases of ML/ARD related geochemical testing have been undertaken for the Ajax Project to date. In 2014, a confirmatory static test sampling program was initiated to improve the lithological and spatial resolution of the Phase II geochemical characterization program in response to changes in the mine plan and block model categories. Table 3-1 provides an overview of the analyses conducted during the various static and kinetic test programs. Details regarding the individual geochemical assessment phases are summarized below. Note that, while not mentioned specifically below, all kinetic test samples are routinely analyzed for mineralogical composition, ABA, solid-phase elemental composition, and particle size distribution (PSD).

Phase I (2007)

- A total of 47 static test samples were collected to gain preliminary insight into the geochemical characteristics of the Ajax deposit and to guide the Phase II sample selection;
- Seven field bins were constructed on site to mimic water-rock interaction under site-climatic conditions. Field bin subsamples were analyzed for whole-rock composition using X-ray fluorescence (XRF) techniques.

Phase II (2012)

- An additional 952 samples were collected from drill core under consideration of the Phase I geochemical results as well as spatial distribution;
- Of these, 315 samples underwent the full suite of ABA and solid-phase metal testing, while analyses for the remaining samples (n = 637) were limited to total C, total S, and sulphate S to allow for a cost-effective, high-density ABA assessment;
- A subset of 117 samples underwent NAG testing as an independent measure for net acid generation potential;
- Findings from the static test results fed into the selection of six laboratory kinetic test samples (5 x mine rock, 1 x ore) covering all major lithological units;
- To assess the role of silicate minerals, duplicate humidity cell tests containing untreated and carbonate-depleted SLD materials (n=6) were also initiated;

- The first round of tailings generated during metallurgical testing in 2009 underwent static and kinetic testing (n=2).

Confirmatory Geochemical Testing (2014)

- After revision of the Ajax mine plan and block model units, 49 additional static test samples were selected for the full suite of ABA and solid-phase metal analysis to close spatial and lithological gaps identified in the Phase II database;
- To increase the confidence in drainage chemistry predictions for the major mine rock types, additional kinetic tests cells were initiated (6 x mine rock, 2 x ore);
- To assess the role of silicate minerals in picrite material, another set of duplicate humidity cell tests containing untreated and carbonate-depleted materials (n=4) were initiated;
- Three more generations of bulk tailings materials have become available through metallurgical testing in 2013 and 2014. Kinetic test cells (n = 8; 4 x humidity cells, unsaturated column, 3 x saturated column) were constructed for the understanding of tailings leaching behaviour. Supernatant in contact with all tailings types were also analyzed geochemically.

Table 3-1:
Analyses Conducted for the Ajax Geochemical Assessment

Analysis	Mine Rock & Ore					Tailings			
	Static Test Program			Field Bins	HC & Unsat. Col.	Jan. 2009	Jan. 2013	Nov. 2013	Sep. 2014
	Phase I	Phase II	2014						
Particle Size Distribution				x	x	x	x	x	x
Mineralogy (XRD)	x			x	x	x	x	x	x
Mineralogy (Petrography)				x	x				
Complete ABA	x	x	x	x	x	x	x	x	x
Total C, Total S and SO_4-S		x							
Solid Phase Metals	x	x	x	x	x	x	x	x	x
Net Acid Generation		x			x				
Whole Rock Analysis (XRF)				x					
Shake Flask Extraction						x			
Supernatant Analysis							x	x	x
Lab Kinetic Leachates					x	x	x	x	x
Field Kinetic Leachates				x			x		

Notes: HC = humidity cell; Unsat. Col. = unsaturated column

3.1.2 Mine Rock and Ore Tonnages

The Ajax Project will operate as an open pit mine with ore processed in a conventional milling plant at a rate of 65,000 t/d and the copper/gold concentrate transported off-site for further processing. The construction phase of the Project will be approximately two and a half years, and following the 23 year operation the decommissioning and closure phase is expected to take up to 5 years. Over the mine life the Project will produce approximately 140 million pounds of copper and 130,000 ounces of gold annually. Approximately 1,000 Mt of mine rock are expected to be produced over the mine life. The projected volume of ore and mine rock which will be produced is provided in Table 3-2 according to the main lithologies and ore grades.

The higher-grade ore will be sent directly to the mill for processing while low- and medium- ore grade will be placed in the ore stockpile in years of excess ore production. Materials extracted from the pit which lie outside the ore envelope will be stockpiled as uneconomic mine rock in one of the designated surface MRSF, in pit backfill, or used to construct embankments for the tailings storage facility (TSF).

Table 3-2:
Proportion of Mine Rock and Ore for the Ajax Deposit According to Lithology

Lithology	Tonnage	Proportion
Mine Rock		
IMH	604,612,894	60%
MAFV	23,294,947	2%
PICR	97,774,049	10%
SLD mod	122,097,286	12%
SLD strong	3,981,152	0.4%
SLD weak	109,690,783	11%
SVHYB	11,006,943	1%
Other (99 & 199)	32,302,794	3%
Total	***1,004,760,848***	***100%***
Ore		
Low-grade	53,937,031	12%
Medium-grade	207,172,030	47%
High-grade	176,796,145	40%
	437,905,206	***100%***

3.1.3 Static Test Programs

Static test work (Figure 1-2) was conducted to determine the ML/ARD potential of the mine material upon exposure to weathering. Samples selected for ML/ARD characterization represent the major lithologies that will be encountered during mining at the Ajax property and were selected using exploration drill core profiles, geological core logs and the Ajax borehole database with related geologic cross-sections. Overall, the sample selection aimed primarily to provide representation from the five major lithologies (SLD, IMH, SVHYB, PICR and MAFV) across the extent and depth of the proposed open pit.

Samples were selected based on the relative volumes of each major lithology, the grade classification, and the availability of drill core. Furthermore, the selection of Phase II samples was influenced by the results of the Phase I testing, which gave an indication of the relative tendency for PAG behavior. After revision of the mine plan and further evaluation of static and kinetic test results from Phase I and II samples, a confirmatory mine material sampling program was conducted in 2014 to close spatial and lithological gaps of the combined datasets. The focus of this program was also to obtain a more robust database for units that show a relatively wide range in geochemical characteristics. The static test program approach is consistent with recommendations made in Price and Errington (1998).

A total of 1,048 samples (plus split/duplicate samples) were collected from exploration, geotechnical and two ARD drill cores across the proposed Ajax deposit for Phase I, Phase II and 2014 confirmatory ARD assessments. The basic ARD assessment included analyses for total carbon (total C), total sulphur (total S), and sulphate sulphur (SO_4-S). Of these 1,048 samples, 392 were analyzed for the complete analytical suite of acid-base-accounting (ABA) of which 117 samples were additionally analyzed for net acid generation (NAG testing). Sample intervals generally measure 3 m in length and correspond to the same intervals used for ore assay samples. In accordance with the latest NSR cut-off values, 856 samples of the overall dataset were deemed uneconomic mine rock, while the remaining 192 samples fall in the ore category. The latter are further broken out into low-, medium- and high-grade ore samples.

Each static test sample is assigned a rock type based on the geologic log description (Section 2.2.3) corresponding to the sample interval. A total of 19 discrete lithological units were identified during core logging several of which are hybrid rock types that may resemble one of the major rock units geochemically and represent very minor volumes with respect to the overall mine rock volumes expected. Correspondingly, the static test results are grouped into nine geochemically distinct units for the purpose of tabulation and

presentation. Table 3-3 gives an overview of originally logged lithologies and mine rock (by lithology) and ore (by grade) sub-categories used for this geochemical assessment. A description of the individual static test samples is provided in Appendix A.

Table 3-3:
Distribution of Static Mine Rock Samples According to Lithological Descriptions and Simplified Grouped Units

Logged Lithologies	Codes	Grouped units	# Samples	Proportion
Mine Rock			**856**	**100%**
Sugarloaf Diorite - weakly albitized	SLD - weak	SLD - weak	136	16%
Late Sugarloaf Diorite	LSLD			
Sugarloaf Diorite - moderately albitized	SLD - mod	SLD - mod	176	21%
Sugarloaf Diorite - strongly albitized	SLD - strong	SLD - strong	30	3.5%
Iron Mask hybrid	IMH	IMH	285	33%
IMH/Sugarloaf Diorite	IMHSL			
Sugarloaf/Volcanic Hybrid	SVHYB	SVHYB	9	1.1%
Picrite	PICR	PICR	125	15%
Mafic Intrusive	MAFI			
Mafic Volcanic/Picrite Hybrid	MVPH			
Mafic Volcanic	MAFV	MAFV	58	6.8%
Mafic Tuff	MTUF			
Pyroxene Plagioclase Porphyry	PXPP			
Picrite/Mafic Volcanic Hybrid	PMHY			
Monzonite	MONZ	Unmineralized Dykes	33	3.9%
Latite	LAT			
Aplite	APL			
Sugarloaf/Picrite Hybrid	SLPH	SLPH	4	0.47%
Picrite/Sugarloaf Diorite	PSLD			
Ore			**192**	**100%**
Low-Grade Ore	-	-	94	49%
Medium-Grade Ore	-	-	28	15%
High-Grade Ore	-	-	70	36%

3.1.3.1 Downhole Sampling Program

In 2011, two ARD holes (AM-11-087 and AW-11-126) were drilled to understand the geochemical characteristics of a specific mine rock type with depth and at a relatively high resolution. Specifically, these holes were located to assess areas of the proposed pit that are predominately IMH mine rock but had limited or no other drilling information available; 82 samples (41 from each hole) were selected for total C, total S and SO_4-S analysis. Five of these samples were also selected for complete ABA testing. The ARD drill holes were 250 m in length and angled down along the pit walls (Appendix F-1).

An early assessment of the static test data identified that a considerable proportion of the SLD unit may be PAG. Considering that this unit is projected to represent about 24% of the total mine rock from the pit, it was recommended that the geochemical variability within the SLD unit be assessed by collecting tightly spaced samples within the unit down a single drill hole. For this assessment, 74 samples (including 3 duplicates) were collected from drill hole AN-08-034 for full ABA static test work. The selected intervals from AN-08-034 are illustrated in Figure 3-1. An additional drill hole was assessed for downhole variability, AM-07-007; samples from this hole were tested for total C, total S and SO_4-S only. AM-07-007 was sampled every 6 to 12 m and covered the xenolithic SLD, SLD and PICR lithologies.

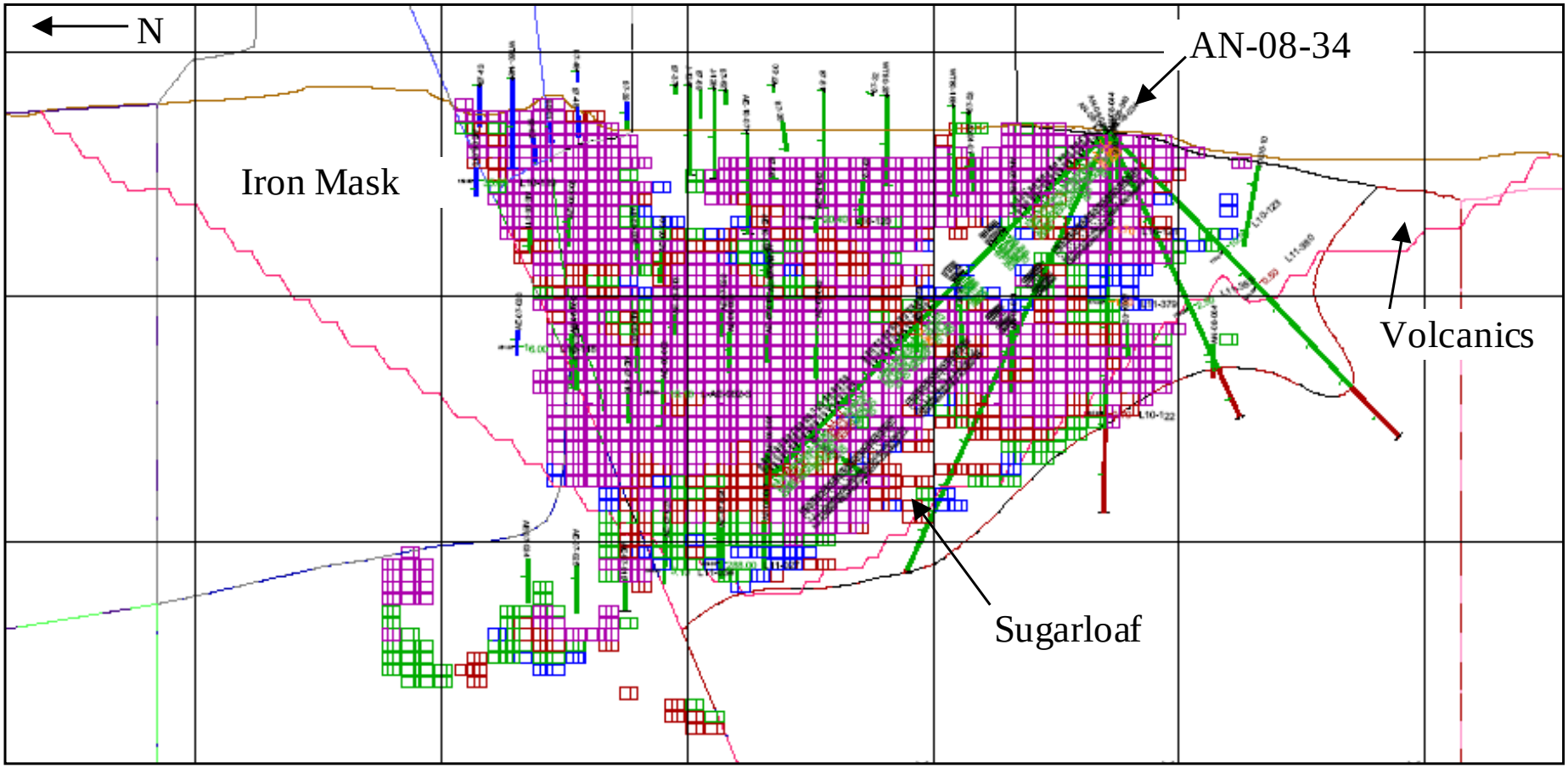

Figure 3-1: Continuous sampling of drill core AN-08-034 (Section 2050E) to assess the geochemical variability of the SLD unit.

3.1.4 Kinetic Test Programs

Kinetic test work is performed to define ML/ARD characteristics of the various rock types, and to estimate concentrations that may be of environmental concern in mine drainage. All kinetic test samples were characterized by static testing to allow comparison of the geochemistry to the larger static testing dataset and assess the overall representativeness of the selected kinetic test material.

3.1.4.1 Mine Rock Field Weathering Bins

Field weathering experiments are advantageous as they more closely resemble the actual conditions prevalent in the MRSF than laboratory kinetic test set-ups, including site-specific climatic conditions, grain size, and water-rock ratios. Results from these field experiments provide long-term monitoring of water quality from geologic materials.

Lorax personnel conducted a site visit June 6–8, 2007 to construct and implement a field kinetic test program for mine rock lithologies from the Ajax deposit. Five field bins containing representative mine rock lithologies from the Ajax deposit as well as two field bins filled with regional lithological units (Pothook, Cherry Creek) were constructed during the June 2007 field visit. More recently, in July 2013, monitoring was initiated on a tailings field bin constructed with tailings from the January 2013 test program. Figure 3-2 shows a photograph of the experimental set-up. The tailings field bin (FB8) was not yet constructed when this photograph was taken. Samples of the IMH, SLD and PICR units were composed of mine rock from the existing, reclaimed pits. Material from the Ajax West and East pits representing the SLD unit in FB2 and FB7 likely consist of a mix of albitized SLD and SVHYB. A list of the geologic material placed in each bin is provided in Table 3-4 excluding non-Ajax specific lithologies (FB5 and FB6).

The mine rock used for the field kinetic tests had been exposed to natural weathering conditions in the Ajax East and West pits for at least 17 years, since the completion of mining activities in 1997. Incorporation of partially weathered rock in the leach bins provides advanced indication of mine rock drainage chemistry and more certainty for long term drainage chemistry predictions.

Field Bin Construction

Two wooden cribs were constructed to house eight field weathering bins (Figure 3-2), from which leachate samples are collected to determine the water quality and help predict acid and metal loadings that may leach from the geological materials. During the site visit, representative static test sub-samples and initial leachate samples were collected from each bin.

Figure 3-2: Photographs of the kinetic field bins at the former Ajax West pit. Note that two bins were filled with mine rock from the Crescent pit, and are not reported here.

Table 3-4:
Contents of Field Weathering Bins at the Ajax Deposit

Bin No.	Geologic Unit	Deposit Location	Mass (kg)
FB1	Iron Mask hybrid	Ajax East	213
FB2	Sugarloaf diorite	Ajax West	184
FB3	Iron Mask hybrid	Ajax West	207
FB4	Picrite	Ajax West	195
FB7	Sugarloaf diorite	Ajax East	150
FB8	Tailings	Jan. 2013	196

Each crib is eight-feet long, approximately 40-inches tall, and four-feet wide. The cribs are supported on a slight incline to improve the flow of leachate towards the drainage tap and collection containers. Field bins consist of 30-inch high HDPE barrels with a 19-inch diameter. A hole is drilled and threaded in the bottom of each barrel. This is where the acid-washed tubing and fittings are securely fit to allow leachate to drain to the collection system attached to the base of the cribs below the field bins (Figure 3-3 and Figure 3-4). Two pieces of nylon mesh are placed over the hole at the bottom of the bin to prevent fines from clogging the drain (Figure 3-5). As well, a piece of perforated PVC pipe, that extended the height of the barrel, was placed in each bin to ensure adequate air flow through the interior of the bin (Figure 3-3).

Prior to placing mine rock in a barrel, the samples were weighed, and then mixed and split using the cone and quarter technique. The quartering process is performed in order to ensure that the test material is properly mixed, and that a representative sub-sample is obtained for analyses. A sub-sample comprising roughly 12.5% of the original material was sent to the analytical laboratory for particle size distribution and geochemical static test work. Note that field bins comprising the SLD unit (B2 and B7) are a mix of variably albitized SLD with minor amounts of SVHYB.

Figure 3-3: Photograph of field bin set up at Ajax West pit

Figure 3-4: Photograph showing leachate collection system for the field weathering bins.

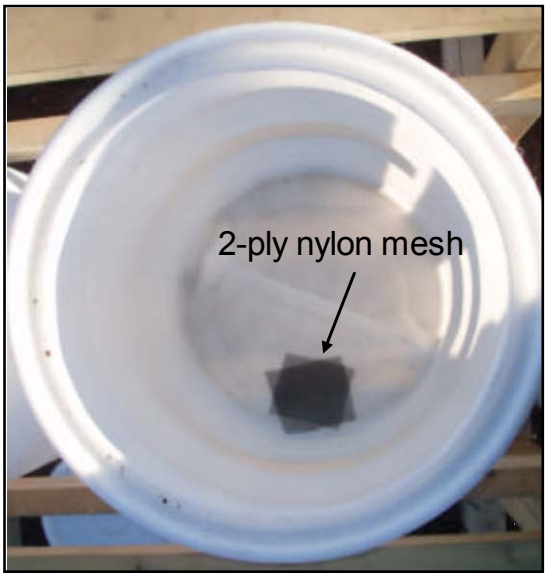

Figure 3-5: Photograph showing mesh placement over drain at bottom of leach bin.

Field Bin Leachate Sample Collection

Leachate samples were collected from each field bin to determine the water quality and help predict acid and metal loadings draining from the geological mine rock materials from the Ajax deposits. Leachate samples were collected from the bins 2-4 times a year after the first year of the tests. To date 14 to 18 leachate samples (depending on availability of sufficient leachate volume) have been collected from mine rock field bins, while two samples were taken from the tailings field bin.

Precipitation percolates through and reacts with the rock stored in the field leach bins. Drainage flows through tubing attached to the bottom of each bin into a plastic sample collection bottle located in a Rubbermaid container with a lid. Because the climate in Kamloops is continental and semi-arid, the area receives very little precipitation. Due to the arid climate, limited opportunities were available to sample the natural leachate from precipitation; therefore, manual irrigation was utilized when there was insufficient water from natural precipitation in the leachate collection bottles for a sample. Manual irrigation of field weathering bins involved sprinkling 2 - 4 L of deionised water on top of each bin. Each field bin material drains at different rates depending on the particle size distribution of the rock. Deionised water added to the blank bin was poured down the inside walls.

Sampling procedures followed the *British Columbia Field Sampling Manual* (MOE, 2003). Typically, from each bin, a 500 ml sample is collected for routine analysis, anions and nutrients, and a 125 ml sample is collected for dissolved metal determination. Prior to sample collection, all non-acid cleaned bottles are rinsed three times with a small volume of leachate. Any remaining leachate in the field collection bottle was discarded before re-connecting the bottle to the field bin. All samples are filled to capacity in order to minimize head space and stored in a cooler with ice packs. Samples reserved for dissolved metal determination are filtered and preserved either in the Lorax clean laboratory or at ALS Environment Laboratories in Burnaby, B.C.

3.1.4.2 Ore and Mine Rock Laboratory Kinetic Tests

Sample Selection and Rationale

Laboratory based kinetic experiments, including unsaturated columns and humidity cells, were initiated for mine rock and ore at the SGS laboratory in Burnaby, British Columbia. These experiments serve the evaluation of the relative ML/ARD behaviour of geologic materials from the Ajax site under standardized weathering conditions. More specifically, tests are designed to quantify weathering and metal release rates as well as the availability of the measured NP to buffer pH. After a first suite of kinetic cells was initiated in 2010, a confirmatory suite of kinetic cells was put in place in June/July of 2014. The purpose of the latter is to build on observations from the first round of kinetic testing as well as to adapt the sample selection to a revised mine plan. A brief description and rationale for the sample material submitted for laboratory test work for the Ajax Project is summarized in Table 3-5. Drill core for the tests were selected based on static test results, including ABA and solid phase metals (Appendix C), conducted on pulp samples. The overall sample selection rationale was to develop a strong program that focuses on characterizing the leaching behaviour of materials that may be disturbed by mining and which will be stored sub-aerially at site.

Table 3-5:
List of Geologic Material Subjected to Laboratory Kinetic Tests

ID	Rock Unit	Type	Compiled Samples	Sample Selection Criteria	Rationale
Unsaturated Columns					
Col-1	SLD	High-grade ore	L10-75 L10-115 L10-128 L10-137	Represents 75th percentile for total S and median values for CaNP and NP (median - 75th percentile metals)	Determine if and/or when SLD ore will go acid and which metals will be of concern before and during acidic conditions.
Col-2	SLD	Mine rock	L10-102 L10-103 L10-123 L10-145 L10-153 L10-161 L10-173 L10-186 L10-187	Represents median values for total S, CaNP and NP (median metals)	Determine if and/or when SLD mine rock (median values) will go acid and which metals will be of concern before and during acidic conditions.
Col-3	SLD	Mine rock	L10-73 L10-89 L10-94 L10-96 L10-112 L10-113 L10-144 L10-159 L10-183 L10-184 L10-189	Represents the 75-80th percentile for total S and median values for CaNP and NP (75-80th percentile metals)	Determine if, and, or when SLD mine rock (high S and median NP) will go acid and which metals will be of concern before and during acidic conditions.
Col-4	IMH	Mine rock	L10-10 L10-58 L10-59 L10-63 L10-64	Represents median values for total S, CaNP and NP (median metals)	Determine metal leaching potential / rates for neutral drainage - and assess NP for potential blending (static tests indicate non-PAG).
Col-5	IMH	Mine rock	L10-11 L10-20 L10-23 L10-77 L10-98	Represents the 75th percentile for total S, CaNP and NP (median metals)	Determine metal leaching potential / rates for neutral drainage - and assess NP under elevated S concentrations (static tests indicate non-PAG)
Col-6	MAFV & PICR	Mine rock	*MAFV:* L10-22 L10-37 L10-62 L10-90 *PICR:*	Represents the median - 75th percentile for total S, CaNP and NP (median - 75th percentile metals)	Determine if, and, or when material may go acid. Assess NP (particularly of non-carbonate minerals) and assess concentrations of leached metals. Static tests indicate low CaNP and high NP as well as high solid phase metal concentrations

ID	Rock Unit	Type	Compiled Samples	Sample Selection Criteria	Rationale
			L10-1		
			L10-68		
			L10-138		
Col-7	IMH	Mine rock	L10-142	Spatial coverage and representative solid phase geochemistry	Increase confidence of ML/ARD behaviour for this unit
			L10-148		
			L10-134		
Col-8	IMH	Mine rock	10E28852	Spatial coverage and representative solid phase geochemistry	Increase confidence of ML/ARD behaviour for this unit
			10E28897		
			10E28976		
Col-9	West SVHYB	Mine rock	L10-028	Spatial coverage and representative solid phase geochemistry	Determine if or when SVHYB mine rock will go acid and which metals will be of concern before and during acidic conditions.
			L10-032		
			L10-031		
Col-10	PICR	Mine rock	L10-009	Spatial coverage and representative solid phase geochemistry	Determine if or when PICR mine rock will go acid and which metals will be of concern before and during acidic conditions.
			L10-083		
			L10-026		
			L10-054		
Col-11	PICR	Mine rock	L10-206	Spatial coverage and representative solid phase geochemistry	Determine if or when PICR mine rock will go acid and which metals will be of concern before and during acidic conditions.
			L10-164		
			L10-192		
			L10-180		
			L10-178		
Col-12	MAFV	Mine rock	L10-036	Spatial coverage and representative solid phase geochemistry	Determine if or when MAFV mine rock will go acid and which metals will be of concern before and during acidic conditions.
			L10-079		
			L10-176		
Col-13	SLD	Low- to medium-grade ore	SL-13	Spatial coverage and representative solid phase geochemistry	Determine the ML/ARD behaviour of low- to medium grade ore that will be exposed in temporary stockpiles during operations.
			SL-68		
			L10-121		
Col-14	Ore Composite	Ore	metallurgical test composite		Determine if and/or when SLD ore will go acid and which metals will be of concern before and during acidic conditions.
Humidity Cells					
HC-1	SLD	Mine rock	split of Col-2		
HC-2	SLD	Mine rock	split of Col-3		
HC-3	SLD	Mine rock	split of Col-2	Pretreated with NaOAc to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources.
HC-4	SLD	Mine rock	split of Col-3	Pretreated with NaOAc to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources.
HC-5	SLD	Mine rock	remix to match Col-2	Pretreated with HOAc to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources without Na to minimize the treatment's effect on cation exchange and leachate composition in the cell.
HC-6	SLD	Mine rock	remix to match Col-2	Pretreated with H_2SO_4 to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources using the acid that results from sulphide oxidation.
HC-7	PICR	Mine rock	split of Col-10		
HC-8	PICR	Mine rock	split of Col-11		
HC-9	PICR	Mine rock	split of Col-10	Pretreated with NaOAc to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources.
HC-10	PICR	Mine rock	split of Col-11	Pretreated with NaOAc to remove CaNP	CaNP removed to assess neutralization capacity of non-carbonate sources.

Notes: NaOAc = sodium acetate, HOAc = acetic acid and H_2SO_4 = sulphuric acid.

Study Constraints and Leachate Collection

Unsaturated Columns

The unsaturated column test work is used to determine the kinetic behaviour of mine rock and ore stored on the surface and exposed to atmospheric weathering (sub-aerial storage). The test results are intended to be representative of material stored at the Ajax Property under the arid climatic conditions prevalent in the Kamloops area by controlling test scale, particle size and range, sample mass, water infiltration or flow rate, degree of oxygenation and monitoring (cycle length).

The unsaturated columns for the Ajax Project are composed of Plexiglas cylinders (10 cm inside diameter, 65 cm length) filled with 5 kg of crushed sample (P_{80} < 6.4 mm) (Table 3-6, Figure 3-6). The sample material was placed on a perforated Plexiglas disk covered by a nylon mesh. The columns were subjected to a constant flow of moist air upon start up. A weekly trickle leach of 300-500 mL of deionised water was applied to the columns at a rate of 1 ml/min. The following day, a sample was collected and analyzed for pH, conductivity and sulphate or a full suite of parameters, including acidity, alkalinity, chloride, fluoride, bromide and dissolved metals (analyzed alternating weeks). To mimic dryer climatic conditions, in June 2012 the unsaturated columns were switched to a constant flow of dry air and the trickle leach was reduced to every second week. Leachate chemistry data analysis led to the finding that this approach likely results in the cessation of any sulphide oxidation due to the complete drying of the cell materials. Such dry conditions were deemed unrealistic on a large scale where residual moisture can be expected in the majority of the MRSF volume. Therefore, the unsaturated column experiments were switched back to the original method re-introducing moist air flow in March 2014. Any unsaturated columns initiated after March 2014 also follow this original procedure.

Laboratory kinetic tests are typically run for a minimum of 40 weeks (Price, 1997), but it is generally more desirable to continue testing until the rates of sulphate generation and metal leaching have stabilized. The leaching behaviour of geologic materials may evolve over time as initial flushing of water-soluble minerals from the grain surfaces is complete, reactive mineral phases are depleted and/or mineral solubilities respond to changing pH conditions. Thus, the optimal duration of a kinetic test on a specific sample can only be determined by periodically reviewing the leaching behaviour of the sample over time.

Table 3-6:
Laboratory Kinetic Test Set-Up and Operating Procedures

Test ID	Column Dimensions		Column Packing	Total Volume of Initial Flushing	Flushing Rate/ Weekly Input*	Temp	Operating Procedure	Start-up Date	End Date
	Inner Diameter	Length	Dry Wt. of Sample						
	(cm)	(cm)	(kg)	(mL)	(mL)	(°C)			
Unsaturated Columns									
Col-1	10	65	5	750	750	20-22	trickle leach	22-Dec-10	on going
Col-2	10	65	5	750	750	20-22	trickle leach	22-Dec-10	09/04/2014
Col-3	10	65	5	750	750	20-22	trickle leach	22-Dec-10	on going
Col-4	10	65	5	750	750	20-22	trickle leach	22-Dec-10	13/03/2013
Col-5	10	65	5	750	750	20-22	trickle leach	22-Dec-10	13/03/2013
Col-6	10	65	5	500	500	20-22	trickle leach	22-Dec-10	13/03/2013
Col-7	10	60	5	500	500	20-23	trickle leach	02-Jul-14	on going
Col-8	10	60	5	500	500	20-24	trickle leach	02-Jul-14	on going
Col-9	10	60	5	500	500	20-25	trickle leach	25-Jun-14	on going
Col-10	10	60	5	500	500	20-26	trickle leach	25-Jun-14	on going
Col-11	10	60	5	500	500	20-27	trickle leach	25-Jun-14	on going
Col-12	10	60	5	500	500	20-28	trickle leach	25-Jun-14	on going
Col-13	10	60	5	500	500	20-29	trickle leach	25-Jun-14	on going
Col-14	10	60	5	900	900	20-30	trickle leach	25-Jun-14	on going
Humidity Cells									
HC-1	10	25	1	750	500	20-22	flood leach	22-Dec-10	19/03/2014
HC-2	10	25	1	750	500	20-22	flood leach	22-Dec-10	on going
HC-3	10	25	1	750	500	20-22	flood leach	12-Jan-11	on going
HC-4	10	25	1	750	500	20-22	flood leach	09-Mar-11	on going
HC-5	10	25	1	750	500	20-22	flood leach	08-Feb-12	26/03/2014
HC-6	10	25	1	750	500	20-22	flood leach	08-Feb-12	26/03/2014
HC-7	10	25	1	500	500	20-23	flood leach	18-Feb-14	on going
HC-8	10	25	1	500	500	20-24	flood leach	18-Feb-14	on going
HC-9	10	25	1	500	500	20-25	flood leach	03-Sep-14	on going
HC-10	10	25	1	750	500	20-22	flood leach	03-Sep-14	on going

Notes: Tests are composed of Plexiglas with Plexiglas perforated disk & nylon mesh; humidity cell tests are run according to MEND methodology for flood leaching test work; the unsaturated columns were switched from humid air to dry air and the input volume was increased to 500 mL (to account for loss due to re-wetting of the sample) on 20 June, 2012.

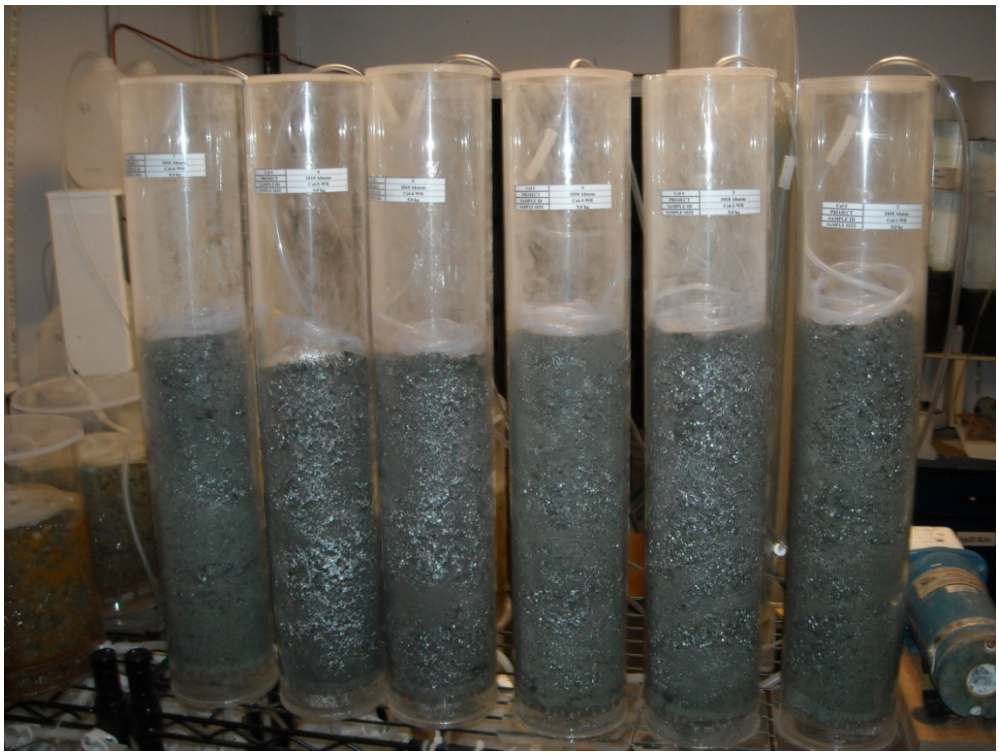

Figure 3-6: Photograph showing Ajax mine rock and ore unsaturated column tests at SGS laboratory.

Humidity Cells

The standard operation procedures (ASTM, 1996) for the laboratory kinetic tests are provided in Appendix D-1 and the general procedure is summarized here. Humidity cells are Plexiglas cylinders (10 cm inside diameter, 25 cm height) filled with 1 kg of sample crushed to a grain size with 80% passing a 6.4 mm mesh (Table 3-6, Figure 3-7). The sample material is placed on a perforated Plexiglas disk covered in a nylon mesh. The contents of the cell are subjected to moist air for three days followed by dry air for three days. At the end of each wet/dry cycle, the contents of the cell are leached with a volume of distilled de-ionized water on the seventh day, typically 500 mL (Lapakko, 2003; Price, 1997). The purpose of the leaching step is to recover any readily soluble reaction products that have formed due to mineral dissolution or sulphide oxidation in order to determine the dissolved load contributed from the previous week. The leachate is then analyzed for pH, and the solutes of interest.

Static test and mineralogical investigations identified the presence of mineral phases that may represent considerable non-carbonate NP. Specifically, minerals such as plagioclase, biotite, clinochlore, olivine, augite, and serpentine, which occur in the Ajax deposit (Section 4.1) are capable of buffering pH in natural systems under certain circumstances

(Sherlock *et al*., 1995). The dissolution and depletion of these mineral phases results in a series of stepwise buffering stages in ARD systems. The type and quantity of the neutralizing mineral phases present in the materials, controls the duration and pH of each buffering stage. Upon the depletion of carbonate in a system, dissolution of non-carbonate mineral forms become the primary control on pH buffering.

In order to evaluate the availability of the non-carbonate NP sources from the Ajax deposit within a manageable time frame, samples was pre-treated to remove carbonate NP in six humidity cells. Four humidity cells were pre-treated with sodium acetate (NaOAc) to remove carbonate NP from splits of Column 2 (SLD - median sulphur content), Column 3 (SLD - high sulphur content), Column 10 and 11 (both PICR) (Table 3-5). The crushed rock used to generate the Column 2 composite were remixed to provide additional material for two more humidity cells and those cells were pre-treated with either acetic acid (HOAc) or sulphuric acid (H_2SO_4). The NaOAc pre-treatment gives good control over the pre-treatment pH; however, the Na may dominate exchange sites on mineral surfaces and, consequently, the leachate may be subject to a Na artefact for an extended period of time. The HOAc leach, while giving less control on the pre-treatment pH, should minimize the adjustment period before the leachate is representative of the natural leaching of the material. Both NaOAc and HOAc are weak acids often used for selective dissolution of carbonate phases in a rock matrix. The 1-molar H_2SO_4 is a strong acid, and therefore, presents a risk of dissolving the silicate minerals as well but it represents the type of acid that will actually act on the mine rock at the site, but at concentrations that are expected to be much less. The pre-treatments were performed by maintaining a pH of 4.5 in a 10:1 liquid:solid ratio for 72-88 hours and then the residues were rinsed in a 10:1 liquid:solid bath (agitated) with deionised water for 1 hour repeatedly, until the wash solution composition had stabilized. The mineralogical test of sub-samples of the residues was performed along with complete ABA testing, to assess “before” and “after” pre-treatment changes in the material.

Laboratory kinetic tests and pre-treatments were carried out at ambient laboratory temperature (20-22 °C) and ambient pressure. The relative humidity (RH) for the dry air feed was <1% RH and ranged from 91 – 100% RH for the moist air feed. All humidity cell experimental procedures were in compliance with specifications outlined in ASTM (1996).

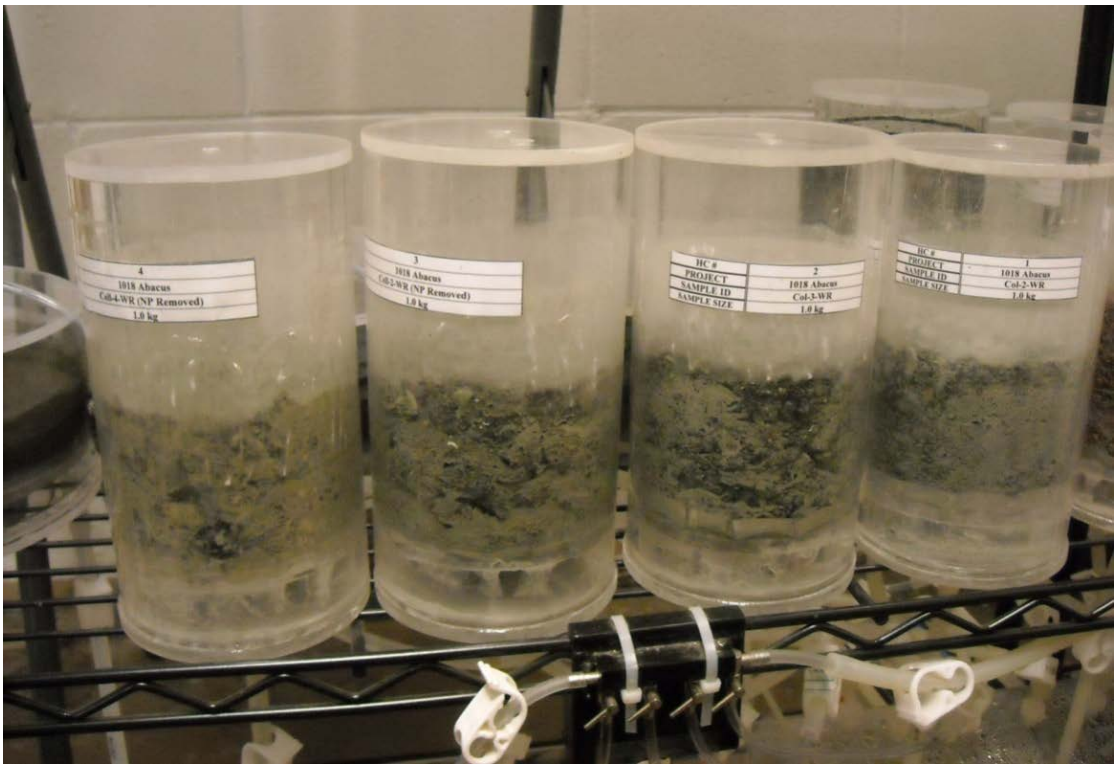

Figure 3-7: Photograph showing Ajax mine rock humidity cell tests at SGS laboratory.

3.1.4.3 Flotation Tailings Laboratory Kinetic Tests

Sample Selection and Rationale

The current mine plan involves deposition of a thickened tailings slurry, a tailings pond that will cover a portion of the tailings materials, and exposed tailings beaches throughout the operational phase of the project. Seven laboratory kinetic tests, including five humidity cells and two unsaturated columns were initiated at SGS laboratories for the Ajax flotation tailings that have generated from metallurgical test work. Additionally, three saturated columns are being operated in the Lorax laboratory to understand the geochemical leaching behaviour under more reducing conditions (Table 3-7). As the metallurgical testwork is refined over time, the generated tailings are expected to become more representative in composition of the final tailings material that will ultimately be discharged on site.

Table 3-7:
Description of Laboratory Kinetic Tests for Ajax Flotation Tailings

Test	Type	Inner Diam.	Height	Sample Dry Weight	Regular Flush Vol.	Start-up Date	End Date
		cm	*cm*	*kg*	*mL*		
T1	Humidity cell	20	1.5	1.0	500	08-Jun-10	05-Mar-13
T2	Unsat. column	10	45	6.0	300	09-Jun-10	ongoing
T3	Humidity cell	20	1.5	0.95	475	26-Mar-13	ongoing
T4	Unsat. column	10	45	5.0	500	27-Mar-13	ongoing
T5	Humidity cell	20	1.5	1.0	500	04-Jun-14	ongoing
T5	Saturated column	15	22	7.4	240	18-Jun-14	ongoing
T6	Humidity cell	20	1.5	1.0	500	19-Nov-14	ongoing
T6	Saturated column	10	45	8.5	240	16-Jan-15	ongoing
T7	Humidity cell	20	1.5	1.0	500	19-Nov-14	ongoing
T7	Saturated column	10	45	8.7	240	16-Jan-15	ongoing

Notes: Unsat. = unsaturated; the mass of the Nov. '13 tailings sample is the wet weight; all experiments were conducted under a temperature of 20-22C

Tailings materials used for kinetic testing were provided as a slurry (~30% solids). It was necessary to let tailings solids settle and decant the supernatant in order to construct packed tailings kinetic test cells. The supernatant will have a similar geochemical composition as the process water that will be discharged as a tailings slurry to the TSF during mining operations. Therefore, supernatants from all tailings materials were sent for geochemical analysis.

A photograph of the unsaturated column setup is provided in Figure 3-8. Additionally, to assess the reactivity of tailings under sub-aqueous conditions, saturated tailings columns were constructed and are being operated at the Lorax laboratory. The leachate collection schedule are initially biweekly and reduced to monthly, where a ~240 mL sample is drawn over two days at a pumping speed of around 120 mL/day. Under the current operating procedure, no flow occurs through the sample when it is not being sampled. Further details of all the kinetic test dimensions and methods are provided in Appendix D-1.

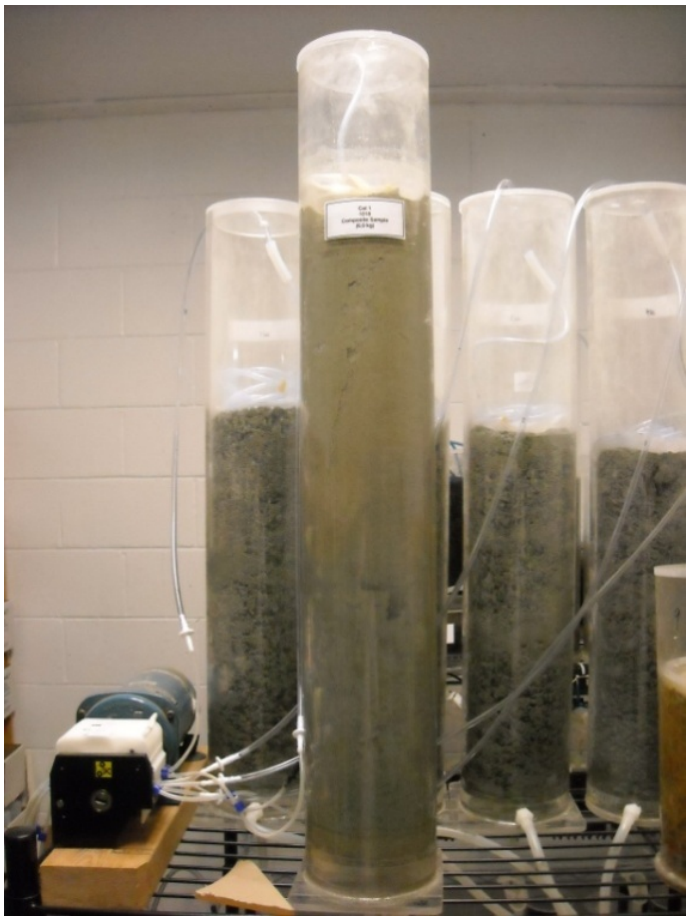

Figure 3-8: Ajax flotation tailings (T2) unsaturated column kinetic test at SGS laboratory.

Metallurgical test overview

Particle size distribution curves for the kinetic tailings samples are shown in Figure 3-9. Note that the K_{80} (sieve mesh size with 80% of material passing) value is plotted for comparison to the KM3680 sample generated in January 2013. The more recent tailings samples (November 2013 and September 2014) represent the coarsest materials. This is an important finding as particle size distribution is a major control on oxygen diffusion and associated sulphide oxidation rates. A description of the tailings samples used for kinetic testing is given in Table 3-8.

The following provides a summary of the metallurgical test procedures employed to produce the various tailings streams.

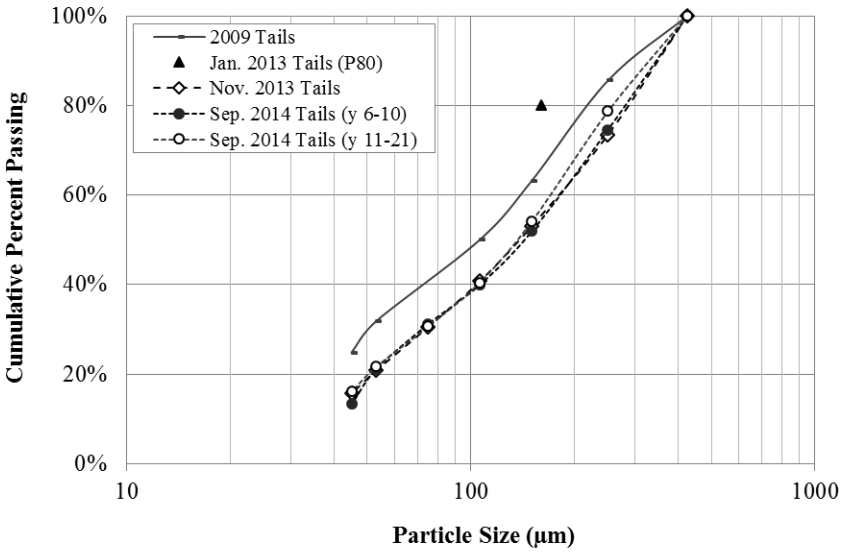

Figure 3-9: Particle size distribution for Ajax tailings samples.

Table 3-8:
Description of Flotation Tailings Used in Laboratory Kinetic Tests

Lorax Test ID	Testing Date	Metallurg. Test ID	Study Type	Geologic Unit	Rougher/Cleaner Tailings Proportion
T1	Oct-09	KM2435	Humidity Cell	SLD	92% / 8%
T2			Unsaturated Column		
T3	Jan-13	KM3680	Humidity Cell	SLD	96% / 4%
T4			Unsaturated Column		
T5	Nov-13	KM3889	Humidity Cell Saturated Column	Composite	95% / 5%
T6	Sep-14	MF 6-10	Humidity Cell Saturated Column	Composite	Lock Cycle
T7	Sep-14	MF 11-21	Humidity Cell Saturated Column	Composite	Lock Cycle

KM2435 (2009 tailings):

The initial Ajax tailings kinetic test samples (T1 and T2) were derived from one master composite SLD ore sample which has undergone five stages of locked-cycle flotation testing at G&T Metallurgical (now ALS Metallurgy) in Kamloops, BC, for pre-feasibility metallurgical testing. The first metallurgical test (KM2435) was carried out on July 14th, 2009, and work was completed by October 20th, 2009. Sample material used for kinetic testing is consistent with the proportion of rougher tailings and cleaner tailings produced

by the locked-cycle flotation process, as provided in Table 3-8. A flow sheet showing the locked-cycle flotation process at G&T Metallurgical is provided in Figure 3-10a. The primary grind and regrind discharge sizes for the locked-cycle flotation process at G&T Metallurgical varied between 150 to 250 µm K80 and 15 to 40 µm K80, respectively. The rougher flotation was carried out at neutral pH (8.0). Post regrinding, the rougher concentrates were cleaned in a lime modulated pulp at a pH ranging from about 10 to 11.5. Three stages of dilution cleaning were employed to upgrade the rougher concentrate to final copper concentrate grade. Potassium amyl xanthate (PAX) was employed as both the primary mineral collector to recover copper and gold to the rougher concentrate and as the sulphide mineral collector in the cleaning circuit. Methyl isobutyl carbinol (MIBC) was utilized in both the rougher and cleaner stages to produce a stable froth to facilitate good flotation performance. A detailed description of this first-generation master composite sample and the tailings processing methodology is provided in the *Pre-Feasibility Metallurgical Testing Report* by G&T Metallurgical Services Ltd. (2009).

KM3680 (January 2013 tailings):

A sample from the tailings stream produced during pilot plant testing in early 2013 was used for the construction of kinetic test cells T3 and T4 (Table 3-8) and, like material tested in the earlier 2009 metallurgical experiments (KM2435), was derived from SLD ore. The primary grinding size stabilized at a K_{80} of around 200 µm, while the optimal regrinding size (for cleaner flotation) had an average value of 21 µm K_{80}. For optimal ore recovery, pH values were left natural (8.8-9.7) in the rougher circuit, while lime was added to raise the pH to around 11 in the cleaner circuit. MIBC was used as the frother and PAX was employed as the mineral collector agent in both processing locked-cycle circuits. Rougher and cleaner tailings products are subsequently mixed at a ratio of approximately 95:5, flocculated and decanted to obtain a tailings slurry with around 70% solids content. For a more detailed description of the KM3680 pilot plant set-up, refer to *Production of Tailings (KM3680)* prepared by ALS Metallurgy (2013a). A flow sheet summarizing the locked-cycle flotation process at ALS Metallurgical is provided in Figure 3-10b.

KM3889 (November 2013 tailings):

The Ajax tailings kinetic test sample used for humidity cell T5 and the saturated column is derived from one master composite (KM3889) of five ore blends containing variable amounts of the major rock types (Table 3-9) with the highest proportion coming from the SLD unit. These tailings have undergone several stages of pilot plant locked-cycle flotation testing carried out in November 2013 at ALS Metallurgy in Kamloops B.C.

The characteristics of the sample material used for kinetic testing is in agreement with a so-called "final tails" produced by various locked-cycle flotation runs. In this composite stream, the averaged proportions of rougher and cleaner tailings are 95% and 5%, respectively (Table 3-8). A flow sheet showing the locked-cycle flotation process at ALS Metallurgical is provided in Figure 3-10c. The primary grind (rougher) and regrind (cleaner) discharge sizes utilized for the locked-cycle flotation process were set at 210 and 15 µm K_{80}, respectively. The rougher flotation was carried out at alkaline pH between 9.3 and 11.4 facilitated by the addition of lime. After regrinding, the rougher concentrates were cleaned in a lime modulated pulp at similarly alkaline pH ranges. Dilution cleaning was used to purify the rougher concentrate to final copper concentrate grade. PAX was employed as both the primary mineral collector to recover copper and gold to the rougher concentrate and as the sulphide mineral collector in the cleaning circuit. MIBC was used as the frothing agent. A detailed description of the master composite sample and the tailings processing are given in the *Metallurgical assessment of the Ajax Property samples* by ALS Metallurgy (2013b).

Table 3-9:
Geolgogical Breakdown of the Five Ore Blends Used to Produce the November 2013 Tailings Sample

Blend	Pit	Lithology (%)		
Blend 1	West	***SLD***	***SVHYB***	***IMH***
		65	15	20
Blend 2	West	***SLD***	***PICR***	***MAFV***
		70	15	15
Blend 3	West	***SLD***	***IMH***	
		50	50	
Blend 4	East	***SLD***	***IMH***	
		70	30	
Blend 5	W + E	***SLD***	***SLD***	
		50	50	

MF 6-10 & MF 11-21 (September 2014 tailings):

The September 2014 tailings samples reflect the current mine plan and further development of the Au and Cu extraction technologies that will be used during operations. Therefore, these materials can be considered geochemically more representative of the tailings product that will ultimately be exposed on site.

In September 2014, two Ajax ore composite samples underwent large-scale locked cycle flotation testing overseen by FLSmidth at the Dawson Metallurgical laboratories in Salt Lake City, USA. The detailed report describing the metallurgical testwork conducted in support of the TSF engineering design is given in *Metallurgical Test Work for Engineering Design* by FLSmidth (2014). The tested materials are composed of several geomet units (Table 3-10) and are representative of mill feed (MF) compositions expected in operational years 6-10 and 11-21. As in previous testwork, PAX and MIBC were used as mineral collector and frother, respectively.

Table 3-10:
Geological Breakdown of the Two Ore Blends Used to Produce the September 2014 Tailings Samples

Blend	Unit (%)					
	SLD east	***SLD west***	***SLD west (strong albitization)***	***SVHYB***	***MAFV/PICR***	***IMH***
MF 6-10	55.8	22.8	0.7	17.2	2.6	0.9
MF 11-21	68.8	9.4	0.3	14	6.1	1.4

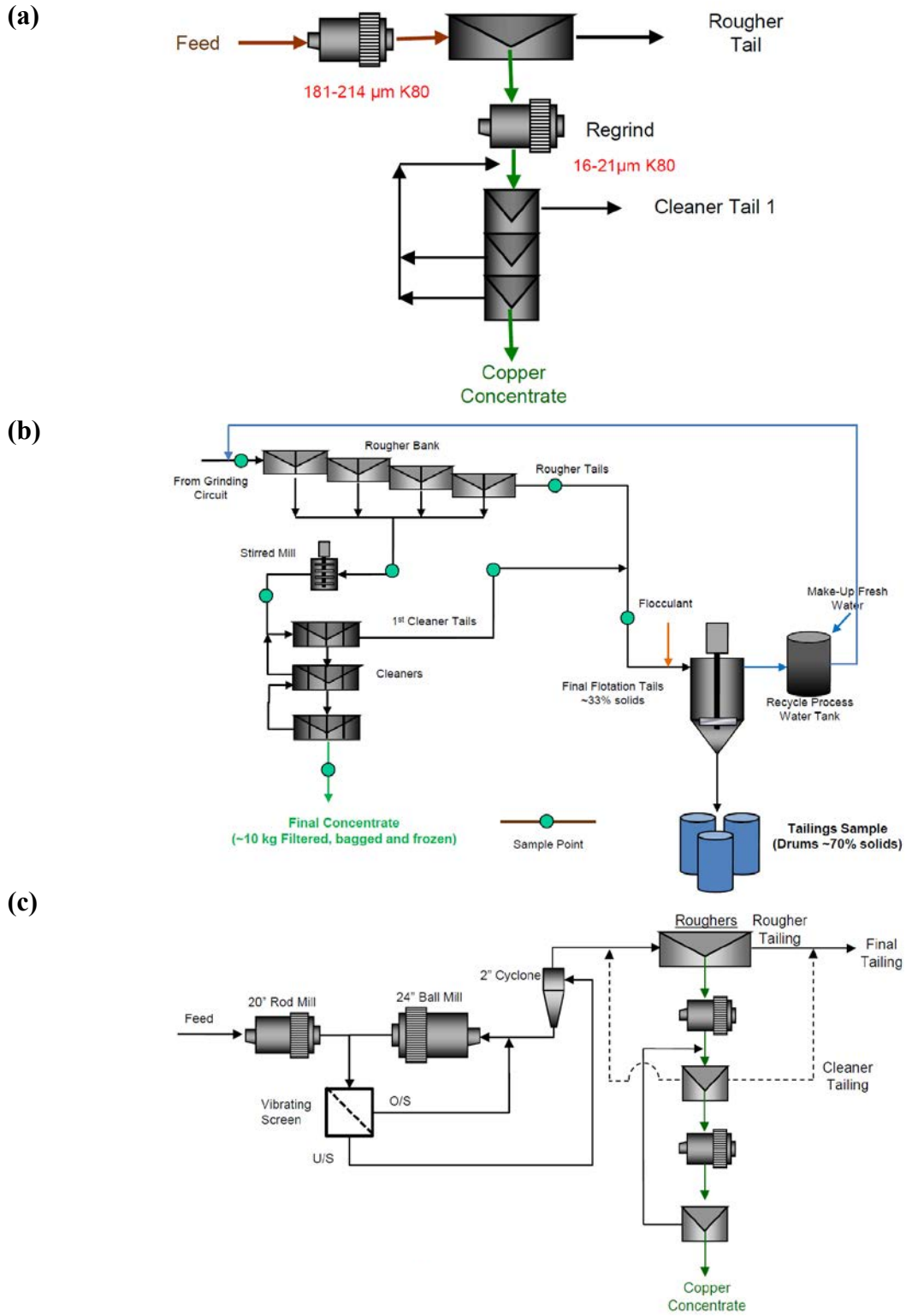

Figure 3-10: Flowsheets of the metallurgical processes employed for a) KM2345 (2009 tailings), b) KM3680 (Jan. 2013 tailings), and c) KM3889 (Nov. 2013 tailings).

3.2 Analytical Methods

3.2.1 Mineralogical Identification

Phase I and II sub-samples of the < 2.36 mm size fraction from the laboratory and field kinetic test samples were reserved and sent to the Electron-Microbeam / X-ray Diffraction (XRD) Laboratory in the Department of Earth and Ocean Sciences at the University of British Columbia for quantitative phase analysis using X-ray powder diffraction with Rietveld refinement. Details of the analyses are given in the reports provided in Appendix B. More recent XRD analyses within the scope of the 2014 confirmatory static test program were conducted at the SGS Laboratories in Burnaby.

Carbonates in the NP-depleted Column 2 samples were examined with a JEOL-6400 Scanning Electron Microscope at the University of New Brunswick. The backscattered electron images were collected with Digital Micrograph (Gatan Inc.), and the mineral phases were identified and analyzed with an EDAX Genesis x-ray micro-analyser.

Petrographic analyses were initially carried out by Alexandra Mauler at Mineral Services Canada Inc. (MSC) in North Vancouver using a Nikon Eclipse E400 petrographic microscope. Since 2014 these investigations are being conducted in-house in the Lorax laboratory using a Nikon Optiphot Pol microscope.

3.2.2 Particle Size Distribution

Field leach bin sub-samples (40 – 70 lbs) were reserved and submitted to Thurber Engineering for physical characterization, including particle size distribution, moisture content, and (bulk) specific gravity and absorption determination. Samples were divided and analyzed according to the full standard size fraction, 75, 37.5, 19, 9.5, 4.75, 2.36, 1.18, 0.6, 0.3, 0.15, and 0.075 mm. Following physical characterization analysis, samples were compiled into three size fractions, > 9.5 mm, 9.5 - 2.36 mm, and < 2.36 mm, and sent to SGS for geochemical static test work.

3.2.3 Static Geochemical Testing

Detailed methodology for the static test analyses are provided in a report by SGS in Appendix A-2.

Acid Base Accounting

ABA involves a suite of static tests used to estimate AP and NP, which are compared with standard criteria thereby indicating the theoretical acid generation potential of a sample.

Solid Phase Metals

Solid-phase metals data are used to identify which metals are enriched in mine materials and could potentially be leached from the various storage facilities. This information can be used in combination with ABA to establish the geochemical properties of the mine rock that will be generated at the project site. Total metals are determined from ICP-MS metal scans on leachate derived from an aqua-regia digestion.

Net Acid Generation

The Net Acid Generation (NAG) test uses hydrogen peroxide to oxidize sulphides in a sample and assumes that neutralization-potential dissolution remains proportional. The NAG test can be valuable as a quantitative indicator of the amount of measured sulphide that can oxidize. However, it provides numerical estimates of net acid generation only; it does not provide an estimate of the neutralization potential of a sample.

Whole Rock Analysis

Whole rock analysis provides high precision analysis of the major oxides in the geological matrices. The expectation is that for non-mineralized rocks, the sum of the major elements should be close to 100%. Whole rock determination provides further information on the residual phases that may not be completely dissolved and identified by the aqua-regia digestion technique used for solid phase metal determination. Whole rock analysis was conducted at ALS Chemex in Vancouver by X-ray fluorescence.

Shake Flask Extraction

Shake flask extractions (SFE) were conducted using a 24 hour NanoPure water leach extraction test at 3:1 liquid to solid ratio as described by Price (1997). The leachate was filtered and submitted for analysis including pH, conductivity, anions and dissolved metals.

3.3 Quality Assurance / Quality Control

A quality assurance / quality control (QA/QC) program was developed in order to evaluate the quality of data obtained from the static tests and field kinetic test program and to monitor variability. A detailed analysis of the QA/QC results is provided in Lorax (2007) and a summary of the assessment, including the results from the testing performed since then, is provided in Appendix E of this report.

3.3.1 Static Testing Programs

Split drill core samples were included with the static test samples to evaluate the degree of variability within a sampled interval. The split sample was attained by collecting a larger

section of drill core and then dividing the sample into two separate bags for submission to the analytical laboratory. For the samples that were a part of the total C, total S and SO_4-S suite of analyses, the laboratory duplicate samples, 5-10% of the samples, formed the QA/QC analysis.

Duplicate solid samples of field bin sub-samples were extracted by the analytical laboratory following pulverization and homogenization of each sample.

3.3.2 Kinetic Test Programs

Field QA/QC

The QA/QC program for the field kinetic program initially involved the collection of a blank bin leachate sample (FB8), to monitor contributions from air fall and constituents leaching from the bins. The program also included a duplicate sample, to determine reproducibility of the analytical laboratory; and a field blank, to monitor any contamination that may occur in the field.

A blank bin sample is collected by pouring distilled-deionised water down the inside walls of the blank bin and collecting the samples in the same manner as the other water quality samples. A duplicate sample is obtained by filling two sets of bottles from one field bin leachate collection bottle also in the same manner as the leachate quality samples. A field blank sample is composed of distilled-deionised water, supplied by the analytical laboratory, which are exposed to the same conditions and treatment as the leachate quality samples. Only a sample for dissolved metals analysis is collected during sampling of one of the field bins.

Laboratory QA/QC

Analyzing laboratories supply QA/QC results as per their standard reporting requirements (5-10% QA/QC samples) and include laboratory replicate analyses, detection limits and internal standard analyses.

4. Mineralogical Identification

KGHM

4. Mineralogical Identification

The main purpose of mineralogical identification in ML/ARD characterization work is to provide information on the identity of both acid producing and acid neutralizing mineralogy. This information will help interpret static test results and provide a better foundation on which predictions may be based.

ARD will only result during the weathering of sulphide-bearing rocks, such as those in the Ajax deposit, if there is insufficient alkalinity produced to buffer the generated acidity. The generation of acid is predominantly associated with the oxidation of sulphide minerals (Eqs. 1-4);

$$FeS_2 + {}^7/_2\, O_2 + H_2O \rightarrow Fe^{2+} + 2\, SO_4^{2-} + 2\, H^+ \quad \text{(Eq. 1)}$$

$$Fe^{2+} + {}^1/_4\, O_2 + H^+ \rightarrow Fe^{3+} + \tfrac{1}{2}\, H_2O \quad \text{(Eq. 2)}$$

$$Fe^{3+} + 3\, H_2O \rightarrow Fe(OH)_3 + 3\, H^+ \quad \text{(Eq. 3)}$$

$$FeS_2 + 14\, Fe^{3+} + 8\, H_2O \rightarrow 15\, Fe^{2+} + 2\, SO_4^{2-} + 16\, H^+ \quad \text{(Eq. 4)}$$

In equation 1, pyrite is oxidized releasing ferrous iron (Fe^{2+}, the reduced form of iron), sulphate (SO_4^{2-}), and acid. Ferrous iron in equation 2 is then oxidized to form ferric iron (Fe^{3+}). The latter can then either be hydrolyzed and form ferric hydroxide, $Fe(OH)_3$, and H^+ acidity (equation 3), or it can directly attack pyrite – generally only when the pH is below 3.5 – and act as a catalyst in generating much greater amounts of ferrous iron, sulphate, and acidity (equation 4). The oxidation of pyrite produces two sources of acid; one from the oxidation of sulphide and the other from the oxidation of iron. Sulphide minerals that contain other metals such as covellite (CuS), on other hand, produce relatively less acid per unit oxidized because Cu^{2+} does not oxidize as Fe^{2+} does and does not hydrolyze to produce acid until the pH is >7, meaning it would act to buffer pH at > 7 (if it was present in sufficient quantities) unlike the Fe^{3+} hydrolysis reaction which acts to buffer pH at 3.5. Therefore, the amount and form of sulphur-bearing mineralization needs to be determined.

If reactive neutralizing minerals are present, they will not stop oxidation reactions in equations (1) through (4), but may buffer the pH to prevent the development of ARD. While many mineral dissolution reactions can be thought of as acid buffering, the minerals most typically responsible for acid neutralization are fast dissolving carbonates such as calcite (Eq. 5) and dolomite (Eq. 6).

$$CaCO_3 + H^+ \rightarrow Ca^{2+} + HCO_3^- \quad \text{(Eq. 5)}$$

$$CaMg(CO_3)_2 + 2H^+ \rightarrow Ca^{2+} + Mg^{2+} + 2HCO_3^- \quad \text{(Eq. 6)}$$

The sulphide-oxidation carbonate neutralization reaction is typically expressed as:

$$FeS_2 + 2CaCO_3 + 3.75\ O_2 + H_2O \rightarrow Fe(OH)_3 + 2SO_4^{2-} + 2Ca^{2+}\ 2CO_2 \quad \text{(Eq. 7)}$$

However, it should be noted that not all carbonate minerals neutralize acid as effectively as others. For example, Fe-bearing carbonate minerals, such as ankerite and siderite (Eq. 7), are much less effective at neutralizing acid compared to calcite due to the fact that the Fe^{2+} liberated is oxidized to Fe^{3+}, which then precipitates as $Fe(OH)_3$ producing acidity in the process (Eq. 3).

$$FeCO_3 + H^+ \rightarrow Fe^{2+} + HCO_3^- \quad \text{(Eq. 8)}$$

As a result, the net capacity of a sample to neutralize acid decreases as the amount of Fe-bearing carbonates increases (Jambor *et al*., 2003). It is therefore important to quantify not only the carbonate fraction in a sample, but also to determine the types of carbonate minerals present.

Silicate minerals may also contribute to the total neutralizing capacity of a sample; however, rates of silicate dissolution are much slower and thus the ability of these minerals to buffer mine waters in the field are still not well defined. Nevertheless, it is generally accepted that the neutralization of acidity by silicate minerals in the field is achievable under the following conditions; (1) low-sulphide content in the mine rock, where the mass of silicate minerals having slow dissolution kinetics and acid-neutralizing capacities can neutralize the subsequent minor amount of acid generated; and (2) after peak oxidation of sulphides, where the declining acidity load matches the low acid-neutralizing capacity derived from the silicate minerals present (Weber *et al.*, 2005; Jambor *et al.*, 2001). In other words, conditions are required in which the Fe-sulphide content of the material is low (< 0.5 %) or sulphides are partially occluded by well-crystallized locked non-sulphide mineral grains so that sulphide mineral oxidation and acid generation is sufficiently slow that acid-soluble silicate minerals with a relatively high NP (*i.e.*, olivine, serpentine, and other mafic minerals) may attenuate the acidity (Jambor *et al.*, 2007).

4.1 Mine Rock Lithologies

The mineralogy of the kinetic test sub-samples identify the minerals that make up the bulk composition of the various rock units present in the Ajax deposit and provide information regarding the specific minerals that may be contributing to the measured acid and neutralizing potentials discussed in this report. The complete mineralogical reports are provided in Appendix B.

4.1.1 Iron Mask Hybrid

All IMH samples contain quartz, actinolite, chlorite, magnetite, and calcite in comparable proportions (Table 4-1). However, the data indicate that the sample in FB3 is more mafic

compared to the sample FB1. This is supported by the presence of 32-40 wt.% clinopyroxene (diopside/augite), approximately 15 wt.% biotite and higher amphibole and magnetite concentrations in the FB3 IMH sample as well as a lack of plagioclase minerals. Conversely, the FB1 sample contains 10-12 wt.% plagioclase, up to 20 wt.% muscovite/sericite and no clinopyroxene or biotite.

The two sets of columns (Col-4/5 and Col-7/8) were initiated, and therefore analyzed, several years apart and underwent XRD analysis in different laboratories which may influence the way XRD patterns are interpreted. This is supported by the reported mineralogical similarities within each set of columns from the IMH unit. Nevertheless, it can be said that the observed mineralogy between the various columns is relatively consistent, with the samples in Columns 7 and 8 containing serpentine and a higher amount of muscovite.

It may be that the column mineralogy, representing samples composited from drill core, results in less weathering than seen in field bin sub-samples which have lower amounts of the easily weathered feldspars and higher amounts of the alteration product vermiculite. Furthermore, the higher concentration of clinochlore and clay masses and the presence of sericite and secondary sulphate mineral alunite in FB3 suggest that this sample has undergone more advanced weathering compared to FB1. It is precisely this type of variability that suggests field bin studies be used to inform the more controlled laboratory kinetic testing. Additionally, petrographic observations reported that sub-sample FB3 contains more pronounced oxidation, as evidenced by reddish fragments (Appendix B) present in the sample.

Forms of Sulphur

The mineralogical study indicates that sulphide minerals, including chalcopyrite and pyrite were identified in some IMH column and field bin sub-samples, but in trace amounts (Table 4-1). Covellite was also detected in FB3 in the petrographic analysis. Only pyrite in Col-5 was detected through XRD at close to the detection limit, 0.5 wt.%. Pyrite and chalcopyrite minerals observed in the IMH unit occur as inclusions in magnetite or as liberated grains variably rimmed with coronas of (Fe,Cu) oxides (Petrography Report, Appendix B-1.2). Acid generating jarosite was identified by XRD in three IMH column sub-samples with a maximum value (5 wt.%) detected in Col-8. The acid insoluble sulphate mineral, alunite, was identified by XRD in field bin sub-sample FB3 (Table 4-1). Studies indicate that H_3O-bearing jarosites are metastable and are likely significant factors in acid generation of some mineral assemblages, particularly in arid environments (Swayze *et al.*, 2008). Hydroniumjarosite forms in low pH (1.2-1.5) (micro-) environments and tends to dissolve at higher pH values, acting to buffer the system to a lower pH.

Table 4-1:
Mineralogical Analyses for IMH Kinetic Test Sub-Samples

Mineral	Ideal Formula	Col-4		Col-5		Col-7		Col-8		FB1		FB3	
		median S		*high S*						*high S, low NP*		*low S, high NP*	
		XRD	Petr.	XRD	Petr.	XRD	Petr.	XRD	Petr.	XRD	Petr.	XRD	Petr.
Quartz	SiO_2	1.3	1.0	3.4	2.0	3.5	2.0	1.8	-	5.3	3.0	4.6	2.0
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	18	25	9.4	15	21	15	8.8	15.0	-	tr	12	10
K-Feldspar	$KAlSi_3O_8$	6.0		2.4		-	-	-	-	-	tr	-	tr
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	5.5	7.0	6.6	7.0	1.9	10	1.9	2.0	5.5	3.0	1.9	tr-1
Chlorite	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	8.8	5.0	12	7.0	14	10	14	5.0	11	tr	18	15
Clinopyroxene	$(Ca,Na)(Mg,Fe,Al)(Al,Si)2O_6$	35	30	39	40	26	30	31	35	33	40	-	tr-1
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	3.4	10	4.4	5.0	8.9	5	9.3	10.0	-	-	19	20
Epidote	$Ca_2(Fe^{3+},Al)_3(SiO_4)_3(OH)$	4.7	2.0	-	2.0	9.4	15	3.3	-	-	1.0	-	3.0
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	2.7	5.0	4.3	5.0	-		-	-	14	30	-	tr
Vermiculite/Clay	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	0.20	tr	1.0	tr	-	5	-	10	11		17	15
Serpentine	$Mg_3Si_2O_5(OH)_4$	-	-	-	-	2.3	2.0	4.1	2.0	0.90	-	-	-
Rutile	TiO_2	-	tr	-	tr	-		-	-	-	tr	-	-
Titanite	$CaTiSiO_5$	-	tr	-	-	-		-	-	-	-	-	-
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	11	10	11	10	6.0	5	13	10	8.4	10	3.1	5.0
Hematite	$a\text{-}Fe_2O_3$	-		-		-	tr-1	2.9	1-2	-	-	3.2	
Hydroxylapatite	$Ca_5(PO_4)_3(OH)$	-	-	-	-	-	-	-	-	1.2	-	-	-
(Fe,Cu) oxides		-	-	-	-	-	-	-	-	-	tr	-	-
Brucite	$Mg(OH)_2$	-	-	-	-	-	-	1.5	-	-	-	-	-
Sulphides													
Pyrite	FeS_2	-	-	0.50	-	-	-	-	-	-	tr	-	tr
Chalcopyrite	$CuFeS_2$	-	tr	-	tr	-	tr	-	tr	-	tr-1	-	tr
Covellite	CuS	-	-	-	-	-	-	-	-	-	-	-	2.0
Sulphates													
Anhydrite	$CaSO_4$	-	-	-	-	-	-	0.12	-	-	-	-	-
Jarosite	$(H_3O)_2Fe_6^{3+}(SO_4)_4(OH)_{12}$	1.5	-	0.90	-	-	-	5.0	2.0	-	-	-	-
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$	-	tr	-	tr	-	-	-	-	-	-	1.7	-
Carbonates													
Calcite	$CaCO_3$	2.5	4.0	5.6	5.0	7.4		3.9	8.0	10	8.0	16	25
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	-		-		-	-	-	-	-	-	3.9	-
Siderite	$Fe^{2+}CO_3$	-		-		-	-	-	-	-	-	-	-
Total		*100*	*99*	*100*	*100*	*100*	99	*100*	99	*100*	*99*	*100*	*101*

Notes: Units are in wt.%; "Pet." means from petrographic analysis; “tr” = “trace amounts of <1 wt.%”.

Forms of Neutralization Potential

The mineralogical assessment indicates that the IMH unit contains several types of minerals capable of neutralizing acid to some degree, including carbonates, silicates and aluminosilicates. Calcite concentrations in the IMH kinetic test sub-samples range from 2.5 to 16 wt.% (Table 4-1), occurring as liberated grains, as disseminated grains in clasts, and as replacive masses (Petrography Reports, Appendix B-1.2). The XRD results for FB3 also indicated the possible presence of the less effective neutralizing carbonate mineral, ankerite. However, dolomite and ankerite cannot be definitively distinguished by XRD. Dolomite is generally considered an effective neutralizing mineral but with slower reaction kinetics than calcite. The petrographic analyses could not definitively distinguish between calcite, ankerite-dolomite and siderite which occur as very fine grains disseminated in clasts or as ribbons and masses in the FB3 sample. The IMH unit also contains a number of silicate phases known to have acid neutralizing capacity, including plagioclase, clinochlore, epidote, biotite, vermiculite, serpentine and hydroxylapatite. As previously indicated, the rates of silicate dissolution are much slower than carbonate minerals and may only be capable of buffering pH in low-sulphur mine rock similar to the IMH unit. The ability of these minerals to buffer mine waters at the Ajax site is being evaluated by laboratory kinetic studies.

4.1.2 Mafic Volcanics and Picrite

Results of the mineralogical analyses presented in Table 4-2 indicate that the PICR column sub-samples (Col-10 & 11) are composed primarily of actinolite (~40 wt.%), biotite (20 wt.%), chlorite (15-18 wt.%) as well as lesser amounts of olivine, serpentine, diopside and magnetite. Similar to the mineralogical trends seen in the IMH samples, the PICR field bin sample FB4 shows a higher degree of post-exposure weathering indicated by the presence of talc, vermiculite, and higher amounts of chlorite (34 wt.%). Sample Col-12 containing MAFV material displays a more felsic character with a higher quartz content (3.6 wt.%) and a significant amount of plagioclase (43 wt.%). Being a composite of MAFV and PICR samples, sample Col-6 shows a mineralogical assemblage between the two end-members (Table 4-2).

Table 4-2:
Mineralogical Analyses for MAFV/ PICR Kinetic Test Samples

Mineral	Ideal Formula	Col-6 *high S* *PICR & MAFV*		Col-10 & HC7 *PICR*		Col-11 & HC8 *PICR*		Col-12 *MAFV*		FB4 *low S* *PICR*	
		XRD	Petr.	XRD	Petr.	XRD	Petr.	XRD	Petr.	XRD	Petr.
Quartz	SiO_2	1.3	1.0	0.68	-	-	-	3.6	2.0	0.80	-
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	8.0	15	-	5	-	-	43	50	-	-
K-Feldspar	$KAlSi_3O_8$	3.6		-	-	-	-	-	-	-	-
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	45	45	38	40	40	45	21	20	31	30
Chlorite	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	16	5.0	21	15	18	12	15	8	34	35
Vermiculite/Clay	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	0.70	2.0	-	-	-	-	-	-	6.5	10
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	4.2	5.0	-	5	-	-	1.6	1.0	-	-
Biotite/Paragonite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	13	10	20	10	20	15	-	-	2.9	2.0
Diopside	$CaMgSi_2O_6$	4.2	5.0	4.3	5.0	1.1	-	9.0	12.0	-	-
Epidote	$Ca_2Al_2(Fe^{3+};Al)(SiO_4)(Si_2O_7)O(OH)$	-	2.0	-	2	-	-	3.7	-	-	-
Olivine	$(Mg, Fe)_2SiO_4$	-	-	6.1	5.0	5.8	10.0	-	-	-	tr
Rutile	TiO_2	-	tr	-	-	-	-	-	-	-	-
Titanite	$CaTiSiO_5$	-	tr-1	-	-	-	-	-	-	-	-
Talc	$Mg_3Si_4O_{10}(OH)_2$	-	tr	-	-	-	-	-	-	8.7	5.0
Serpentine	$Mg_3Si_2O_5(OH)_4$	-	2.0	5.1	5.0	9.3	10.0	-	-	5.4	3.0
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	2.1	2.0	5.6	4.0	5.5	5.0	-	tr-1	4.7	7.0
Hematite	a-Fe_2O_3	-		-	tr-1	-	tr	-	tr	-	tr
(Fe,Cu) oxides		-	-	-	tr	-	-	-	tr	-	tr
Sulphides											
Pyrite	FeS_2	0.80	1.0	-	1	-	tr	-	tr	-	tr
Chalcopyrite	$CuFeS_2$	-	tr	-	tr-1	-	tr	-	tr	-	tr
Molybdenite		-	tr	-	-	-	-	-	-	-	-
Sulphates											
Gypsum	$CaSO_4 \cdot 2H_2O$	0.80	tr	-	-	-	-	-	-	-	-
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$	0.40	tr	-	-	-	-	-	-	-	-
Carbonates											
Calcite	$CaCO_3$	-	2.0	-	3	-	2	2.9	5.0	5.7	5.0
Total		*100*	*99*	*100.00*	*99*	*100.00*	*99*	*100*	*98*	*100*	*100*

Notes: Units are in wt.%; "Pet." means from petrographic analysis; “tr” = “trace amounts of <1 wt.%”.

Forms of Sulphur

Similar to results of the IMH mineralogical analyses, chalcopyrite and pyrite were identified in the FB4 sub-sample, but in trace amounts and only by petrographic observation (Table 4-2), indicating that sulphide minerals in the field kinetic sub-sample occur in quantities that are below the detection of the XRD method. Sulphides in the FB4 sub-sample occur as disseminated grains with variably developed rims of (Fe,Cu) oxides or as inclusions in magnetite. Col-6 was the only laboratory kinetic test sample that contains XRD-detectable amounts of pyrite (0.8%; Tale 4-2) as well as sulphate minerals (Gypsum, Alunite). Petrographic analysis revealed trace to minor amounts of pyrite and chalcopyrite in the newer kinetic cells Col-10 through Col-12.

Forms of Neutralization Potential

The FB4 sub-sample contains ~5.5 wt.% calcite as liberated grains and thin veinlets in clasts. Calcite was not identified by XRD in sub-samples Col-6, 10, or 11; however, the petrographic analysis indicates the presence of calcite at near XRD detection limits in Col-6 (Table 4-2). The MAFV sample (Col-12) shows minor amounts of calcite (2.9 wt.%). No Fe-bearing carbonates were identified in either the field bin or column sub-samples.

A number of silicate phases, including actinolite, clinochlore, biotite, vermiculite, epidote, serpentine, talc and olivine were identified. Acid soluble serpentine and olivine, in particular, have high neutralizing potential (Jambor *et al.,* 2007).

4.1.3 Sugarloaf Diorite

The mineralogy of the SLD unit consists predominantly of plagioclase (30-44 wt.%) and lesser amounts of quartz, actinolite, muscovite, chlorite, vermiculite and carbonates (Table 4-3 and Table 4-4). FB7 additionally contains K-feldspar, magnetite, minor siderite (0.4 wt.%) and traces of clinopyroxene which were not observed in FB2 (Table 4-4). The major mineral composition of the Column 2 and 3 samples more closely resembles that of sample FB7. Notably, the SVHYB sample (Col-9) is relatively strongly altered with primarily mottled and partially replaced feldspar.

Table 4-3:
Mineralogical Analyses for SLD Sub-Samples - Column 2 and Associated Humidity Cells

Mineral	Ideal Formula	Col-2					Col-2-2	
		HC1		NP removed HC3 (NaOAc)		Remix Col-2	NP removed HC5 (HOAc)	HC6 (H_2SO_4)
		median S						
		XRD	Pet.	XRD	Pet.	XRD	XRD	XRD
Quartz	SiO_2	5.2	3.0	5.1	3.0	5.7	6.6	5.9
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	42	50	43	50	43	42	42
K-Feldspar	$KAlSi_3O_8$	7.2		7.5		6.8	7.8	7.1
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	11	10	10	10	9.9	12	12
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	8.1	7.0	8.6	7.0	9.0	9.6	8.9
Vermiculite/Clay	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	1.2	1.0	1.2	1.0		-	-
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	5.8	10	6.6	10	9.6	8.9	8.1
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	1.1	1.0	-	1.0		-	-
Diopside	$CaMgSi_2O_6$	3.6	2.0	2.9	5.0		-	-
Epidote	$Ca_2Al_2(Fe^{3+};Al)(SiO_4)(Si_2O_7)O(OH)$	6.8	5.0	8.3	7.0	6.2	5.2	6.3
Serpentine	$Mg_3Si_2O_5(OH)_4$	-	-	-	-	-	-	-
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$	-	-	-	-	3.0	3.8	4.3
Rutile	TiO_2	-	tr	-	tr-1	-	-	-
Titanite	$CaTiSiO_5$	-	tr	-	tr-1	-	-	-
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	4.3	4.0	3.9	4.0	3.3	3.5	3.7
Hematite	$a\text{-}Fe_2O_3$	-		-		-	-	-
Hydroxylapatite	$Ca_5(PO_4)_3(OH)$	-	tr	-	tr	-	-	-
(Fe,Cu) oxides		-	-	-	-	-	-	-
Sulphides								
Pyrite	FeS_2	-	tr-1	0.80	tr	-	0.80	0.70
Chalcopyrite	$CuFeS_2$	-	tr-1	-	tr	-	0.30	0.70
Bornite	Cu_5FeS_4	-	-	-	-	-	-	-
Covellite	CuS	-	-	-	-	-	-	-
Sulphates								
Gypsum	$CaSO_4 \cdot 2H_2O$	-	-	-	tr	-	-	-
Anhydrite	$CaSO_4$	-	-	-	-	-	-	-
Jarosite	$K_2Fe_6^{3+}(SO_4)_4(OH)_{12}$	1.0	-	1.3	-	-	-	-
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$	-	tr	-	tr	-	-	-
Carbonates								
Calcite	$CaCO_3$	3.4		-	-	3.8	-	-
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	-	3.0	-	-	-	0-0.7	0-0.7
Siderite	$Fe^{2+}CO_3$	-		-	-	-	-	-
Total		*100*	*99*	*100*	*98*	*100*	*100*	*100*

Notes: Units are in wt.%; "Pet." means from petrographic analysis; “tr” = “trace amounts of <1 wt.%”.

Table 4-4:
Mineralogical Analyses for SLD Sub-Samples – Column 3, Associated Humidity Cell and Field Bins

Mineral	Ideal Formula	Col-3				Col-9		FB2		FB7	
		HC2		NP removed HC4 (NaOAC)							
		high S				*SVHYB*		*median-high S*		*median-high S*	
		XRD	Pet.	XRD	Pet.	XRD	Pet	XRD	Pet.	XRD	Pet.
Quartz	SiO_2	2.8	5.0	2.7	3.0	0.47	-	7.3	5.0	2.2	3.0
Plagioclase	$NaAlSi_3O_8$ – $CaAl_2Si_2O_8$	31	40	36	40	44	50	34	30	37	40
K-Feldspar	$KAlSi_3O_8$	5.2		4.0		-		-	-	6.4	tr
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	20	20	21	25	4.2	5.0	4.4	5.0	6.2	5.0
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	11	7.0	11	7.0	15	5.0	7.4	10	7.6	8.0
Vermiculite/Clay	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2{\cdot}4H_2O$	1.6	1.0	2.3	3.0	-	5.0	11	5.0	7.3	5.0
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	6.1	5.0	5.4	5.0	4.6	3.0	12	10	9.2	5.0
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	-	2.0	1.6	2.0	-	-	-	-	-	-
Diopside	$CaMgSi_2O_6$	1.9	2.0	2.7	3.0	21	20	-	-	-	tr-1
Epidote	$Ca_2Al_2(Fe^{3+};Al)(SiO_4)(Si_2O_7)O(OH)$	7.0	7.0	7.5	5.0	7.5	5.0	-	2.0	-	3.0
Serpentine	$Mg_3Si_2O_5(OH)_4$	-	-	-	tr	-	-	-	-	-	-
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$	-	-	-	-	-	-	-	-	-	-
Rutile	TiO_2	-	tr	-	tr	-	-	-	tr-1	-	-
Titanite	$CaTiSiO_5$	-	tr	-	tr	-	tr	-	tr-1	-	tr-1
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	2.5	3.0	2.6	3.0	-	tr-1	-	tr	1.7	2.0
Hematite	$a\text{-}Fe_2O_3$	-		-		-	tr	-	tr	-	-
Hydroxylapatite	$Ca_5(PO_4)_3(OH)$	-	-	-	-	-	tr	1.0	-	-	-
(Fe,Cu) oxides		-	-	-	-	-	tr	-	tr	-	tr-1
Sulphides											
Pyrite	FeS_2	1.9	01-Feb	2.0	2.0	-	tr-1	-	tr-1	-	tr-1
Chalcopyrite	$CuFeS_2$	-	tr	-	1.0	-	1	-	2.0	-	2.0
Bornite	Cu_5FeS_4	-	-	-	-	-	-	-	tr	-	-
Covellite	CuS	-	-	-	-	-	-	-	tr	-	tr
Sulphates											
Gypsum	$CaSO_4{\cdot}2H_2O$	1.3	tr	-	-	-	-	-	-	-	-
Anhydrite	$CaSO_4$	-	-	-	-	-	tr-1	-	-	-	-
Jarosite	$K_2Fe_6^{3+}(SO_4)_4(OH)_{12}$	-	tr	0.80	-	-	-	-	-	-	-
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$	-	tr	-	tr	-	-	-	-	-	-
Carbonates											
Calcite	$CaCO_3$	3.1		0.50	-	3.9	5	16	25	14	
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2$ – $CaMg(CO_3)_2$	1.2	5.0	1.0	-	-	-	7.4		8.7	20
Siderite	$Fe^{2+}CO_3$	-		-	-	-	-	-	-	0.40	
Total		*100*	*99*	*100*	*99*	*100*	*98*	*100*	*94*	*100*	*98*

Notes: Units are in wt.%; "Pet." means from petrographic analysis; “tr” = “trace amounts of <1 wt.%”.

There is also indication that areas of intense albite alteration within the SLD have a unique mineralogy that could affect the ARD characteristics of this unit. Katherina Ross determined in her thesis on the Ajax Deposits (Ross, 1993), that albite alteration substantively changes the mineralogy of the SLD. SLD goes from about 80 wt.% plagioclase and 20 wt.% hornblende to 80 wt.% albite and 20 wt.% diopside when intensely altered by albite. Accessory phases of primary apatite and magnetite and secondary phases of epidote and sphene were also noted. Additionally, sulphide contents are generally very low in intensely albite-altered SLD but are elevated in weak to moderately albite altered SLD. Incipient albite alteration is characterised by (i) alteration of plagioclase to a cloudy mass with patches of clear, commonly twinned secondary albite and (ii) replacement of primary hornblende and primary pyroxene by diopside.

Forms of Sulphur

Results of the mineralogical study indicate that pyrite is the major sulphide mineral in the SLD column sample (Col-3, 2 wt.%) and that chalcopyrite is the main sulphide in the field bin sub-samples (FB7 and FB2, 2 wt.%) which is consistent with their assay grade as high-grade ore. Traces of covellite and bornite were also identified in the field bin sub-samples by petrographic observation (Table 4-4) and traces of chalcopyrite were observed in the two columns. Sulphide minerals of the SLD unit occur as fracture fill, liberated grains and disseminated grains in clasts. Pyrite and chalcopyrite were also identified petrographically in the SVHYB sample of Col-9 where they form relatively fine-grained, partially corroded grains. Sample FB7 contains pyrite grains with boundaries sporadically corroded and rimmed with (Fe, Cu)-oxides and chalcopyrite grains rimmed by covellite (CuS) (Appendix B-1.2), whereas sample FB2 contains sulphide minerals that typically have clean and sharp boundaries, only a few of which have rims of (Fe, Cu)-oxides and covellite. In the columns, both pyrite and chalcopyrite occur in lithic fragments or as liberated subangular grains with typically unaltered grain boundaries.

No sulphate minerals were identified in the SLD field bin sub-samples. However, acid generating hydroniumjarosite was identified in the both the untreated and carbonate depleted sub-samples of Col-2 and acid generating jarosite was identified in the carbonate depleted sub-sample of Col-3 (HC4). Alunite was also observed at trace levels in the columns. Anhydrite was exclusively found by microscopy in Col-9.

Forms of Neutralization Potential

Results of the mineralogical assessment indicate that the SLD field bin samples contain the highest proportion of carbonates in the Ajax deposit, with up to 14 and 16 wt.% calcite measured in the field bin samples (FB7 and FB2, respectively) but lower concentrations

(< 3.5 wt.%) in the untreated column samples. Calcite in the field bin samples occurs as liberated grains and clusters, and as disseminated grains and clusters in clasts (Appendix B-1.2). High concentrations of ankerite/dolomite (7.5 - 9 wt.%) are also present in the field bin samples, occurring as finer grains, clusters in clasts and sporadically as alteration of feldspar, mafic minerals and vein fragments.

The SLD unit also contains a number of silicate phases known to have acid neutralizing capacity, including plagioclase, chlorite, epidote, actinolite and vermiculite. However, the plagioclase is indicated to be predominantly the albite end-member, which has a much lower NP compared to the calcic-rich anorthite end-member. As previously indicated, the rates of silicate dissolution and the capacity of these non-carbonate phases to buffer mine waters at the Ajax site is being investigated by kinetic test work.

The calcite was effectively removed from the treated humidity cell samples without changing the overall mineralogy of the samples (Table 4-3 and Table 4-4); however, the various acidic treatments were not as effective in removing the ankerite/dolomite phase. Note that for HC5 and HC6, the presence of ankerite/dolomite cannot be determined with confidence from the XRD scan and so a range 0-0.7 wt.% is listed in Table 4-3. Dolomite is known to have slower dissolution rates than calcite and may have required a more aggressive treatment to be removed. However, the objective of the treatments was to remove carbonates without attacking the neutralizing silicate minerals and a more aggressive treatment would have risked removing the silicate minerals along with the dolomite/ankerite. There is no indication that the acidic treatments changed the silicate mineral content of the samples.

4.1.4 Carbonate Mineralogy

Calcite, dolomite/ankerite and siderite have all been detected in mineralogical samples from the Ajax deposit. Ankerite and siderite contain Fe^{2+}, which does not contribute to the neutralizing potential of the carbonate minerals. The static ABA testing results for CaNP does not account for the presence of Fe^{2+} in carbonates – it assumes all carbonates are calcite equivalents. Therefore, if a significant amount of Fe^{2+} is present in the carbonates, the standard ABA CaNP analysis will over predict the actual neutralizing capacity afforded by carbonate in the samples. Because quantitative XRD and standard petrographic analysis cannot discriminate between dolomite and ankerite, electron microprobe analysis of selected petrographic thin sections was carried out (Appendix B-1.5). Five samples were selected for electron microprobe analysis: Col-2, Col-3, FB2 and FB7 (SLD) and FB3 (IMH). The mineralogical analyses of Volcanics samples did not indicate the presence of dolomite/ankerite or siderite; therefore, Volcanics samples were not selected for microprobe analysis.

Twenty-five carbonate grains for each sample were analyzed and the relative proportions of Fe+Mn, Mg and Ca based on the microprobe analyses are summarized in Figure 4-1; the complete dataset is provided in Appendix B-1.5. The majority of the grains analyzed plot in a tight cluster in the Ca corner of the triangle, indicating that most carbonates analyzed are end-member calcite. Several grains were identified as dolomite ($CaMg(CO_3)_2$) where Fe+Mn make up less than 20% of the cation content (Figure 4-1). The highest number of dolomite grains were detected in the Ajax West SLD field bin (FB2) and 1-2 grains were also detected in each the Ajax East SLD field bin (FB7), the Ajax West IMH field bin (FB2), and in the high-S SLD unsaturated column (Col-3). The data indicate that accounting for the Fe content in these samples in the ABA analysis does not change the ABA results significantly when compared to the uncorrected values and would not result in a significant increase in the number of PAG samples. No change in the PAG/NPAG classification for the IMH samples is warranted. For the entire set of SLD data – all grades, all sub-lithologies – the percentage of PAG samples increases from 27% (uncorrected) to 28% (Fe-corrected). Because there is less than a 2% change to the CaNP values, the CaNP that calculated from the total inorganic carbon (TIC) or total carbon (TC) results (Section 5) is considered an accurate representation of the neutralization potential afforded by carbonates. Therefore, no Fe-correction factor will be applied to the Ajax static database of ABA test results.

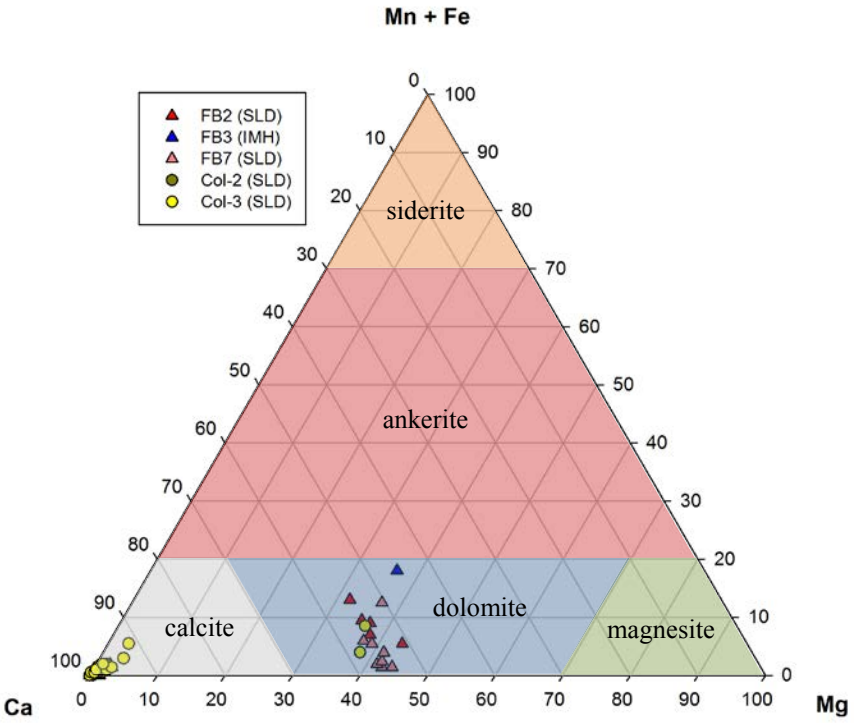

Figure 4-1: Ternary diagram showing the relative molar proportions of Fe+Mn, Mg and Ca in carbonate minerals measured by electron microprobe.

4.1.5 Ore and Tailings

The mineralogy of the SLD ore (Col-1, 13, and 14) and tailings (T1 through T7 as well as 2009 cleaner tailings) consist predominantly of plagioclase (> 40 wt.%) and lesser amounts of actinolite, chlorite, quartz, and carbonates (Table 4-5), generally similar to the composition of SLD mine rock samples. K-feldspar was identified in Col-1 and T1/T2, T6, and T7 but not in samples Col-13, 14, and T5 which may be an artifact of the analytical method and/or data interpretation employed by the two laboratories. Epidote is present in minor amounts in all ore samples while tailings samples are devoid of this mineral. The high-S ore sample of Col-1 additionally contains vermiculite, biotite and magnetite, the latter two of which were also detected in tailings sample T5.

Forms of Sulphur

XRD analysis identified pyrite in the SLD ore (Col-1) (1.4 wt.%) and composite cleaner tailings (5.6 wt.%, Table 4-5). Minor chalcopyrite (0.4 wt.%) was also detected by XRD analysis in sample T5. No sulphur phases were detected in the most recently generated tailings samples T6 and T7. Using petrography, minor chalcopyrite and trace bornite and covellite were also identified in Col-1. Gypsum and acid generating hydroniumjarosite are the only detectable sulphate minerals and are present only in ore samples.

Forms of Neutralization Potential

Results of the mineralogical assessment indicate that calcite is the main carbonate mineral in the ore and tailings samples (4.7-78.7 wt.%). Ankerite/dolomite also make up a large proportion of the carbonate mineral assemblage in several samples but are generally more predominant in the tailings assemblages (Table 4-5). A small amount of siderite (0.4 wt.%) was detected by XRD in the composite cleaner tailings. The presence of any Fe-bearing carbonate minerals may limit the effective neutralization potential that can provided by CaNP as discussed in Section 5. All ore and tailings samples contain a number of silicate phases known to have acid neutralizing capacity, including plagioclase, clinochlore, clinozoisite and vermiculite.

Table 4-5:
Mineralogical Analyses for SLD Ore and Flotation Tailings

Mineral	Ideal Formula	Col 1		Col 13	Col 14	T1 & T2	-	T5	T6	T7
		high S ore		*SLD low-grade ore*	*Ore feed composite*	*2009 tailings*	*2009 cleaner tailings*	*Nov. 2013 tailings*	*Sep. 2014 tailings*	*Sep. 2014 tailings*
		XRD	Pet.	XRD	XRD	XRD	XRD	XRD	XRD	XRD
Quartz	SiO_2	3.1	2.0	1.9	3.4	4.2	4.2	4.1	3.2	3.0
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	42	45	55	41	50	37	45	40	43
K-Feldspar	$KAlSi_3O_8$	5.5		-	-	4.6	3.1	-	2.5	1.2
Amphibole	$(Ca, Na)_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	12	15	12	9.6	14	12	11	16	18
Diopside	$CaMgSi_2O_6$			5.7	12			8.7	6.0	4.7
Chlorite	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	6.7	5.0	10	17	9.9	8.8	17	16	16
Vermiculite	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2{\cdot}4H_2O$	2.1	2.0	-	-	-	-	-		
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	7.2	10	1.3	1.8	6.6	6.4	-	3.3	3.1
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2{\cdot}nH_2O$	-	-	-	-	-	12	-	-	-
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	1.2	2.0	-	-	-	-	1.6	-	-
Epidote	$Ca_2(Fe^{3+},Al)_3(SiO_4)_3(OH)$	7.3	7.0	6.0	6.3	-	-	-	-	-
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	0.90	2.0	-	-	-	-	1.7	0.44	0.53
Rutile	TiO_2	-	tr-1	-	-	-	-	-	-	-
Titanite	$CaTiSiO_5$	-	1.0	-	-	-	-	-	-	-
Apatite	$Ca_5(PO_4)_3(OH)$	-	tr	-	-	-	-	-	-	-
Sulphides										
Pyrite	FeS_2	1.4	tr-1	-	-	-	5.6	-	-	-
Chalcopyrite	$CuFeS_2$	-	2.0	-	-	-	-	0.40		
Bornite	Cu_5FeS_4	-	tr	-	-	-	-	-	-	-
Covellite	CuS	-	tr	-	-	-	-	-	-	-
Sulphates										
Gypsum	$CaSO_4{\cdot}2H_2O$	2.1	tr	1.0	-	-	-	-	-	-
Hydroniumjarosite	$(H_3O^{1+})_2Fe_6^{3+}(SO_4)_4(OH)_{12}$	1.5	-	-	-	-	-	-	-	-
Carbonates										
Calcite	$CaCO_3$	4.7		6.5	9.2	6.4	7.2	7.1	8.7	5.1
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	2.5	5.0	-	-	3.8	4.3	4.1	3.7	4.9
Siderite	$Fe^{2+}CO_3$	-		-	-	0.40	-	-	-	-
Total		*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Notes: Units are in wt.%; "Petr." means from petrographic analysis; “tr” = “trace amounts of <1 wt.%”.

5. Solid Phase Geochemistry

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5. Solid Phase Geochemistry

This chapter discusses the ABA and solid phase metal results of all available samples collected in support of the geochemical assessment for the Ajax deposit. The complete static test datasets are discussed according to type (mine rock lithology and ore grades) and lithology. The complete dataset for the static test results are presented in Appendix C. The ABA and solid phase metal results for the laboratory and field based kinetic test samples are presented in Section 5.2.

The ABA and solid phase metal characterization presented in the following sections assess the geochemical characteristics of the deposit in relation to the rocks ore grade and also by the nine major lithological units that are defined in Table 3-3 Evaluating characteristics by grade provides context for the ABA results regarding the separation of ore and mine rock materials during mine operations. The differentiation of the major lithologies in the mine rock also illustrates the geologic controls on the geochemical characteristics.

5.1 Static Test Drill Core Samples

5.1.1 Acid-Base Accounting

Table 5-1 presents the statistical distribution of ABA results for mine rock and ore of the Ajax deposit. Included in the table are 90^{th} and 10^{th} percentile values, maximum, minimum and median values. The 90^{th} and 10^{th} percentile values are used in discussions rather than maximum and minimum values in order to more appropriately represent the variation in the large data sets and avoid highlighting outliers. Note that all values reported to be below detection were set at the value of detection for calculation purposes. The complete list of results is provided in Appendix C.

The data in Table 5-1 demonstrate that slight compositional differences exist between the ore and mine rock sample populations from the Ajax deposit when evaluating their ARD potential. In general, these populations have similar AP, NP and ARD potential with an overall trend towards slightly increasing ARD potential as the ore grade increases from low- to high-grade ore. For all grades, the median CaNPR value is >2 while the 10^{th} percentile is <1.

Paste pH

Paste pH values are useful in that they provide information on the amount and availability of NP by indicating whether or not a sample was actively producing net acidity prior to sampling. The data presented in Table 5-1 indicates that the samples from the Ajax deposit

have paste pH values that range from 7.6 to 10. The Ajax dataset indicates that if carbonate is the main neutralizing mineral, paste pH values are typically buffered between 8 and 9 (Figure 5-1). A plot showing paste pH values versus total sulphur indicates a weak correlation between higher total sulphur values and lower paste pH for the Ajax deposit (Figure 5-2). All Ajax samples have alkaline paste pH, and while higher sulphur content may depress the pH slightly, all mine rock from the Ajax deposit will initially contain available NP to buffer acid.

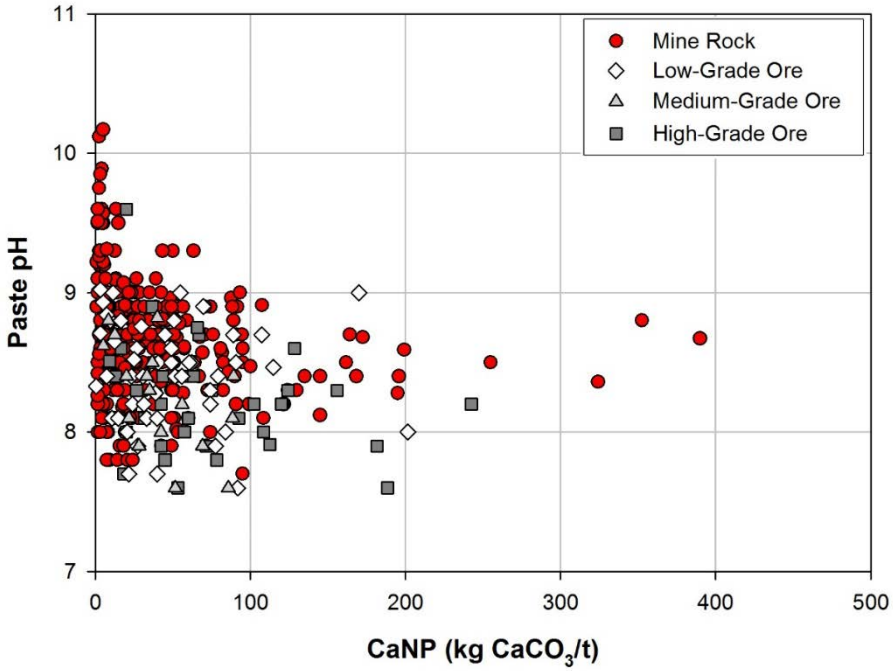


Figure 5-1: CaNP versus paste pH for mine rock and ore samples from the Ajax deposit

Table 5-1:
Results of Acid-Base Accounting Tests

	Paste pH	TIC	Total C	Total S	Sulphate S	Sulphide S	Insol. S	Non-SO_4 S	Non-SO_4 AP	CaNP	Bulk NP	NPR	
					%					kg $CaCO_3$/t		CaNP/AP	Bulk NP/AP
Mine Rock													
n	*286*	*286*	*613*	*856*	*856*	*286*	*286*	*856*	*856*	*856*	*286*	*856*	*286*
Min	7.7	0.010	0.010	0.010	0.010	0.010	-0.010	0.0050	0.16	0.83	21	0.037	0.30
10th PCTL	8.1	0.040	0.090	0.010	0.010	0.010	0.010	0.010	0.31	5.0	41	0.81	3.9
Median	8.7	0.29	0.32	0.060	0.010	0.020	0.020	0.050	1.6	26	87	16	58
90th PCTL	9.1	1.1	1.1	0.79	0.070	0.50	0.090	0.63	20	92	205	145	351
Max	10	4.7	5.6	5.0	2.7	4.9	0.93	5.0	156	466	419	1128	1207
Low-grade ore													
n	*53*	*53*	*56*	*94*	*94*	*53*	*53*	*94*	*94*	*94*	*53*	*94*	*53*
Min	7.6	0.010	0.090	0.030	0.010	0.010	0.010	0.010	0.31	0.83	23	0.041	0.87
10th PCTL	8.0	0.096	0.23	0.14	0.010	0.030	0.042	0.10	3.2	11	38	0.64	2.2
Median	8.5	0.48	0.62	0.49	0.020	0.11	0.13	0.25	7.8	48	101	5.6	11
90th PCTL	8.9	1.1	1.4	1.5	0.80	0.60	0.21	0.98	31	104	222	22	38
Max	9.0	2.4	3.8	4.6	4.3	2.3	1.8	2.7	85	314	404	232	188
Medium-grade ore													
n	*17*	*17*	*17*	*28*	*28*	*17*	*17*	*28*	*28*	*28*	*17*	*28*	*17*
Min	7.6	0.060	0.27	0.17	0.010	0.010	0.070	0.050	1.6	5.0	38	0.43	1.1
10th PCTL	7.8	0.13	0.40	0.23	0.010	0.034	0.11	0.18	5.5	18	46	0.79	1.9
Median	8.3	0.44	0.64	0.62	0.025	0.090	0.21	0.35	11	50	79	4.2	4.9
90th PCTL	8.7	1.0	1.3	1.8	1.0	1.2	0.30	0.99	31	94	144	17	20
Max	8.8	1.1	4.0	2.6	2.1	1.5	0.35	1.7	53	332	171	44	28
High-grade ore													
n	*36*	*36*	*46*	*70*	*70*	*36*	*36*	*70*	*70*	*70*	*36*	*70*	*36*
Min	7.6	0.11	0.060	0.15	0.010	0.010	0.040	0.12	3.8	5.0	34	0.24	0.61
10th PCTL	7.8	0.23	0.24	0.41	0.010	0.080	0.21	0.32	10.0	18	49	0.72	1.8
Median	8.2	0.71	0.77	0.95	0.040	0.20	0.39	0.58	18	62	143	3.5	8.2
90th PCTL	8.7	1.7	2.6	2.3	1.5	0.42	0.72	1.4	43	189	223	10.0	16
Max	9.6	2.9	4.5	4.9	3.9	1.4	1.4	4.8	150	377	286	15	36

Notes: TIC = total inorganic carbon; TC = Total carbon; Insol. S = Insoluble S, Non-SO_4 S is calculated by subtracting sulphate sulphur from the total sulphur value; AP = acid potential based on non-SO_4 S; CaNP = Carbonate neutralization potential calculated from TIC or TC; NP = bulk neutralization potential; NPR = net potential ratio

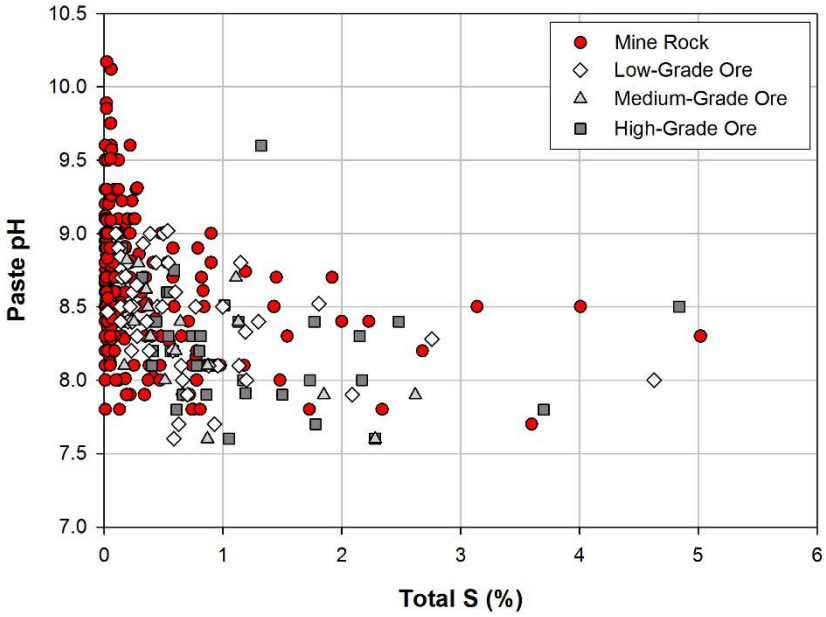


Figure 5-2: Paste pH versus total S for mine rock and ore samples from the Ajax deposit.

Sulphur Speciation

Samples from the Ajax deposit were analyzed for their total, sulphate, and sulphide sulphur concentrations (Table 5-1). Total sulphur values for the sample population generally increase with increasing grade of ore with the high grade ore values ranging from 0.15 to 4.9 % (median of 0.95 %) while values for the mine rock sample population are lowest, ranging from below detection (0.01 %) to 5.0 % (median of 0.06 %).

As previously discussed, the generation of acid is predominantly associated with the oxidation of sulphide minerals. Using total sulphur values to estimate total AP assumes that all sulphur measured is in the form of pyrite and will oxidize completely, forming sulphate and iron hydroxide. However, if a significant portion of a sample's total sulphur is present as non-acid generating forms of sulphur, such as the sulphate in gypsum ($CaSO_4*2H_20$), total sulphur values may unrealistically overestimate AP. Figure 5-3 plots total sulphur versus sulphide sulphur with the diagonal line indicating the locus of points along which a sample would plot if all the sulphur were present in the form of sulphide minerals. Several samples from the mine rock population plot on the line, indicating that sulphide minerals make up the bulk of the sulphur budget for those samples. However, a large number of samples from the mine rock and ore populations plot well below the line, indicating that sulphide minerals make up only a fraction of their total sulphur budget. Therefore, to account for this, the AP values used in the ABA analyses for this report were calculated from the non-SO_4 sulphur values (*i.e.*, total sulphur minus the sulphate content).

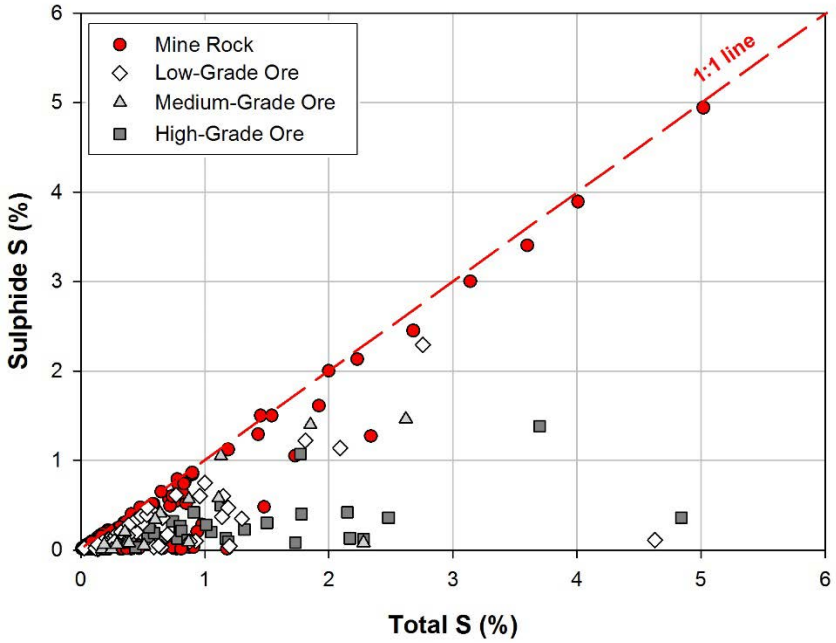


Figure 5-3: Total sulphur versus sulphide sulphur for mine rock and ore samples from the Ajax deposit

Sulphate sulphur concentrations (as determined by a dilute HCl leach) are indicated for each mine rock type (Table 5-1) and indicate low median concentrations (0.01 to 0.04 %). Other possible sources of sulphur are elemental and organic sulphur; however, organic forms of sulphur are not typically found in igneous or metamorphic rocks. It is likely that the insoluble sulphur fraction of the mine rock samples is composed of acid-insoluble sulphate minerals such as barite, alunite or jarosite and/or non-ferrous sulphide minerals which may not have completely dissolved during the ABA procedure. The median insoluble sulphur concentrations range from 0.02 to 0.39 % (Table 5-1). In the case of the low-S IMH lithology, insoluble S often represents a large portion of the total S content; although it is also observed to represent as little as 5% of the total S in a sample.

Mineralogical investigations identified water- and weak-acid- insoluble alunite ($K_2Al_6(SO_4)_4(OH)_{12}$) in the IMH field bin sub-sample, and trace amounts in the IMH laboratory column samples (Section 4.1.1). Alunite was also detected in the MAFV/PICR column sample (Col-6) and in the two SLD column samples at trace levels. A comparison of the insoluble sulphur values versus solid-phase copper concentrations shows a positive correlation (Figure 5-4), most clearly for ore grade samples, suggesting that insoluble sulphur concentrations for the Ajax deposit mine rock is likely a contribution from incompletely digested sulphide minerals, such as chalcopyrite and/or covellite, both of which were identified during mineralogical investigations. While chalcopyrite may oxidize

at a slower rate than pyrite, it will produce acid over the long term. Therefore, in order to provide a conservative estimate of the AP for the Ajax deposit samples, no correction for insoluble S was used to calculate NPR ratios in the subsequent ARD evaluation.

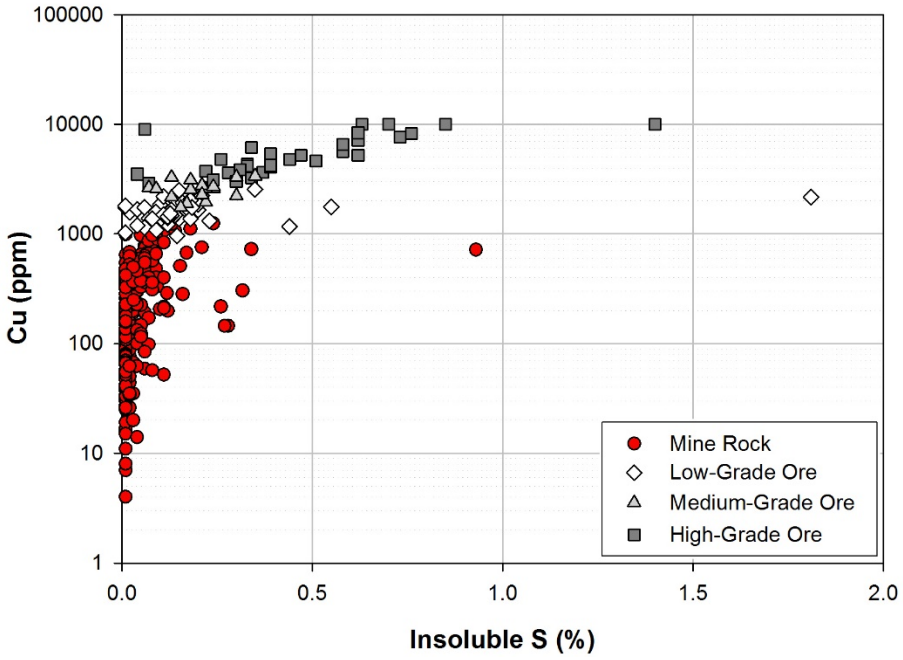


Figure 5-4: Insoluble sulphur versus copper for mine rock and ore samples from the Ajax deposit

In the lower portions of the pit, KAM geologists have logged significant amounts of gypsum and defined a sulphate horizon depth in the block model that will be used for geochemical source term development, mine planning and mitigation strategies. Gypsum and anhydrite are typically present in porphyry deposits as a hydrothermal precipitate rather than a sulphide weathering product. Therefore, a significant amount of HCl-soluble sulphate is consistent with the presence of anhydrite and/or gypsum in this deposit. For the following assessment, values >0.25% sulphate S are assumed to be indicative of gypsum and/or anhydrite content in the samples. The highest concentrations of sulphate in the samples are found in the MAFV samples and within the SLD samples, however, gypsum was observed to be present in all rock types during core logging below the gypsum line. The undulating plane that demarcates the elevation below which gypsum and anhydrite may be present, occurs roughly at an elevation of 700 m (Figure 5-5).

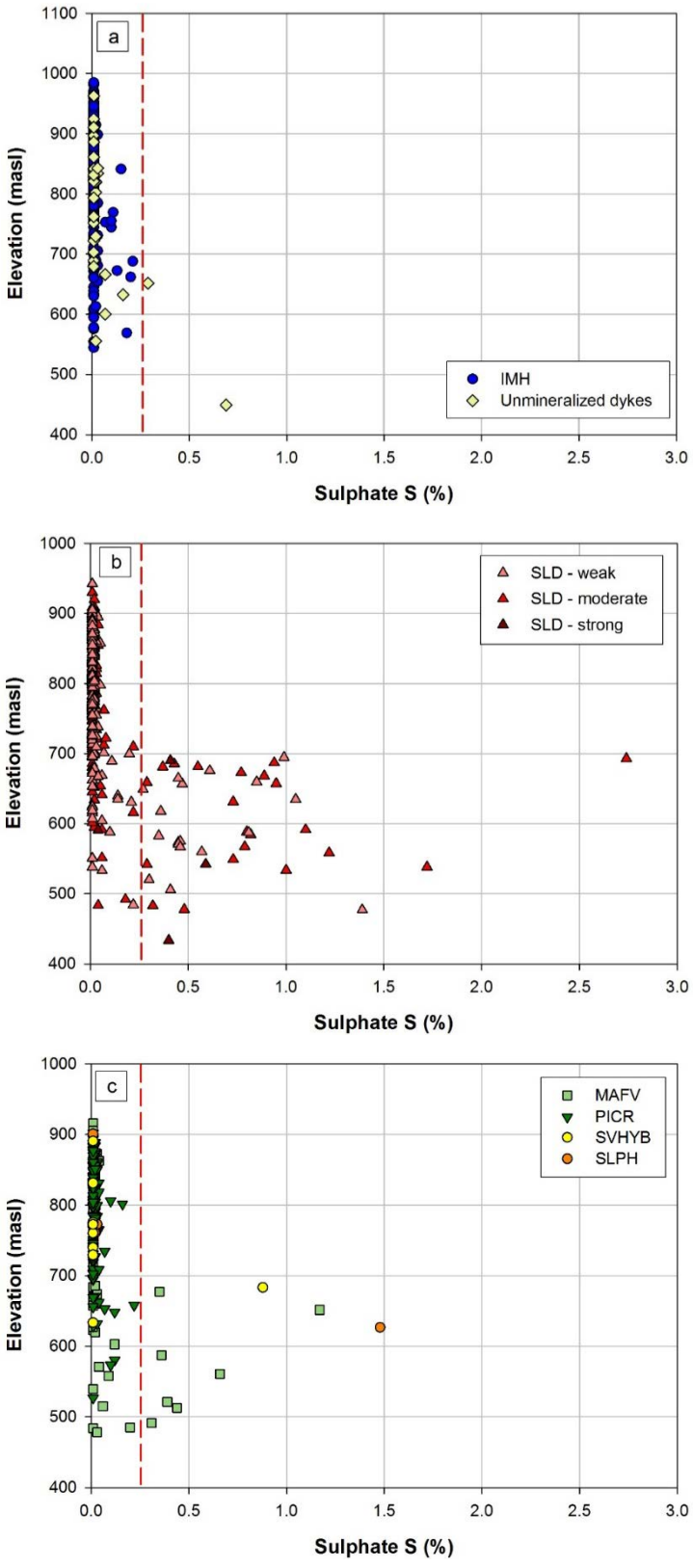


Figure 5-5: Sulphate sulphur versus elevation by lithological groupings (a through c)

Neutralization Potential

The Ajax deposit samples were analyzed for both CaNP and Sobek NP which uses the siderite correction. As discussed in Chapter 4, carbonate minerals are the most effective acid-buffering phases primarily because of their relatively rapid dissolution rates. However, Fe-bearing carbonates, such as siderite and ankerite, which were identified in the mineral assemblage of the IMH and SLD units from the Ajax deposit, are incapable of or less effective at buffering acid than calcite. A pure $FeCO_3$ siderite end-member offers no net neutralizing potential. Siderite has been detected only in one sample (FB7) at an order of magnitude lower in concentration than calcite (*i.e.,* at XRD detection limits). Therefore, siderite is not expected to reduce the net NP of the samples significantly. The electron microprobe evaluation (Section 4.1.4) indicated that a correction factor for the Fe^{2+} content in ankerite is not required for the Ajax mine rock; *i.e.,* a correction accounting for the measured Fe^{2+} content did not significantly affect the CaNP values in the database. Both ankerite and dolomite can offer net neutralizing potential. Therefore, the standard ABA carbonate NP is considered a valid assessment of the NP offered by carbonate minerals in the Ajax mine rock.

The Sobek NP values, which provide information on the bulk NP of a sample after correcting for the oxidation of Fe^{2+} from siderite dissolution, are not mineral specific and may present a more encompassing estimate of the available NP of a material. However, when the NP method yields considerably greater values in comparison to the CaNP method, it is important to determine the identity and amount of the non-carbonate minerals contributing to the higher NP, as well as their dissolution kinetics, if they are to be included as a source of NP for an ARD interpretation.

Figure 5-6 plots NP versus CaNP for the Ajax deposit samples. The dashed line represents the points along which samples would plot if all their measured NP were a result of calcite dissolution. The results in Table 5-1 and Figure 5-6 indicate that NP values for all the Ajax samples are notably higher than CaNP values, particularly in the mine rock sample population. The higher NP values likely represent the presence of the more mafic silicate minerals such as diopside, epidote, serpentine, Ca-rich plagioclase and amphiboles. The dissolution kinetics of silicates are typically orders of magnitude slower than carbonates and sulphides such as pyrite and therefore, the rate of silicate neutralization may not match the high rates of sulphide oxidation. Several laboratory kinetic tests have been set up to evaluate the efficiency of silicate pH buffering in Ajax samples. However, to minimize the risk of overestimating the available reactive NP of a material, the lower CaNP value is applied for the ARD assessment. The implications of the appropriate NP value with respect to lithology are discussed further in Section 5.1.1.1. The designation of PAG rock will be modified later following a reanalysis of NP as the kinetic tests have had sufficient time to

stabilize and it can be determined that the non-carbonate NP is sufficiently reactive to buffer pH in a suitable range to limit ML/ARD. A re-evaluation of PAG proportions according to the less conservative modified NP method is presented in Appendix C-1.1a.

To obtain a reasonable balance between the size of the database and cost-effectiveness of the conducted analyses, a subset of the static test sample population was only analyzed for total sulphur, sulphate sulphur and total carbon. In volcanically-derived mine rock, total carbon and total inorganic carbon contents are often similar or equivalent such that the former may be used as a proxy for neutralization potential which can then be applied to a much larger dataset. This is also the case for all Ajax static test samples with the two parameters being virtually identical (Figure 5-7).

Net Potential Ratio

The NPR, which is calculated by dividing the NP of a sample by its AP, is used to assess the likelihood of a sample to generate acidic drainage. Guidelines adopted by the British Columbia Ministry of Energy Mines and Natural Gas (Price & Errington, 1998) apply the following guidelines:

- Samples with NPR<1 are *likely* to generate ARD;

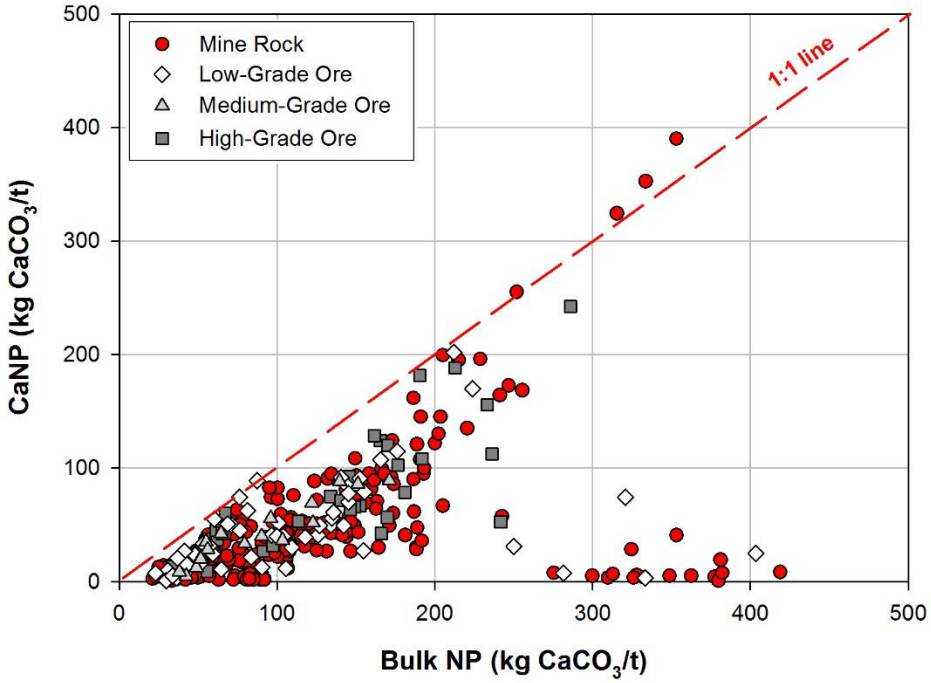


Figure 5-6: CaNP values versus NP values for mine rock and ore samples from the Ajax deposit

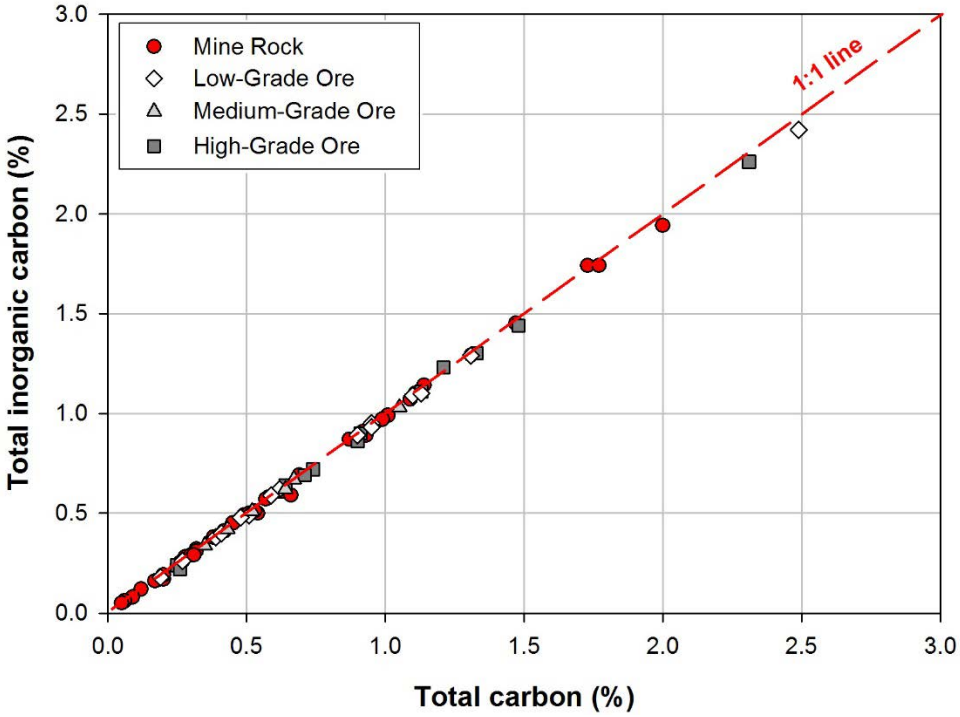


Figure 5-7: Total carbon versus total inorganic carbon contents in mine rock and ore samples from the Ajax deposit

- Samples with 1<NPR<2 may *possibly* generate ARD if NP is insufficiently reactive or depleted at a faster rate than sulphides;
- Samples with 2<NPR<4 are not potentially ARD generating unless sulphides are significantly (preferentially) exposed or extremely reactive; and
- Samples with NPR>4 do not require any further ARD testing.

The NPR values for the Ajax Project mine rock are based on CaNP and NP over AP (calculated from non-SO_4 sulphur values). Consistent with the guidelines, detailed characterization of the deposit's geochemistry has led to the refinement of the criterion to differentiate between PAG and NPAG rock. NPR results are discussed as two groups combined as likely-possible (NPR<2 = PAG) and non-PAG (NPR>2 = NPAG). The refinement is based on mineralogical studies confirming the Ca-rich composition of carbonates that are readily available to neutralize acidity and the relatively low sulphur content and low sulphide reactivity (as shown by sulphide oxidation rates measured in kinetic tests). The selection of criteria is also shown to be conservative as supported by the NAG test results that are presented later in Section 5.1.2. The ABA criteria may be refined further once the reactivity of the non-carbonate NP component is conclusively established

by kinetic testing. This approach is also consistent with the more recent guidelines presented in the Prediction Manual for Drainage Chemistry for Sulphidic Geologic Material (MEND, 2009).

NPR values (CaNP/AP) for the Ajax mine rock samples range from <0.1 to 1128 (Table 5-1; Figure 5-8 and Figure 5-9). Median NPR values for each material type are >3, indicating that the majority of these samples are NPAG. Between grades, 21% of mine rock, 29% of the low- grade ore, 32% of medium-grade ore, and 39% of the high-grade ore samples have NPR values of <2 when only CaNP is considered. However, the proportion of PAG samples range from 5% to 17% if bulk (Sobek) NP is used as the basis for the NPR derivation (Table 5-2). This is consistent with Ajax kinetic test results which indicate that some acid-buffering capacity is available beyond the extent of carbonate phases alone.

Table 5-2:
Number of PAG and NPAG NPR Values for Mine Rock and Ore samples from the Ajax Deposit

	CaNPR			Bulk NPR		
	NPAG	**PAG**	**% PAG**	**NPAG**	**PAG**	**% PAG**
Mine rock	677	179	21%	273	13	5%
LG ore	67	27	29%	48	5	9%
MG ore	19	9	32%	15	2	12%
HG ore	43	27	39%	30	6	17%

Notes: a PAG-NPAG cutoff of NPR = 2 was chosen to calculate the sample proportions of this table.

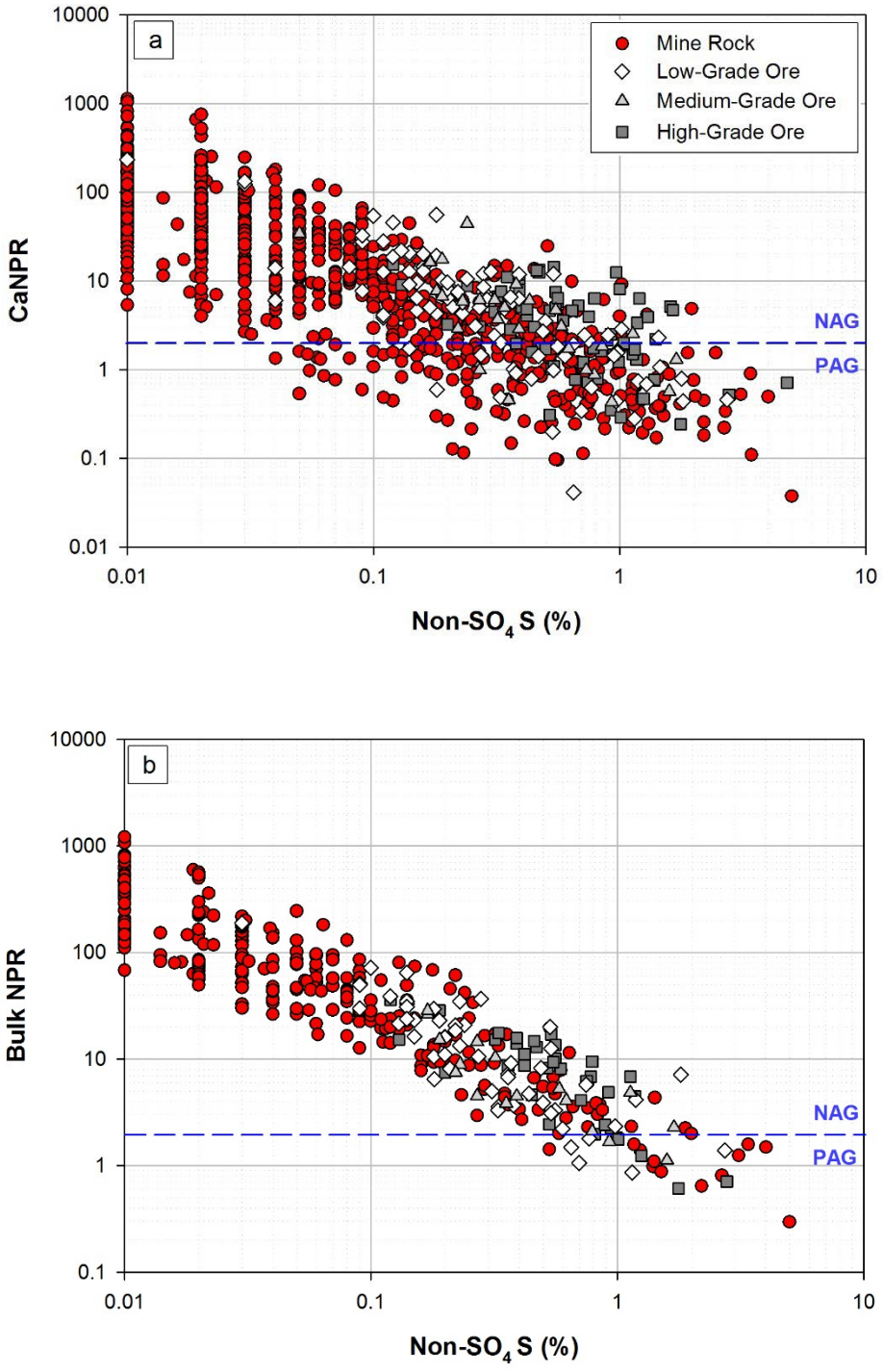


Figure 5-8: Non-SO_4 sulphur versus NPR, expressed as a) CaNPR and b) bulk NPR for mine rock and ore samples from the Ajax deposit

5.1.1.1 Mine Rock Lithologies

Approximately 20% of all mine rock samples have been identified as having NPR values of <2 when CaNP is applied in NPR calculations (Table 5-2), which implies that under advanced weathering conditions, a portion will become carbonate-depleted if exposed to atmospheric oxygen over an extended period of time. The time required for the material to become carbonate-depleted is dependent on the sulphide oxidation rate and the quantity of CaNP as discussed further in Section 6.2.1. A large volume of mine rock will be extracted from the deposit; therefore, it is important to understand which material is PAG so that it can be managed and/or stored appropriately. To evaluate this, two approaches have been taken; 1) by taking into account more detailed lithology as discussed below and 2) to consider the distribution of PAG material within the deposit (Section 5.1.1.2).

Table 5-3 presents the percentage of samples which have NPR values >2 and NPR values of <2 for mine rock samples according to the individual lithological groups and based on both CaNPR and bulk NPR values. Note that, initially, the majority of static test samples underwent the relatively aggressive Sobek NP such that the bulk NPR value may underestimate the proportion of PAG materials. For this assessment, the CaNPR was therefore utilized. A re-assessment of PAG proportions based on bulk NP using the less aggressive modified NP method was undertaken after the preparation of this report and is presented separately in Appendix C-1.1a. Figure 5-8 plots the NPR values for CaNP versus non-SO_4 sulphur for these same categories. Table 5-4 presents the statistical distribution of ABA results by lithology for the Ajax deposit. The major trends in ARD potential observed from the data set are summarized below.

- Bulk NPR values are systematically higher than CaNPR values with the largest discrepancies in PAG proportions seen for the PICR and MAFV lithologies.
- None of the IMH mine rock samples are characterized as PAG, regardless of whether CaNP or NP are used in NPR calculations (Table 5-3 and Table 5-4). This is due to the prevalence of low total and non-SO_4 sulphur with median values at or below detection (0.01 %).
- The proportion of PAG material in the SDL unit appears to be at least partly controlled by the degree of albitization with the weakly and moderately albitized samples displaying a PAG proportion of around 30%. The strongly altered material only contains around 7% PAG rock using the CaNP as a basis for NPR calculations (Table 5-3, Figure 5-9).
- The MAFV and PICR samples have a similar proportion of PAG samples, 43% and 46%, respectively.

- The unmineralized dykes are dominated by NPAG samples; other minor lithological groups have variable relative amounts of PAG samples, however, sample populations are generally too small to conclusively assess the ARD character for these groups.

When considered in the context of the mine rock production derived from the geological block model, the values listed in Table 5-3 translate into an overall PAG proportion of around 12% using the CaNPR criterion. This relatively low number, compared with the PAG percentage in the overall static test population (~20%), can be attributed to large tonnage of IMH material anticipated in the mine rock production schedule.

Table 5-3:
Distribution of PAG and NPAG NPR Values for Ajax Mine Rock Lithologies

	CaNPR	Bulk NPR
IMH		
# PAG samples	0	0
# NPAG samples	285	80
% PAG	0%	0%
SLD - weak		
# PAG samples	43	5.0
# NPAG samples	93	27
% PAG	32%	16%
SLD - mod		
# PAG samples	46	5.0
# NPAG samples	130	64
% PAG	26%	7%
SLD - strong		
# PAG samples	2.0	0
# NPAG samples	28	17
% PAG	7%	0%
MAFV		
# PAG samples	25	3.0
# NPAG samples	33	19
% PAG	43%	14%
PICR		
# PAG samples	58	0
# NPAG samples	67	53
% PAG	46%	0%
SLPH		
# PAG samples	2	0
# NPAG samples	2	1
% PAG	50%	0%
SVHYB		
# PAG samples	1.0	0
# NPAG samples	8	4
% PAG	11%	0%
Unmin. Dyke		
# PAG samples	2.0	0.00
# NPAG samples	31	8
% PAG	6%	0%

Table 5-4:
Statistical Range of ABA Values for Lithologies of the Ajax Deposit

	Paste pH	TIC	Total C	Total S	Sulphate S	Sulphide S	Insol. S	Non-SO_4 S	AP	CaNP	Bulk NP	NPR	
					%					*kg $CaCO_3$/t*		*CaNP/AP*	*Bulk NP/AP*
IMH													
n	*80*	*80*	*210*	*285*	*285*	*80*	*80*	*285*	*285*	*285*	*80*	*285*	*80*
Min	7.8	0.030	0.050	0.010	0.010	0.010	0.010	0.010	0.31	2.5	31	2.3	5.3
10th PCTL	8.1	0.060	0.12	0.010	0.010	0.010	0.010	0.010	0.31	8.3	38	13	44
Median	8.5	0.26	0.42	0.010	0.010	0.010	0.010	0.010	0.31	30	62	60	133
90th PCTL	8.9	1.3	1.4	0.058	0.010	0.020	0.040	0.050	1.6	118	201	229	523
Max	9.1	4.7	5.6	0.30	0.21	0.24	0.070	0.30	9.3	466	353	1128	1068
SLD - weak													
n	*32*	*32*	*110*	*136*	*136*	*32*	*32*	*136*	*136*	*136*	*32*	*136*	*32*
Min	7.8	0.050	0.050	0.010	0.010	0.010	0.010	0.010	0.31	4.2	24	0.17	0.81
10th PCTL	8.0	0.092	0.12	0.055	0.010	0.011	0.010	0.020	0.63	9.6	45	0.59	1.6
Median	8.7	0.30	0.30	0.27	0.010	0.12	0.020	0.22	6.9	25	97	3.8	13
90th PCTL	9.0	0.64	0.71	1.1	0.39	0.83	0.26	1.0	32	56	148	35	95
Max	9.6	1.1	2.0	2.7	1.4	2.5	0.93	2.7	83	168	181	237	477
SLD - mod													
n	*69*	*69*	*139*	*176*	*176*	*69*	*69*	*176*	*176*	*176*	*69*	*176*	*69*
Min	7.8	0.020	0.070	0.010	0.010	0.010	0.010	0.0050	0.16	1.7	21	0.037	0.30
10th PCTL	8.1	0.098	0.16	0.020	0.010	0.010	0.010	0.010	0.31	11	42	0.59	3.3
Median	8.6	0.47	0.39	0.19	0.010	0.020	0.020	0.12	3.8	32	78	10	43
90th PCTL	9.0	1.2	1.5	1.3	0.35	0.59	0.090	1.1	35	120	187	106	306
Max	9.3	3.1	4.7	5.0	2.7	4.9	0.14	5.0	156	392	252	816	806
SLD - strong													
n	*17*	*17*	*13*	*30*	*30*	*17*	*17*	*30*	*30*	*30*	*17*	*30*	*17*
Min	7.8	0.15	0.14	0.010	0.010	0.010	0.010	0.0100	0.31	12	31	0.40	2.3
10th PCTL	8.0	0.20	0.17	0.019	0.010	0.010	0.010	0.010	0.31	14	52	5.7	27
Median	8.7	0.62	0.61	0.060	0.010	0.020	0.020	0.040	1.3	51	106	36	85
90th PCTL	9.0	1.1	1.5	0.47	0.40	0.044	0.050	0.15	4.6	109	179	182	438
Max	9.1	3.9	2.1	1.7	0.61	1.1	0.090	1.1	36	324	315	519	505
MAFV													
n	*22*	*22*	*36*	*58*	*58*	*22*	*22*	*58*	*58*	*58*	*22*	*58*	*22*
Min	7.7	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.31	0.83	33	0.11	1.2
10th PCTL	8.2	0.040	0.040	0.027	0.010	0.010	0.010	0.019	0.61	3.1	36	0.48	1.6
Median	8.6	0.49	0.15	0.34	0.010	0.21	0.050	0.20	6.3	13	80	2.3	7.7
90th PCTL	9.0	1.1	0.72	0.87	0.32	2.8	0.11	0.75	24	86	186	37	144
Max	9.9	1.6	3.5	4.0	1.2	3.9	0.24	4.0	125	292	353	237	565

Table 5-4: Cont'd

	Paste pH	TIC	Total C	Total S	Sulphate S	Sulphide S	Insol. S	Non-SO_4 S	AP	CaNP	Bulk NP	NPR	
					%					*kg $CaCO_3$/t*		*CaNP/AP*	*Bulk NP/AP*
PICR													
n	*53*	*53*	*72*	*125*	*125*	*53*	*53*	*125*	*125*	*125*	*53*	*125*	*53*
Min	7.9	0.010	0.020	0.010	0.010	0.010	0.010	0.010	0.31	0.83	32	0.097	3.3
10th PCTL	8.4	0.020	0.030	0.020	0.010	0.010	0.010	0.020	0.63	2.0	50	0.42	11
Median	9.0	0.050	0.090	0.10	0.010	0.040	0.040	0.090	2.8	5.0	90	2.5	47
90th PCTL	9.6	0.33	0.46	0.44	0.036	0.21	0.12	0.39	12	31	360	14	244
Max	10	0.86	1.5	1.6	0.22	0.86	0.32	1.4	45	124	419	85	1207
SVHYB													
n	*4*	*4*	*5*	*9*	*9*	*4*	*4*	*9*	*9*	*9*	*4*	*9*	*4*
Min	8.1	0.15	0.16	0.010	0.010	0.010	0.010	0.010	0.31	12	44	0.91	20
10th PCTL	8.2	0.33	0.21	0.026	0.010	0.016	0.010	0.026	0.81	13	53	5.7	28
Median	8.6	0.98	0.46	0.090	0.010	0.035	0.021	0.050	1.6	63	134	26	66
90th PCTL	9.1	1.7	0.84	0.56	0.18	0.068	0.065	0.36	11	113	227	107	165
Max	9.3	2.0	0.85	0.91	0.88	0.080	0.080	0.47	15	164	241	123	200
Unmineralized Dyke													
n	*8.0*	*8.0*	*25*	*33*	*33*	*8.0*	*8.0*	*33*	*33*	*33*	*8.0*	*33*	*8.0*
Min	8.1	0.17	0.16	0.010	0.010	0.010	0.010	0.010	0.31	13	28	0.93	2.2
10th PCTL	8.4	0.28	0.23	0.010	0.010	0.010	0.010	0.010	0.31	19	77	7.2	12
Median	8.7	0.72	0.47	0.030	0.010	0.010	0.025	0.030	0.94	40	120	64	104
90th PCTL	8.9	1.2	0.93	0.49	0.070	0.68	0.11	0.27	8.3	80	149	125	338
Max	9.0	1.3	1.5	1.9	0.69	1.6	0.28	1.9	59	124	150	243	346
SLPH													
n	*1*	*1*	*3*	*4*	*4*	*1*	*1*	*4*	*4*	*4*	*1*	*4*	*1*
Min	8.7	-	0.38	0.090	0.010	-	-	0.090	2.8	32	-	0.50	-
10th PCTL	8.7	-	0.44	0.50	0.013	-	-	0.36	11	33	-	0.59	-
Median/Value	8.7	0.43	0.66	1.8	0.025	1.5	0.010	1.2	38	45	192	2.4	4.3
90th PCTL	8.7	-	1.3	2.4	1.0	-	-	1.8	58	103	-	15	-
Max	8.7	-	1.5	2.5	1.5	-	-	2.0	63	124	-	20	-

Notes: TIC = total inorganic carbon; TC = Total carbon; Insol. S = Insoluble S, Non-SO_4 S is calculated by subtracting sulphate sulphur from the total sulphur value; AP = acid potential based on non-SO_4 S; CaNP = Carbonate neutralization potential calculated from TIC or TC; NP = bulk neutralization potential; NPR = net potential ratio

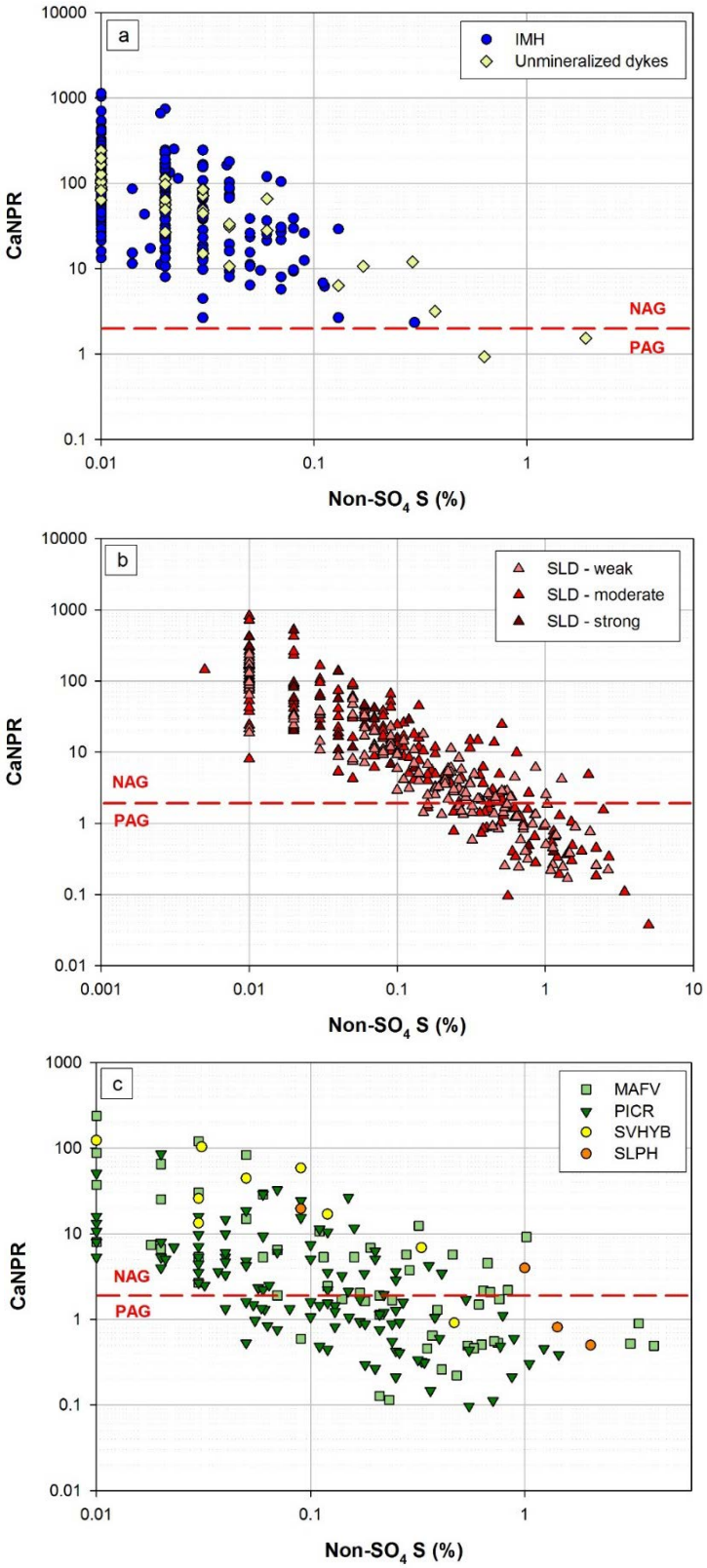


Figure 5-9: Non-SO_4 S versus CaNPR for the mine rock at the Ajax deposit.

5.1.1.2 Down Hole Geochemical Variability

When a significant proportion of mine rock is considered PAG (NPR values <2) then further investigations are required to understand the spatial distribution of NPAG rock with respect to PAG rock to evaluate the potential to segregate and manage the mine rock materials during operations and closure activities. The scale of the variability needs to be assessed to ascertain the frequency of sampling required to delineate PAG and NPAG material during operations. If PAG and NPAG material is variably encountered at a scale of 5 to 10 m, then sampling on a similarly sized grid may be required to delineate the spatial extent of PAG. However, if PAG material is observed to occur only at a larger scale, a lower sampling frequency on a larger grid would be effective at delineating zones of PAG material that requires management. The following discussion presents the results of high frequency sampling conducted along the length of a drill core to ascertain the scale at which PAG material may occur within the SLD and IMH units.

Sugarloaf Diorite

The variability of acid generating potential within the SLD unit was assessed by collecting 71 samples down drill core AN-08-034 from 3 m sample intervals that are spaced on 6 m centres. The ABA results from Drill Core AN-08-034 are plotted on Figure 5-10 through Figure 5-12 with depth down hole according to mine rock and ore types. The data in Figure 5-10 and Figure 5-11 demonstrate that the SLD mine rock has slightly higher paste pH and lower sulphur contents relative to the ore samples. Interestingly, paste pH values increase steadily downhole until 200 m before they decrease again to a minimum value of 7.6. The opposing trend, albeit weaker, is visible for non-SO_4 S suggesting a relationship between these two parameters. No trend is observed for CaNP with depth downhole (Figure 5-11).

Figure 5-12 shows the CaNPR and bulk NPR values by grade and lithology with depth down hole. The distribution of PAG samples (based on CaNP) is twofold, occurring either as isolated 3 m intervals separated by greater than 50 m from the next PAG interval or as clusters of 4 samples which extend over a 24 m interval. Based on these observations an appropriate scale for operational monitoring within the SLD will be sampling blast holes on a spacing of 24 m to 30 m over the entire bench height. This frequency of sampling will ensure that clusters of PAG material will be identified. Conversely, restricted zones of PAG on the order of 3 to 6 m wide will be blended with the surrounding rock to produce a NPAG unit through standard operational practices. While a similar spatial trend is observed for bulk NPR, fewer samples (n=4) were found to be PAG using bulk NP as the basis for NPR calculations.

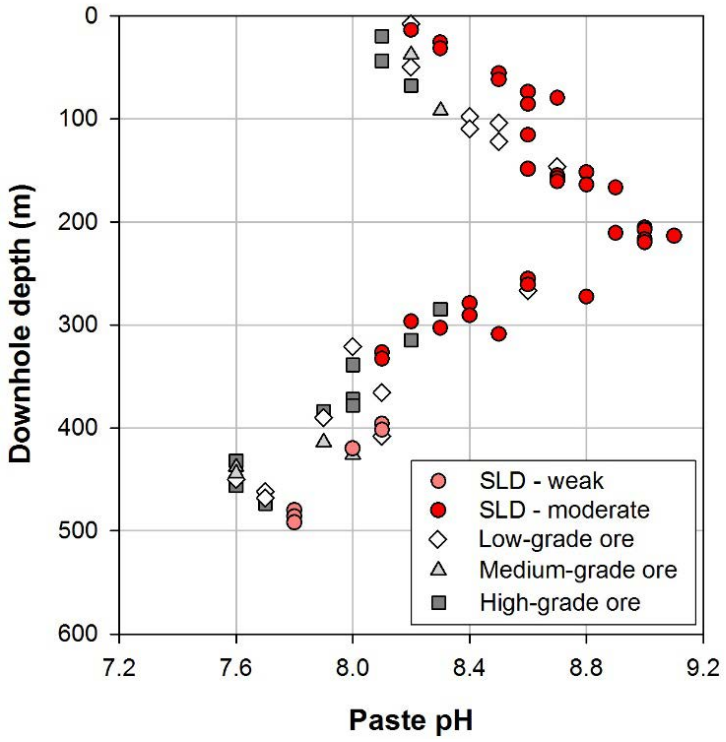


Figure 5-10: Plot showing paste pH values with downhole depth by ore grade and SLD lithology from drill hole AN-08-034

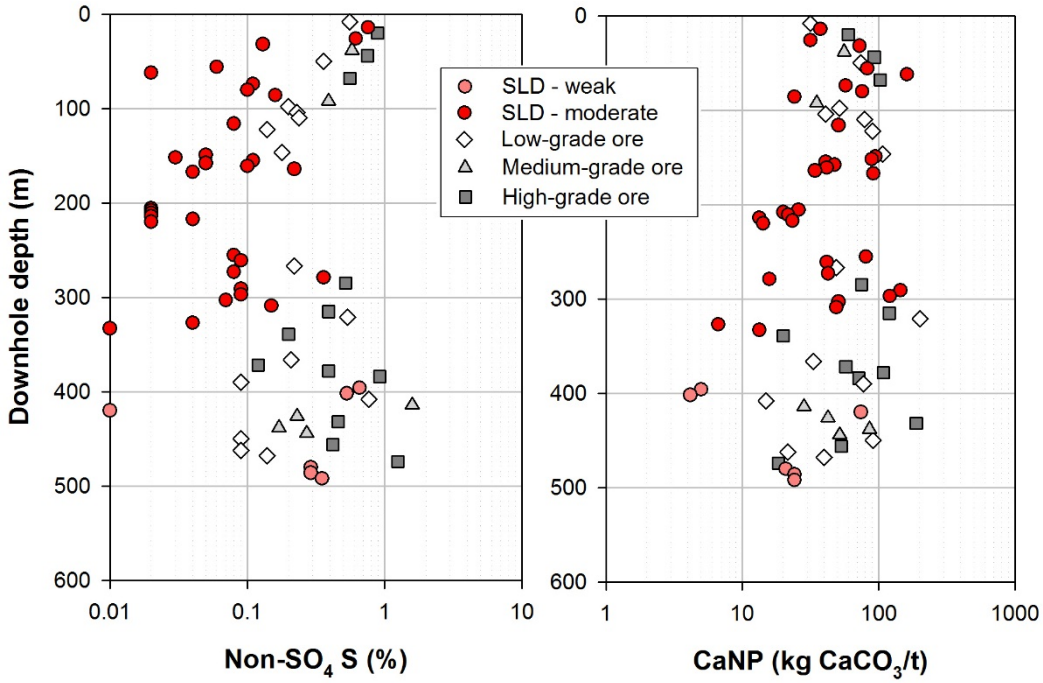


Figure 5-11: Plots showing non-SO_4 S and carbonate NP versus downhole depth for SLD mine rock and ore samples from drill hole AN-08-034

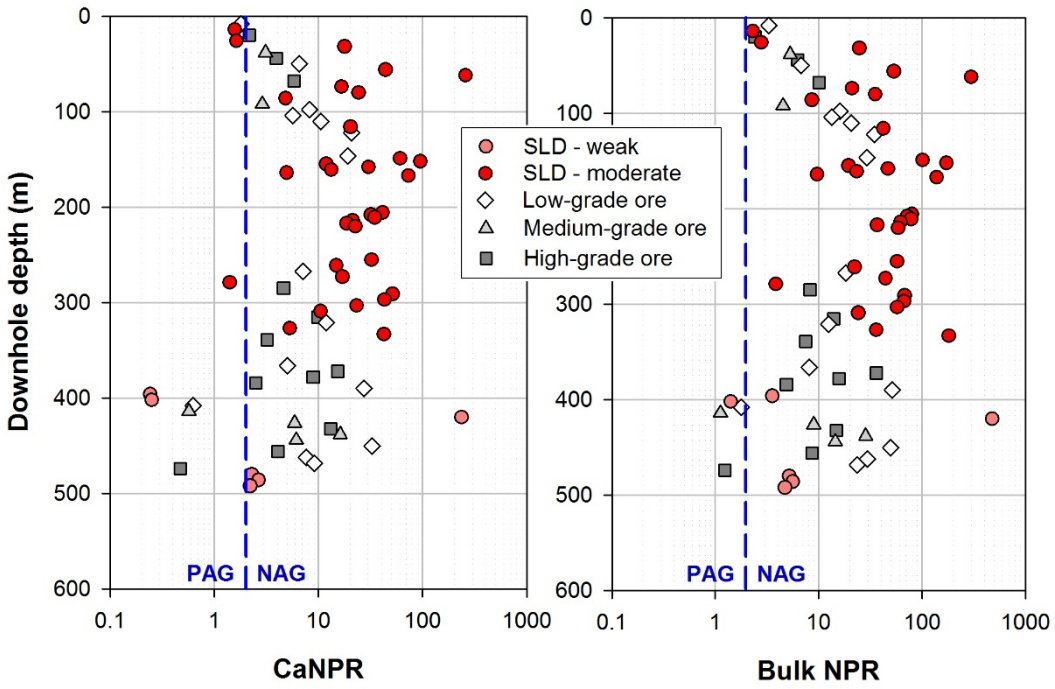


Figure 5-12: Plots showing CaNPR and bulk NPR versus downhole depth for SLD lithologies and ore from drill hole AN-08-034

The results of the second downhole assessment, for drill hole AM-07-007, are provided in Figure 5-13 and Figure 5-14 and indicate that there is considerable scatter in the sulphur and CaNP contents. The SLD mine rock shows more than an order of magnitude spread in non-SO_4 S concentrations while the highest sulphur contents are observed in the two ore samples (Figure 5-13). CaNP values reach their maximum at 150 m depth downhole and are lowest in the PICR mine rock samples at the bottom of the hole.

Four SLD and three PICR mine rock samples have a CaNPR below 2 in hole AM-07-007 and are hence considered PAG (Figure 5-14). Overall, the sample frequency recommended previously based on the AN-08-034 downhole testing is appropriate when the results from AM-07-007 are considered.

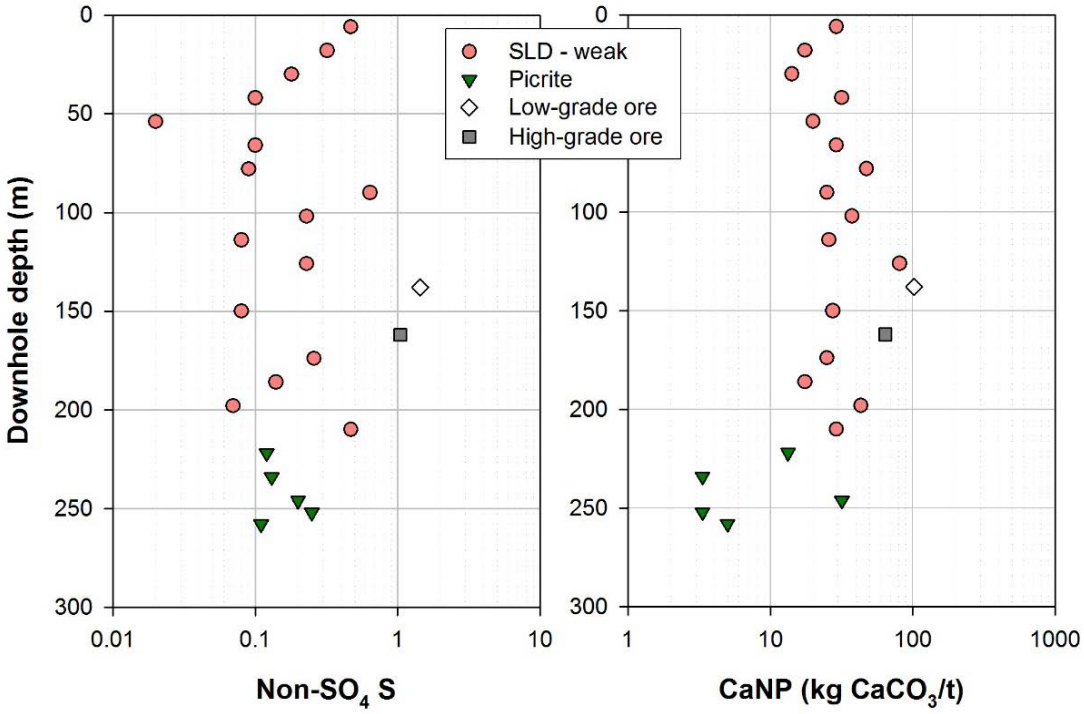


Figure 5-13: Plot showing total sulphur and carbonate NP values with downhole depth for mine rock and ore from drill hole AM-07-007

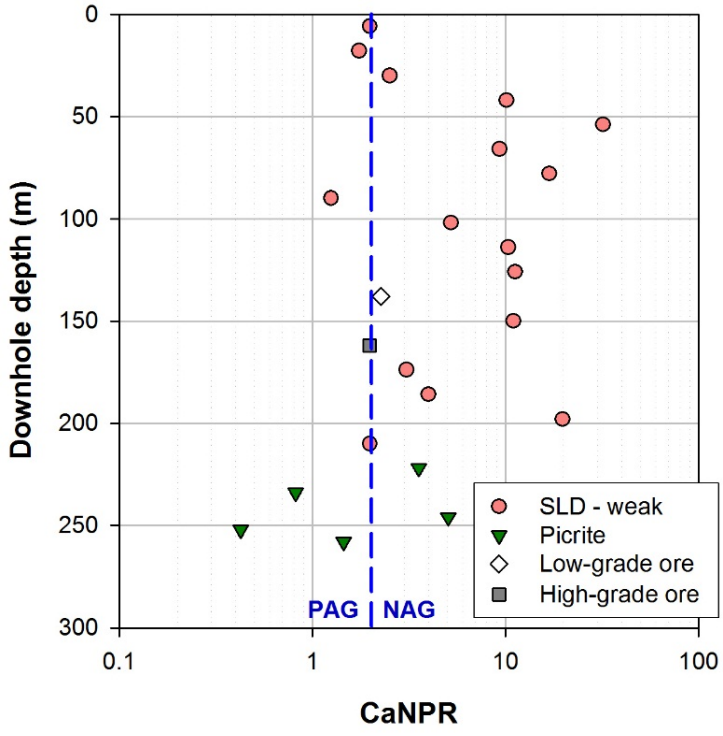


Figure 5-14: Plot showing CaNPR with downhole depth by ore grade and lithology for drill hole AM-07-007

IMH

Two ARD holes were drilled in the IMH, AM-11-087 and AW-11-126, each 250 m long angled roughly down the sides of the pit in areas with limited exploration drilling (Appendix F). Samples were analyzed for total S, sulphate S and total carbon in 6 m intervals; five of those samples were analyzed for complete ABA testing. All 82 of the samples had CaNPR values >2 with the total sulphur and sulphate S in most of the samples being below detection. The total carbon values for these samples were consistent with total carbon values for the rest of the deposit. The results of this focused sampling exercise from the two drill cores are consistent with the larger sample data set from the IMH unit, which indicates the unit is comprised of NPAG rock. The focused sampling supports the premise that small scale pockets of PAG rock would not be expected to occur within the IMH. Operational monitoring of this unit in the pit is not considered necessary.

5.1.2 Net Acid Generation Test

NAG testing was conducted on 117 samples from the various primary lithologies present in the Ajax deposit. There is good agreement between the NAG test results and the ABA test results for all samples (Appendix C-1.5). The static NAG testing includes the NAG pH that results from the addition of hydrogen peroxide, which oxidizes the sulphur in the sample, and the NAG acidity value in kg H_2SO_4/t based on first titrating the sample to a pH of 4.5 (if possible) and then titrating up to a pH of 7.0. The assessment criteria for the NAG tests are (MEND, 2009; Morin and Hutt, 2010):

- If NAG pH<4.5, then sample is PAG;
- If NAG value to pH 4.5 is greater than 5 kg H_2SO_4/t, then sample is PAG with high capacity;
- If NAG value to pH 4.5 is 0-5 kg H_2SO_4/t, then sample is PAG with low capacity; and,
- If sulphur content >1.0%, NAG test may not be complete.

With the exception of two examples, all of the occurrences of non-SO_4 sulphur greater than 1% are for samples clearly designated as PAG by both the NAG test and CaNPR value. Therefore, any effects of high sulphur content in the samples are considered negligible with respect to this evaluation. Non-SO_4 sulphur was used in the evaluation because high sulphate concentrations lead to high total sulphur concentrations in some samples. Sulphate is an oxidized form of sulphur and therefore would not directly affect the NAG test results.

Comparison of the two independent data sets indicates that the CaNPR criterion of 2.0 calculated from the ABA data is a conservative assessment for PAG classification as

demonstrated by 25% of the NAG test samples are considered PAG based on CaNPR values while only 8% are considered PAG based on the NAG test itself. Also significant is that all samples with a NAG pH < 4.5 also have CaNPR < 1.0, which suggests a CaNPR criterion < 2.0 for the PAG classification is conservative (Figure 5-15).

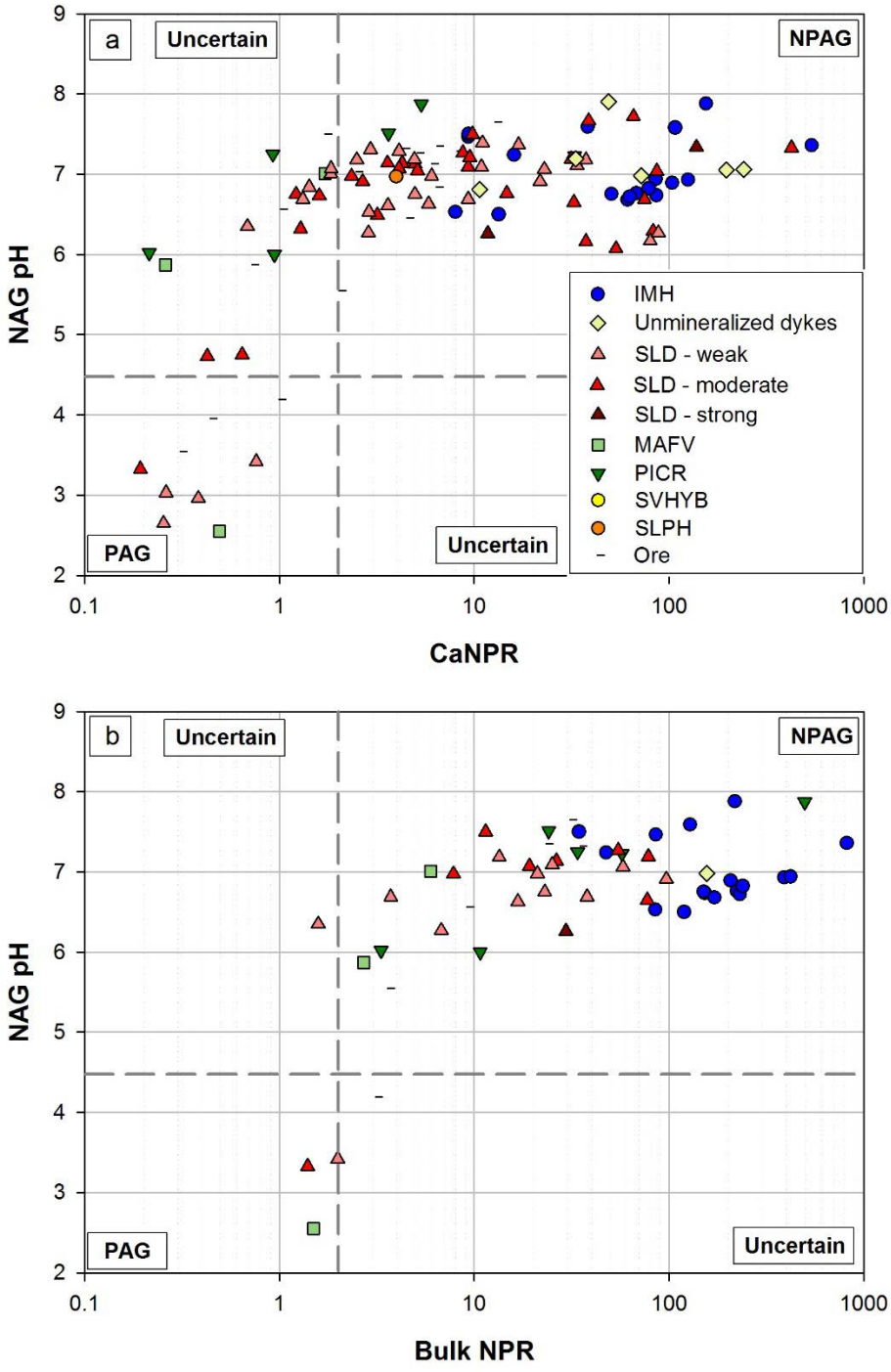


Figure 5-15: NAG pH versus a) CaNPR and b) bulk NPR for mine rock and ore samples from the Ajax deposit

5.1.3 Solid Phase Metals

Solid-phase metals data are used to identify which metals are enriched in the various mine rock materials. This information can be used in combination with ABA to establish the geochemical properties of the mine rock of the Ajax deposit. The degree of enrichment of an element over crustal abundance is used as a general indicator of the metals that could be of potential concern. Note that solid-phase metal concentrations well above crustal abundance do not conclusively indicate that the metal will be leached at a high rate from the material. Rather, the rate of metal leaching is related to the metal's mineralogical association and the aqueous geochemistry of the infiltrating waters.

An indicator of significant solid-phase enrichment is assigned herein to be values greater than three times the crustal abundance. Values for elements that were indicated to be present in concentrations below detection were set at the analytical limit in order to maintain a conservative analysis.

5.1.3.1 Mine Rock and Ore

Table 5-5 presents a statistical summary of the elemental abundances obtained from aqua-regia digestion of the Ajax mine rock and ore samples, with values greater than three times the average crustal concentration (ACC) marked in red.

The data in Table 5-5 indicates that the 90th percentile mine rock and ore concentrations for arsenic (As), chromium (Cr), copper (Cu), molybdenum (Mo), nickel (Ni), selenium (Se), and vanadium (V) are elevated with respect to three times the ACC. Selenium has a detection limit of 0.5 mg/L which is more than three times higher than the ACC, hence the indicated exceedance of minimum to median values for this species may not be a true exceedance.

Elevated metals in geological materials are commonly the result of sulphide mineralization; these metals may become mobile if sulphide oxidation occurs. Figure 5-16 plots a suite of such metals/metalloids (Ag, As, Cu, Co, Mo and Se) that are commonly of environmental concern in mining environments versus the non-SO_4 S content of the static test samples. The weak correlation illustrated by these plots suggests that these species are only partly controlled by the sulphide content of a sample, making their leaching behaviour less straightforward.

Table 5-5:
Results of Aqua-Regia Analysis for Solid Phase Metal Determination of Mine Rock and Ore Samples

	Ag	As	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	V	Zn
ACC	*0.075*	*1.8*	*0.15*	*25*	*102*	*60*	*5.6*	-	*950*	*1.2*	*84*	*14*	*0.2*	*0.05*	*120*	*70*
Mine Rock																
n	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*	*286*
Min	0.010	0.60	0.010	1.9	5.0	1.3	0.32	0.010	66	0.10	1.8	0.10	0.050	**0.50**	23	4.0
10th PCTL	0.030	1.2	0.020	8.3	25	32	1.2	0.010	168	0.20	8.8	0.40	0.050	**0.50**	64	9.0
Median	0.10	2.8	0.10	25	65	169	4.0	0.030	303	1.0	29	0.60	0.10	**0.50**	113	18
90th PCTL	0.10	**8.1**	0.10	62	**593**	**699**	7.5	0.15	600	**7.2**	**816**	1.5	0.20	**1.0**	**368**	34
Max	**0.40**	**54**	**0.72**	**83**	**1380**	**2282**	13	12	973	**370**	**1469**	9.4	**4.4**	**7.1**	**684**	120
Low-grade ore																
n	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*
Min	0.050	1.0	0.010	8.0	11	**188**	0.77	0.010	87	0.30	9.9	0.20	0.050	**0.50**	50	6.0
10th PCTL	0.10	1.3	0.032	13	25	**1091**	1.4	0.020	138	1.2	15	0.40	0.10	**0.50**	62	8.2
Median	0.20	2.7	0.10	28	49	**1497**	2.9	0.060	241	3.4	36	0.60	0.10	**0.80**	106	13
90th PCTL	**0.48**	**13**	0.10	59	**692**	**2200**	5.4	0.19	411	**33**	**566**	1.1	0.10	**2.0**	156	24
Max	**0.60**	**96**	0.30	**149**	**986**	**6605**	6.3	1.3	705	**115**	**1520**	3.7	**2.1**	**3.5**	276	27
Medium-grade ore																
n	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*
Min	0.090	1.5	0.020	5.9	16	**1250**	0.57	0.010	122	0.40	7.7	0.20	0.060	**0.50**	49	8.0
10th PCTL	**0.23**	2.4	0.050	17	32	**1575**	1.2	0.040	133	1.1	20	0.36	0.10	**0.50**	62	9.6
Median	**0.40**	3.4	0.10	35	39	**2564**	3.1	0.080	201	**5.5**	31	0.70	0.10	**1.0**	123	13
90th PCTL	**0.50**	**8.2**	0.10	73	211	**3438**	5.6	0.34	433	**30**	170	1.0	0.30	**1.8**	228	24
Max	**0.60**	**12**	0.10	**236**	**1240**	**3556**	6.9	0.56	581	**43**	**439**	2.8	0.32	**2.1**	331	31
High-grade ore																
n	*36*	*36*	*36*	*36*	*36*	*34*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*
Min	0.10	1.0	0.070	14	16	**1338**	1.0	0.020	85	0.20	22	0.30	0.10	**0.50**	40	9.0
10th PCTL	**0.35**	1.7	0.10	23	26	**2826**	1.5	0.050	148	1.8	29	0.50	0.10	**0.60**	59	11
Median	**0.80**	4.9	0.10	36	40	**4498**	2.9	0.13	284	**7.2**	49	0.80	0.10	**1.5**	118	16
90th PCTL	**1.1**	**21**	0.20	61	**445**	**7501**	4.5	0.56	443	**49**	146	1.4	**0.69**	**2.9**	193	27
Max	**4.4**	**322**	0.20	**120**	**919**	**10940**	11	2.2	553	**80**	**546**	4.1	**5.0**	**6.0**	**546**	32

Notes: All units are in ppm; ACC = average crustal concentration; values above 3 x ACC are indicated in red

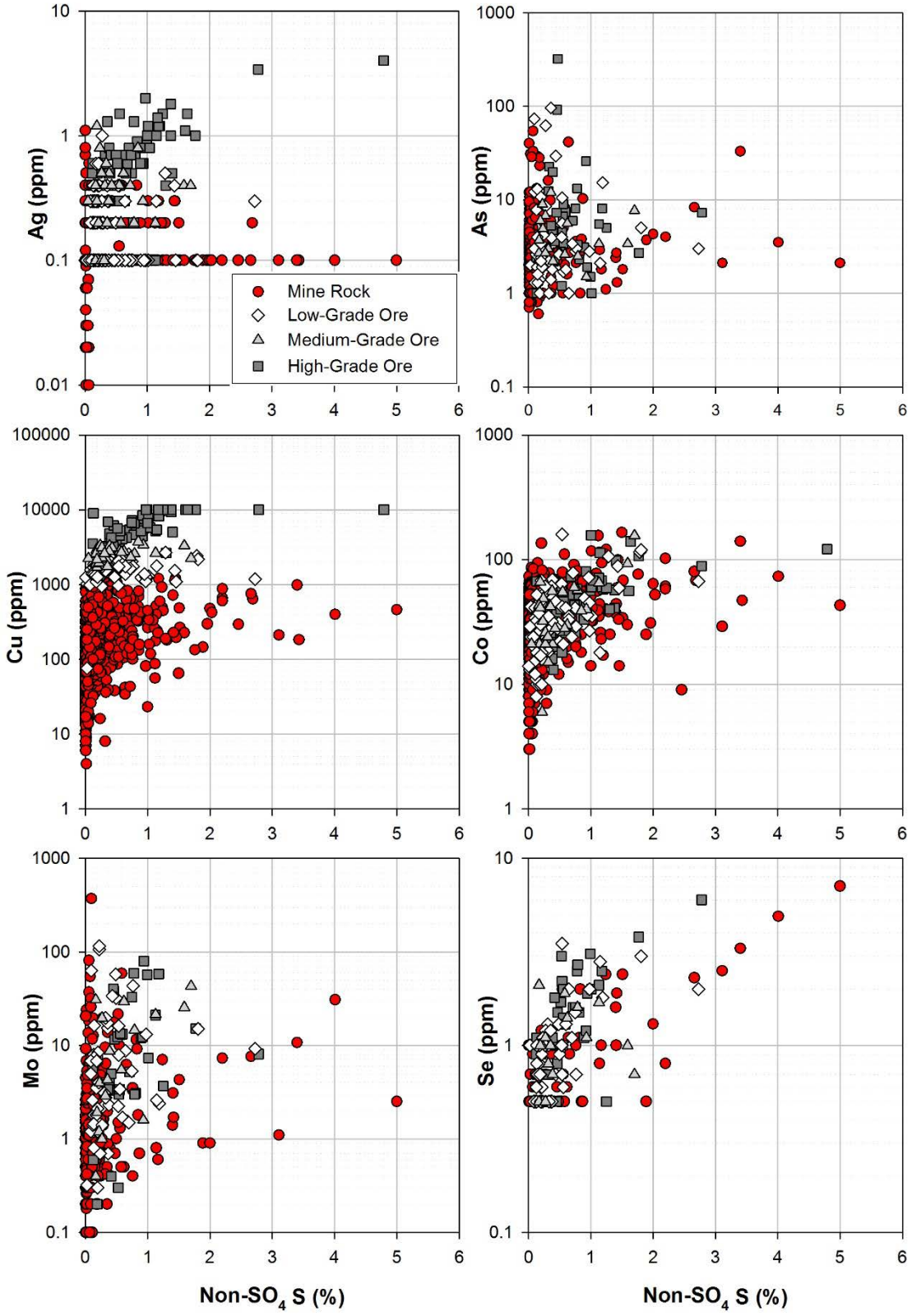


Figure 5-16: Non-SO_4 sulphur values versus aqua-regia Ag, As, Cu, Co, Mo and Se for mine rock and ore atthe Ajax deposit

Figure 5-17 shows plots of Co, Cr, Ni and V with aqua-regia Fe concentrations for mine rock and ore grades of the Ajax deposit. Aqua-regia Fe correlates with aqua-regia Mg and Al in all material types, indicating that Co, Cr, Ni and V are likely associated with primary rock forming minerals such as silicates (*e.g.*, serpentine, olivine, pyroxenes and/or amphiboles) and/or oxides (such as magnetite) rather than sulphides. This also indicates that these metals would not likely leach as rapidly from the material because silicates tend to weather slower than sulphide minerals.

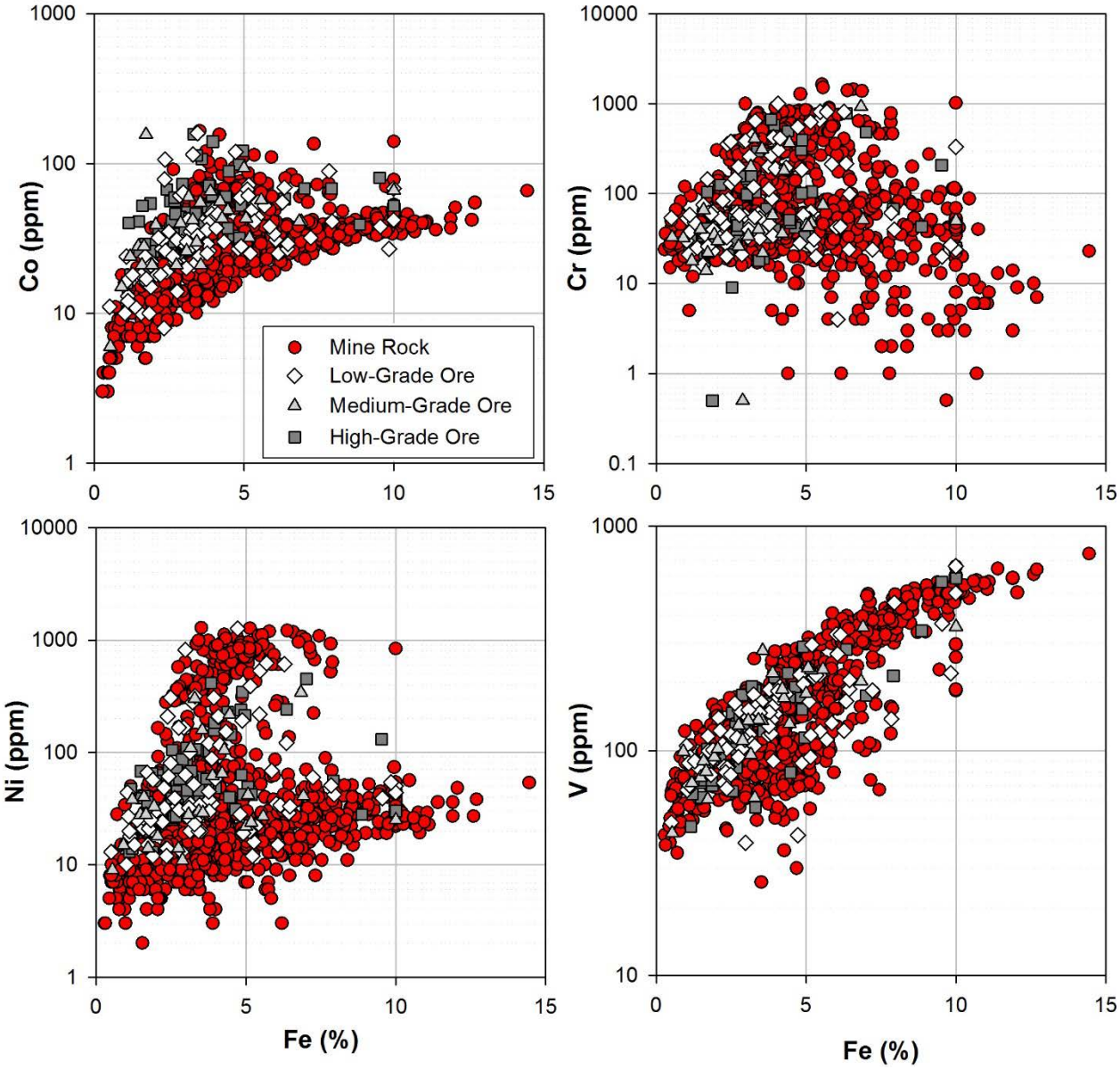


Figure 5-17: Aqua-regia Fe values versus aqua-regia Co, Cr, Ni and V for the different grades of the Ajax deposit

5.1.3.2 Mine rock Lithologies

The same metals that were plotted in Section 5.1.3.1 are plotted and discussed according to Ajax mine rock lithologies. Table 5-6 summarizes the elemental statistics in relation to major lithologies in the Ajax deposit. Figure 5-18 plots Ag, As, Cu, Co, Mo, and Se versus non-SO_4 sulphur concentrations for Ajax mine rock lithologies.

Only Cu and Co in Figure 5-18 show a weak correlation with increasing non-SO_4 sulphur concentrations for most lithologies. The IMH samples' sulphur content does not correlate well with elements other than Cu in Figure 5-18, due in part to total and non-SO_4 sulphur values generally near or below detection. The MAFV and PICR samples show weak positive relationships for Mo and Se and, therefore, sulphide minerals are likely the source for these elements in these units as well. No lithology shows a correlation between As and non-SO_4 sulphur.

Figure 5-19 plots Co, Cr, Cu, Ni, V and Zn versus aqua-regia Fe concentrations and demonstrates a good correlation for the IMH samples for Co and V, in particular, with weaker correlations for Ni and Zn. The IMH iron values do not correlate with Cr or Cu concentrations. The SLD, MAFV and PICR samples show similar trends between Fe concentrations and the plotted elements as the IMH samples. Also of note are the higher Co, Cr and Ni concentrations in the MAFV and PICR samples compared to the other lithologies. This is not surprising as these elements partition strongly into more mafic minerals such as olivine. The highest vanadium contents are observed in the IMH population.

The PICR unit also contains relatively higher concentrations of Mg (Figure 5-20) and show a distinct trend compared with the other lithologies. While none of the lithologies, individually, show a good correlation between Mn and Fe concentrations, there is a general trend of increasing Mn with increasing Fe content for the Ajax samples as a group, indicating that some Fe is derived from minerals other than sulphides as discussed in the preceding assessment by grade classification. Albeit weaker, this overall relationship is also observable for aqua-regia Al and Fe contents (Figure 5-20).

Overall, on a unit basis, the PICR and MAFV populations represent a greater repository for Co, Cr and Ni, while IMH represents a greater source for V and Zn and SLD represents the dominant source for Cu and Ag. It is important to keep in mind however, that the solid-phase content of a specific element of concern may not be directly related to its leaching characteristics highlighting the importance of rock-specific kinetic testing as the basis for water quality predictions.

Table 5-6:
Solid Phase Metal Results for Ajax Lithologies

	Ag	As	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	V	Zn
ACC	*0.075*	*1.8*	*0.15*	*25*	*102*	*60*	*5.6*	-	*950*	*1.2*	*84*	*14*	*0.2*	*0.05*	*120*	*70*
IMH																
n	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*
Min	0.010	1.0	0.010	8.4	5.0	2.6	1.7	0.010	189	0.10	6.6	0.20	0.050	**0.50**	68	12
10th PCTL	0.030	1.4	0.020	19	17	13	3.7	0.010	278	0.10	14	0.40	0.050	**0.50**	199	19
Median	0.10	3.0	0.10	29	58	75	6.1	0.020	401	0.60	28	0.60	0.10	**0.50**	309	27
90th PCTL	0.10	**6.1**	0.10	40	266	**436**	10.0	0.14	664	2.3	59	1.2	0.52	**1.0**	**487**	40
Max	0.20	**9.5**	**0.72**	48	**1120**	**730**	13	1.1	820	**9.2**	**722**	2.9	**3.4**	**1.0**	**684**	120
SLD - weak																
n	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*	*32*
Min	0.030	0.60	0.010	4.9	15	83	0.62	0.010	102	0.10	4.9	0.20	0.050	**0.50**	52	4.0
10th PCTL	0.10	1.4	0.10	10	30	106	1.6	0.010	133	0.41	7.4	0.31	0.10	**0.50**	62	8.0
Median	0.10	2.7	0.10	19	48	**269**	3.1	0.030	228	1.7	18	0.65	0.10	**0.50**	118	13
90th PCTL	0.10	**8.0**	0.10	64	223	**777**	4.6	0.26	333	**11**	204	1.4	0.10	**1.0**	159	20
Max	0.20	**12**	0.10	**76**	**539**	**1186**	10	1.7	526	**81**	**859**	1.6	**3.6**	**2.3**	325	27
SLD - moderate																
n	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*
Min	0.020	0.70	0.010	2.0	11	32	0.32	0.010	66	0.10	3.9	0.40	0.050	**0.50**	23	4.0
10th PCTL	0.10	1.2	0.10	5.0	25	76	0.71	0.010	136	0.50	8.3	0.40	0.10	**0.50**	62	7.0
Median	0.10	2.4	0.10	13	42	**348**	2.3	0.040	205	1.7	20	0.60	0.10	**0.50**	104	12
90th PCTL	0.20	**7.0**	0.10	31	83	**810**	4.4	0.15	323	**8.8**	50	1.3	0.16	**1.1**	152	18
Max	**0.40**	**41**	0.10	66	**655**	**1099**	8.3	0.52	458	**59**	**813**	8.7	**1.5**	**7.1**	**399**	30
SLD - strong																
n	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*	*17*
Min	0.010	1.5	0.010	1.9	25	1.3	0.33	0.010	106	0.18	1.8	0.40	0.050	**0.50**	43	4.0
10th PCTL	0.020	2.0	0.026	3.0	30	35	0.45	0.010	137	0.47	5.6	0.40	0.050	**0.50**	52	6.6
Median	0.10	2.8	0.10	8.4	45	**304**	2.0	0.030	219	0.98	12	0.90	0.10	**0.50**	92	12
90th PCTL	0.10	5.4	0.10	24	119	**565**	3.5	0.11	347	**7.0**	67	1.5	0.13	**1.0**	160	20
Max	0.20	**7.0**	0.13	44	**364**	**602**	4.6	0.31	674	**21**	93	1.6	**2.5**	**1.0**	169	22
MAFV																
n	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*	*22*
Min	0.020	1.0	0.010	3.4	14	37	0.57	0.010	130	0.20	8.2	0.10	0.050	**0.50**	49	5.0
10th PCTL	0.082	1.8	0.011	10	42	74	2.5	0.010	205	0.41	15	0.31	0.050	**0.50**	54	12
Median	0.10	2.5	0.10	33	262	160	3.3	0.045	303	2.0	226	0.70	0.10	**0.55**	93	19
90th PCTL	0.14	5.3	0.10	62	**457**	**827**	4.8	0.47	479	**17**	**453**	1.7	0.11	**2.5**	152	31
Max	**0.30**	**33**	0.10	**78**	**574**	**2282**	6.6	12	792	**31**	**947**	4.3	**4.4**	**4.9**	232	39

Table 5-6: Cont'd

	Ag	As	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	V	Zn
ACC	*0.075*	*1.8*	*0.15*	*25*	*102*	*60*	*5.6*	-	*950*	*1.2*	*84*	*14*	*0.2*	*0.05*	*120*	*70*
PICR																
n	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*	*53*
Min	0.010	0.70	0.010	12	8.0	14	2.4	0.010	173	0.10	4.9	0.20	0.050	**0.50**	38	6.0
10th PCTL	0.030	1.0	0.010	36	**342**	48	3.8	0.010	246	0.20	**431**	0.30	0.050	**0.50**	69	12
Median	0.10	3.4	0.10	59	**597**	118	4.6	0.010	538	0.50	**819**	0.50	0.10	**0.50**	84	24
90th PCTL	0.10	**22**	0.10	70	**836**	**633**	5.5	0.040	760	**4.6**	**1088**	2.0	0.10	**1.0**	116	36
Max	0.20	**54**	0.10	**83**	**1380**	**936**	7.5	0.10	973	**370**	**1469**	9.4	0.22	**2.0**	209	50
SVHYB																
n	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*	*4*
Min	0.080	2.0	0.020	17	33	26	0.96	0.010	200	0.30	14	0.60	0.10	**0.50**	56	9.0
10th PCTL	0.086	2.1	0.044	17	41	90	1.5	0.013	204	0.42	18	0.60	0.10	**0.50**	73	11
Median	0.10	2.5	0.10	22	119	**303**	2.9	0.040	343	1.7	34	0.65	0.10	**0.50**	118	26
90th PCTL	0.10	**6.5**	0.10	26	181	**384**	3.7	0.10	635	3.2	113	1.5	0.35	**0.85**	136	55
Max	0.10	**8.2**	0.10	27	182	**392**	4.0	0.12	705	3.5	145	1.8	0.46	**1.0**	142	63
Unmineralized dyke																
n	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*	*8*
Min	0.10	2.5	0.10	3.9	23	34	0.91	0.010	121	0.70	3.4	0.50	0.10	**0.50**	50	10
10th PCTL	0.10	2.6	0.10	4.7	24	105	1.2	0.010	202	0.84	4.1	0.57	0.10	**0.50**	56	11
Median	0.10	3.0	0.10	19	32	**203**	3.4	0.035	288	1.8	7.3	0.75	0.10	**0.50**	99	13
90th PCTL	0.13	4.0	0.10	23	58	**493**	4.7	0.091	394	**20**	18	1.1	0.20	**0.56**	149	22
Max	0.20	4.8	0.10	23	61	**662**	4.8	0.14	394	**24**	19	1.4	0.20	**0.70**	168	23
SLPH																
n	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Value	0.10	1.3	0.10	68	**528**	**236**	4.9	0.010	274	1.7	**719**	0.30	0.10	**1.9**	98	16

Notes: all units are in ppm; ACC = average crustal concentration; values above 3 x ACC are indicated in red; annotations after SLD reflect the degree of albitization.

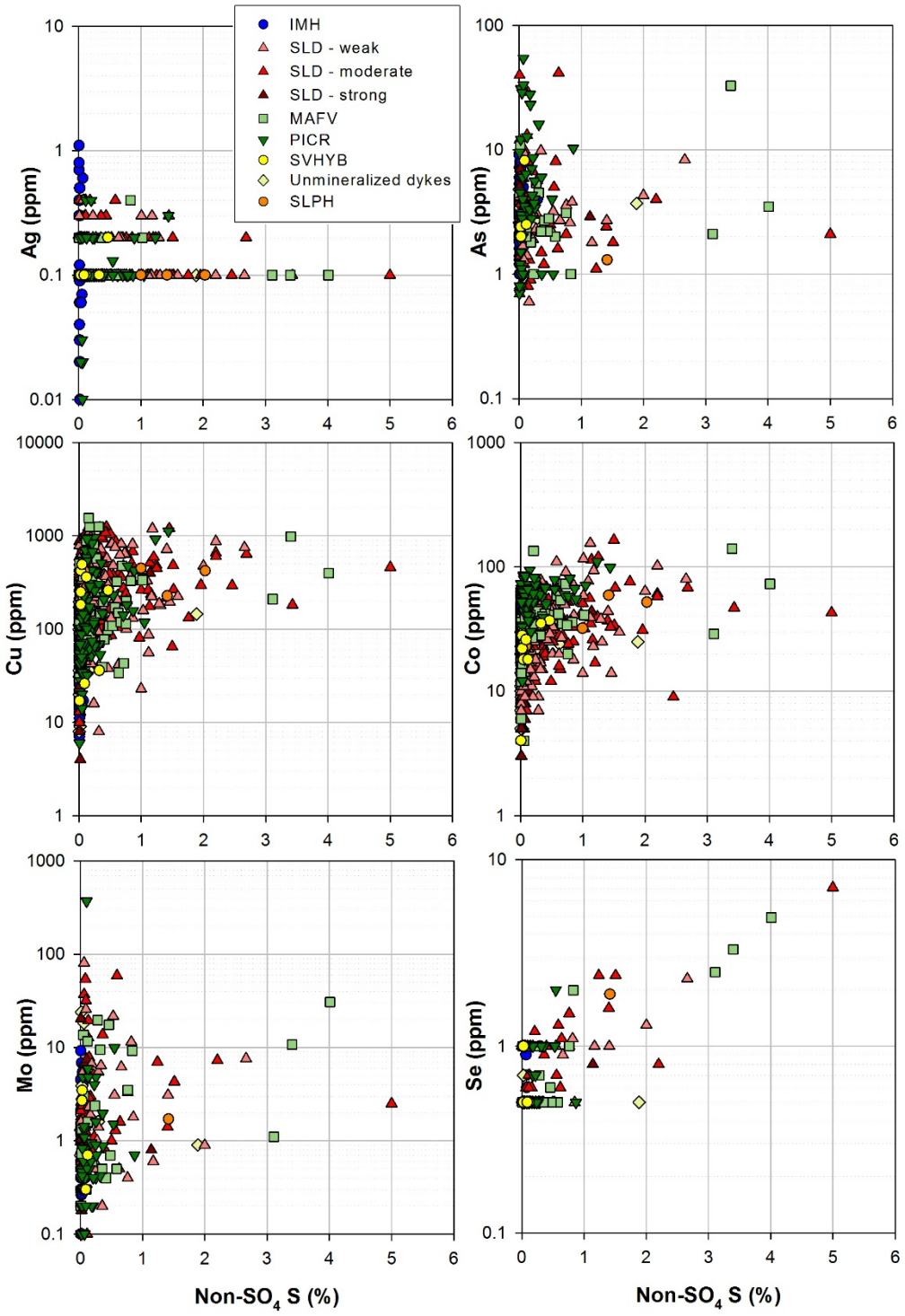


Figure 5-18: Non-SO_4 sulphur values versus aqua-regia Ag, As, Cu, Co, Mo, and Se for the various mine rock lithologies of the Ajax deposit

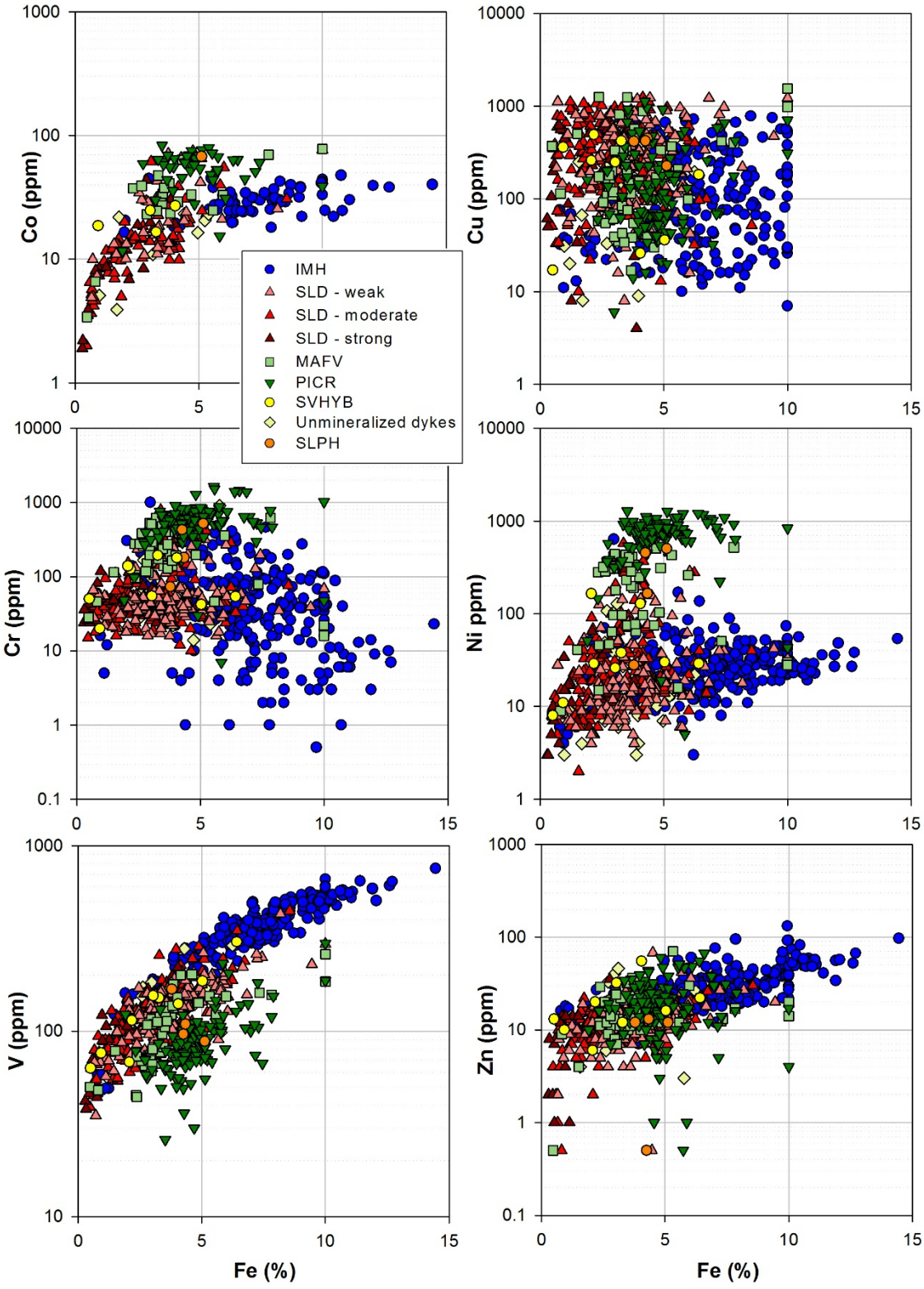


Figure 5-19: Aqua-regia Fe values versus aqua-regia Co, Cr, Ni, V, Cu and Zn for the various mine rock lithologies of the Ajax deposit

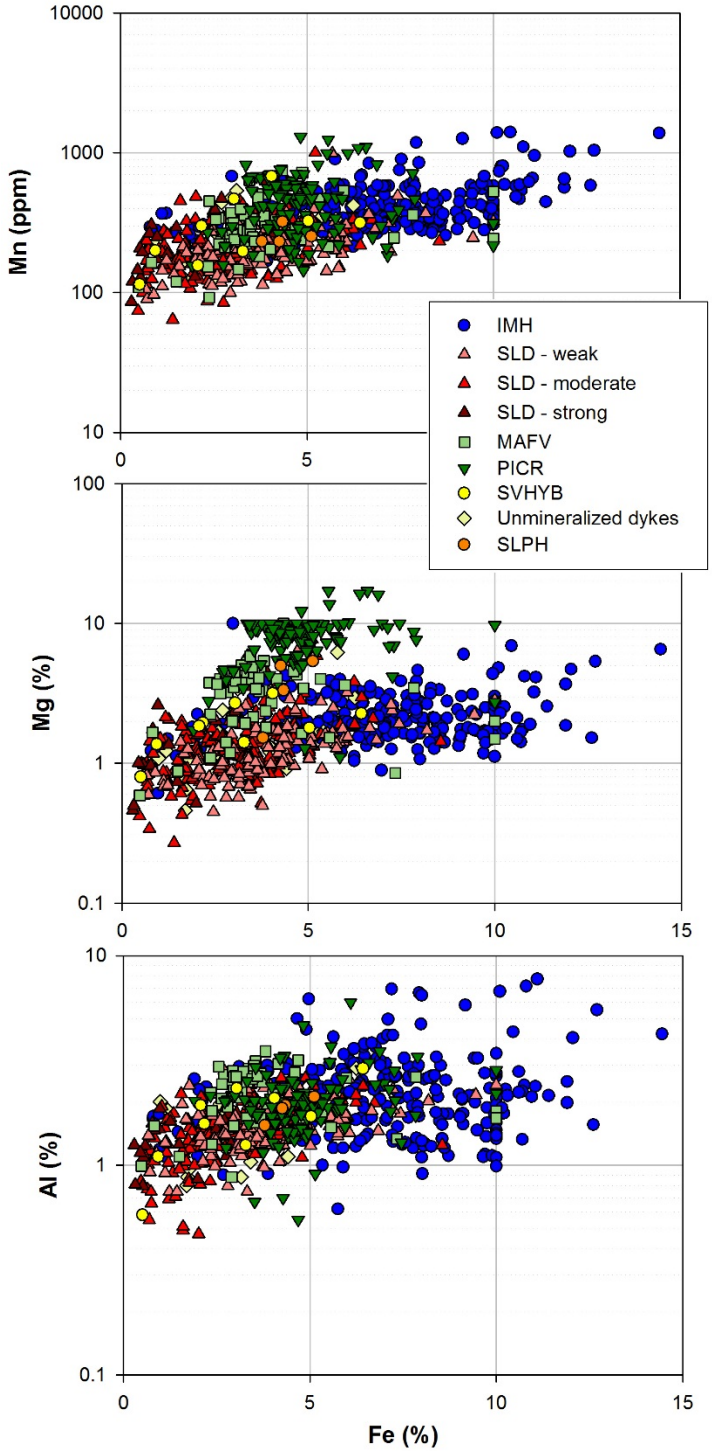


Figure 5-20: Aqua-regia Fe values versus aqua-regia Al, Mg and Mn for the various mine rock lithologies of the Ajax deposit

5.2 Kinetic Test Programs Samples

5.2.1 Mine rock

5.2.1.1 Laboratory Kinetic Test Samples

Particle Size Analysis

Given that the rate of dissolution increases as particle surface area increases, it is important to know the relative volume of fine particles when discussing the bulk samples as a whole (Jambor, 2002). Table 5-7 presents the distribution of grain sizes determined from sub-samples collected from the Ajax unsaturated column and humidity cell kinetic tests. These data indicate that mine rock sub-samples are predominantly composed of particles greater than 0.425 mm, with the largest proportion of material in the 1.7 to 6.3 mm fraction.

Acid-Base Accounting

Acid-base-accounting results for the mine rock laboratory kinetic test sub-samples are presented in Table 5-8. The paste pH of Ajax kinetic test sub-samples are slightly to moderately alkaline (8.1 – 9.4).

The Ajax kinetic test samples were selected primarily based on spatial distribution and representative of sulphur and NP contents that were measured in drill core samples for each lithology. The composited samples were selected so that when compared against the static test database and were found to fall, for the most part, close to the median and within the 10^{th} and 90^{th} percentile values of the respective lithological population (Table 5-8).

As to be expected, samples from Col-2 and Col-3 that underwent a carbonate NP leach before the initiation of the kinetic tests have carbon contents well below the 10^{th} percentile of the SLD sample population, also altering NPR values of the original samples. However, note that the sub-samples of the four SLD samples which were depleted of carbonate NP (HC3, HC4, HC5 and HC6) still have similar total sulphur values relative to their untreated counterparts. The high sulphur-bearing untreated SLD samples (Col-3/HC2) contain notably higher sulphate concentrations (0.22 %), identified by XRD to be non-acid generating gypsum. The sulphate fraction in Col-3/HC2 was removed with the removal of carbonate phases.

Table 5-7:
Grain Size Distribution for the Ajax Mine Rock Laboratory Kinetic Test Sub-Samples

Sieve Size (mm)	SLD				IMH		MAFV/ PICR	IMH		SVHYB	PICR		MAFV
	Col-2 & HC1	HC3 (NP removed)	Col-3 & HC2	HC4 (NP removed)	Col-4	Col-5	Col-6	Col-7	Col-8	Col-9	Col-10	Col-11	Col-12
9.5	7	5.2	6.2	1.7	14.2	4.2	8.8	1.5	6.7	4.1	14.2	9.2	7.9
6.73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29.7	N/A	N/A	N/A	N/A
6.3	35.5	38.7	19.4	25.4	28.1	21.2	22.2	30.6	13.5	29.1	48	31	29.6
3.36	25.7		24		17.5	25.5	19.9	24.7	22.3	20.8	21.2	18.1	19.9
1.7	8.4	25.1	10.7	42.8	10.5	11.9	10.8	19	13.5	17.6	9.9	14.5	14.6
0.425	13.8	17.9	22.4	18.9	17.4	20.9	20.8	16.1	9.1	18.9	5.2	17.4	17.8
0.15	3.9	5	7.3	4.6	5.5	6.9	7.5	4.5	2.5	5.6	0.7	5.2	6.4
0.053	2.7	3.3	4.6	3	3.6	4.9	4.6	2.2	1.3	2.4	0.4	2.7	2.6
<0.053	3	4.8	5.2	3.7	3.2	4.4	5.4	1.4	1.4	1.5	0.4	1.9	1.2
Total	*100*	*100*	*99.8*	*100.1*	*100*	*99.9*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Carbonate NP values for the untreated SLD kinetic test samples are consistent at ~30 kg $CaCO_3$/t, which were effectively depleted in the HC3, HC4 and HC5 treated sub-samples. Sobek bulk NP values are also consistent, and twice the value of the CaNP values. When CaNP is conservatively used for NPR calculations, the median sulphur-bearing SLD sample (Col-2/HC1) is indicated to be NPAG according to a NPR value of 5.8, whereas the high-sulphur bearing sample (Col-3/HC2) is designated PAG based on a NPR value of 1.8. Both CaNP depleted sub-samples are classified as PAG after treatment.

Sulphide and sulphate sulphur values are below detection (<0.02 %) in the IMH kinetic test sub-samples (Col-4, 5, 7 and 8). Notably, samples Col-7 and Col-8 contain relatively high amounts of insoluble S, likely in the form of jarosite (Table 4-1), making up virtually all of the total S content. As with the SLD samples, NP values are significantly higher than the CaNP values. All samples have NPR values well above 2 and are therefore classified as NPAG.

Only the SVHYB kinetic test sample (Col-9) appears to be relatively unrepresentative of its respective lithological unit with NP values generally being lower and S values being higher than values observed in the SVHYB mine rock population. This discrepancy may be an artifact of the proximity of this unit to the ore shell where the ore-vs-mine rock designation was changed after the kinetic test sample had been selected. Nevertheless, this kinetic cell should still give valuable insight into the conservative leaching behaviour of the SVHYB lithology.

The two kinetic test samples that make up samples Col-10 and Col-11 show ABA values that generally fall within the 10^{th}-90^{th} percentile range of the PICR static test population, except for insoluble S in sample Col-11 which is somewhat higher. The two samples have a comparably low CaNP, while Col-11 has a much higher bulk NP value suggesting more readily available silicate buffering potential (Table 5-8). Sulphide S contents are relatively similar with values of 0.11 and 0.17% for Col-10 and Col-11 samples, respectively. Both PICR cells are considered PAG when using the CaNP and NPAG when using the bulk NP as the calculation measure. The carbonate depleted duplicate cells of samples Col-10 and Col-11 (HC9 and HC10, respectively) show similar solid-phase sulphur speciation. As to be expected, these cells have CaNP below the detection limit (Table 5-8), while the bulk NP was reduced by little (<10%) in comparison with the original samples. This is an indication of the dominant role of non-carbonate (silicate) NP in the PICR unit.

The MAFV sample of sample Col-12 is representative of its larger lithological population and has a relatively high sulphide S content of 0.26%. In comparison with the two PICR samples, bulk and CaNP values are much closer together suggesting that silicate NP plays

a lesser role in this lithology highlighting the importance of a separate geochemical assessment of the MAFV and PICR units.

High total sulphur concentrations of 0.31% are present in the MAFV/PICR kinetic test sub-sample (Col-6), all of which is indicated to be sulphide sulphur. Median concentrations of CaNP (31.7 kg $CaCO_3$/t) and NP values (81.3 kg $CaCO_3$/t) are present in Col-6, with NP values more than twice that of CaNP. NPR calculated from CaNP is 3.4 and is therefore classified as NPAG. This sample was composited when limited quantities of core material were available for kinetic testing, requiring mixing of the two lithologies. As mentioned above, it is important to evaluate the leaching characteristics of PICR and MAFV individually such that this cell will be used as a reference more so than for geochemical source term development.

Solid Phase Metals

The metals results from the composited kinetic samples were compared against the respective lithological static test database and were found to fall, for the most part, in the 10th-90th percentile range (Table 5-9), consistent with the selection and compositing process. However, several species of interest exceed the respective 90th percentile value (indicated in green in Table 5-9) and can therefore be considered overly conservative. The MAFV sample Col-12 represents shows non-conservative metal concentrations falling below the 10th percentile of the MAFV sample population. The affected metals include Ag, Fe, and Mn. The dissolved concentrations of the latter two are strongly controlled by mineral equilibria depending on pH and redox conditions and are rarely correlated with their respective solid-phase contents. If Ag is found to be a potential parameter of concern, the low content of this metal in the Col-12 sample will need to be re-evaluated. Additionally, HC10 shows a V content of 62 ppm, which is lower than the 10^{th} percentile value of the PICR population.

Table 5-8:
Acid-Base Accounting Results for Ajax Laboratory Kinetic Test Samples

Sample ID	Unit	Paste pH	TIC	Total C	Total S	SO_4 S	Sulphide S	Insol. S	Non-SO_4 S	AP	CaNP	NP	CaNPR	Bulk NPR
						%					kg CaCO3/t			
Col-2/HC1	SLD	8.1	0.37	0.35	0.20	0.030	0.16	<0.02	0.17	5.3	31	58	5.8	11
Col-3/HC2	SLD	8.2	0.40	0.41	0.80	0.22	0.63	<0.02	0.58	18	33	63	1.8	3.5
Col-4	IMH	8.5	0.30	0.28	<0.02	<0.01	<0.01	<0.02	<0.02	<0.625	25	52	40	83
Col-5	IMH	8.4	0.68	0.61	<0.02	<0.01	<0.01	<0.02	<0.02	<0.625	57	149	91	239
Col-6	MAFV/PICR	8.7	0.38	0.37	0.31	<0.01	0.32	<0.02	0.31	9.7	32	81	3.3	8.4
Col-7	IMH	8.5	0.65	0.67	0.024	<0.01	<0.01	0.024	0.024	0.75	54	35	72	47
Col-8	IMH	8.7	0.52	0.53	0.022	<0.01	<0.01	0.022	0.022	0.69	43	29	63	42
Col-9	SVHYB	*8.2*	*0.17*	*0.18*	*0.84*	*0.43*	*0.17*	*0.24*	*0.41*	*13*	14	*21*	*1.1*	*1.7*
Col-10/HC7	PICR	9.4	0.040	0.046	0.15	<0.01	0.11	0.043	0.15	4.8	3.3	37	0.70	8
Col-11/HC8	PICR	9.1	0.050	0.061	0.30	<0.01	0.17	*0.13*	0.30	9.3	4.2	47	0.45	5
Col-12	MAFV	8.9	0.28	0.29	0.31	<0.01	0.26	0.053	0.31	9.8	23	45	2.4	4.6
HC3*	SLD	8.5	*<0.05*	*0.050*	0.13	0.050	0.15	<0.02	0.080	2.5	*<4.2*	*27*	1.7	11
HC4*	SLD	8.3	*<0.05*	*0.070*	0.69	0.060	0.68	<0.02	0.63	20	*<4.2*	*31*	*0.21*	*1.6*
HC9*	PICR	9.3	*<0.01*	*0.017*	0.16	<0.01	0.12	0.04	0.16	5	*<0.8*	30	*0.16*	5.9
HC10*	PICR	8.7	*<0.01*	*0.035*	0.25	<0.01	0.15	0.10	0.25	8	*<0.8*	34	*0.10*	4.3

Notes: Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population.
NP for Col-2 through Col-6 (and their duplicate cells) was determined using the Sobek NP method, while the remaining cells udnerwent modified NP analysis.
*these humidity underwent NaOAc-treatment for the removal of carbonate NP

Table 5-9:
Solid Phase Metal Determination for Ajax Mine Rock Laboratory Kinetic Test Samples

Sample ID	Unit	Ag	As	Cd	Co	Cr	Cu	Fe	Hg	Mn	Mo	Ni	Pb	Sb	Se	V	Zn
		ppm	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
Col-2/HC1	SLD	<0.1	1.5	<0.1	24	62	442	3.6	0.020	222	2.4	12	0.80	<0.1	<0.5	126	13
Col-3/HC2	SLD	0.20	5.9	<0.1	45	169	705	3.3	0.050	233	5.5	123	1.2	<0.1	1.1	120	14
Col-4	IMH	<0.1	1.7	<0.1	26	37	62	5.8	<0.01	362	0.50	25	1.0	<0.1	<0.5	307	28
Col-5	IMH	<0.1	2.5	<0.1	31	142	255	6.2	0.020	418	1.3	39	0.70	<0.1	0.70	298	20
Col-6	MAFV/PICR	<0.1	4.1	<0.1	39	387	231	3.4	0.040	322	8.8	453	0.40	<0.1	<0.5	84	16
Col-7	IMH	0.050	5.0	0.020	24	54	132	7.3	*0.17*	455	*2.5*	15	0.80	*1.1*	<0.5	423	23
Col-8	IMH	0.040	5.0	0.030	38	249	149	8.3	0.010	648	2.2	*155*	0.60	0.14	<0.5	415	*44*
Col-9	SVHYB	*0.39*	3.0	<0.05	*28*	81	*2340*	3.5	0.030	241	*7.3*	26	0.90	<0.13	<0.5	*209*	15
Col-10/HC7	PICR	0.030	10	0.030	56	578	111	5.1	0.020	531	0.89	847	1.0	0.090	<0.5	87	21
Col-11/HC8	PICR	0.070	4.0	0.040	63	*863*	*660*	5.1	0.030	687	1.2	950	0.40	*0.12*	<0.5	73	30
Col-12	MAFV	*0.030*	2.0	0.030	28	175	190	*2.1*	0.040	*204*	4.4	148	0.90	*0.18*	<0.5	79	14
HC3*	SLD	<0.1	3.7	<0.1	23	59	409	3.8	0.030	187	2.8	25	*1.8*	<0.1	<0.5	127	13
HC4*	SLD	0.20	3.8	<0.1	46	175	710	3.5	0.070	207	8.3	111	*1.7*	0.10	0.90	129	16
HC9*	PICR	0.030	7.0	0.030	58	538	76	4.7	<0.01	471	1.7	758	1.6	*0.13*	<1	75	18
HC10*	PICR	0.060	4.0	0.020	61	738	460	4.8	<0.01	597	1.9	791	0.70	*0.16*	<1	*62*	24

Notes: Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population.

*these humidity underwent NaOAc-treatment for the removal of carbonate NP

5.2.1.2 Field Kinetic Test Samples

Grain Size Analysis

The rates of weathering and dissolution of rock material have been demonstrated to be influenced by particle size (Jambor, 2003). Given that the rate of dissolution increases as specific surface area of the particle increases it is important to know the relative volume of fine particles when discussing the field bin samples as a whole. Sub-samples from each of the field bin test material were subjected to grain size analysis according to the full standard size fractions (75, 37.5, 19, 9.5, 4.75, 2.36, 1.18, 0.6, 0.3, 0.15, and 0.075 mm). The distributions according to gravel, sand and fines (silt and clay) sized particles are presented in Table 3-10. Gravel sized particles comprise the largest fraction for each sample. PICR contains the smallest volume of gravel sized particles (60%) and the IMH sample in FB1 contains the largest volume (91%). Silt and clay sized particles make up the smallest fraction for each sample with PICR comprising the largest volume (6.6%) of fine particles.

Table 5-10:
Particle Size Distribution of Field Kinetic Test Sub-Samples

Field Bin	Lithology	Gravel (%)	Sand (%)	Fines (%)	Moisture Content (%)
FB1	IMH	90.8	6.6	2.6	3.5
FB2	SLD	87.7	9.2	3.1	3.9
FB3	IMH	78.8	18	3.2	3.4
FB4	PICR	59.9	33.5	6.6	5.4
FB7	SLD	84.4	13.4	2.2	3.2

Acid-Base Accounting

The following section discusses the ABA results for the Ajax field bin sub-samples (Table 3-4) and evaluates whether the samples selected for field kinetic testing are in fact representative of their respective lithologic unit.

Following the grain size analysis, the divided fractions were grouped into three sub-samples: <2.36 mm, 2.36 – 9.5 mm, and >9.5 mm and sent for static testing. The amount of fines in a sample can be a significant factor in causing NP enhancement (Jambor, 2003). In order to account for the variation in grain size within a unit and between units, and therefore the enhanced AP and NP of the finer particles, an adjusted average was calculated based on the relative volumes for grain size fractions <2.36 mm, 2.36 – 9.5 mm, and >9.5 mm (Table 5-10). The finest size fraction (<2.36 mm) generally shows the greatest potential for both AP and NP. This adjusted average is used in all subsequent ABA

discussion. Note that all values reported to be below detection were set at the value of detection for calculation purposes.

All field bin sub-samples have alkaline rinse and paste pH values (8.4 to 8.8), demonstrating that after more than 15 years of subaerial exposure in the Ajax East and West pits mine rock is not actively producing acidic drainage (Table 5-11). Total and non-SO_4 sulphur values are highest in the SLD field bin sub-samples (0.33 and 0.46 %) and low in the IMH and PICR field bin samples (<0.07 % S). Carbonate NP values are highest in the one IMH field bin (FB1, 112 kg $CaCO_3$/t) and SLD bins (FB7 and FB2, 80 – 92 kg $CaCO_3$/t) with lower CaNP values measured in the other IMH sample (FB3, 17.8 kg $CaCO_3$/t) and PICR field bin (FB4, 30 kg $CaCO_3$/t). NPR values for all Ajax field kinetic tests are >6 and are therefore considered to be NPAG.

In general, the ABA results for field bin sub-samples for the Ajax kinetic field program are consistent with the respective static test datasets, falling within the 10th and 90th percentile of the larger drill core static test population (Table 5-11). Exceptions are presented below:

FB1 and FB3 IMH Field Kinetic Tests*:*

- Insoluble and non-SO_4 sulphur (and therefore AP) values for FB1 were found to be above the 90th percentile concentrations of the IMH static sample population. As a consequence, both CaNPR and bulk NPR are relatively low for this sample, falling below the 10th percentile of the larger dataset making FB1 a conservative sample with respect to ABA characteristics;
- The TIC content (but not the CaNP) value for FB3 slightly exceeds the 90th percentile value for the IMH drill core static test population (Table 5-11). Therefore, carbonate buffering in this field bin sample can be expected to be sustained longer than for most IMH material in the future MRSF.

FB2 and FB7 SLD Field Kinetic Tests:

- Only the insoluble sulphur content in SLD sample FB2 exceeds the 90th percentile value of the SLD static test dataset (Table 5-11), suggesting that both field bin samples are generally representative of their sample populations.

FB4 PICR Field Kinetic Test:

- The PICR field bin sample shows a TIC content and CaNPR value slightly above the 90th percentile of the larger PICR dataset, while interestingly, the CaNP falls within the 10th-90th percentile population range (Table 5-11). As for IMH field bin sample FB3, this indicates that carbonate buffering in FB4 will likely be more extensive than for most of the respective material in the future MRSF.

Solid Phase Metals

Table 5-12 presents solid phase metal abundances for the field bin sub-samples in relation to the respective lithological static test dataset.

Overall, the metal contents for Ajax field bin sub-samples are geochemically representative, typically falling within the 10th and 90th percentile of the larger static test population with only a few exceptions. All of these outliers are exceedances, thus representing conservative solid-phase compositions. Specific species are:

IMH

- FB1: Co, Cr, and Ni
- FB3: Hg

SLD

- FB2 & FB7: Ag, Cu, and Se

PICR

- FB4: none

Whole Rock Analysis by X-Ray Fluorescence

Aqua-regia is an effective solvent for most base metal sulphates, sulphides, oxides and carbonates but only partially dissolves most rock forming elements and elements of a refractory nature (resistive metals). This is especially true for elements bound to the silicate matrix which do not totally solubilise. Therefore, whole rock analysis is useful in determining the total concentrations of major primary elements present in a rock sample.

The whole rock analysis results for the field kinetic test sub-samples are presented in Table 5-13. The field bin sub-samples are composed of predominantly of SiO_2, and lesser amounts of Al_2O_3, Fe_2O_3, MgO and CaO. These metals are also indicated to be the dominant constituents measured by aqua-regia (Appendix C-1.10) with proportions of a metal indicated for a specific field bin sub-sample correlating well with that indicated by XRF analysis.

Table 5-11:
Comparison of Field Bin ABA Results to the Static Test Dataset Distribution

	Paste pH	TIC	Total S	SO_4 S	Sulphide S	Insol. S	Non-SO_4 S	AP	CaNP	Bulk NP	CaNPR	Bulk NPR
					%				kg $CaCO_3$/t			
IMH												
FB1	8.7	0.21	***0.07***	<0.01	0.01	***0.06***	***0.06***	***2.2***	17.8	44.7	***8.4***	***20.3***
FB3	8.4	***1.34***	0.02	<0.01	<0.01	<0.01	0.01	0.7	112	140	168	200
SLD												
FB2	8.5	1.1	0.46	<0.01	0.13	***0.33***	0.45	14.3	91.8	141	6.4	9.9
FB7	8.7	0.96	0.33	<0.01	0.11	0.22	0.32	10.2	79.8	89.9	8.9	8.8
PICR												
FB4	8.8	***0.36***	0.05	<0.01	<0.01	0.04	0.04	1.3	30.4	63.9	***23.3***	49.2

Notes: Average: adjusted averages calculated according to size fraction % distribution. Adjusted averages for rinse pH are based on <2.36 and 2.36-9.5 mm size fractions normalized to 100%
Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population.

Table 5-12:
Comparison of Field Bin Solid Phase Metal Results to the Static Test Dataset Distribution

	Ag	As	Cd	Co	Cr	Cu	Fe	Hg	Mo	Ni	Sb	Se	V	Zn
	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
IMH														
FB1	<0.1	5.2	0.10	***45***	***480***	418	8.6	0.021	0.53	***110***	0.11	0.51	451	28
FB3	<0.1	1.8	<0.1	26	56	183	5.0	***1.0***	0.40	22	0.36	<0.5	267	27
SLD														
FB2	***0.45***	2.0	0.10	25	67	***3245***	2.2	0.093	4.6	51	0.11	***1.2***	108	16
FB7	***0.48***	5.1	0.10	26	48	***2471***	1.6	0.085	7.3	46	0.16	***1.4***	88	13
PICR														
FB4	<0.1	1.6	0.10	58	527	143	5.0	0.017	1.3	864	0.10	<0.5	94	31

Notes: Average: adjusted averages calculated according to size fraction % distribution. Adjusted averages for rinse pH are based on <2.36 and 2.36-9.5 mm size fractions normalized to 100%
Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population.

Table 5-13:
Whole Rock Analysis for Ajax Field Kinetic Test Sub-Samples

Size Fraction	SiO_2 %	TiO_2 %	Al_2O_3 %	Fe_2O_3 %	MnO %	MgO %	CaO %	Na_2O %	K_2O %	P_2O_5 %	Ba(F) %	LOI %	*Total* %
FB1 IMH													
<2.36	39.23	0.79	7.18	14.18	0.16	13.91	12.54	0.39	2.11	0.78	0.04	7.38	*98.7*
2.36-9.5	42.07	0.8	6.99	15.07	0.14	15.52	11.76	0.44	2.69	0.2	0.05	2.76	*98.5*
>9.5	42.2	0.87	6.7	16.16	0.15	14.54	13.13	0.42	2.26	0.12	0.04	2.23	*98.8*
FB3 IMH													
<2.36	38.43	0.95	14.48	11	0.11	7.43	11.36	1.21	1.59	0.06	0.03	13.05	*99.7*
2.36-9.5	41.02	0.85	16.32	10.24	0.1	6.21	10.41	1.8	1.98	0.07	0.04	10.59	*99.6*
>9.5	40.97	0.94	12.61	12.22	0.13	7.3	13.86	1.4	1.26	0.05	0.02	8.61	*99.4*
FB4 PICR													
<2.36	40.13	0.29	6.14	9.11	0.15	24.99	6.94	0.28	0.44	0.12	0.05	10.26	*98.9*
2.36-9.5	41.7	0.3	6.25	9.55	0.15	24.45	6.82	0.33	0.63	0.19	0.03	8.46	*98.9*
>9.5	42.81	0.25	5.71	9.71	0.16	26.66	5.8	0.19	0.52	0.11	0.04	7.1	*99.1*
FB2 SLD													
<2.36	44.24	0.54	14.59	5.54	0.07	5.22	11.2	3.19	1.16	0.21	0.03	11.28	*97.3*
2.36-9.5	50.99	0.65	16.16	4.61	0.05	4.59	8.12	5.31	0.97	0.23	0.03	7.2	*98.9*
>9.5	52.38	0.63	16.64	4.73	0.04	4.37	7.53	5.19	1	0.26	0.03	5.86	*98.7*
FB7 SLD													
<2.36	45.46	0.53	14.52	4.44	0.08	5.55	12.22	3.28	1.38	0.21	0.05	10.05	*97.8*
2.36-9.5	52.12	0.55	16.85	3.38	0.05	4.33	8.88	4.9	1.61	0.28	0.05	5.6	*98.6*
>9.5	52.4	0.54	16.89	3.93	0.05	4.04	8.65	4.92	1.64	0.25	0.06	4.86	*98.2*

5.2.2 Ore and Tailings Laboratory Kinetic Test Samples

Particle Size Analysis

Table 5-14 presents the distribution of grain sizes determined by screen assay for the SLD ore and master composite tailings sub-samples used for laboratory kinetic tests. These data indicate that the ore samples are predominantly composed of particles >0.425 mm in size. While samples making up Col-1 and Col-13 have the largest proportion of material (47% and 74.9%, respectively) in the 3.36-6.3 mm, the pre-crushed ore feed sample (Col-14) has a larger proportion of particles in the 1.7-3.36 mm range with all of the sample passing the 6.3 mm mesh. The tailings sub-sample generated in 2009 have a distribution of fine particles measuring between 0.25 mm and <0.045 mm in size, with the largest proportion (25%) of material in the <0.045 mm fraction. The more recent tailings sub-samples making up humidity cells T5 through T7 show a similar, albeit slightly coarser, grain size distribution (Table 5-14).

Table 5-14:
Results of Grain Size Analysis for SLD Ore and Tailings Laboratory Kinetic Test Sub-Samples

Sieve size	Col 1	Col 13	Col 14	T1 & T2	T5	T6	T7
	high-S ore	*SLD low-grade ore*	*Ore feed composite*	*2009 tails*	*Nov. 2013 tails*	*Sep. 2014 tails*	*Sep. 2014 tails*
mm	%	%	%	%	%	%	%
9.5	12	8.3	0.00				
6.3	23	55	0.00				
3.36	24	20	20	N/A	N/A	N/A	N/A
1.7	11	7.3	43				
0.425	17	5.7	25				
0.25	5.7	2.0	4.8	14	27	25	21
0.15				22	20	23	25
0.106				13	12	12	14
0.075	3.8	0.90	3.1		10	8.8	9.8
0.053				18	9.7	10	9.0
0.045	3.6	0.90	3.7	7.0	5.1	7.8	5.5
<0.045				25	16	13	16
Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Acid-Base Accounting

While no metallurgical assays were conducted on the kinetic test ore samples Col-1 and Col-13, aqua-regia Cu contents of both samples suggest that both materials would be classified as low- to medium-grade ore, thus these materials are representative of ore that would be stored in a temporary stockpile for a certain period of time. Conversely, sample Col-14 represents a composite ore feed used for metallurgical testing and can therefore be characterized as a high-grade ore sample. Acid-base accounting results for all ore kinetic tests sub-samples are presented in Table 5-15 where they are compared to the larger static test sample population discussed above. For this simplified assessment, low- and medium-grade ore statistics were combined.

All ABA parameters presented in Table 5-15 fall within the 10^{th} to 90^{th} percentile range of the respective larger ore populations suggesting that the kinetic ore samples are representative of their individual units.

Paste pH values range from 8.1 (Col-1) to 8.4 (Col-14) and are therefore mildly alkaline. As to be expected, the high-S ore sample from the SLD unit has the highest total S and sulphide S content (1.1% and 0.56%, respectively) and can therefore be considered

conservative. With respect to the overall ore population, the sulphide S value of this sample falls close to the 90th percentile value. Both low- to medium-grade ore kinetic samples (Col-1 & Col-13) contain considerable amounts of SO_4 S (~0.4 %), while Col-14 is virtually devoid of this species. XRD analysis showed that Col-1 contains both non-acid generating gypsum and acid producing hydroniumjarosite. In Col-13, gypsum was the only sulphate mineral identified.

As for almost all samples from the Ajax deposit, bulk NP is higher than CaNP in the ore kinetic test samples, however, the discrepancy is smaller than in most mafic samples. The CaNPR and bulk NPR values indicate that all three materials are NPAG however remain below a value of 10. (Table 5-15).

Table 5-15:
Acid-Base Accounting Results for Ajax Ore Laboratory Kinetic Test Sub-Samples

Sample ID		Col-1	Col-13	Col-14
		SLD high-S ore	*SLD low-grade ore*	*Ore feed composite*
Paste pH		8.1	8.2	8.4
TIC	*%*	0.67	0.43	0.70
Total C	*%*	0.68	0.57	0.97
Total S	*%*	1.1	0.71	0.57
SO_4 S	*%*	0.43	0.38	<0.01
Sulphide S	*%*	0.56	0.14	0.23
Insol. S	*%*	0.12	0.19	0.34
Non-SO_4 S	*%*	0.68	0.33	0.57
AP	*kg CaCO3/t*	21	10	18
CaNP	*kg CaCO3/t*	56	36	58
NP	*kg CaCO3/t*	73	65	86
CaNPR		2.6	3.5	3.3
NPR		3.4	6.4	4.8

Notes: Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population

Paste pH values of the five tailings samples used for the various kinetic tests are comparable to those produced by the ore samples (7.9-8.4), however contents of the various sulphur species are generally somewhat lower. The most recent, and therefore likely most representative tailings samples (T6 & T7) have a total sulphur of 0.19% and 0.23%, most of which is hosted in sulphate minerals (Table 5-16). In the 2009 composite tailings sample, the bulk NP is twice the CaNP, whereas in the more recent tailings kinetic test samples, bulk NP and CaNP values are comparable suggesting that acid-buffering silicate minerals are limited in these samples. The difference in relative NP values between the various tailings samples is also likely a result of the bulk NP analysis method where the 2009 sample underwent the more aggressive Sobek method as opposed to the modified NP

method conducted on both 2013 samples. All five tailings samples used for kinetic testing are NPAG with the more recent tailings samples having a CaNPR value of 15 or greater (Table 5-16).

Table 5-16:
Acid-Base Accounting Results for Ajax Tailings Laboratory Kinetic Test Sub-Samples

Sample ID		T1 & T2	T3 & T4	T5	T6	T7
		2009 tails	*Jan. 2013 tails*	*Nov. 2013 tails*	*Sep. 2014 tails*	*Sep. 2014 tails*
Paste pH		8.1	8.4	8.2	7.9	8.0
TIC	*%*	0.79	0.87	0.90	0.69	0.66
Total S	*%*	0.27	0.31	0.16	0.19	0.23
SO_4 S	*%*	0.020	0.020	<0.01	0.14	0.17
Sulphide S	*%*	0.25	0.20	0.090	0.020	0.020
Insol. S	*%*	<0.01	0.090	0.066	0.033	0.036
Non-SO_4 S	*%*	0.25	0.29	0.16	0.053	0.056
AP	*kg CaCO3/t*	7.8	9.1	4.9	1.7	1.8
CaNP	*kg CaCO3/t*	66	73	75	58	55
Bulk NP	*kg CaCO3/t*	127	74	82	62	59
CaNPR		8.4	8.0	15	35	31
Bulk NPR		16	8.2	17	37	34

Notes: The 2009 composite tailings underwent Sobek bulk NP analysis; the January and November 2013 samples underwent modified bulk NP analysis. TIC = total inorganic carbon; TC = Total carbon; Insol. S = Insoluble S, Non-SO_4 S is calculated by subtracting sulphate sulphur from the total sulphur value; AP =acid potential based on non-SO_4 S; CaNP = Carbonate neutralization potential calculated from TIC or TC; bulk NP = bulk neutralization potential; NPR = net potential ratio

Solid Phase Metals

Table 5-17 presents selected solid-phase metal abundances for the three ore kinetic test sub-samples where they are compared to the respective ore static test populations. This table shows that metal contents are generally representative of the larger ore datasets with only Cd in the ore feed composite (Col-14) falling below the 10^{th}-90^{th} percentile range of the high-grade ore population. Notably, metalloids that form oxyanions when in a dissolved state (such as As, Se, Mo, V) and may therefore be mobile under pH neutral conditions, are generally higher in the high-grade sample (Col-14) in comparison with the low- to medium-grade ore samples (Col-1, Col-13). The former is expected to be processed immediately following blasting, limiting the exposure time of this material on surface.

Solid-phase contents for selected metals are presented for the five tailings laboratory kinetic test samples in Table 5-18. The tailings samples from the three different

metallurgical experiments are generally consistent with V and Fe contents increasing over time showing the highest concentrations in material from November 2013. From a lithological perspective, this suggests that larger portions of IMH was included in the ore processing. Similarly, the relatively high concentrations of Cr and Ni in the most recent tailings samples from 2014 (T6 & T7) reflect a higher proportion of mafic rock (MAFV and PICR) in the mill feed. With respect to the ore feed materials, tailings samples display a similar overall solid-phase geochemistry (Table 5-18) but are relatively depleted in Cu, consistent with the removal of this element for ore concentrate generation.

Table 5-17:
Solid Phase Metal Results for Ajax Ore Laboratory Kinetic Test Sub-Samples

Sample ID		Col-1	Col-13	Col-14
		high-S ore	*SLD low-grade ore*	*Ore feed composite*
Ag	*ppm*	0.30	0.22	0.49
As	*ppm*	2.9	3.0	13
Cd	*ppm*	<0.1	0.040	***0.040***
Co	*ppm*	42	20	35
Cr	*ppm*	41	65	100
Cu	*ppm*	2085	1730	3140
Fe	*%*	2.7	1.9	3.5
Hg	*ppm*	0.12	0.22	0.41
Mn	*ppm*	211	180	292
Mo	*ppm*	13	4.6	42
Ni	*ppm*	48	22	62
Pb	*ppm*	0.80	0.40	1.2
Sb	*ppm*	<0.1	0.10	0.41
Se	*ppm*	1.1	<1.0	2.0
V	*ppm*	118	107	176
Zn	*ppm*	10	12	18

Notes: Values indicated in red fall below the 10th percentile of the respective static test sample population; values indicated in green exceed the 90th percentile of the respective static test sample population.

Table 5-18:
Solid-Phase Metal Results for Tailings Laboratory Kinetic Test Sub Samples

Sample ID		T1 & T2 *2009 tails*	T3 & T4 *Jan. 2013 tails*	T5 *Nov. 2013 tails*	T6 *Sep. 2014 tails*	T7 *Sep. 2014 tails*
Ag	*ppm*	0.20	0.17	0.12	0.10	0.090
Besides	*ppm*	3.6	11	6.0	7.0	6.0
Cd	*ppm*	<0.1	0.050	0.070	0.040	0.050
Co	*ppm*	25	31	23	14	15
Cr	*ppm*	54	180	176	450	403
Cu	*ppm*	439	799	421	414	407
Fe	*%*	2.3	3.3	3.5	2.5	2.4
Hg	*ppm*	0.10	0.11	0.14	0.19	0.21
Mn	*ppm*	249	290	303	269	252
Mo	*ppm*	22	24	35	5.9	6.5
Ni	*ppm*	46	108	98	195	178
Pb	*ppm*	1.4	2.9	1.8	1.2	0.90
Sb	*ppm*	<0.1	0.24	0.23	0.41	0.32
Se	*ppm*	0.90	<1	<1	<1	<1
V	*ppm*	93	131	167	127	120
Zn	*ppm*	16	13	17	14	10

Water Soluble Extractions

Table 5-19 presents the water soluble parameters liberated from the tailings sample and its ore head sample, KM2435, during shake flask extraction (SFE) tests. Also presented in the table are British Columbia water quality guidelines (BC WQG) for the protection of freshwater aquatic life. Hardness dependent guidelines, including Ag, Cd, Cu, Mn, Ni, Pb and Zn, were calculated based on an average hardness in Jacko Lake of 312 mg $CaCO_3$/L (sites JACL-S, JACL-D, JACL-02 and JACL-03; Knight Piesold, 2011). The juxtaposition of SFE data and the BC WQ is not intended to define species that will be of concern in site drainage, but rather serves as a relative frame of reference to put concentration into context.

Results of the SFE test on the tailings indicate that only Cr is elevated with respect to maximum BC WQG and only slightly, 0.0012 mg/L compared against the guideline value of 0.001 mg/L. All other parameters are below the 30-day and maximum guidelines. The tailings SFE results compare well with the originating ore head sample given a degree of expected natural variability between sub-samples and possible effects from the processing. Overall, the results indicate that ore processing adds alkalinity to the tailings, and, as would be expected, reduces the amounts elements such as Cu, As and Mo that can be released into solution.

Table 5-19:
Shake Flask Extraction Results for the Ajax 2009 Tailings and Ore Feed Sample

Parameter	Units	T1 and T2	Km 2435	BC WQG[1]	
		2009 comp. tails	*2009 ore head sample*	*30-day*	*Max*
pH		8	8.1	6.5-8.5	NP
Redox	mV	361	330		
Conductivity	uS/cm	255	223		
Total Acidity (to pH 8.3)	mg $CaCO_3$/L	3.5	4		
Total Alkalinity	mg $CaCO_3$/L	88.9	68.5		
Chloride	mg/L	1.5	2.1	150	600
Nitrate (as N)	mg/L	<0.05		3	31.3
Nitrite (as N)	mg/L	<0.06		0.02	0.06
Ammonia (as N)	mg/L	0.2			
WAD CN	mg/L	<0.01			
Total CN	mg/L	<0.01			
Sulphate	mg/L	49	46	429	NP
Dissolved Metals					
Ag[2]	mg/L	0.00002	<0.00001	0.0015	0.003
Al*	mg/L	0.0193	0.0428	0.05	0.1
As	mg/L	0.0034	0.0128	NP	0.005
B	mg/L	0.0195	0.0176	NP	1.2
Ba	mg/L	0.0495	0.0399	1	5
Be	mg/L	<0.00002	<0.00002	0.0053	NP
Bi	mg/L	<0.00001	<0.00001		
Ca	mg/L	30.4	13.1		
Cd[2]	mg/L	<0.000003	0.000004	NP	0.000088
Co	mg/L	0.00006	0.000083	0.004	0.11
Cr	mg/L	0.0012	<0.0005	NP	0.001
Cu[2]	mg/L	0.0014	0.0088	0.012	0.031
Fe*	mg/L	0.006	0.007	NP	0.35
Hg	ug/L	<0.01	<0.01		
K	mg/L	10.5	6.8		
Li	mg/L	0.002	0.002	0.096	0.87
Mg	mg/L	3.6	8.39		
Mn[2]	mg/L	0.0021	0.0032	1.98	3.98
Mo	mg/L	0.0231	0.0691	1	2
Na	mg/L	16.6	15.1		
Ni[2]	mg/L	0.0004	0.0007	NP	0.15
P	mg/L	0.025	0.019		
Pb[2]	mg/L	0.00098	0.00005	0.017	0.35
S	mg/L	20.3	15		
Sb	mg/L	0.0009	0.0006	NP	0.02
Se	mg/L	0.00102	0.00171	NP	0.002
Si	mg/L	5.07	4.56		
Sn	mg/L	0.00026	0.00009		
Sr	mg/L	0.258	0.165		
Ti	mg/L	0.0004	0.0009	NP	2
Tl	mg/L	<0.0002	<0.00002	NP	0.0003
U	mg/L	0.00041	0.00037	NP	0.3
V	mg/L	0.00183	0.016	0.02	
Zn[2]	mg/L	<0.001	0.001	0.174	0.1995
Zr	mg/L	0.00008	0.00014		

Notes: 1. BC water quality guidelines for the protection of freshwater aquatic life (BC MOE, 2006); 2. Hardness dependent guidelines are based on an average in Jacko Lake of 312 mg CaCO3/L (sites JACL-S, JACL-D, JACL-02 and JACL-03; Knight Piesold, 2011); * all guidelines are for total metals with the exception of Al and Fe which are for dissolved species; NP = none proposed.

Supernatant analyses

In addition to SFE tests, tailings supernatant was sampled and analyzed where available. These solutions represent the decanted water from the tailings slurry after the tailings have settled and are a good proxy for process water chemistry. Supernatant analytical results are presented in Table 5-20 where they are compared to the BC WQG. The full raw dataset of all supernatant analyses is given in Appendix C-2.3.

The three supernatants from the January 2013 tailings are relatively similar in composition and only exceed the 30-day BC WQG with respect to dissolved sulphate. In contrast, the November 2013 tailings supernatant has lower concentrations of most major ions (SO_4, Ca, Mg, K), but higher concentrations of several trace elements that might be of concern in site drainage (*e.g.*, Cd, Cu, Mo, Se, V, Zn). The highest As concentrations were detected in the 2014 tailings supernatant samples, both exceeding the BC WQG. There does not seem to be a direct relationship with respect to discrepancies dissolved species and the respective tailings solid-phase geochemistry. However, the lower concentrations of Ca and SO_4 in the November 2013 tailings supernatant may be reflective of this sample's lower sulphate S content (Table 5-16). Dissolved Se is the only species in the November 2013 tailings supernatant exceeding the BC WQG of 0.002 mg/L (Table 5-20). The supernatants in contact with the September 2014 tailings (T6 & T7) are very similar in composition indicating that tailings materials in years 6-10 and 11-21 will have similar short-term leaching characteristics. Besides As, BC WQG are exceeded with respect to nitrite and sulphate in these samples.

Table 5-20:
Geochemical Results of Tailings Supernatants

	Units	T3 & T4 *Jan. 2013 tails*	T3 & T4 *Jan. 2013 tails*	T3 & T4 *Jan. 2013 tails*	T5 *Nov. 2013 tails*	T6 *Sep. 2014 tails*	T7 *Sep. 2014 tails*	BC WQG[1] 30d	BC WQG[1] max
pH		7.5	7.7	7.7	7.9	7.7	7.7	6-9	6-9
Alkalinity	mg CaCO3/L	64	30	32	63	49	50	NP	NP
Nitrate	mg/L	< 0.05	0.19	0.17	<0.025	1.2	1.3	3.0	31
Nitrite	mg/L	< 0.06	<0.010	<0.010	<0.0050	0.14	0.12	0.020	0.060
Sulphate	mg/L	1159	783	804	247	1630	1580	429	NP
Cl	mg/L	-	13	14	22	111	113	150	600
F	mg/L	-	<0.20	0.20	0.22	<0.40	<0.40	NP	NP
Dissolved Metals									
Ag	mg/L	0.000010	<0.000010	<0.000010	0.00030	<0.000020	<0.000020	0.0030	0.0015
Al*	mg/L	0.012	0.040	0.050	0.014	0.012	0.011	0.10	0.050
As	mg/L	0.0012	0.00024	0.00034	0.0037	0.0065	0.0057	0.0050	NP
Ba	mg/L	0.020	0.032	0.031	0.037	0.033	0.038	5.0	1.0
Ca	mg/L	277	211	215	42	619	598	NP	NP
Cd[2]	mg/L	0.000065	0.000013	0.000014	0.00011	<0.000020	<0.000020	0.0019	0.00049
Co	mg/L	0.00078	0.00019	0.00023	0.00061	0.00025	0.00024	0.11	0.0040
Cr	mg/L	< 0.0005	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	0.0010	NP
Cu[2]	mg/L	0.0035	<0.00050	0.00061	0.0083	<0.00040	<0.00040	0.031	0.012
Fe*	mg/L	< 0.003	<0.030	<0.030	<0.010	<0.010	<0.010	0.35	NP
K	mg/L	36	25	25	17	21	21	NP	196
Mg	mg/L	63	56	53	6.2	33	33	NP	NP
Mn[2]	mg/L	0.11	0.047	0.048	0.016	0.025	0.020	4.0	2.0
Mo	mg/L	0.074	0.051	0.051	0.30	0.013	0.013	2.0	1.0
Na	mg/L	73	51	52	81	47	45	NP	NP
Ni[2]	mg/L	0.0044	0.0013	0.0014	0.00084	0.0041	0.0055	0.15	NP
Pb[2]	mg/L	0.00052	0.00020	0.000069	0.00067	<0.00010	<0.00010	0.35	0.017
Sb	mg/L	0.00090	0.0013	0.0015	0.0032	0.0040	0.0041	0.020	NP
Se	mg/L	0.0011	0.0011	0.0011	0.0027	0.0010	0.0011	NP	0.0020
Si	mg/L	3.6	1.2	1.2	4.3	6.5	6.4	NP	NP
U	mg/L	0.00018	0.00018	0.00025	0.00049	0.0092	0.0084	0.30	NP
V	mg/L	0.00024	<0.0010	<0.0010	0.0041	0.0046	0.0036	NP	0.020
Zn[2]	mg/L	0.0050	<0.0030	<0.0030	0.021	<0.0020	<0.0020	0.20	0.17

Notes: 1. BC water quality guidelines for the protection of freshwater aquatic life (BC MOE, 2006); 2. Hardness dependent guidelines are based on an average in Jacko Lake of 312 mg CaCO3/L (sites JACL-S, JACL-D, JACL-02 and JACL-03; Knight Piesold, 2011); * all guidelines are for total metals with the exception of Al and Fe which are for dissolved species; NP = non proposed. Shaded values exceed one of the corresponding BC WQG

5.3 Overburden Samples

Lorax conducted a static test assessment of soil samples collected from the Ajax site by Vast Resource Solutions field personnel in December 2012 and 2014. In addition to ABA analysis, metals analyses and shake flask extractions were performed on these soil samples.

Overburden sampling was conducted in both the current and previously proposed footprints of the Ajax Project. No overburden samples were collected from within the footprint of the historic mine (Figure 5-21). Samples primarily represent morainal glacial deposits, however, glaciolacustrine, fluvial and eolian samples were also collected. All 20 samples were collected from the subsoil "C" layer, representative of the soil parent material. At each site, a composite sample was collected from the area 20 cm below the interface of the "B" and "C" horizons. For example, if the B horizon terminated at 60 cm depth, the sample was collected from the excavated test-pit walls at 80 cm depth. The list of samples, sample depths and descriptions are provided in Appendix C-3.

5.3.1 Acid base accounting

Total sulphur content in the Ajax overburden samples range from below detection limit (0.01%) to 0.73% in a glaciolacustrine soil where sulphate and insoluble S make up the major portion of the total S content (Appendix C-3.2). Sulphide S was only detected in three out of the 20 samples and it is assumed that insoluble S, where measured, resides in non-acid generating organic mineral phases. Overburden samples are very calcareous with typical CaNP values > 50 kg $CaCO_3$/t. Organic carbon content is typically 0.25%C as determined by the difference of total C and inorganic C. No net acid is being generated in any of the studied samples as evident by the slightly alkaline paste pH values between 8 and 9. Using the conservative CaNPR and non-SO_4 S as the basis for NPR calculations shows that all overburden samples are NPAG where CaNPR values range from 21 to 413, therefore no acid release is expected from these materials.

5.3.2 Solid-phase metals

The contents of aqua-regia digestible solid-phase elements are consistent within the overburden sample population with Se falling below the detection limit in all samples. None of the samples have elemental concentrations exceeding the BC numerical soil criteria for industrial sites (Appendix C-3.3; BC CSR 2014). Similar to mine rock samples, overburden compositions were also compared to the ACC and values exceeding three times the respective the respective ACC were highlighted in Appendix C-3.3. The measured concentrations exceeded the ACC for As and Bi concentration in all overburden samples as well as Sb and S in less than half of the sample population. Cu is enriched relative to the ACC only in morainal overburden sample P-V12. There is no noticeable correlation between total S or sulphate S with any trace elements that may be of concern in mine drainage, although the Se levels are too low to identify a solid-phase correlation.

680,000 682,000 684,000 686,000 688,000 690,000

5,612,000 5,610,000 5,608,000 5,606,000

N-E02
N-E08
T-H05
T-K12
N-F14
32
P-W05
P-Z03
T-E24
T-I26
ED-H09
P-V12
T-k80
T-f79
S-n79
S-f77
S-u75
S-r73
T-k73
T-d72

N

DRAFT

LEGEND

- Soil Sampling Site
- Plant Site
- Topsoil Stockpile
- Overburden Stockpile
- Ore Stockpile
- Reclamation Stockpile
- Water Management Pond
- TSF Embankment
- Tailings Storage Facility (TSF)
- Mine Rock Storage Facility (MRSF)
- Pit
- Stream/Creek
- Lake
- 5m Elevation Contour

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:36,000

0 0.5 1 Km

DATE SAVED:	Jul 24, 2015
DRAWN BY:	AL
REVIEWED:	BM
VERSION:	1

CLIENT:

KGHM

LORAX ENVIRONMENTAL

PROJECT:

Ajax Geochemical Characterization Study

TITLE: Overburden Sampling Locations and Mine Site Facilities

PROJECT #: J933 | *FIGURE:* 5-21

P:\J933 Ajax\Drafting\MXD\Geochem Characterization Report\Figure 5-21 OVB Sampling locations and site facilities_20150409.mxd

5.3.3 Shake Flask Extractions

The Shake Flask Extractions (SFE) tests produced pH values ranging from 7.2 to 8.4 (Appendix C-3.4, BC CSR 2014b) slightly lower than the paste pH range observed, which is likely due to the higher water to rock ratio used in SFE experiments. The SFE leachate composition from overburden is generally below BC contaminated site water quality guidelines and of the 37 water soluble species evaluated only Se and SO_4 were elevated in two samples, which exceeded the contaminated site guidelines of 0.02 mg/L and 1000 mg/L, respectively. The highest value was produced by a glaciolacustrine overburden sample with the highest sulphate (and total) S content, highlighting the association of Se with sulphate minerals.

Regression analyses were conducted to evaluate association between potential parameters of concern (POCs) that were identified from mine rock characterization and elements associated with soil mineral phases. The analyses indicated that there are two definitive findings for the two POCs As and Se in the sub-soil overburden horizon. The release of As correlated with the release of Mn and P (Figure 5-22), which indicates that arsenic is likely associated with Mn oxides and/or phosphate minerals in the overburden. Selenium correlates with Ca, Mg, Na, Sr, and SO_4 (Figure 5-23), which is a result that is consistent with a Se association with water-soluble sulphate or carbonate minerals. The associations observed for the overburden are useful to evaluate attenuation mechanisms for these POCs in similar pH environments from mine rock and tailings. Specifically that As may be attenuated by manganese oxides or phosphate. Conversely, Se is more likely to be attenuated by secondary carbonate or sulphate minerals.

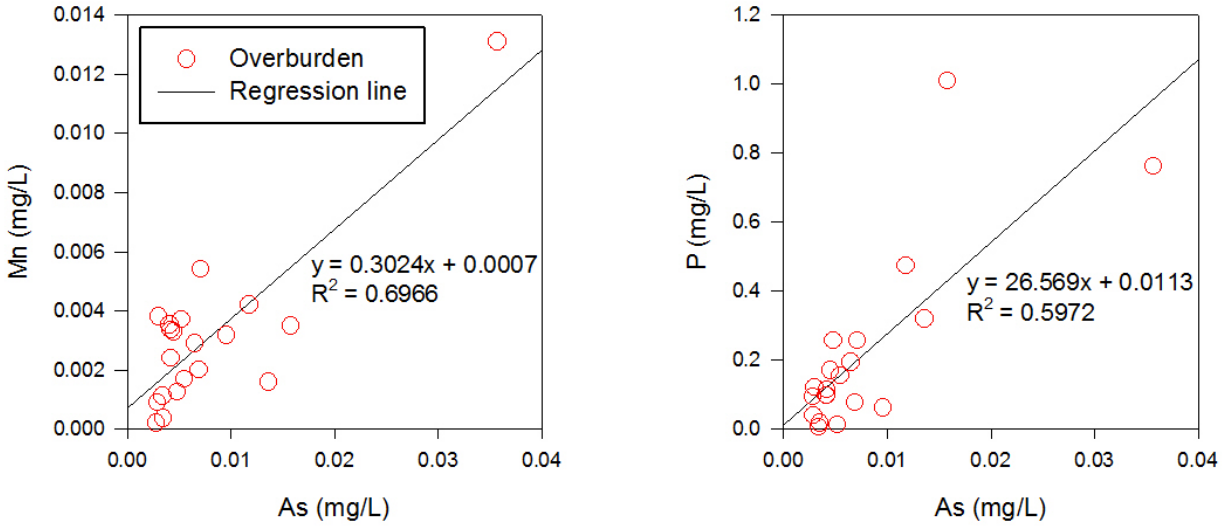


Figure 5-22: Shake Flask Extraction Leachate Concentrations of As vs Mn and P

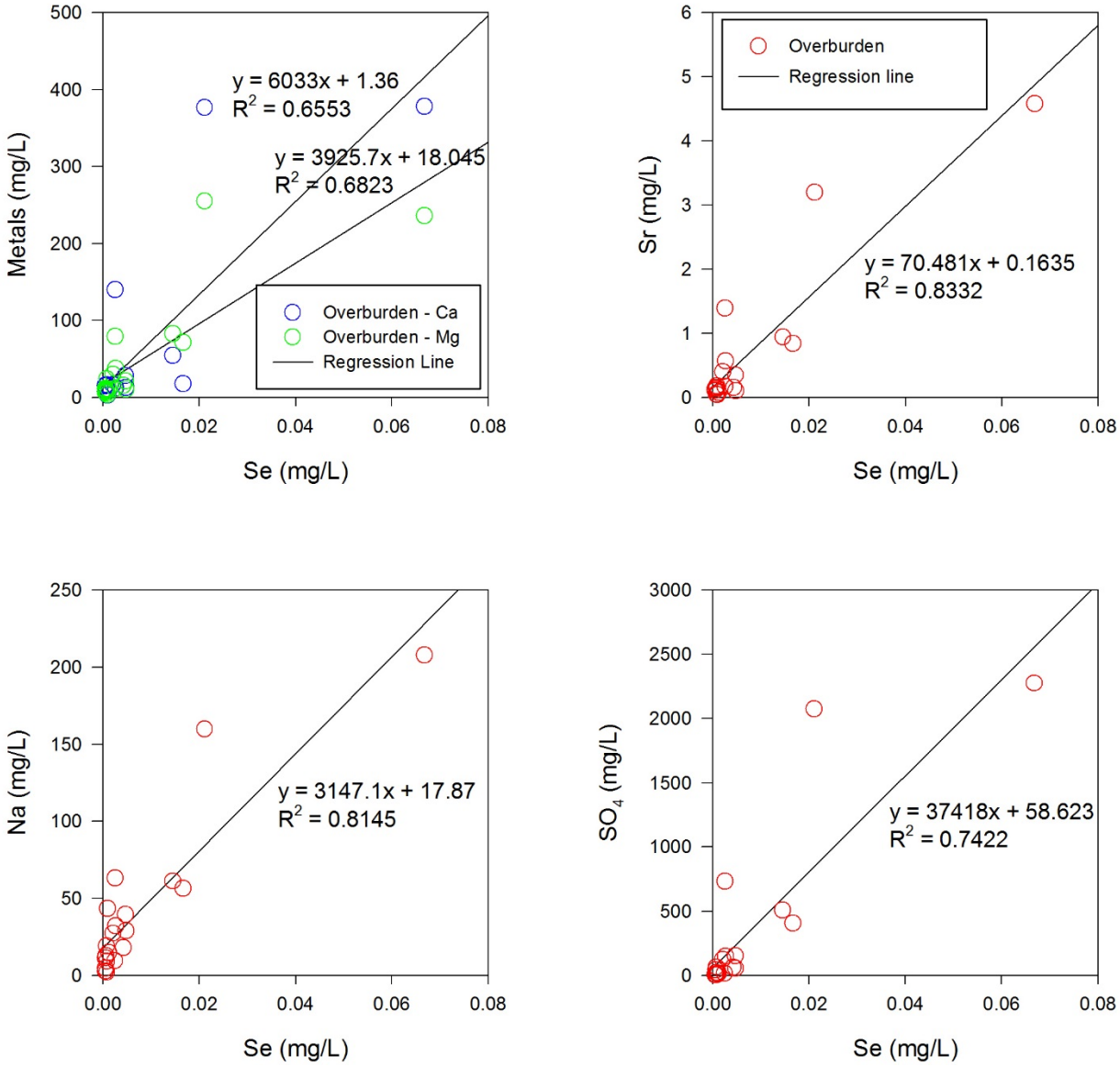


Figure 5-23: Shake Flask Extraction Leachate Concentrations of Se vs Ca, Mg, Sr, Na & SO_4

6. Kinetic Test Results

6. Kinetic Test Results

6.1 Laboratory Kinetic Test Program

Laboratory kinetic test procedures are designed to quantify weathering rates under standardized conditions. Laboratory kinetic testing for the Ajax materials consists of 16 unsaturated columns (11 mine rock, 3 ore, 2 tailings), one saturated column (tailings), and twelve humidity cells (10 mine rock, 2 tailings). Refer to Table 3-5 and Table 3-7 for an overview of the various kinetic tests conducted. The Ajax mine rock humidity cells are specifically designed to assess the potential for non-carbonate NP in the SLD and PICR unit and the capacity of these minerals to buffer acid. As previously discussed, split samples of columns Col-2, Col-3, Col-10, and Col-11 were subjected to a NaOAc leach before commencing the laboratory experiments with the intention of removing the carbonate minerals, and thereby the CaNP. Two additional leaches were carried out on a re-mix of the Col-2 material; one leach used HOAc (HC5) and the other H_2SO_4 (HC6). Note that the sulphide minerals have not been depleted, and therefore, represent a relatively conservative assessment of silicate mineral buffering ability because the sulphide content has not had the chance to be depleted simultaneously with the carbonates as would be the case in a full-scale MRSF scenario.

During the initial cycles of laboratory kinetic testing, sulphate and metals often have highly variable release rates before stabilizing at a relatively constant rate (Sapsford *et al*., 2009). This variability is a response to exposure of fresh surfaces of crushed samples and the dissolution of stored oxidation products that may have accumulated on the samples during storage prior to being placed in a humidity cell. Once exposed mineral surfaces have equilibrated to this environment, stable reaction rates can be determined. Columns and cells often require many weeks to approach geochemical stability, and reaction rates rarely remain constant on a week-to-week basis. Therefore, the leachate data presented for the more recently initiated cells merely serve as a reference and, at this point, will not be included in the development of source terms. Additionally, for all cells, it should be noted that aqueous concentrations in the weekly/biweekly rinse water should not be considered as direct predictions of on-site drainage chemistry due to the high water to solid ratio used in this type of testing (Sapsford *et al.*, 2009). In reality, conditions within actual MRSF are much different with lower water/rock ratios, incomplete flushing of particle surfaces, and secondary minerals frequently reach saturation and precipitate out of solution.

Kinetic data through September, 2014 for up to 189 cycles/weeks have been collected and analyzed for the Ajax laboratory kinetic program. Conductivity, sulphate and pH were measured in each cycle. A full analysis, consisting of acidity, alkalinity, sulphate, chloride

and a 35 element scan were conducted on every other week after cycle 5 and then every fourth cycle after 40 weeks. The results of the mine rock laboratory testing are given in Section 6.1.1; the ore and tailings kinetic test data are discussed separately in a subsequent section (Section 6.1.2). Section 6.2 then looks at the Ajax field bin results and Section 6.3 discusses the site drainage quality.

6.1.1 Mine Rock

6.1.1.1 Acid-Base Balance

Unsaturated columns

Weekly pH values provide insight as to the balance between acid generating and acid neutralizing reactions in unsaturated columns and humidity cells. If the leachate pH remains near pH 7, NP is derived from a reactive carbonate source and acid consuming reactions predominate. However, once the carbonate NP is exhausted, the pH may be buffered in the range of 4.0 to 4.5 by the dissolution of amorphous aluminum hydroxides. Between the pH buffering range of carbonate and aluminum hydroxide, the pH may be controlled by the dissolution of silicate minerals. In the event that silicates control pH, the pH is not constrained to a specific value, rather it is kinetically limited by the competing rates of acid production and silicate dissolution.

The initial IMH unsaturated columns (Col-4 & Col-5) have produced a remarkably stable leachate pH with an average pH of 8.1 – 8.2 after 117 cycles (117 weeks) (Figure 6-1). After 9 weeks of operation, Col-7 appears to generally follow the trend of the initial cells, while Col-8 produces slightly higher pH values of up to 8.4.

The median sulphur SLD unsaturated column, Col-2, has also produced a stable pH of around 8 for most of the testing period slightly increasing in the latter stage. Water in contact with Col-3 remains circum-neutral for the experiment, showing a similar increasing trend over time as Col-2, however generally slightly lower than the latter. The SVHYB sample in Col-9 shows pH values around 7.5 for the initial experimental cycles. Thermodynamic equilibrium modelling using PHREEQC predicts that a pure water solution, which is open to the atmosphere and allowed to come into equilibrium with calcite, would have a pH of 8.3. pH values lower than this suggest that the solutions are not in equilibrium with calcite, and in this case, are likely affected by processes such as sulphide oxidation that act to depress the pH or that the water has not had sufficient contact time with the rock to allow the solution to equilibrate with the carbonate minerals.

No net acid is being generated by any columns from the more mafic MAFV and PICR units (Figure 6-1), as indicated by pH values generally falling around or above 8. For the short

time period where a comparison is possible, the older sample Col-6 composed of mixed MAFV and PICR mine rock produced the lowest pH values.

The alkalinity production in the IMH kinetic test leachates are virtually identical for initial kinetic cells Col-4 and Col-5, while the more recently initiated columns Col-7 and Col-8 show initially lower alkalinities (Figure 6-2). Overall, with few exceptions, alkalinity values from this unit are relatively low falling below 10 mg $CaCO_3$/kg/wk. The same observation is made for kinetic cells made up of all other units where the more recently initiated cells systematically produce lower alkalinities.

Duplicate and pre-treated humidity cells

Only leachate data from humidity cells HC1 through HC6 (duplicates of SLD mine rock columns Col-2 and Col-3) are presented in this section as only a few analytical cycles were available for PICR duplicate and pre-treated cells HC7 through HC10. The results for these more recent experiments will be discussed in a separate memo once sufficient data are available.

Figure 6-3 depicts the leachate pH values for the six SLD humidity cells, with only the NaOAc-treated HC4 producing a minimum slightly acidic pH as low as pH ~5 but stabilizing at pH>5.5, which is greater than the pH of the deionized water added to the cell. All other cells remain circum-neutral throughout the duration of the experiments. A few cycles from HC3 show pH values as low as 6 but are more typically observed between pH 6.5 and 7.5. This indicates that in CaNP-depleted SLD material of median S content, sulphide oxidation is sufficiently slow, and/or silicate buffering sufficiently fast, to keep drainage pH neutral over extended periods of time. At higher S contents, silicate minerals are still capable of buffering drainage between 5 and 6. These are important findings that will be accounted for during source term development and PAG-NPAG classification.

As expected, there is a discrepancy with respect to alkalinity release between untreated and pre-treated (*i.e.*, NP-depleted) humidity cells with the exception of HC6 which produces considerable alkalinity despite being leached with H_2SO_4 before the experiment was initiated (Figure 6-4). This result is consistent with residual carbonate content in the sample due to the ineffective carbonate removal by the H_2SO_4 pre-leach. Overall it appears as if the NaOAc-leach is the most efficient method of removing NP from the mine rock samples.

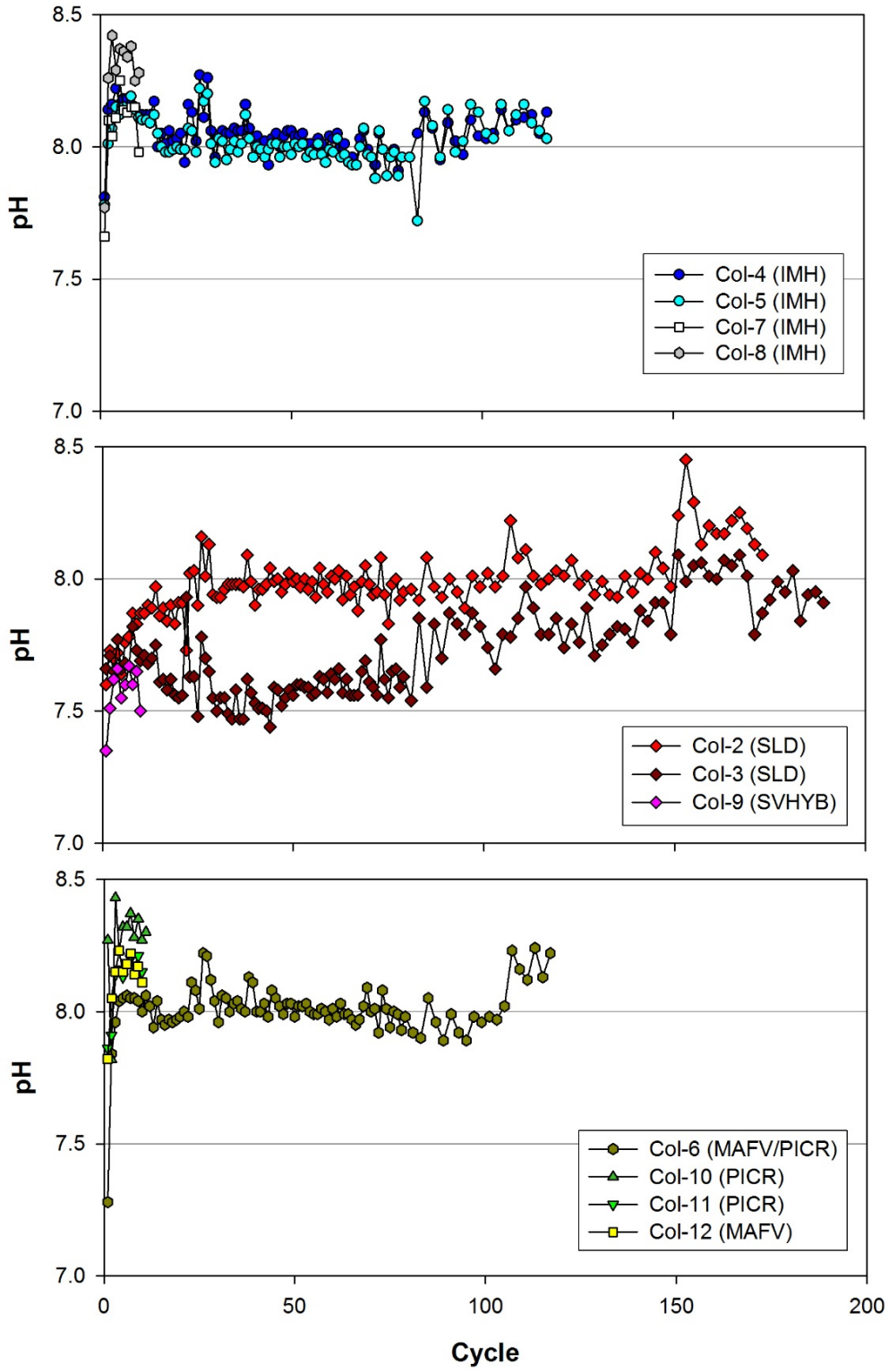


Figure 6-1: pH values in leachates from Ajax mine rock column tests

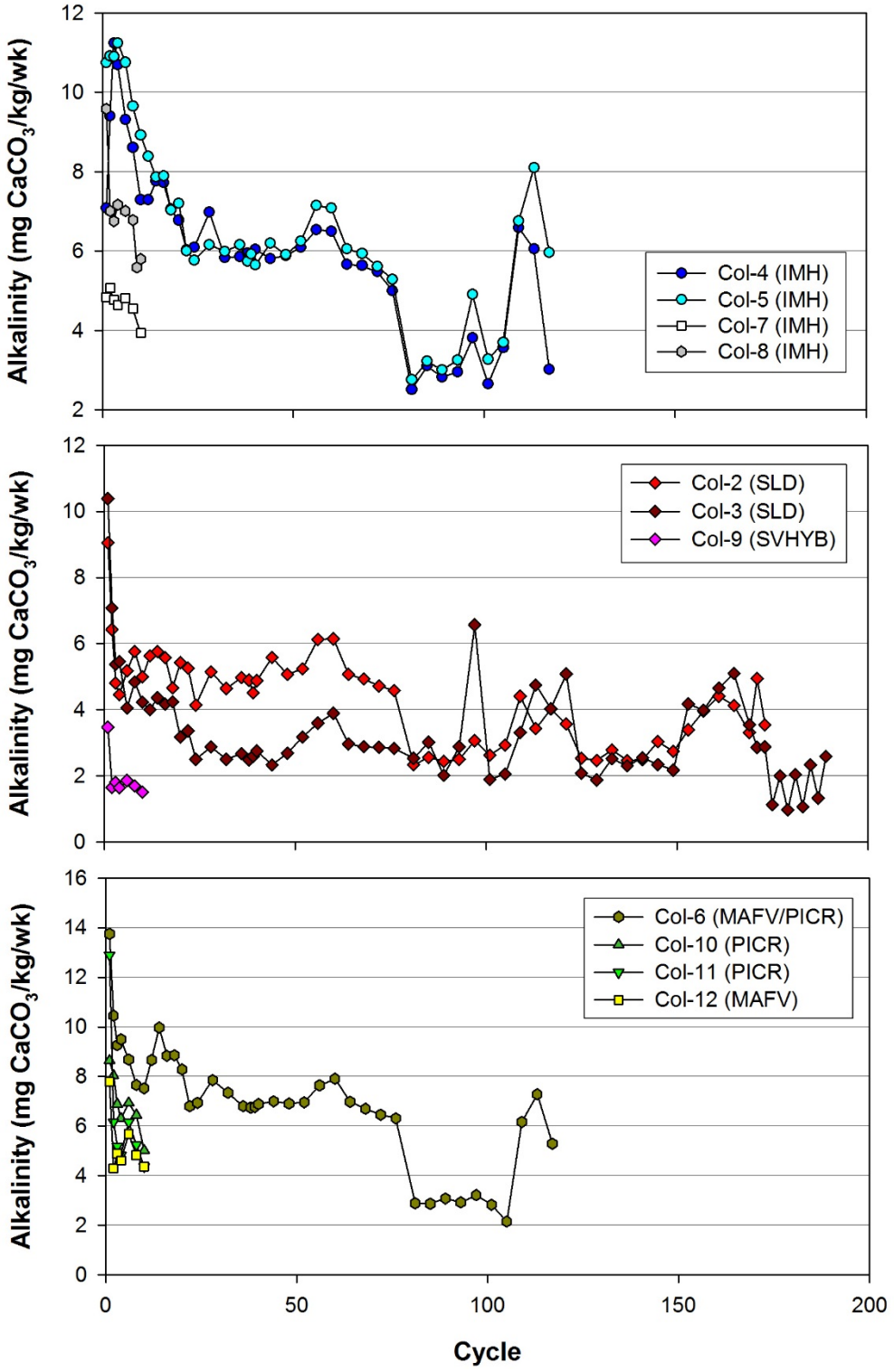


Figure 6-2: Total alkalinity in leachates from Ajax mine rock column tests

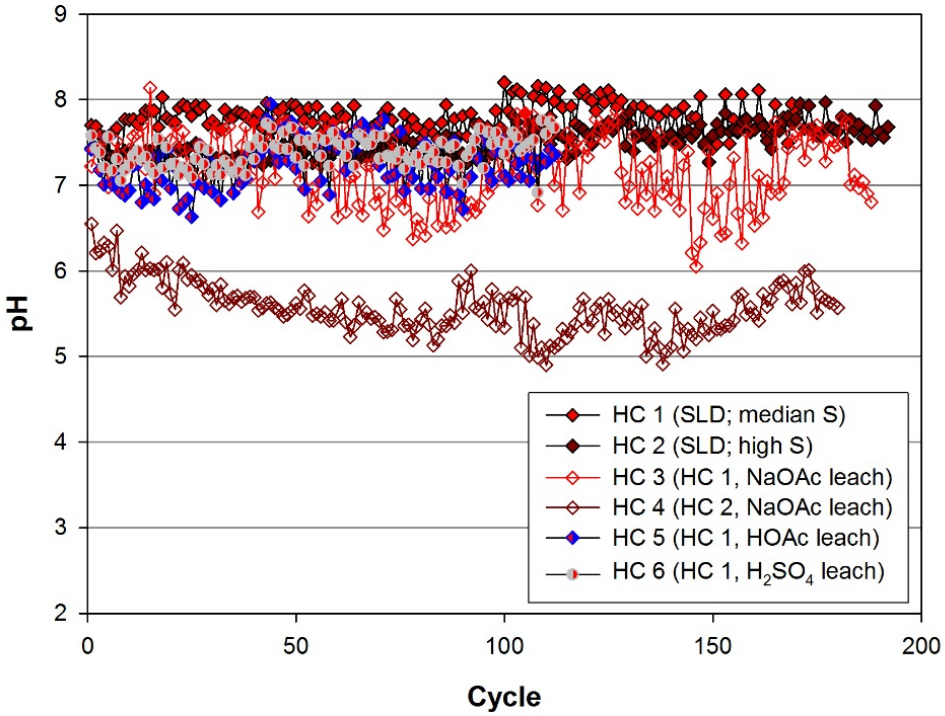


Figure 6-3: pH values in SLD duplicate and pre-treated humidity cell leachates

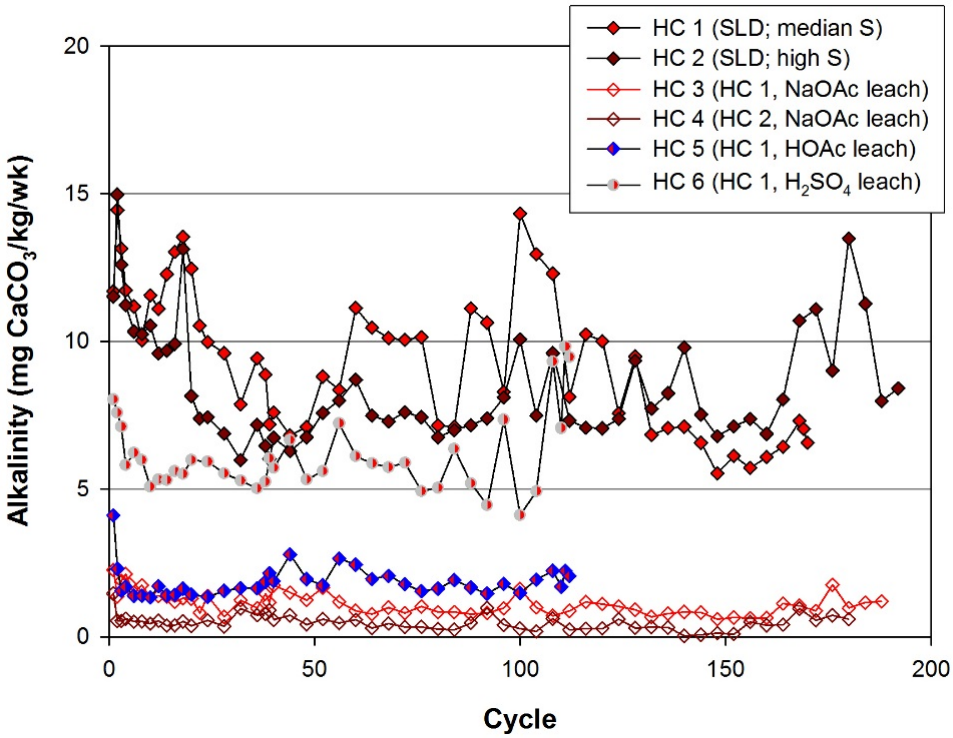


Figure 6-4: Alkalinity production rates in SLD duplicate and pre-treated humidity cell leachates

6.1.1.2 Sulphide Oxidation Rates

Unsaturated Columns

The rate of sulphide oxidation in mine rock samples is estimated from sulphate analyses of column and cell leachates. To obtain sulphide oxidation rates, weekly leachate sulphate concentrations are multiplied by the volume of leachate collected from each column and cell to obtain a mass loading which is independent of the volume of leachate collected from each column and cell. These loadings are then normalized to the mass of sample in the column and cell (5 kg and 1 kg, respectively). This normalized loading calculation is an important step because it allows the direct comparison of leachate data between cycles within the same column and cell, as well as between different columns and cells.

Sulphate loading rates for the Ajax mine rock columns are presented in Figure 6-5. Overall, longer-term the IMH columns (Col-4 and Col-5) produce the least amount of sulphate, stabilizing at 0.1 – 0.2 mg/kg/week in the later stages of the experiment with Col-5 releasing slightly higher concentrations of sulphate. Samples Col-7 and Col-8 generate sulphate concentrations that fall between those seen in the initial columns (Figure 6-5). SLD and SVHYB initially release sulphate concentrations in excess of 100 mg/kg/wk stabilizing at 5-7 and below 1 mg/kg/wk over time for Col-3 and Col-2, respectively. MAFV and PICR samples in the more recently initiated kinetic cells show a quickly decreasing sulphate release rate to below 10 mg/kg/wk within the initial cycles of the experiments. The mixed cell containing both MAFV and PICR material produces slightly higher sulphate concentrations, stabilizing at around 1 mg/kg/wk in the later stages of the experiment.

Sulphide mineral depletion calculations from the release of sulphate in the humidity cell leachates indicate that the current total S content in IMH samples Col- 4, -7 and -8 as well as MAFV and PICR samples (Col-6; Col-10 through Col-12) is close to the original amount with >90% remaining (Figure 6-6), due to low sulphide oxidation rates (Table 6-1). The SLD mine rock columns (Col-2 & -3) have a lower fraction of sulphur remaining, 70-80%, for the same test duration, indicating the presence of more reactive sulphide minerals in the SLD unit as a whole and the presence of gypsum in the initial samples. For kinetic tests that have been running for extended periods of time, the flattening of the curve towards more steady sulphate release rates (and less extensive total sulphur depletion) that is characteristic of most cells can be considered indicative of the exhaustion of reactive sulphate minerals such as gypsum.

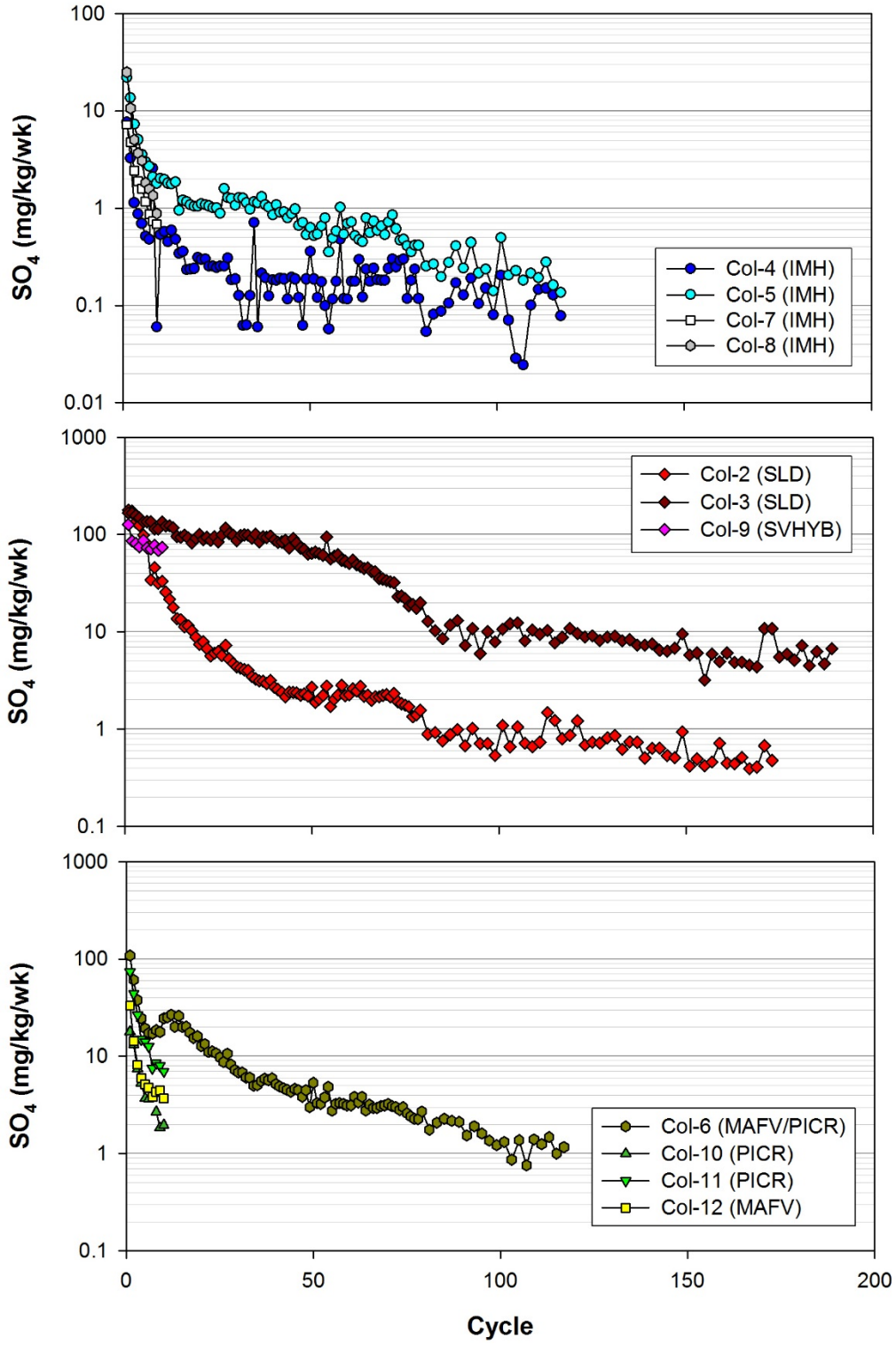


Figure 6-5: Sulphate in leachates from Ajax mine rock column tests

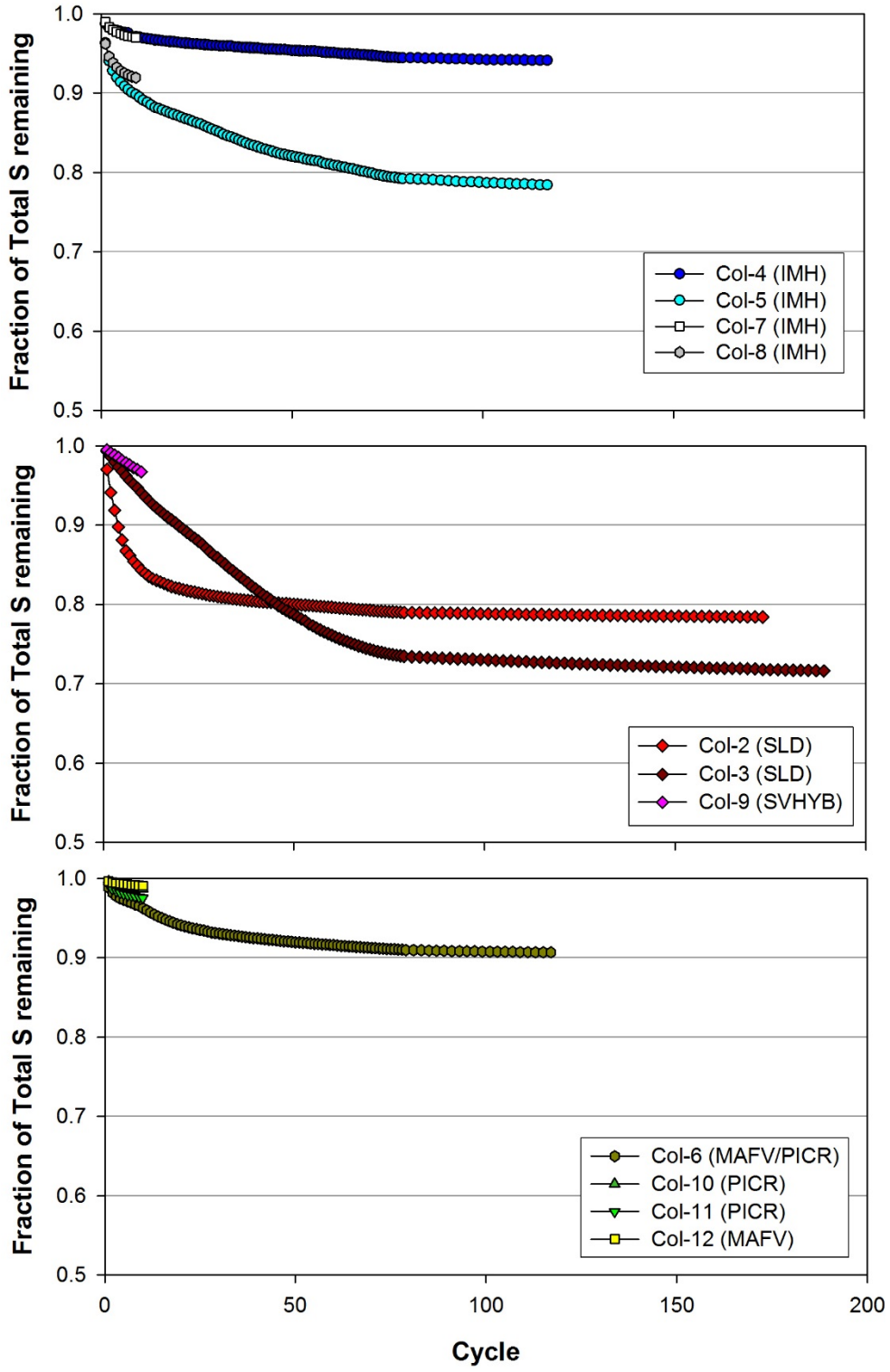


Figure 6-6: Calculated fraction of total sulphur remaining in unsaturated mine rock column samples from the Ajax deposit

Duplicate and pre-treated humidity cells

Similar to the column experiments discussed in the previous section, untreated humidity cells show initially high sulphate release rates that stabilize between 1 and 5 mg/kg/wk over time with the high-S SLD material (HC2) producing the highest values of this range (Figure 6-7). Except for HC3, which shows overall higher sulphate production around 10 mg/kg/wk, all pre-treated cells generate relatively low sulphate loads in the range of HC1 leachates. As opposed to the untreated cells, pre-treated cells generally do not show the initial peak in sulphate release which is likely a result of easily-soluble sulphate phases (*e.g.*, gypsum) being depleted during the pre-treatment process.

Compared to the pre-leached humidity cells, the untreated samples have a lower fraction of total sulphur remaining (Figure 6-8). This is the result of the removal of soluble sulphate minerals during the pre-treatment process. In the advanced stages of the experiments (almost 200 weeks) >70% of the total sulphur content is calculated to be still present in the individual samples. These results are comparable with observations made for the duplicate unsaturated column samples (Figure 6-6).

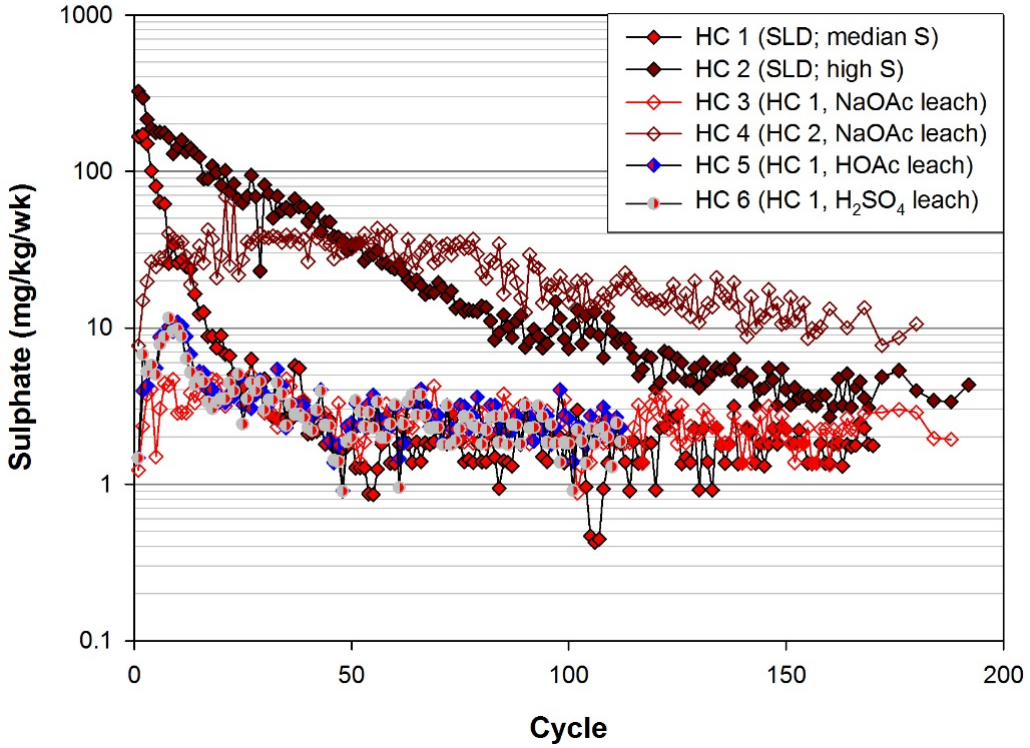


Figure 6-7: Sulphate production rates in SLD duplicate and pre-treated humidity cell leachates

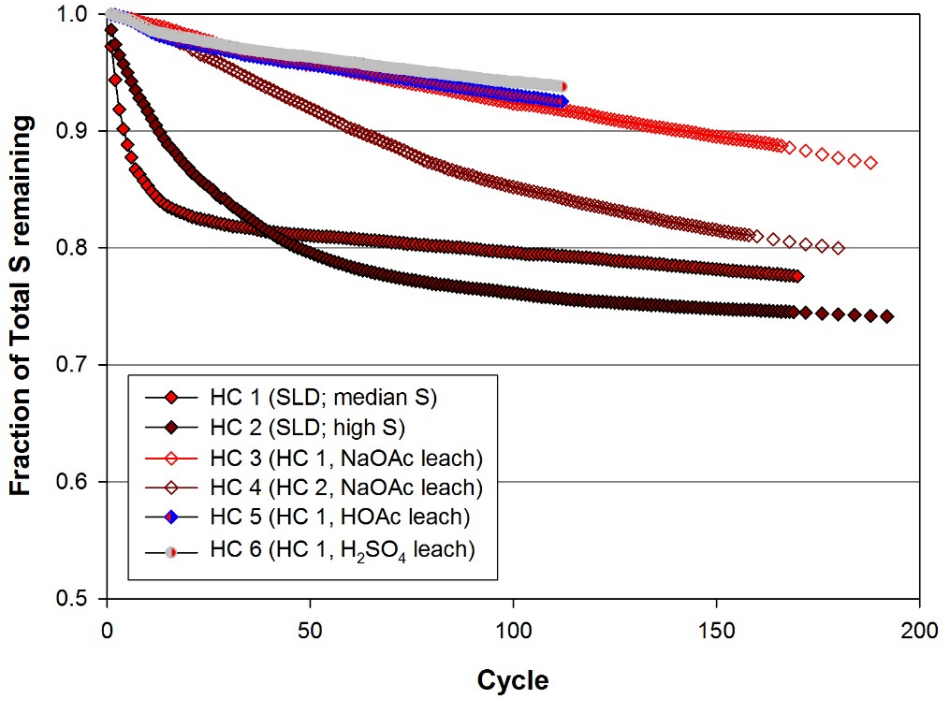


Figure 6-8: Calculated fraction of total sulphur remaining in duplicate and pre-treated humidity cells from the Ajax deposit

6.1.1.3 NP Depletion Rates

Acid-base accounting determined that measurable neutralization potential was present in most Ajax samples both in the form of carbonate and non-carbonate minerals. Kinetic test results are used to evaluate if the measured NP effectively buffers pH at the rate of acid generation produced by oxidizing sulphide minerals. The buffering effect of carbonate minerals and silicate minerals are discussed in turn below.

Unsaturated columns (CaNP depletion)

The rate of CaNP consumption resulting from leaching of the mine rock can be approximated from the rate of sulphate production and release rates of major cations. Cations such as Ca and Mg that are derived from the dissolution of neutralizing carbonate minerals. Thus, when considered together, the weekly leachate concentrations of Ca, Mg, and SO_4 can be used to calculate the carbonate molar ratio (CMR), as expressed in the following form:

$$\boldsymbol{CMR} = \frac{[Ca^{2+}]+[Mg^{2+}]}{[SO_4^{2-}]} \qquad \textit{(Eq. 7)}$$

The CMR is a proxy for the rate of carbonate dissolution (NP depletion) and sulphide oxidation occurring in the laboratory test reactor, assuming that the base cations are derived only from the NP source and the sulphate is derived from the oxidation of pyrite. A direct comparison can be made between the CMR and NPR, since both parameters represent normalized ratios. The premise of the comparison is that if the NPR of a sample exceeds the CMR value, the sample is non-acid generating because the laboratory-measured rates (CMR) are sufficiently low to ensure that NP will remain in the sample once the sulphide has completely oxidized.

In theory, CMR values could range from 1.0 to 2.0 due to the pH sensitive nature of carbonate speciation in aqueous solutions. In the most simplistic scenario, two carbonate consumption reactions can describe the sulphide oxidation-neutralization process:

at pH<6.3:

$$FeS_2 + {}^{15}\!/_{4}\, O_2 + {}^{7}\!/_{2}\, H_2O + 2\left[Ca^{2+}, Mg^{2+}\right]CO_3 \longrightarrow Fe(OH)_3 + 2SO_4^{2-} + 2H_2CO_3^0 + 2\left[Ca^{2+}, Mg^{2+}\right]$$

(Eq. 8)

at 6.3<pH<10.3:

$$FeS_2 + {}^{15}\!/_{4}\, O_2 + {}^{7}\!/_{2}\, H_2O + 4\left[Ca^{2+}, Mg^{2+}\right]CO_3 \longrightarrow Fe(OH)_3 + 2SO_4^{2-} + 4HCO_3^{-} + 4\left[Ca^{2+}, Mg^{2+}\right]$$

(Eq. 9)

Neutralization of acidity up to pH levels of 6.3 produce one mole of Ca for each mole of SO_4 released, producing a CMR = 1.0. At pH levels above 6.3, H_2CO_3 is not the dominant form of inorganic carbon in an aqueous solution and the bicarbonate ion (HCO_3^-) is by far the most abundant. Thus, at near-neutral pH levels, calcium carbonate is less efficient at neutralizing acidity and twice as much carbonate is required to produce a balanced solution. Under these conditions, 4 moles of Ca (+ Mg) are theoretically released relative to 2 moles of SO_4 producing a CMR = 2.0. The relationships derived from these chemical equations assume that pyrite oxidation is the sole source of sulphur and iron in the product that take the form of sulphate and iron hydroxide, respectively. Thus, the oxidation of other sulphide minerals, dissolution of soluble sulphate minerals, the formation of other secondary products, or dissolution of carbonates by dilute waters in the absence of significant sulphide oxidation may alter the relationship (Mattson, 2005).

If laboratory conditions are met, the theory predicts that at a given CMR between 1.0 and 2.0, any CaNPR less than the CMR indicates that that material will become acid-generating at some point (Morin and Hutt, 2000). Table 6-1 provides a comparison of stabilized CMR values versus the initial CaNPR for Ajax kinetic test samples. More recently initiated kinetic test cells are excluded from this table since CMRs are still strongly influenced by

the flushing of easily soluble phases. If the CMR falls below 1.0, the effective neutralization falters and rinse pH decreases below 5-6 as effective and fast-neutralizing carbonates have been exhausted (Morin and Hutt, 2000). Conversely, if there is a low rate of in-situ acid generation from sulphide oxidation, the predominant form of acidity (as defined by the amount of base required to raise pH of the solution to 8.0) is associated with the pH of the deionised water, pH = 5.5, introduced into the humidity cells. Carbonate minerals are sufficiently reactive that they dissolve in response to the deionised water introduced into the cell, and their subsequent dissolution raises the pH of the leachate to the circum-neutral range – releasing base cations to solution without the active oxidation of sulphides. In this situation, the CMR values tend to be significantly greater than 2.0 as a result of the low sulphate concentrations in the leachate solutions. Thus, these CMR values do not accurately reflect the relative rates of sulphide oxidation and NP depletion when the sulphate loading rates in humidity cell leachates are < 20 mg/kg (Mattson, 2005) and most of the Ajax kinetic tests have stabilized at around 10 mg/kg (Figure 6-5). A number of assumptions are inherent in the estimation for the time to CaNP depletion in Ajax mine rock, including:

- All non-SO_4 sulphur initially present is available as sulphide for oxidation and production of acid;
- All sulphate produced in humidity cell leachate is from sulphide oxidation;
- All sulphate produced from sulphide oxidation is released to the leachate and is not retained in the column as secondary minerals such as gypsum;
- Average sulphate production rates and CaNP depletion rates observed in the selected test cycles will continue indefinitely until all sulphide and CaNP is depleted; and
- All carbonate minerals included in the CaNP value are available for neutralization of acidity.

Figure 6-9 shows the CMR values for the kinetic mine rock tests over time and Table 6-1 compares the kinetic test CMR values against their CaNPR values. The two IMH columns have high stable CMR values, being consistently >2.0 except for the very first cycles and extend up to >100. This results from the low sulphide concentrations in these cells (Table 5-9). The mixed PICR/MAFV column CMR was stable between 1.0 and 2.0 for most of the test period; however, increased scatter in CMR values is observable after the column air flow method was switched to dry air. The recently initiated PICR and MAFV cells (Col-10 through Col-12) produce initial CMR values closely following the trend seen in the mixed Col-6 sample. The untreated SLD high-S mine rock samples (Col-3, HC2) are stable at 1.1 – 1.7 and the treated humidity cell is at 0.66. The median-S

SLD humidity cell (HC1) shows a stable CMR falling around 4 due to the low sulphide oxidation rate. Its duplicate column sample (Col-2) displays an increasing trend in the more recent sampling cycles with CMR values reaching up to around 10. It is too early to draw any conclusions from CMR values produced by the SVHYB sample (Col-9; Table 6-1), however, as for most leachates, CMR values are initially slightly below 1.0 showing an increasing trend.

Table 6-1:
Comparison of CMR and CaNPR values for Ajax kinetic test samples with stable CMRs

Cell	Description	Treatment	Cycles	CaNPR	CMR
Col-2	SLD , median S	none	173	6.2	7.3
HC1	SLD , median S	none	170	6.2	2.9
HC3	SLD , median S	NaOAc	188	< 0.9	0.90
HC5	SLD , median S	HOAc	112	1	0.97
HC6	SLD , median S	H_2SO_4	112	2.8	3.3
Col-3	SLD , high S	none	189	1.7	1.1
HC2	SLD , high S	none	192	1.7	2.8
HC4	SLD , high S	NaOAc	180	0.2	0.99
Col-4	IMH	none	117	41.7	33
Col-5	IMH	none	117	94.4	20
Col-6	PICR/MAFV	none	117	3.2	2.8
Col-1	SLD High-grade ore	none	189	3.2	1.2
T1	Tailings	none	143	8.4	3.0
T2	Tailings	none	219	8.4	1.8
T3	Tailings	none	51	8.0	6.0
T4	Tailings	none	73	8.0	1.6

Notes: CMR values represent the median from the last 5 sampling cycles; values outlined in red box exceed the respective CaNPR value.

The NP depletion time for each kinetic test cell was calculated using reaction rates and the solid-phase characteristics of the respective kinetic tests samples. Since the NP depletion rate is largely tied to the acid production rate of a sample, the theoretical NP depletion rates can be written as:

$$NP\ depletion\ rate = CMR \times SO_4\ release\ rate \qquad (Eq.\ 10)$$

This assumes that all Ca and Mg is produced through the dissolution of a pH-buffering phase and released in response to acid production through sulphide oxidation. As previously stated, at neutral pH the CMR related to carbonate dissolution would fall around

2 in an idealized reaction (equation 9). For calculation purposes, measured kinetic test CMRs exceeding 2 were therefore set to this value in equation 10 since low water/rock ratios in the field will limit the effects of carbonate-undersaturation produced in a kinetic test environment. However, note that acid-buffering reactions involving silicate minerals commonly occur through a cation-exchange mechanism in which an interlayer cation (*e.g.*, K, Na, Mg, Ca) is released into solution while a number of protons equivalent to the electrical charge of the cation (*e.g.*, one for K, two for Mg, *etc*.) will enter the crystal lattice (Oelkers, 2001). In other words, assuming that mafic minerals are the main contributor to silicate NP and Mg is the main cation buffering acidity, a CMR of around 1 would be expected. As a result, especially for the most mafic lithologies (*e.g.*, PICR), the approach applied above will lead to an overestimation by up to a factor of 2 times the actual lag time that is required before a PAG sample will turn acidic. An overview of the required data and the individual calculation steps is given in Table 6-2. Note that this table only provides information pertaining to kinetic test samples with low sulphate mineral content in order to eradicate the effect of sulphate dissolution on CMR values, and therefore, NP depletion calculations. Furthermore, to provide consistency between the different cells, leaching rate data from cycles 40 to 45 was utilized for this calculation example since this was the experimental progress of Col-7 through Col-14 at the time of reporting. Since sulphate release rates and the associated NP depletion rates at this stage of the experiment are still relatively high, an estimation of the time to NP depletion can be considered conservative. The calculations presented in Table 6-2 show that none of the investigated kinetic tests samples are expected to turn acidic as sulphide minerals will be exhausted before NP, consistent with the NPAG character (NPR > 2) of all samples. There is a large time window for the various kinetic cells to become deleted in NP, ranging from 76 to almost 2000 years (Table 6-2).

Table 6-2:
Calculation of time estimated to deplete NP from selected kinetic test samples

	Units	Col-2 SLD	Col-4 IMH	Col-5 IMH	Col-6 MAFV/PICR	Col-7 IMH	Col-8 IMH	Col-10 PICR	Col-11 PICR	Col-12 MAFV	Col-14 Ore
Initial Total S	%S	0.20	0.020	0.020	0.31	0.024	0.022	0.15	0.30	0.31	0.57
Initial NP	kg$CaCO_3$/tonne	31	25	57	32	35	29	37	47	45	83
NPR		4.9	40	91	3.3	47	42	7.7	5.1	4.6	4.6
Duration of leachate data collection	years	3.3	2.3	2.3	2.3	0.85	0.85	0.71	0.71	0.71	0.71
Sulphate leaching rate (cycles 40-45)	mg/kg/wk	2.4	0.18	0.90	4.7	0.18	0.14	0.54	1.9	1.1	13
CMR for final 5 weeks (median)		2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	1.0
Total S remaining	wt.%	0.16	0.019	0.017	0.29	0.023	0.020	0.15	0.28	0.31	0.53
Remaining NP	kg $CaCO_3$/tonne	30	25	56	31	35	29	37	51	45	85
AP production rate	kg $CaCO_3$/tonne/wk	0.0025	0.00019	0.00094	0.0049	0.00019	0.00015	0.00056	0.0020	0.0011	0.014
Carbonate NP consumption rate	kg $CaCO_3$/tonne/wk	0.0050	0.00038	0.0019	0.0076	0.00038	0.00030	0.0011	0.0039	0.0023	0.014
Time until Sulphur Depletion	years	35	58	8.3	33	73	78	159	86	161	23
Time until Carbonate NP Depletion	years	110	1247	576	76	1791	1849	627	250	379	119
Total S remaining upon CaNP depletion	%S	-0.30	-0.38	-0.88	-0.34	-0.54	-0.44	-0.44	-0.54	-0.42	-2.2

Notes: CMR values for all kinetic cells exceeded 2 and were set to the latter to account for field conditions

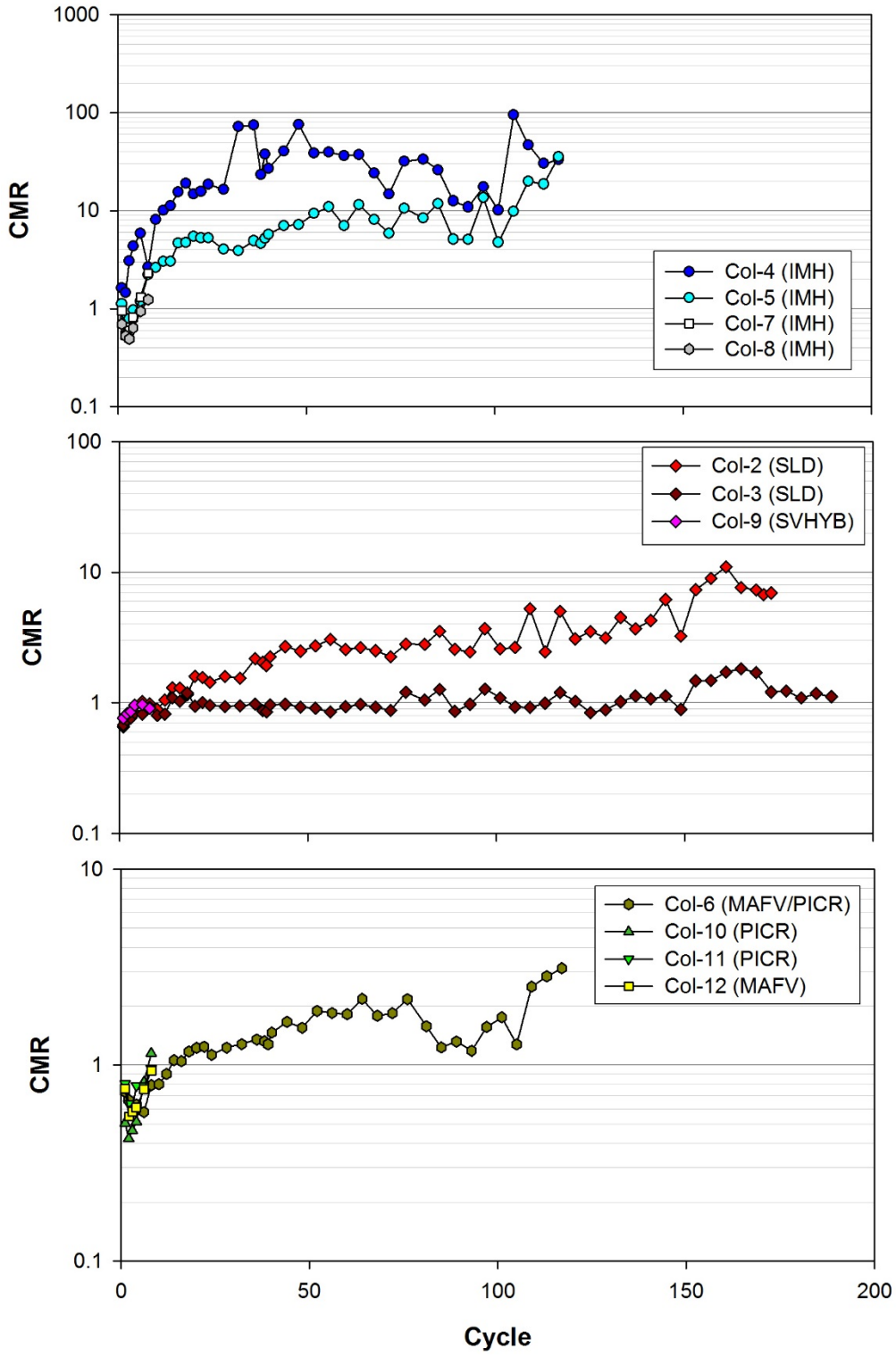


Figure 6-9: CMR values in leachates from Ajax mine rock column tests

It was found that a good positive correlations exists between the total sulphur content of a kinetic test sample and the short- and long-term NP depletion rates calculated by equation 10 (Figure 6-10). Since a significant proportion of PAG samples from the static test database have total sulphur contents higher than those measured in the kinetic test samples of their respective geological unit, a linear regression was used to predict a theoretical NP depletion value (Figure 6-10). Knowing the total S and modified NP content of each static test sample, the range of NP depletion times can subsequently be calculated for each geological population using the following relationships:

Time to depletion (short-term, years) = Mod. NP / (0.0198 x total S x 52) *(Eq. 11)*

Time to depletion (long-term, years) = Mod. NP / (0.0073 x total S x 52) *(Eq. 12)*

An assessment of the time to deplete NP from the various PAG populations within the Ajax mine rock is presented in detail in the Ajax ML/ARD Management Plan (Ajax EA Application, Section 11.6).

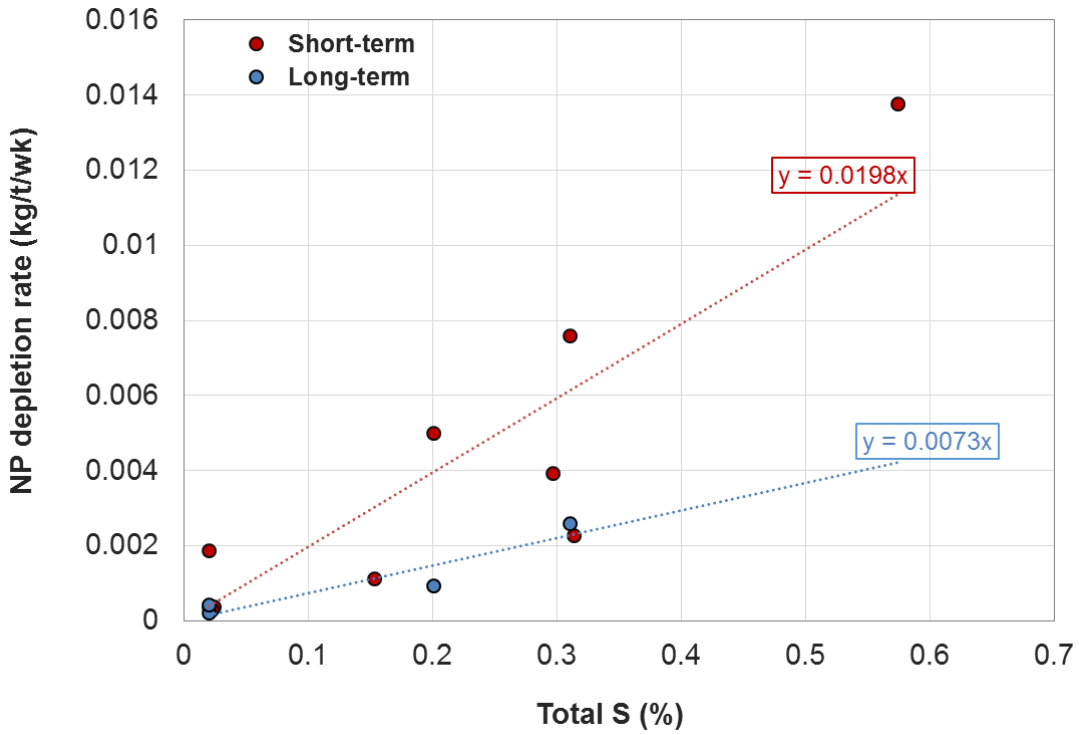


Figure 6-10: Short- and long-term depletion rates relative to original solid phase sulphur content

6.1.1.4 Availability of Non-Carbonate NP

Figure 6-11 shows the CMR trend for leachates from humidity cells HC1 through HC6. Material treated with NaOAc generally show the lowest long term CMRs with HC3 stabilizing just below 1.0. Consistent with trends observed for alkalinity release, the relatively high CMR values (~2-6) generated by HC6 suggest that the H_2SO_4 treatment is an incomplete leach with significant carbonate remaining in the sample.

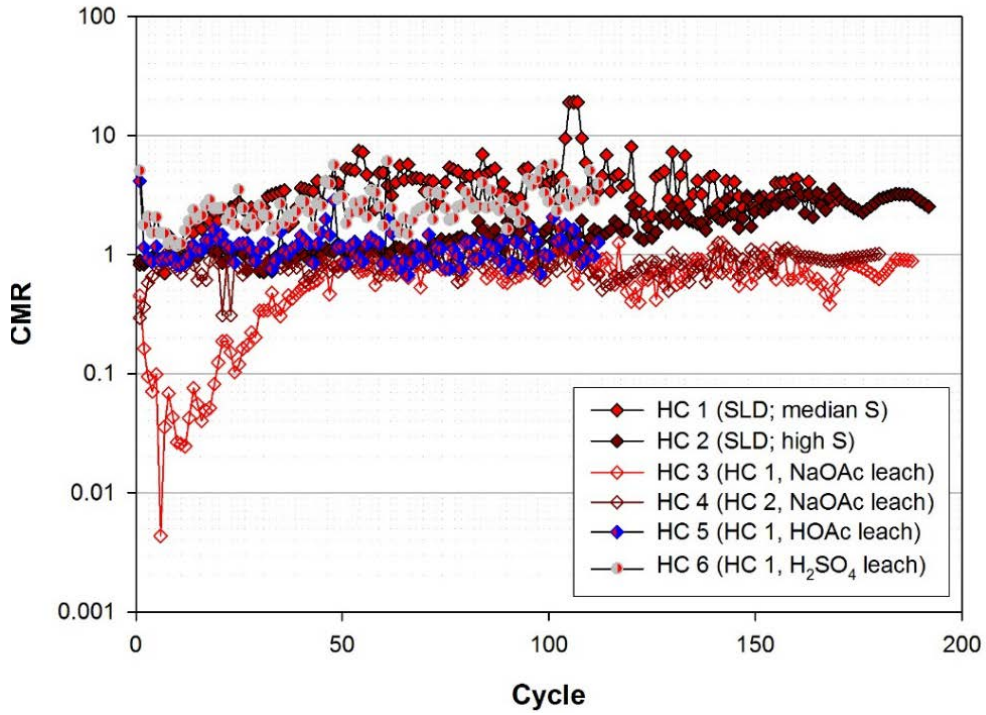


Figure 6-11: CMR values in leachates from Ajax mine rock column tests

ABA measurements indicated that neutralization potential may be available from silicate minerals in addition to carbonates contained in the Ajax samples (Section 5). The potential for non-carbonate NP contained in the silicate minerals to be available to neutralize acidity is largely dependent on the competing rates of sulphide oxidation and silicate dissolution. The relationship between dissolution of silicate minerals and pH has been evaluated in previous laboratory and field studies (Malmström *et al.*, 1996; Mattson, 2009; Price *et al.*, 2005). The relative weathering rates of various rock forming minerals relative to calcite are outlined in Table 6-3. The relative mineral reactions were established primarily by examining the degree of alteration of a mineral assemblage in weathered soil profiles.

Table 6-3:
Relative reactivities of minerals grouped after their acid-neutralization capacity (after Sverdrup and Warfvinge, 1988 and Kwong, 1993)

Group Name	Minerals	Relative Reaction Rate (at pH 5)
Dissolving	**Calcite,** aragonite, **dolomite**, magnesite, brucite	1.0
Fast weathering	Anorthite, nepheline, **olivine**, garnet, jadeite, leucite, spodumene, **diopside**, wollanstonite	0.6
Intermediate weathering	**Epidote (clinozoisite)**, zoisite, **enstatite**, hypersthene, **augite**, hedenbergite, **hornblende**, glaucophane, **tremolite**, **actinolite**, anthophyllite, **serpentine**, chrysotile, talc, **biotite, chlorite**	0.4
Slow weathering	**Albite**, oligoclase, labradorite, **vermiculite**, montmorillonite, gibbsite, kaolinite	0.02
Very slow weathering	**K-feldspar**, muscovite	0.01
Inert	**Quartz, rutile**, zircon	0.004

Notes: The minerals in bold have been identified in the median-S and/or the high SLD kinetic test samples (Chapter 4)

Carbonate minerals are most reactive (relative reaction rate = 1.0) and quartz is identified as being least reactive having a relative reaction rate of 0.004. The silicate minerals that may contribute to pH buffering observed in the SLD mine rock samples are listed in Table 6-4 with their abundance as determined by XRD. Minor amounts (1.9-3.6%) of reactive diopside were detected in SLD samples HC1 through HC4. Actinolite, a mineral with intermediate reactivity, is the next most common mineral present in all humidity cell samples that may be sufficiently reactive and help to buffer pH. Epidote/clinozoisite of intermediate reactivity is also present in the SLD samples. The plagioclase is indicated to be predominantly the albite (Na) end-member, which has a much lower NP compared to the calcic-rich anorthite end-member and, combined with its relatively slow weathering rate, it is not expected to contribute significantly to the pH buffering in the samples.

Table 6-4:
Silicate Minerals in SLD

Sample ID		**HC1**	**HC3**	**HC2**	**HC4**
Unit		SLD median-S	SLD median-S	SLD high-S	SLD high-S
Treatment		none	NaOAc	none	NaOAc
Diopside	$CaMgSi_2O_6$	3.6	2.9	1.9	2.7
Epidote	$Ca_2Al_2(Fe^{3+};Al)(SiO_4)(Si_2O_7)O(OH)$	6.8	8.3	7.0	7.5
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	11	10	20	21
Biotite	$K(Mg,Fe)_3(AlSi3O10)(OH)_2$	1.1	-	-	1.6
Chlorite	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	8.1	8.6	11	11
Plagioclase	$NaAlSi3O_8 – CaAl_2Si_2O_8$	42	43	31	36
Vermiculite	$(Mg,Fe2+,Al)_3 (Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	1.2	1.2	1.6	2.3

The availability of the non-carbonate NP in the SLD is being evaluated by two sets of humidity cells. Humidity cells HC1 and HC2 represent median-S and high-S SLD samples, respectively. Duplicates of the HC1 and HC2 samples were leached with sodium acetate prior to kinetic testing to remove the carbonate NP and placed in humidity cells HC3 and HC4. For this assessment, only data from HC1 through HC4 are discussed, since it was found that pre-treatment of HC5 and HC6 only lead to partial CaNP removal. Thus, the geochemical leachate signature from HC5 and HC6 was still impacted by carbonate mineral dissolution and do not show the full effect of silicate dissolution. Note that the sodium acetate pre-leach procedure only removes carbonate and does not decrease the sulphide content of the samples. Thus, the leaching rates from the leached samples (HC3 and HC4) represent worst case conditions. Key leachate signatures observed and the implications of these signatures are discussed below. The discussion focusses on the latter portion of the tests as the early data is strongly influenced by the pre-leaching process.

As shown in Figure 6-4, alkalinity production is consistently low in the NaOAc pre-leached humidity cells (HC3, HC4) compared to the untreated samples, which is consistent with the inorganic C measurements from the pre-leached samples (Table 5-8) that indicate the removal of CaNP was complete from these two samples. The figure illustrates two distinct drainage chemistry end-members, from the initial carbonate buffered situation (HC1/HC2) to the subsequent condition when the carbonate NP has been exhausted and pH is buffered by non-carbonate sources (HC3/HC4).

The trends for major ion release rates from the original median-S (HC1) and high-S (HC2) SLD samples and the corresponding pre-leached cells (HC3 and HC4) are illustrated in Figure 6-12. Ca production is higher in the original samples containing CaNP compared to

the respective pre-leached duplicate humidity cells. This is consistent with the dissolution of Ca-rich carbonate contained in the SLD samples (Section 4.1.4) that are in HC1 and HC2 but are absent in HC3 and HC4.

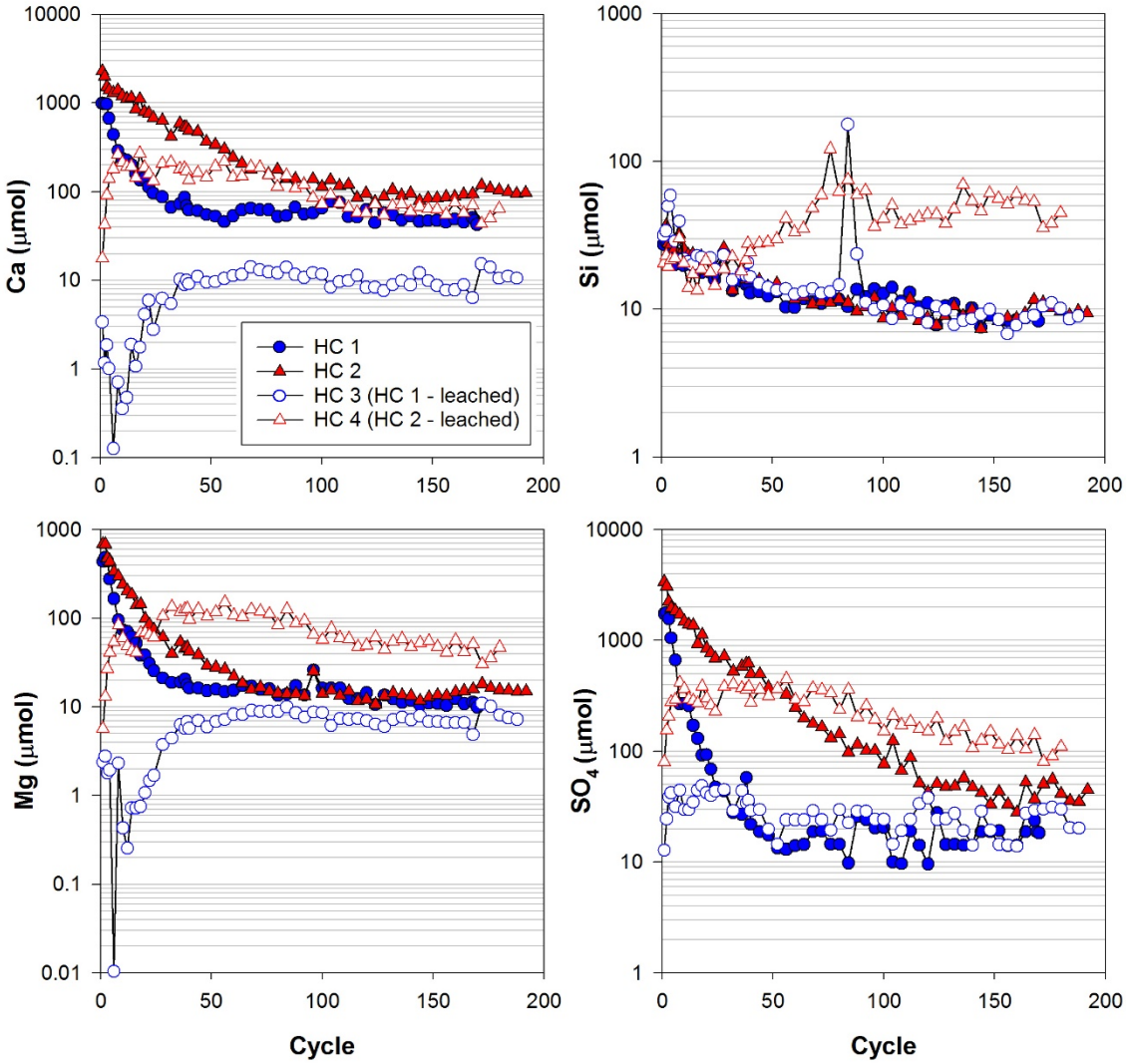


Figure 6-12: Major ion release rates (molar) in leachates from the untreated and pre-treated Ajax humidity cells

The Mg release rates provides insight into the dissolution of silicate minerals, which is evident when comparing the Mg release rates to the silica (Si) release rate in Figure 6-12. The NaOAc-leached HC4 has the highest Mg and Si leaching rates of all the cells and these parameters have both stabilized near 50 µmol/kg/wk. In particular, the HC4 rates are greater than those observed from HC2, clearly indicating that the absence of carbonate allows for greater rates of silicate mineral dissolution. These rate increases between HC2 and HC4 indicate that silicate minerals containing Mg are buffering pH in HC4, rather than the Ca-rich calcite in HC2. However, it is not clear from the Mg and Si plots if silicate

dissolution is occurring in the median-S sample HC3. Mg and Si leaching rates from HC1 are similar to those reported for its pre-leached duplicate HC1 (Figure 6-12). However, the extremely low rates of acid production from these median-S humidity cells (HC1, HC3) limits the ability to accurately measure directly influenced dissolution rates due to the analytical precision at these levels. The Si release rates in HC3 may be explained by one or both of the following mechanisms:

- Sulphate (and therefore acidity) production rates in HC3 are sufficiently low that the silicate dissolution rate required to counteract acid release has no measurable effect on molar Si production. This becomes apparent by sulphate release > 20 µmol/kg/wk and Si release 10 µmol/kg/wk;
- At the pH conditions observed in leachates from HC3, silicate dissolution is incongruent with certain cations being leached preferentially over others (*e.g.*, Ca and Mg over Si) as a result of the crystallographic structure (Oelkers and Schott, 2001).

Despite the limitations discussed above, silicate dissolution and pH buffering at low rates of sulphide oxidation in HC3, supported by the similar Ca/Mg and Ca/Si ratios measured in leachates from both pre-leached humidity cells, suggests that the dissolution of a similar mineral assemblage is responsible for pH-buffering in both the pre-leached humidity cells (Figure 6-13).

An evaluation of the dissolution reactions that may be responsible for buffering pH in both median-S (HC3) and high-S (HC4) humidity cells is undertaken below using the ratio of Ca, Mg, and K to SO_4 (Figure 6-14). Notably the cumulative cation (Ca+Mg+K) to SO_4 molar ratio is slightly < 1.0 except through the latter test cycles from HC4. This observation is consistent with the lack of measured alkalinity in the humidity cell leachate and a 1:1 molar ratio between cations displaced from silicate mineral structure by the H^+ released via pyrite oxidation. Although the cumulative cation to SO_4 molar ratio averages near 1.0 after Cycle 50, consistent with previous observations discussed above, cation release with respect to sulphate is more variable from HC3. This variability is likely explained by the same factors influencing the Si release. The extremely low cumulative cation ratio during the initial 40 test cycles in HC3 is due to the influence of sodium (Na) desorption produced as an artifact of the NaOAc pre-leach step.

A general trend apparent from Figure 6-14 is that the major cations are released at relatively constant rates proportional to sulphate. Ca is the dominant cation being released at a proportional rate of 0.5, Mg at a proportional rate of 0.4 and K at a proportional rate of 0.1. The preferential release of Ca suggests that diopside and/or epidote are largely responsible for this signature. The release of Mg points strongly to diopside as the major mineral

weathering in response to acid release. The release of K indicates that biotite is exchanging K from the octahedral sheet sites with H^+ released via pyrite oxidation. This form of proton removal would not necessarily require the concomitant release of Si from the silicon tetrahedron as leached layers form at the mineral surface (Oelkers, 2001). The observed signature suggest that several silicate minerals are weathering and attenuating acidity released from pyrite in the SLD rather than a single mineral.

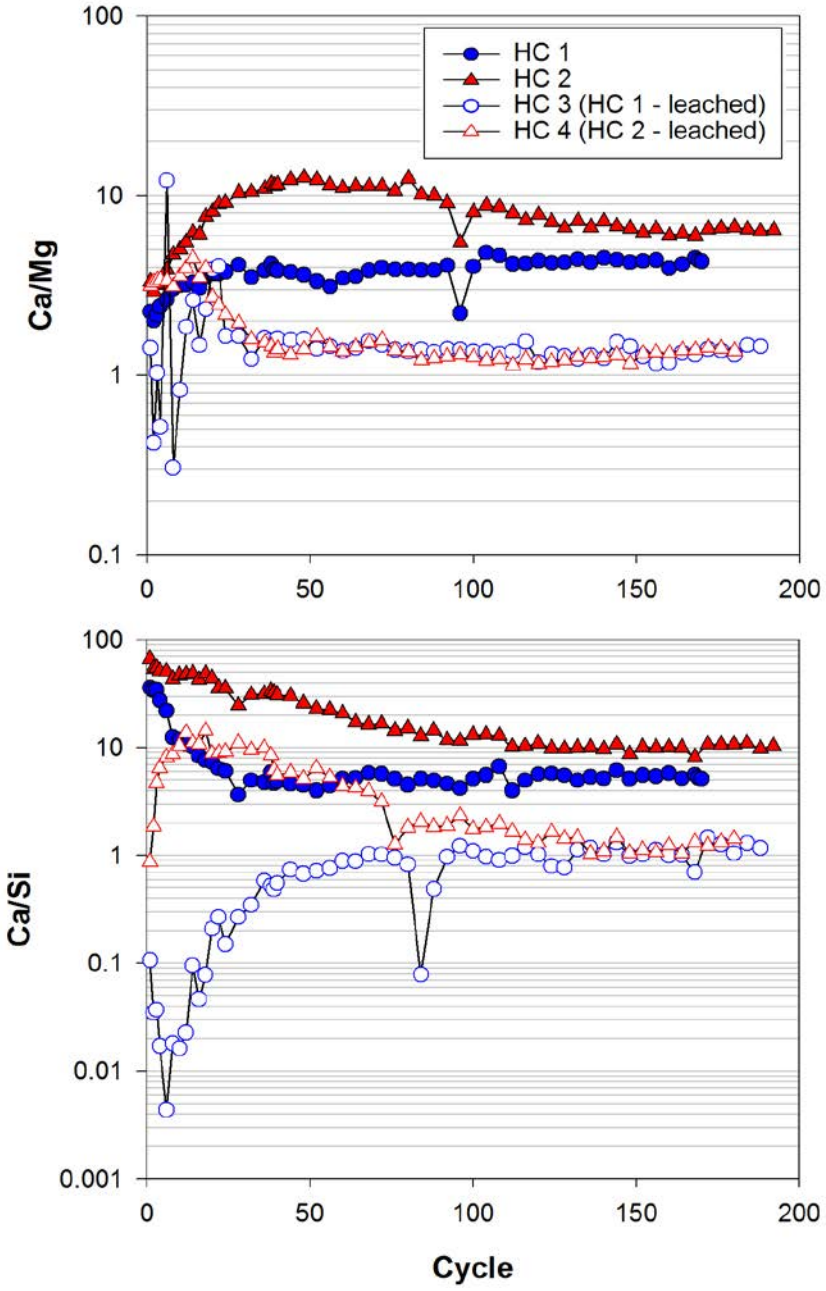


Figure 6-13: Molar Ca/Mg and Ca/Si ratios in leachates from the pre-treated Ajax humidity cells

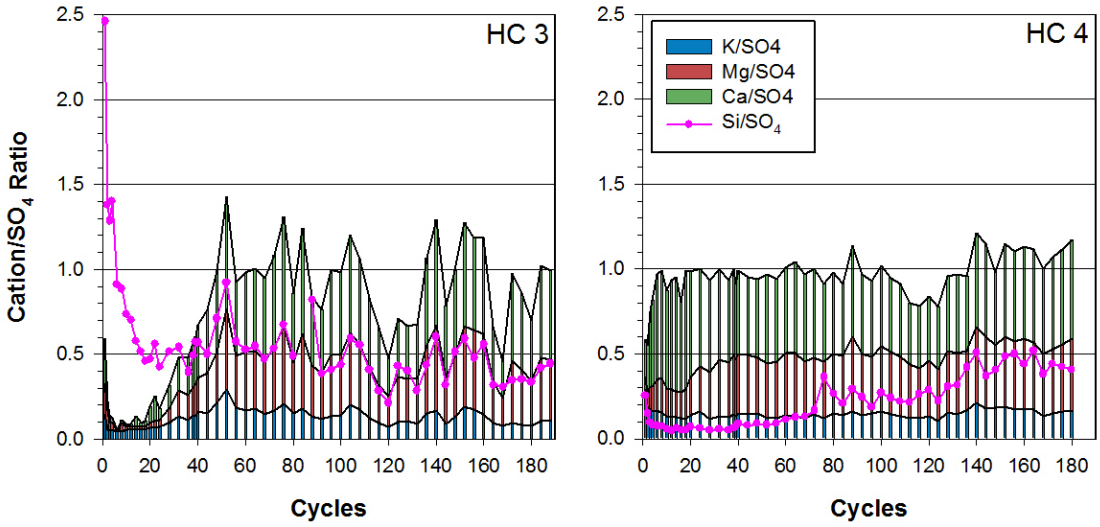


Figure 6-14: Cumulative Molar ratios of Ca/SO_4, Mg/ SO_4 K/ SO_4 and Si/ SO_4

6.1.1.5 Dissolved Metals

Unsaturated Columns

Leachate concentrations from laboratory kinetic tests represent primary metal release rates with no consideration given to the influence of field conditions that govern the actual metal concentrations in mine drainage. In addition, concentrations measured from columns and cells are susceptible to changes in the volume of water added and collected at the end of each cycle, and hence, concentration data do not provide a strictly quantitative estimate of drainage chemistry. To provide a more functional parameter which can be used to compare results between different columns, metal concentrations in mine rock leachate are normalized to the mass of sample in the column and cell and the volume of leachate collected each week, producing weekly mass loadings (mg solute/kg sample/wk). Values below detection were set at half the value of detection. The complete laboratory kinetic metal release data is provided in Appendix D-1.1.

The trends in leachate concentration over time for the laboratory kinetic tests for selected elements are provided in Figure 6-15 through Figure 6-20. The selected elements have elevated concentrations with respect to 3 times the crustal average in the mine rocks (Chapter 5) and represent contrasting geochemical behaviours. Copper and Ni (Figure 6-15 and Figure 6-16) are divalent metals that are known to adsorb to Fe-oxyhydroxides at circum neutral pH and above, but are often released onto solution as the pH of the system drops. The elements As, Mo, Se and V (Figure 6-17, 6-18, 6-19, and 6-20, respectively) are typically oxyanions in oxidized mine drainage waters, and may be in the form of molybdate (MoO_4^{2-}), selenate (SeO_4^{2-}), and vanadate (VO_4^{3-}). They adsorb to Fe-

oxyhydroxides at low pH but are soluble at circum-neutral pH. Arsenic has produced trends similar to Mo but at rates approximately an order of magnitude lower.

Release rates of Cu are relatively similar between the different rock units and generally stabilizing around or below 0.0001 mg/kg/wk. While limited data is available for the more recently initiated kinetic cells, it is noteworthy that these cells initially release lower Cu loads for IMH, MAFV, and PICR columns. In accordance with the mineralogical association of Ni with mafic minerals, Col-6 (MAFV/PICR) and Col-10 (PICR) show relatively high production rates of this species (Figure 6-16). The high-S SLD sample in Col-3 releases the highest Ni values amongst the SLD and SVHYB group. This is also true for Mo (Figure 6-18) with the overall highest release rates coming from Col-3 and Col-6. Interestingly, Mo in leachates that reacted with the newer MAFV and PICR columns (Col-10 through Col-12) are two orders of magnitude lower than values observed in the Col-6 leachates. Selenium production rates are highest in Col-3, stabilizing around a value of 0.0001 mg/kg/wk, making this sample the most conservative with respect to overall metal release rates. All IMH columns produce relatively low Se loads while MAFV and PICR samples release intermediate values (Figure 6-19). Vanadium shows a slightly different trend compared to other metals being leached from the kinetic test cells with the IMH columns (Col-4, Col5, Col-7, and Col-8) consistently producing the highest V loads, followed by the median S sample of Col-2 and the initial leachate draining from the MAFV sample in Col-12 (Figure 6-20). While field bin leachate and mine-site drainage concentrations can be assessed directly (*e.g.*, in comparison with water quality guidelines), the loading rates from laboratory kinetic experiments are more suitable for analysis of relative leaching behaviour and reaction rates occurring at high water-rock ratio environment. Ultimately, the most important function of these calculated loading rates is their use as input data for drainage quality prediction modelling. A summary of stabilized loading rates derived from mine rock leachates is presented in Table 6-5. Note that only data from the longer-running cells is presented in this table as leaching rates from Col-7 through Col-12 cannot yet be considered representative of long-term geochemical behaviour.

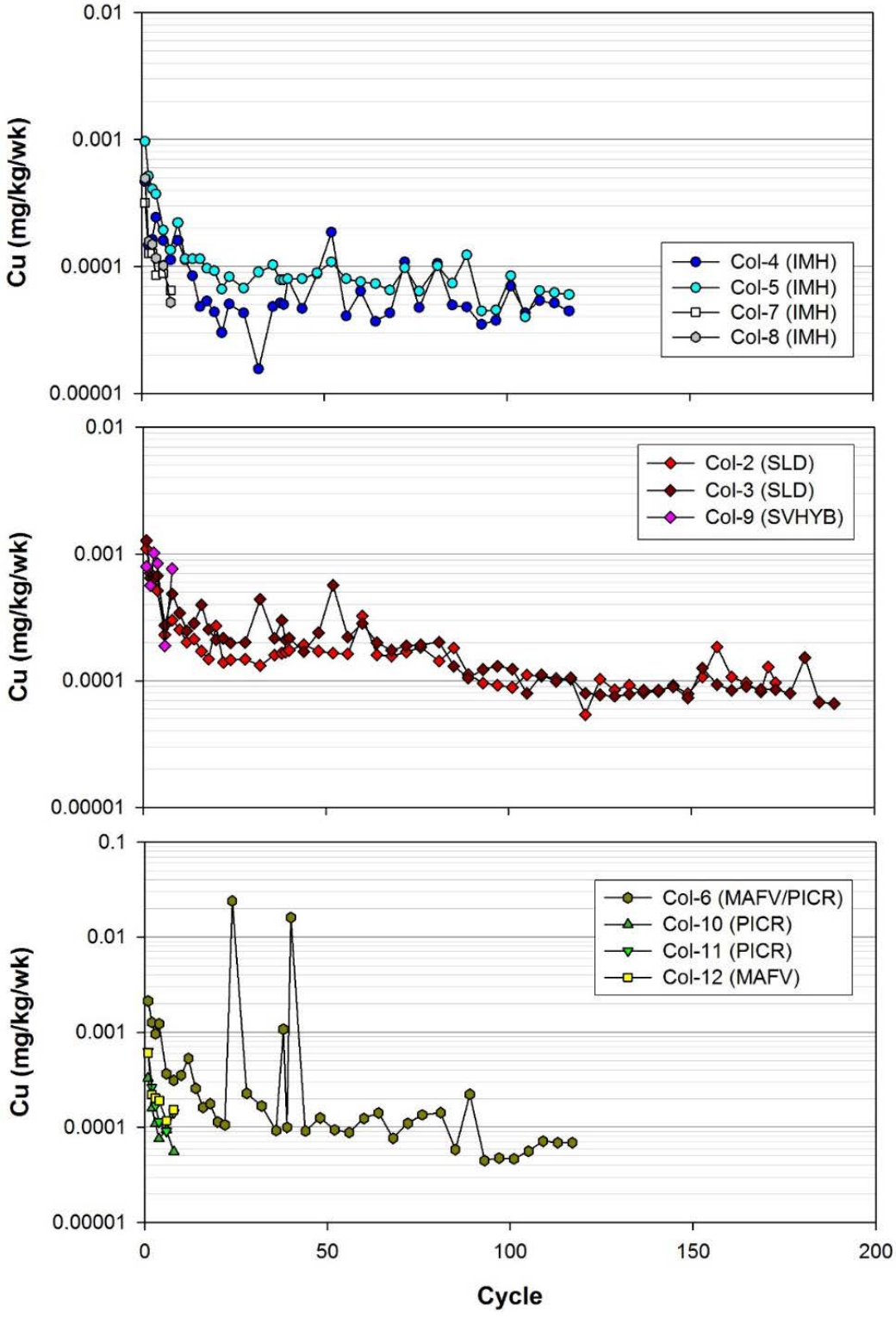


Figure 6-15: Dissolved Cu in leachate from Ajax mine rock laboratory kinetic tests

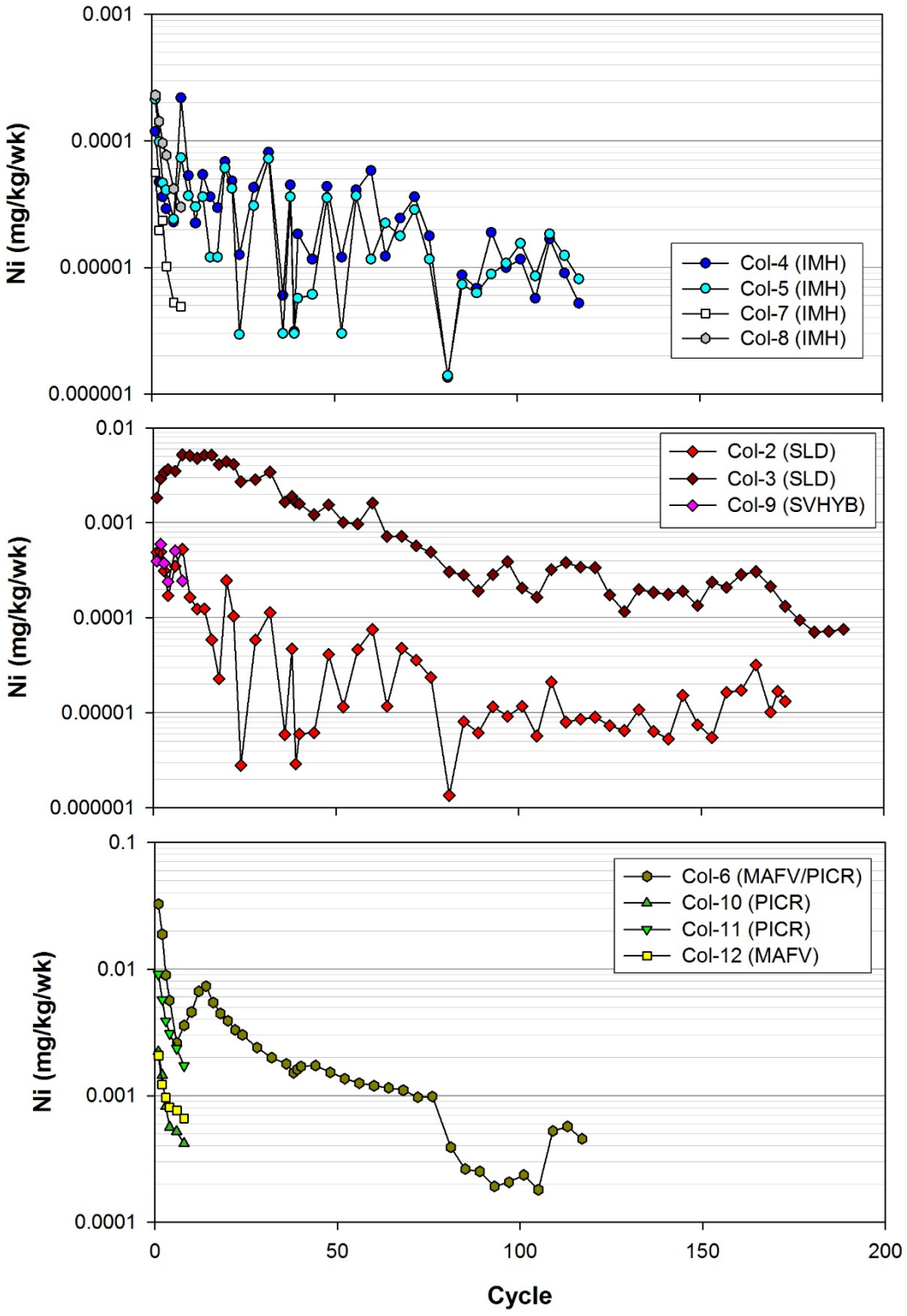


Figure 6-16: Dissolved Ni in leachate from Ajax mine rock laboratory kinetic tests

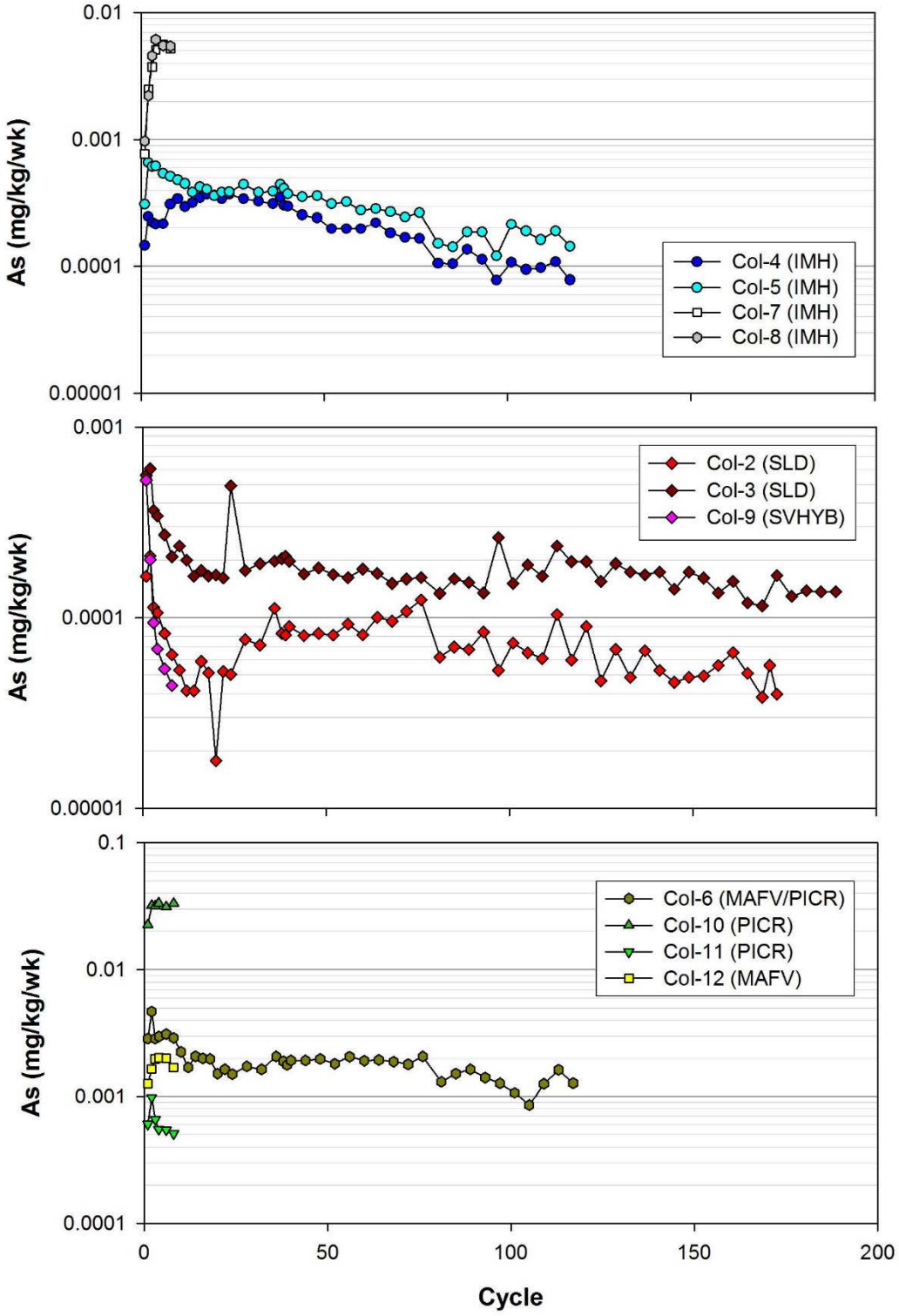


Figure 6-17: Dissolved As in leachate from Ajax mine rock laboratory kinetic tests

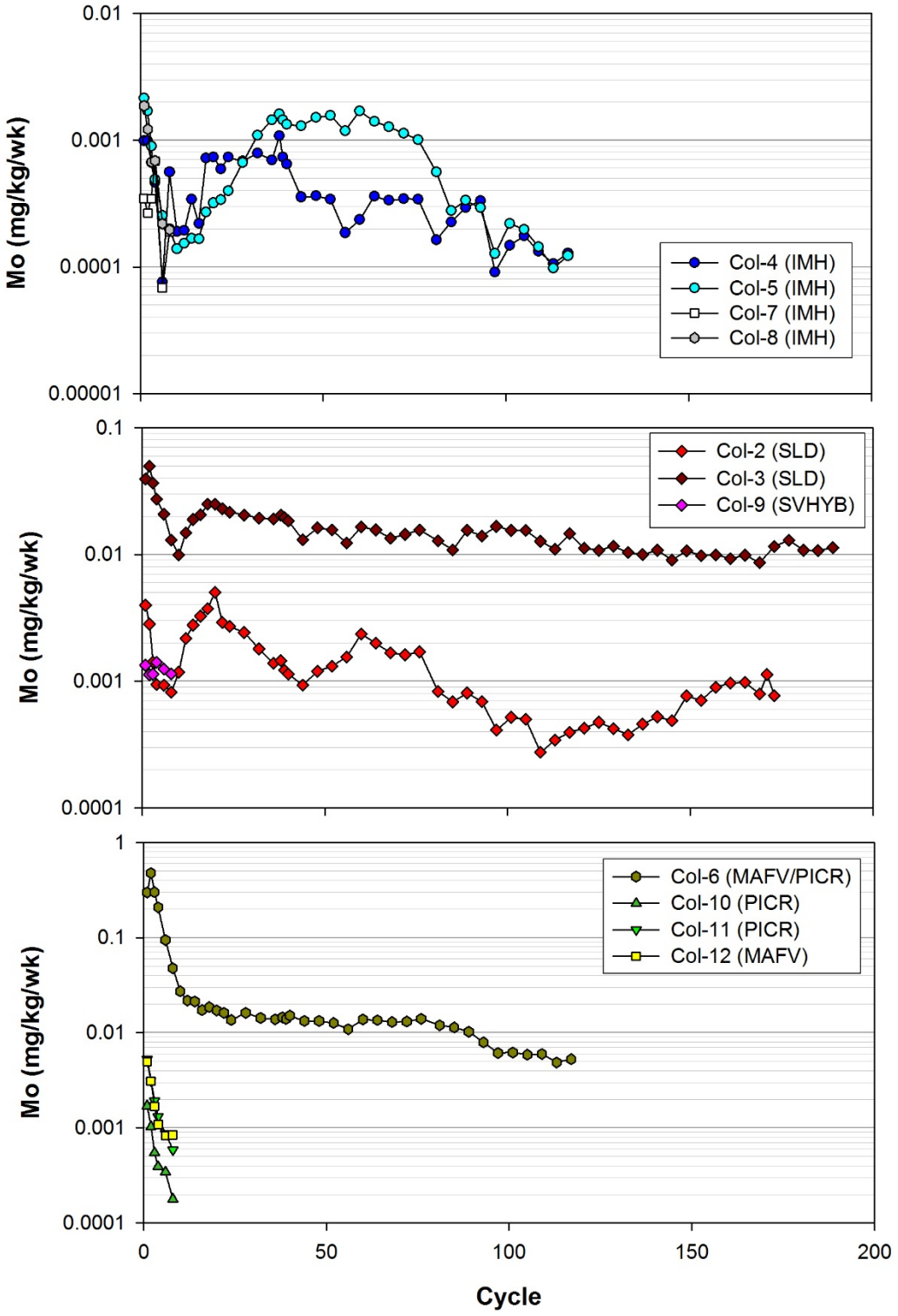


Figure 6-18: Dissolved Mo in leachate from Ajax mine rock laboratory kinetic tests

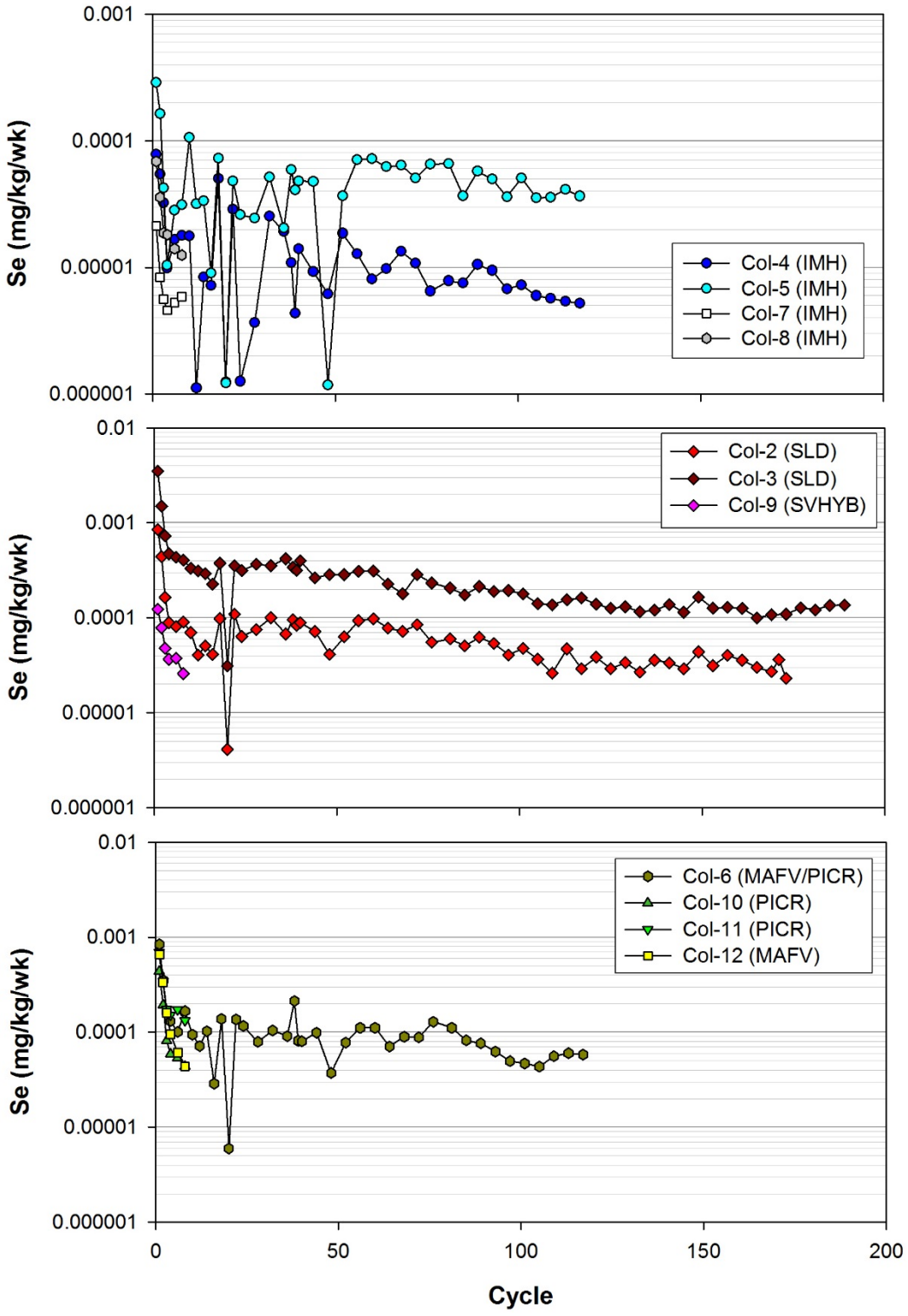


Figure 6-19: Dissolved Se in leachate from Ajax mine rock laboratory kinetic tests

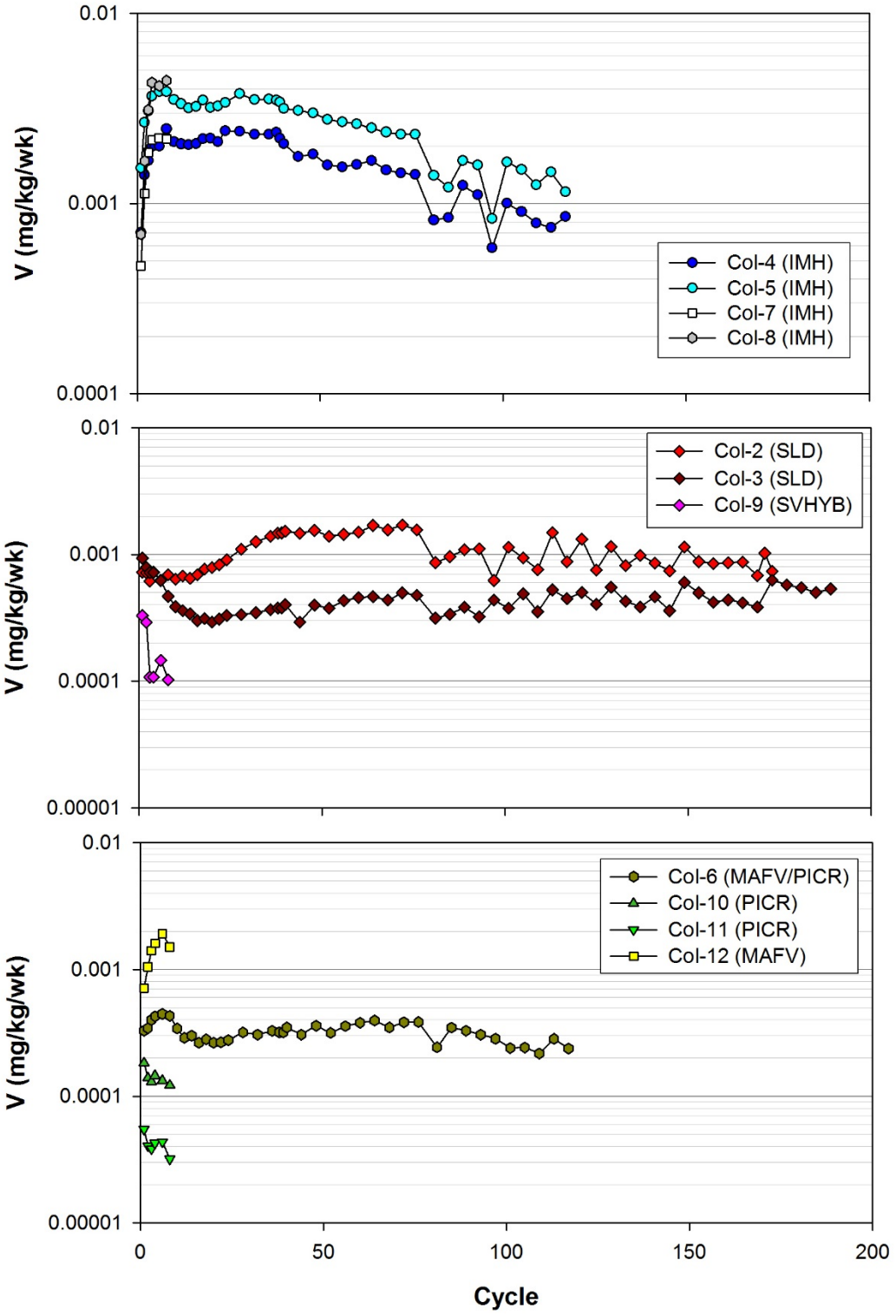


Figure 6-20: Dissolved V in leachate from Ajax mine rock laboratory kinetic tests

Table 6-5:
Stabilized Loading Rates for Uneconomic Mine Rock Cells

Cell ID	Material	Cycles used	pH	SO_4	As	Cu	Pb	Mo	Ni	Se	V	Zn
				mg/kg/wk	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*
Col-2	SLD	169-173	8.2	0.45	0.000049	0.000096	0.00000032	0.00095	0.000013	0.000030	0.00086	0.000032
Col-3	SLD	181-189	7.8	5.4	0.00013	0.000055	0.00000027	0.012	0.000085	0.00013	0.00048	0.000027
Col-4	IMH	109-117	8.1	0.10	0.000097	0.000051	0.00000114	0.00013	0.0000090	0.0000057	0.00085	0.000034
Col-5	IMH	109-117	8.1	0.20	0.00019	0.000062	0.00000054	0.00014	0.000012	0.000036	0.0015	0.000061
Col-6	MAFV/PICR	109-117	8.2	1.2	0.0013	0.000069	0.00000053	0.0059	0.00046	0.000056	0.00024	0.000051

Notes: The cycles used comprise the last three leachate samples with full dissolved metals analyses

Duplicate and pre-treated humidity cells

To gain insight into the pH- and NP-dependence of metal leaching behaviour, selected metal release rates are plotted in Figure 6-21 and Figure 6-22. In general, long-term Cu release rates are higher in pre-treated cells, notably HC4 which shows the lowest pH values. The fact that HC5 and HC6, which produce circum-neutral leachates, still drain slightly higher copper loads (Figure 6-21), suggests that lower carbonate content may also lead to lower Cu adsorption within the kinetic test cells. Almost the opposite trend is observable for V release rates with untreated (HC1 & HC2) showing the highest release rates, while the NaOAc-leached materials produce the lowest V loads (Figure 6-22).

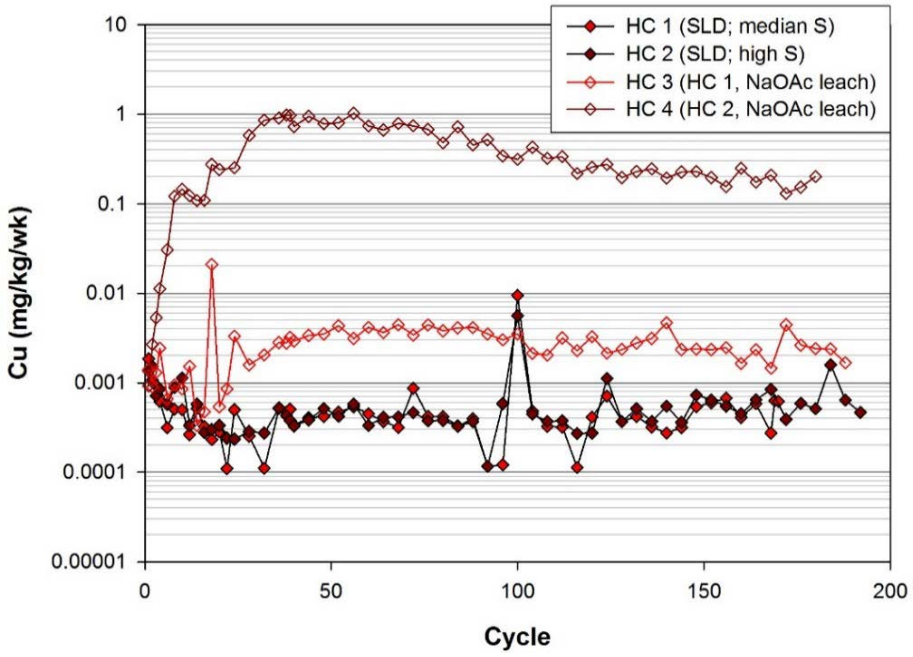


Figure 6-21: Copper production rates in SLD duplicate and pre-treated humidity cell leachates

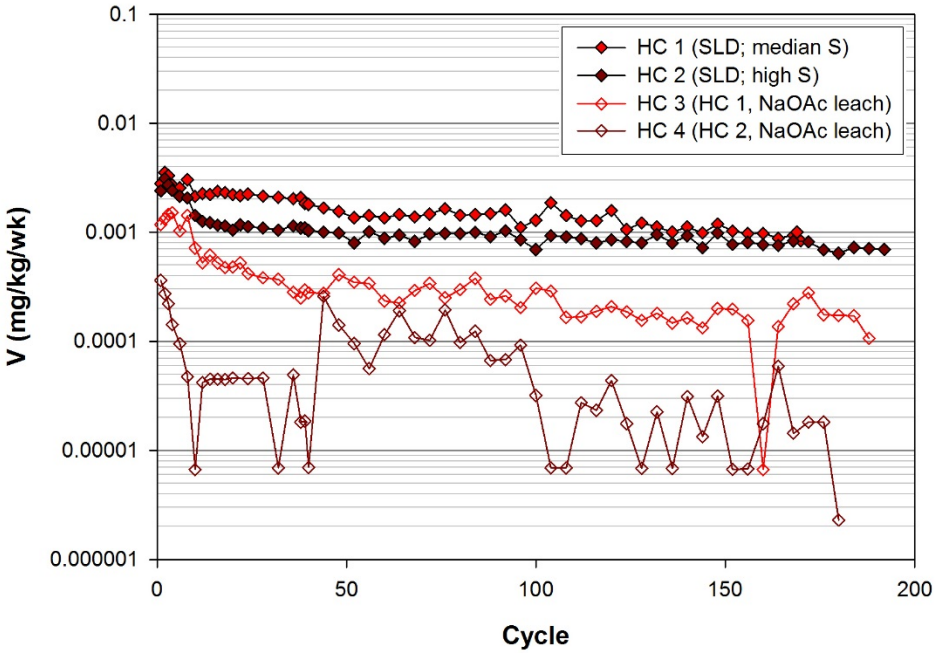


Figure 6-22: Vanadium production rates in SLD duplicate and pre-treated humidity cell leachates

6.1.2 Ore and Tailings

6.1.2.1 Acid-Base Balance

The temporal trends of pH in the ore and tailings kinetic tests are shown in Figure 6-23 with all cells circumneutral producing pH values throughout the duration of the experiments generally ranging from 7.5 to 8.3 consistent with all samples being classified as NPAG. It was observed that, because of the fine-grained nature of the 2009 tailings in the unsaturated column (T2) coupled with the standard procedure of aerating the columns with humid air, the column did not drain well and developed a partially saturated state. Therefore, the column was switched to dry air at the end of May 2012 (cycle 99), in an attempt to allow for more oxidation to take place within the cell.

The alkalinity production is relatively consistent between the different ore containing kinetic cells starting off at around 10 mg $CaCO_3$/kg/wk decreasing relatively rapidly after initial flushing. While Col-13 and Col-14 had not stabilized yet at the time of reporting, Col-1 initially stabilized around 3 mg $CaCO_3$/kg/wk during weekly sampling, followed by a slight drop to between 1-3 mg $CaCO_3$/kg/wk after the switch to biweekly sampling (Figure 6-24). The alkalinity production rate in all tailings humidity cells is almost an order of magnitude higher (~20-40 mg $CaCO_3$/kg/week) than the tailings columns stabilizing at

below 10 mg $CaCO_3$/kg/week. As for ore sample Col-1, the alkalinity release rate seems to be dependent on the frequency of water addition, as lower values are observed when the columns are allowed to dry from less frequent leaching on a bi-weekly basis. Interestingly, these reductions in alkalinity in Col-1 and T2 are accompanied with a general increase in pH, suggesting that acid-neutralization is enhanced during the biweekly sampling period.

6.1.2.2 Sulphide Oxidation Rates

Sulphate production is highest in the ore sample in Col-1 stabilizing around 100 mg/kg/wk temporarily before steadily decreasing to below 10 mg/kg/wk in the most recent sampling cycles. Both recently initiated ore kinetic cells (Col-13 and Col-14) have not been operational for long enough to conclusively determine a trend, however an initial drop in sulphate release is apparent after sulphate mineral flushing (Figure 6-25). Tailings kinetic test cells show a trend of rapidly declining sulphate production rates, comparable to those seen in ore cells Col-13 and Col-14. All tailings cells appear to stabilize around or below a sulphate production rate of 10 mg/kg/wk with leachates from the 2009 tailings (T2) column generally displaying smaller values than seen in leachates from its humidity cell equivalent (T1). Interestingly, the opposite is true for the January 2013 tailings kinetic tests (T3 and T4), however more data will be needed to confirm this trend as both tests have continual decreasing loading rates as the test progresses. The November 2013 tailings kinetic sample (T5) is currently at cycle 12 and is not stable yet with respect to sulphate production (18 mg/kg/wk).

The sulphate release rates of the high-S SLD ore sample (Col-1) leads to a relatively rapid decrease in the total S portion of the sample until around cycle 80, with 75% total S remaining. Subsequently, the rate of S depletion decreases and the total S content remains above 70% for the remainder of the experiment to date (Figure 6-26). The change in slope (or sulphate oxidation rate) can be attributed to the exhaustion of soluble sulphate minerals such as gypsum that were identified to be relatively abundant in the Col-1 sample. For the initial cycles, the newer ore kinetic samples (Col-13 and Col-14) show sulphate depletion trends closely following that of the Col-1 sample.

The various tailings kinetic cells show variable sulphur depletion trends with 75 and 90% of total sulphur remaining to date. Overall, a higher fraction of total S is conserved in the column samples compare to their humidity cell duplicates. Interestingly, the sulphur depletion curves produced by the more recent tailings humidity cell samples T3 and T5 are almost identical, suggesting comparable sulphur speciation and mineral liberation.

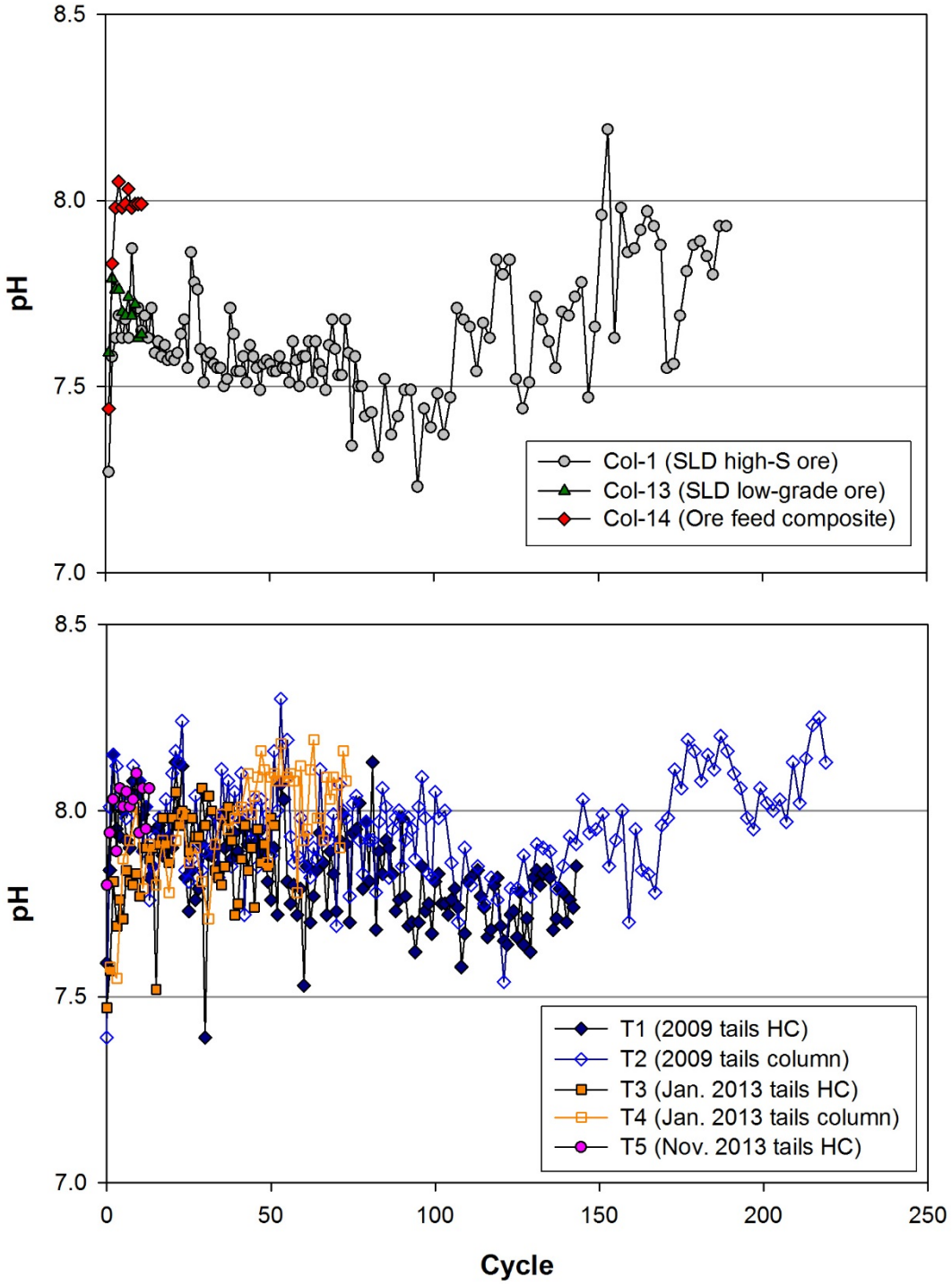


Figure 6-23: Leachate pH for Ajax ore and tailings laboratory kinetic test cells

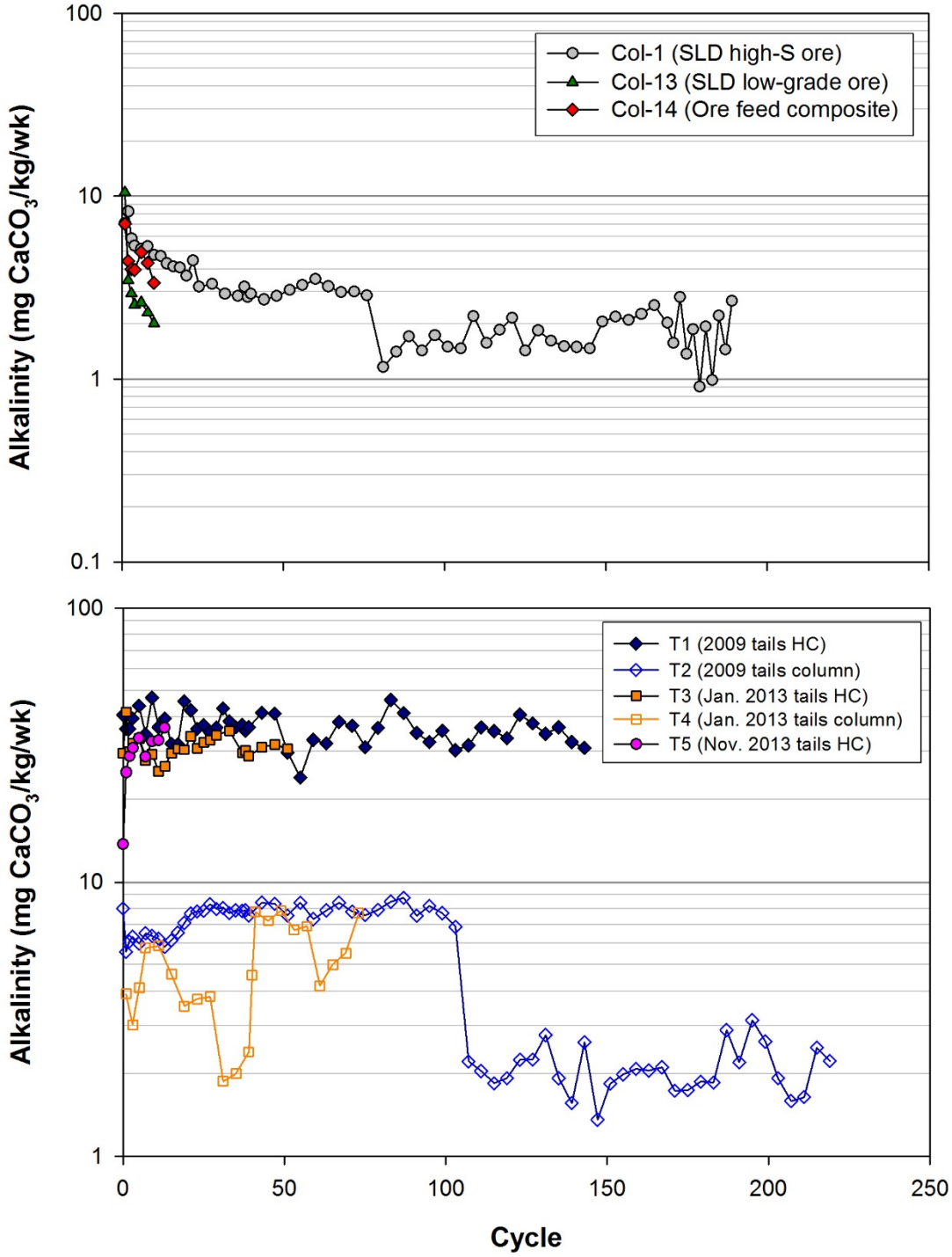


Figure 6-24: Alkalinity production rates for Ajax ore and tailings laboratory kinetic test cells

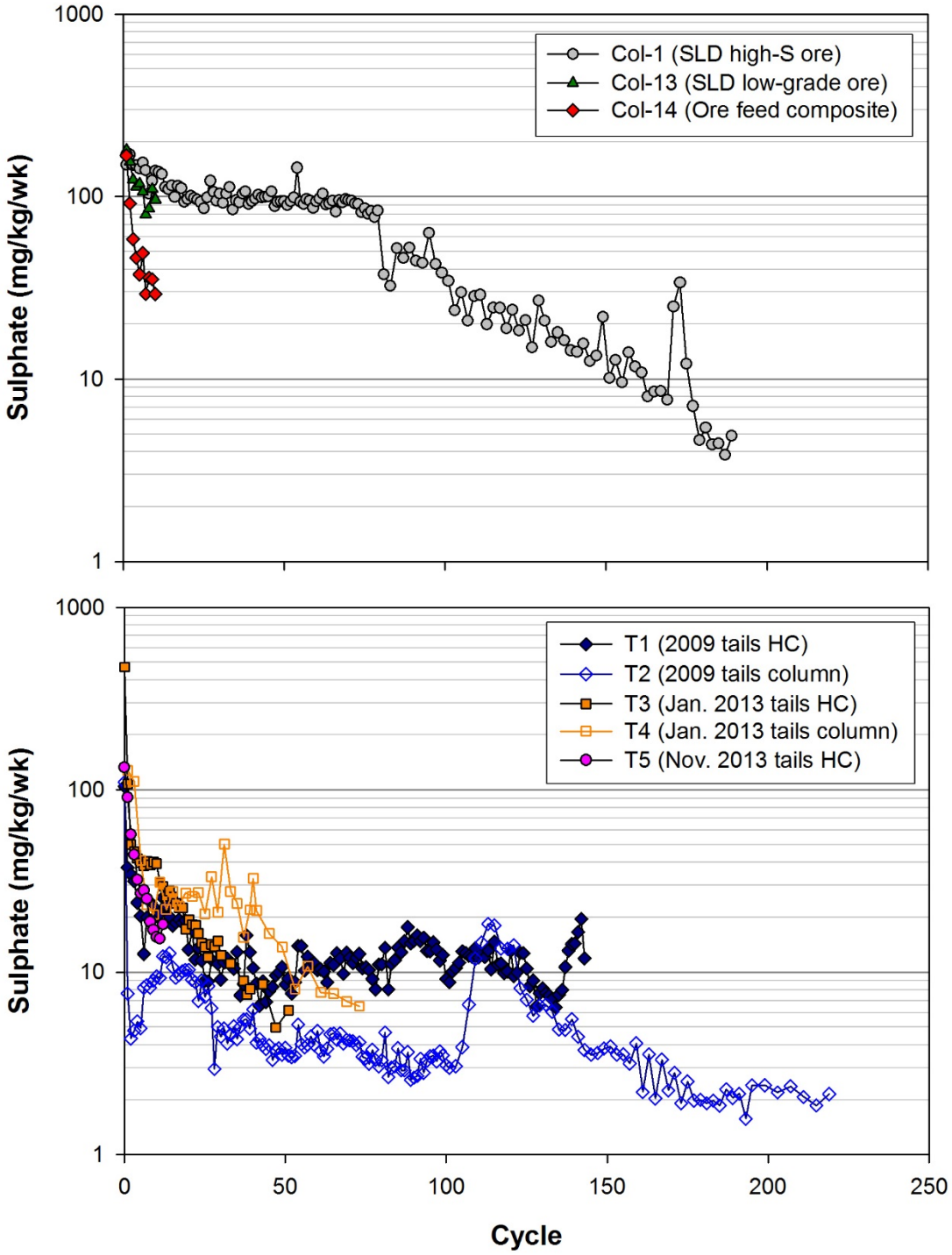


Figure 6-25: Sulphate production rates for Ajax ore and tailings laboratory kinetic test cells

6.1.2.3 NP Depletion Rates

CMR values generated by Ajax ore and tailings kinetic test cells are depicted in Figure 6-27. The ore humidity cell, tailings humidity cell and column have CaNPR > CMR and are therefore not predicted to become acidic (Table 6-1). The rapid decrease in the CMR for the tailings column T2, from >2 to ~1 (Figure 6-13), resulted from the switch to dry air which increased the rate of sulphide oxidation.

While insufficient data is available for leachates draining from ore samples Col-13 and Col-14, Col-1 shows consistent long-term CMR values of around 1 suggesting efficient pH-buffering related to sulphide oxidation. CMRs for all tailings samples initially fall below 1 but increase and stabilize in the range of 2 to 7 for humidity cells in the latter stages of the tests. The lowest CMR values are observed in the column samples. For the latter it should be highlighted that the laboratory method appears to have a strong effect on CMRs produced with lower values (CMR = 1-2) apparent in periods of biweekly water addition / sampling and dry air flow.

Based on static test results, none of the tested tailings and ore materials are expected to produce net acidity in the future such that a detailed calculation of NP depletion is not applicable for these samples.

6.1.2.4 Dissolved Metals

The trends in leachate concentration over time for the ore and tailings kinetic tests are provided in Figure 6-28 through 6-34 for selected elements. As described for the mine rock samples (Section 6.1.1), the selected species have contrasting geochemical behaviours.

The divalent metal (Cu, Ni and Zn) release rates are generally low stabilizing around or below 0.01 mg/kg/wk (Figure 6-28 through Figure 6-30) and, in particular for Cu, are released at lower rates in the tailings columns compared to their tailings humidity cell duplicates. Metals that form oxyanions when in a dissolved state (As, Mo, Se, V) show variable release rates with the more recent ore column samples (Col-13 and Col-14) showing rapidly decreasing release rates over the first sampling cycles, while Col-1 has been operational long enough to produce relatively stable rates (Figure 6-31 through Figure 6-34). An increase in release rates by over an order of magnitude was measured for Se in leachates from T2 after the sampling frequency was changed to biweekly (Figure 6-33). This suggests a strong dependence of this species on kinetic test method. For V, a discrepancy of approximately one order of magnitude is observable between tailings columns and humidity cells, with the latter showing higher release rates (~0.0005 mg/kg/wk; Figure 6-34).

Selected stabilized ore and tailings loading rates serving as input data for geochemical source term prediction modelling are given in Table 6-6. Only parameters that may be of concern in Ajax mine drainage are shown in this table.

Table 6-6:
Stabilized Loading Rates from Ore and Tailings Kinetic Test Cells

Cell ID	Material	Cycles used	pH	SO_4	As	Cu	Pb	Mo	Ni	Se	V	Zn
				mg/kg/wk	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*
Col-1	SLD Ore	181-189	7.9	4.4	0.000072	0.000091	0.00000019	0.0050	0.0000076	0.000093	0.00036	0.000035
T1	2009 Tails	135-143	7.8	13	0.00021	0.00047	0.0000047	0.016	0.000092	0.00028	0.00043	0.00024
T2	2009 Tails	211-219	8.1	2.1	0.000039	0.000054	0.00000013	0.047	0.0000073	0.00022	0.000044	0.000048
T3	Jan. 2013 Tails	43-51	7.9	6.2	0.00057	0.0014	0.0000023	0.0058	0.000023	0.00042	0.00050	0.00023
T4	Jan. 2013 Tails	65-73	8.1	6.9	0.00012	0.00021	0.00000028	0.014	0.000039	0.00056	0.000061	0.000054

Notes: The cycles used comprise the last three leachate samples with full dissolved metals analyses

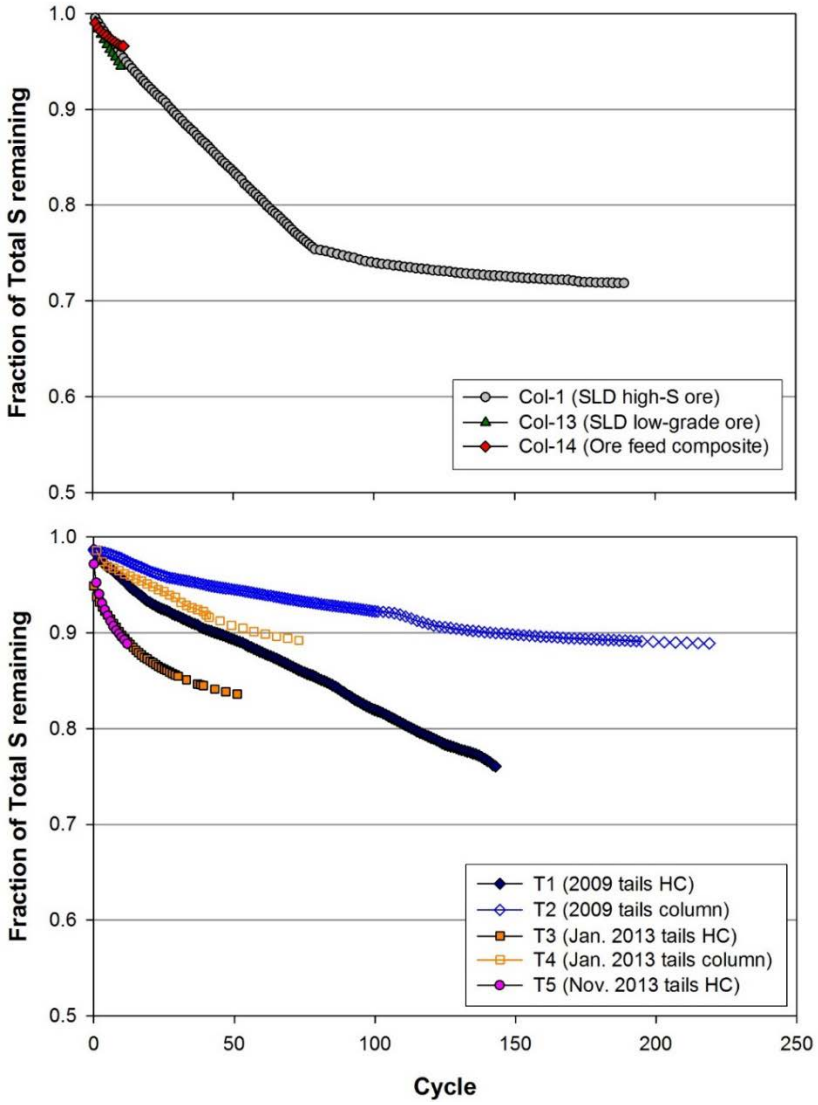


Figure 6-26: Calculated fraction of total sulphur remaining in ore and tailings columns and humidity cells from the Ajax deposit

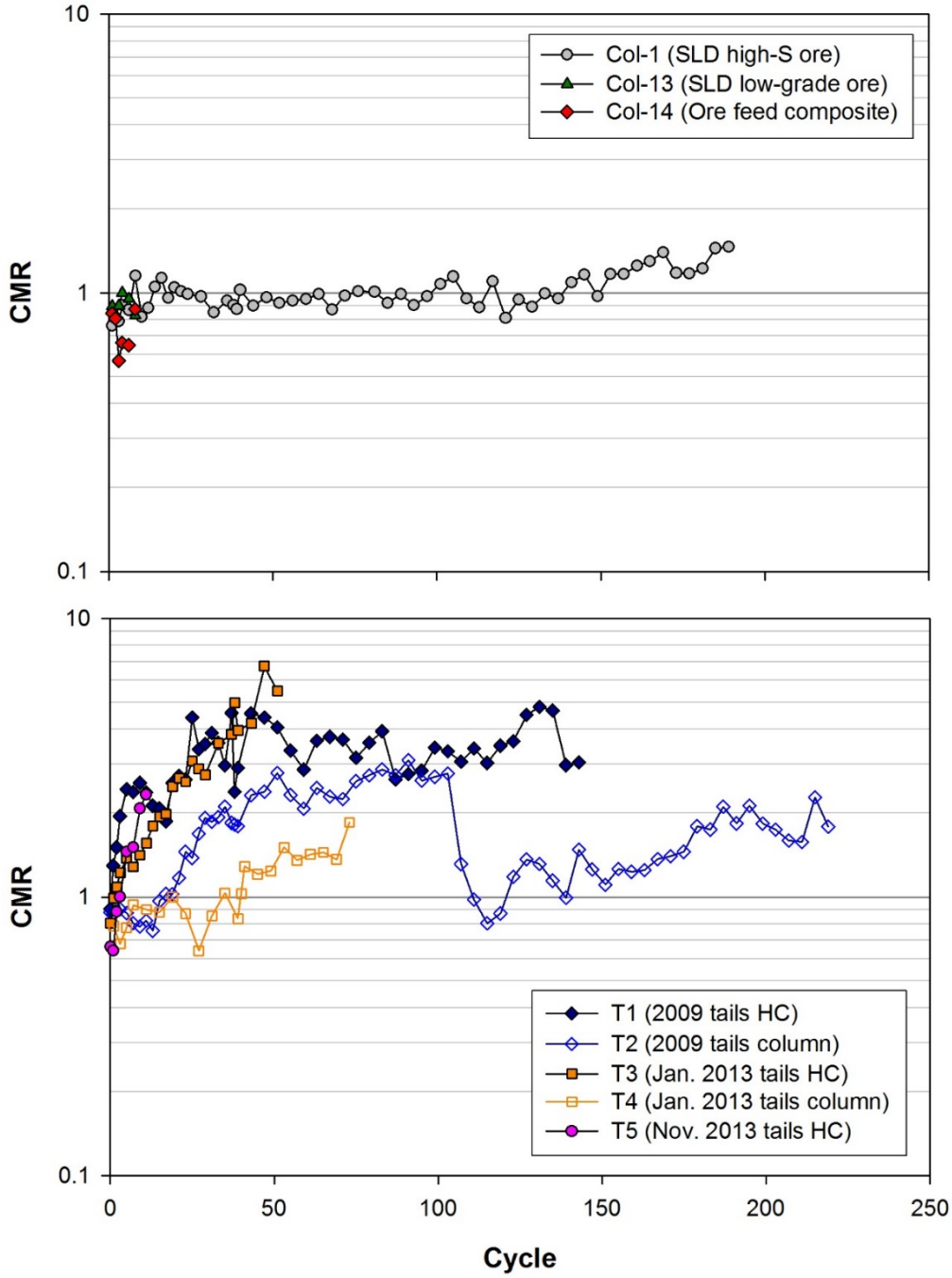


Figure 6-27: CMR values in ore and tailings columns and humidity cells from the Ajax deposit

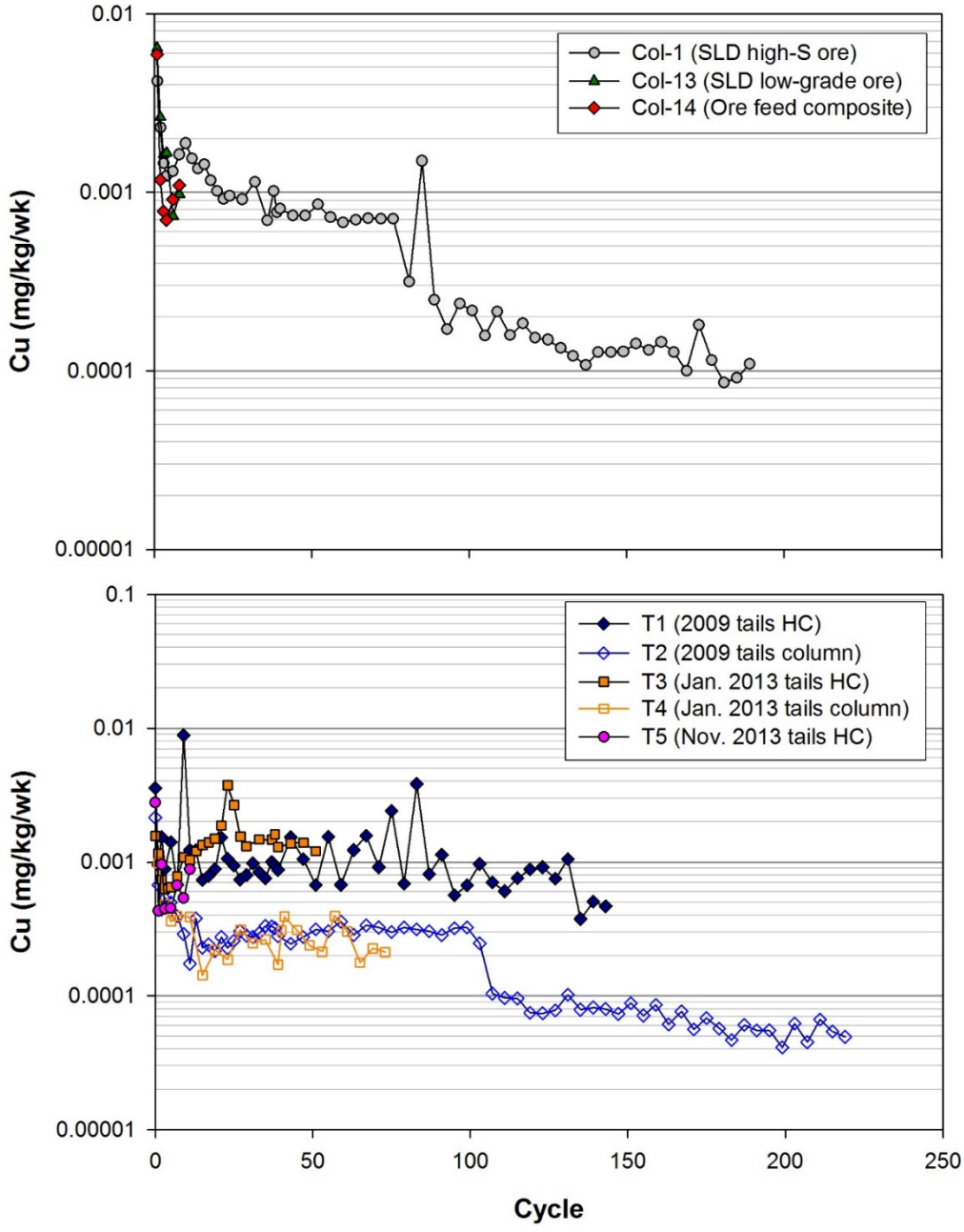


Figure 6-28: Copper production rates for Ajax ore and tailings laboratory kinetic test cells

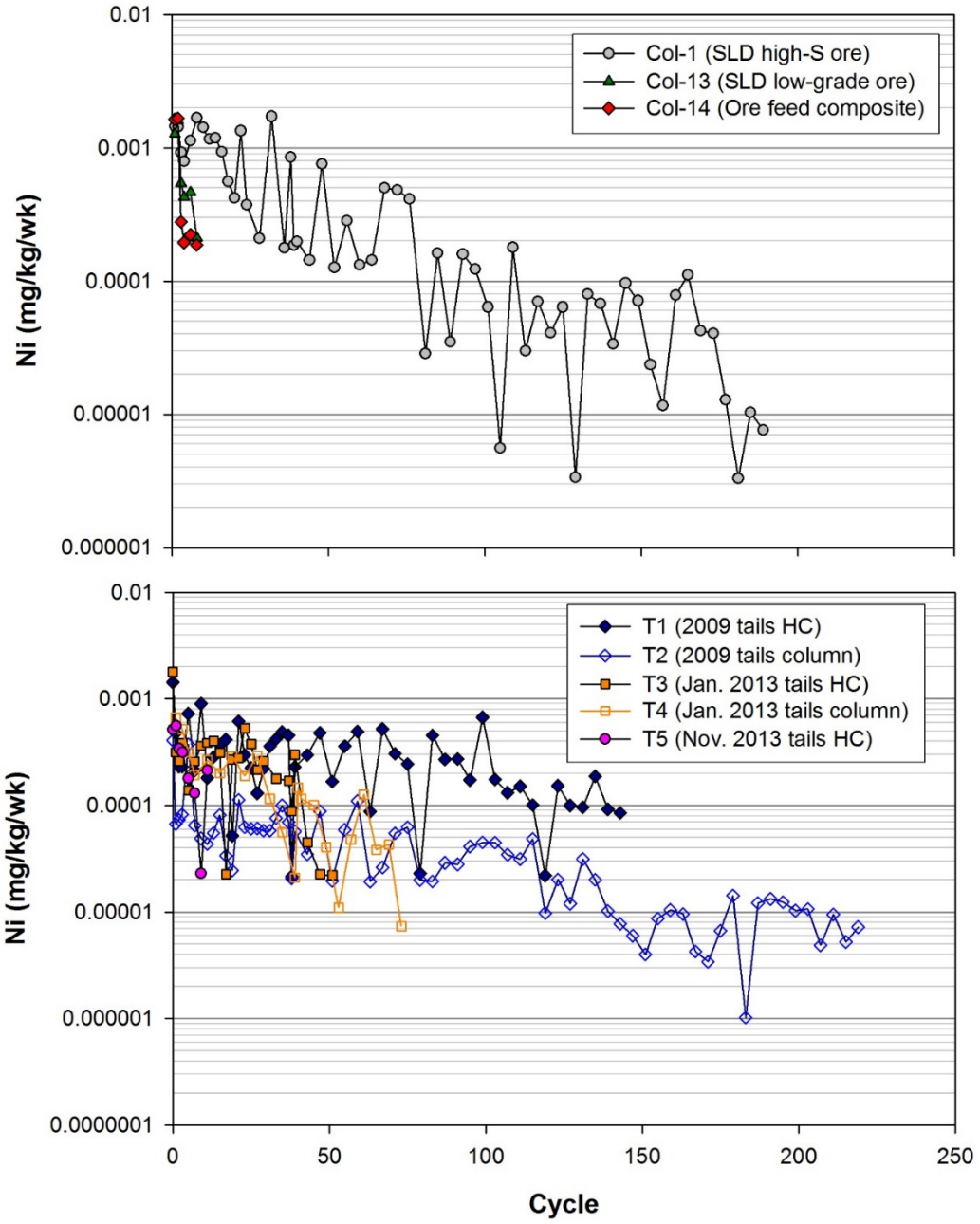


Figure 6-29: Nickel production rates for Ajax ore and tailings laboratory kinetic test cells

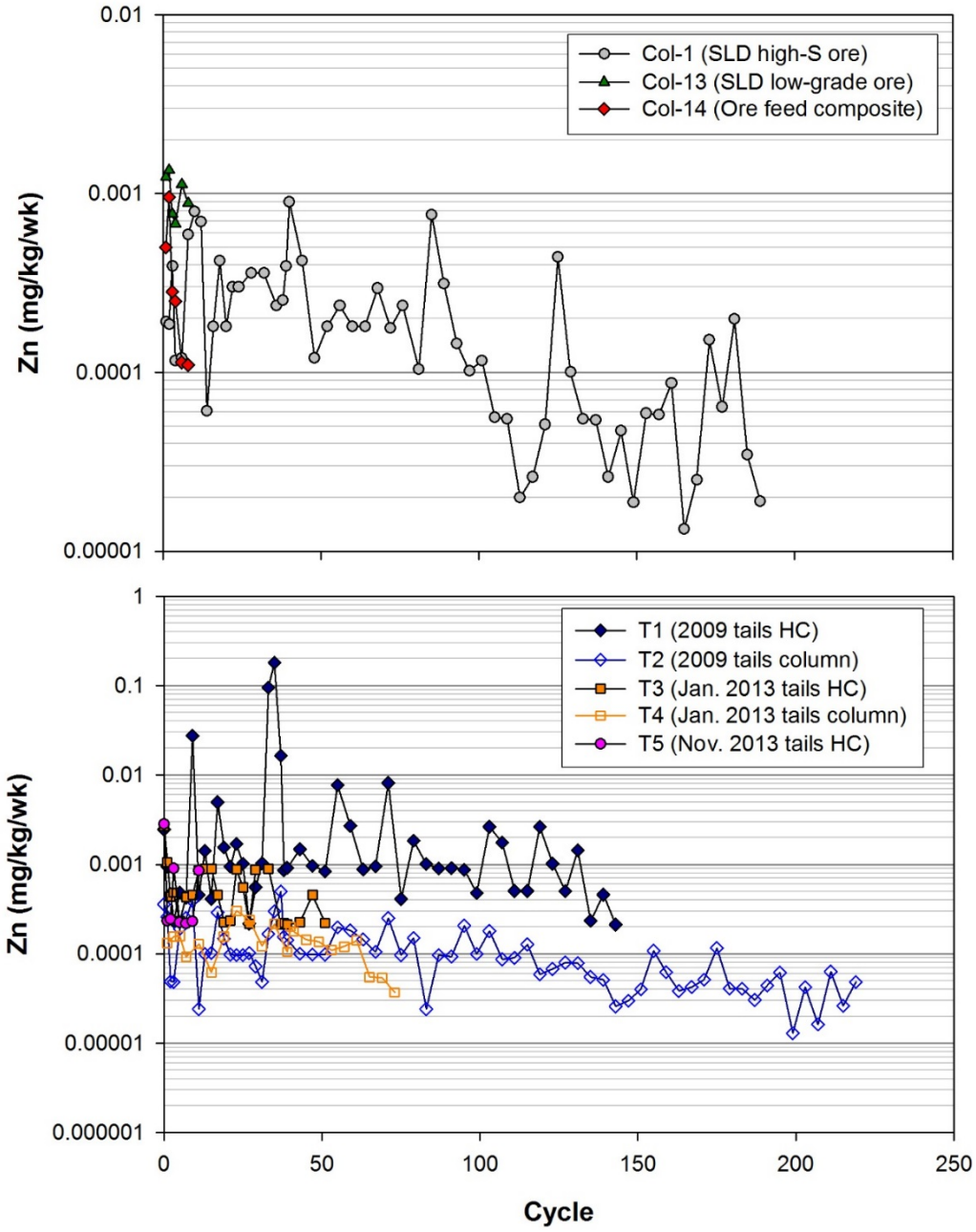


Figure 6-30: Zinc production rates for Ajax ore and tailings laboratory kinetic test cells

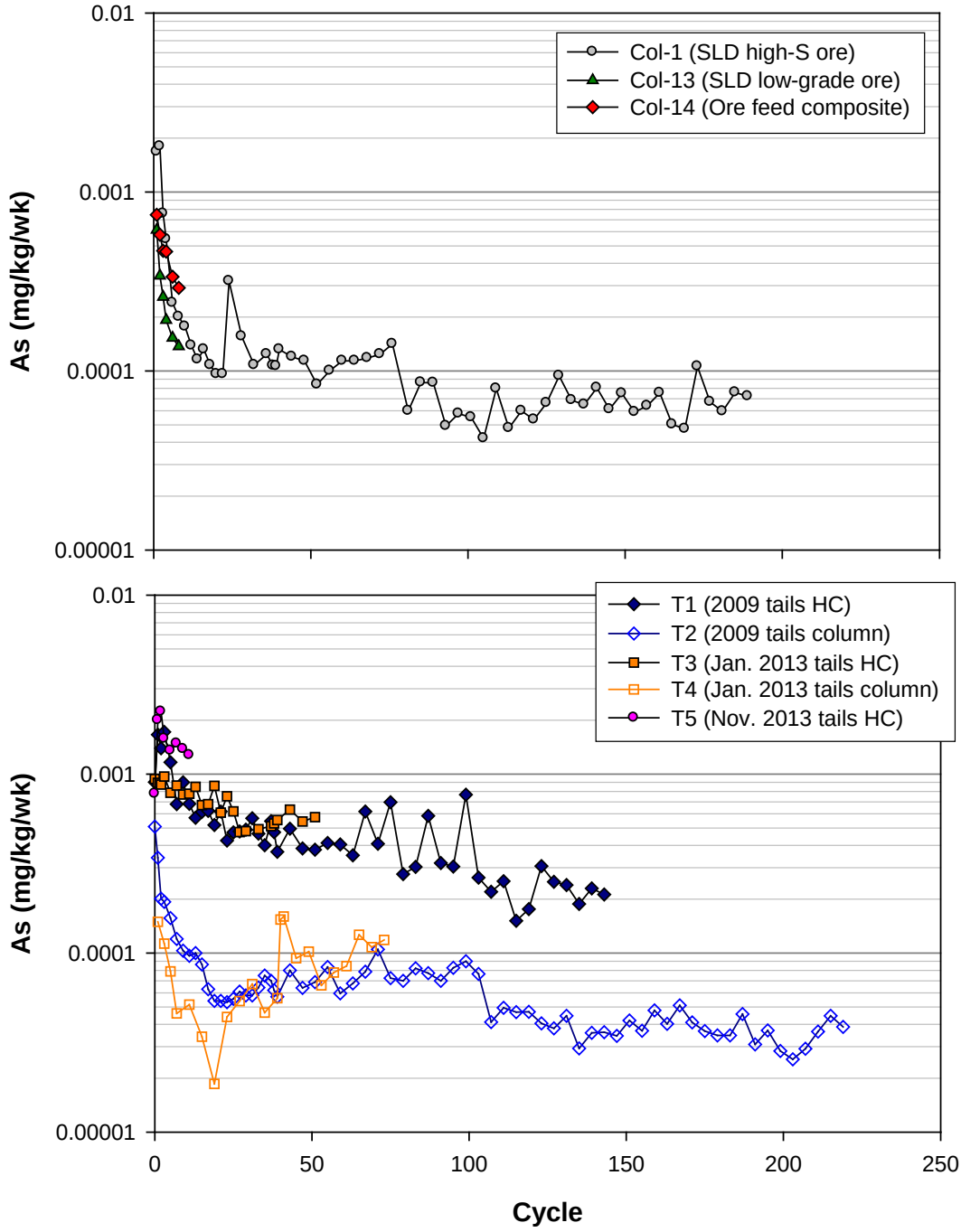


Figure 6-31: Arsenic production rates for Ajax ore and tailings laboratory kinetic test cells

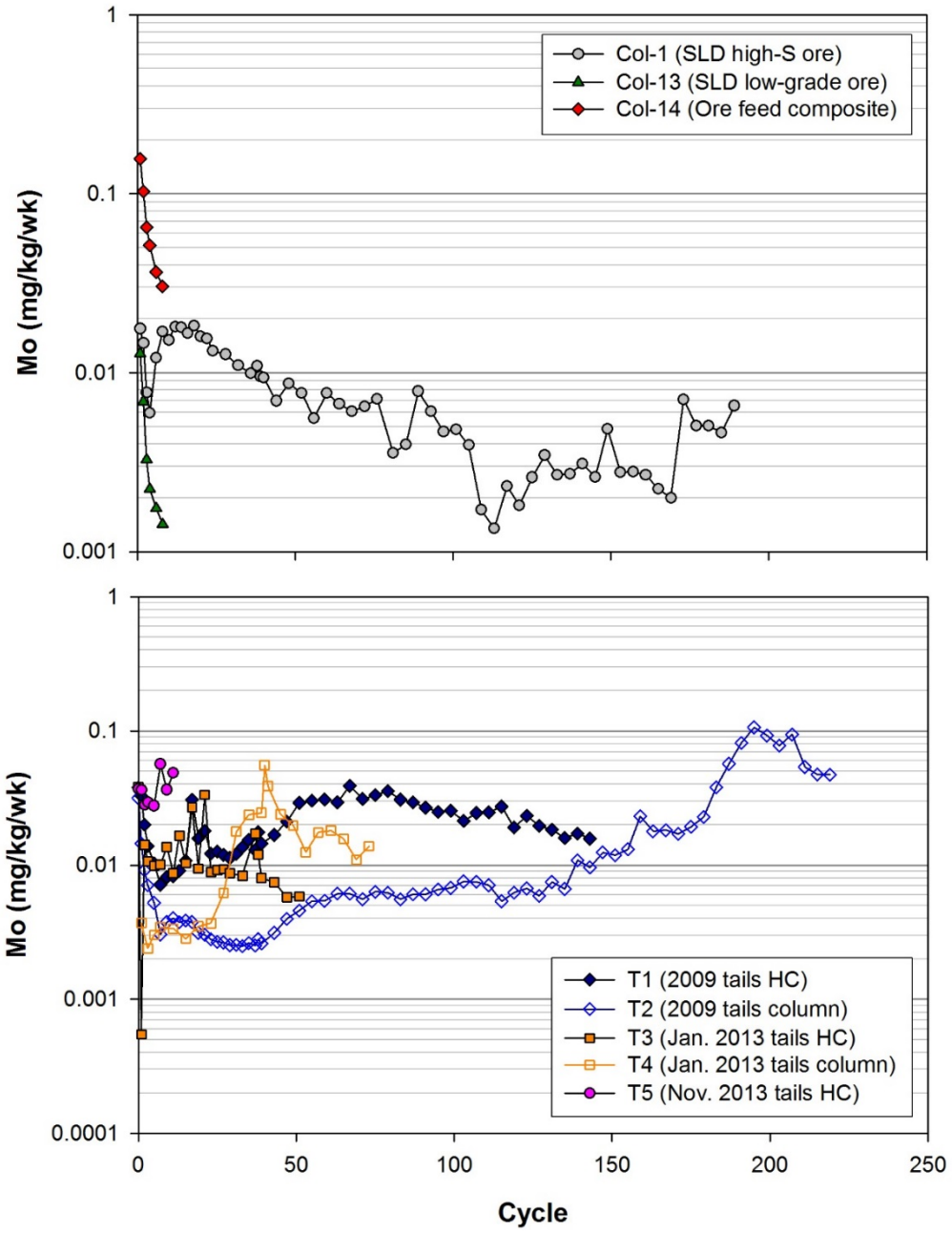


Figure 6-32: Molybdenum production rates for Ajax ore and tailings laboratory kinetic test cells

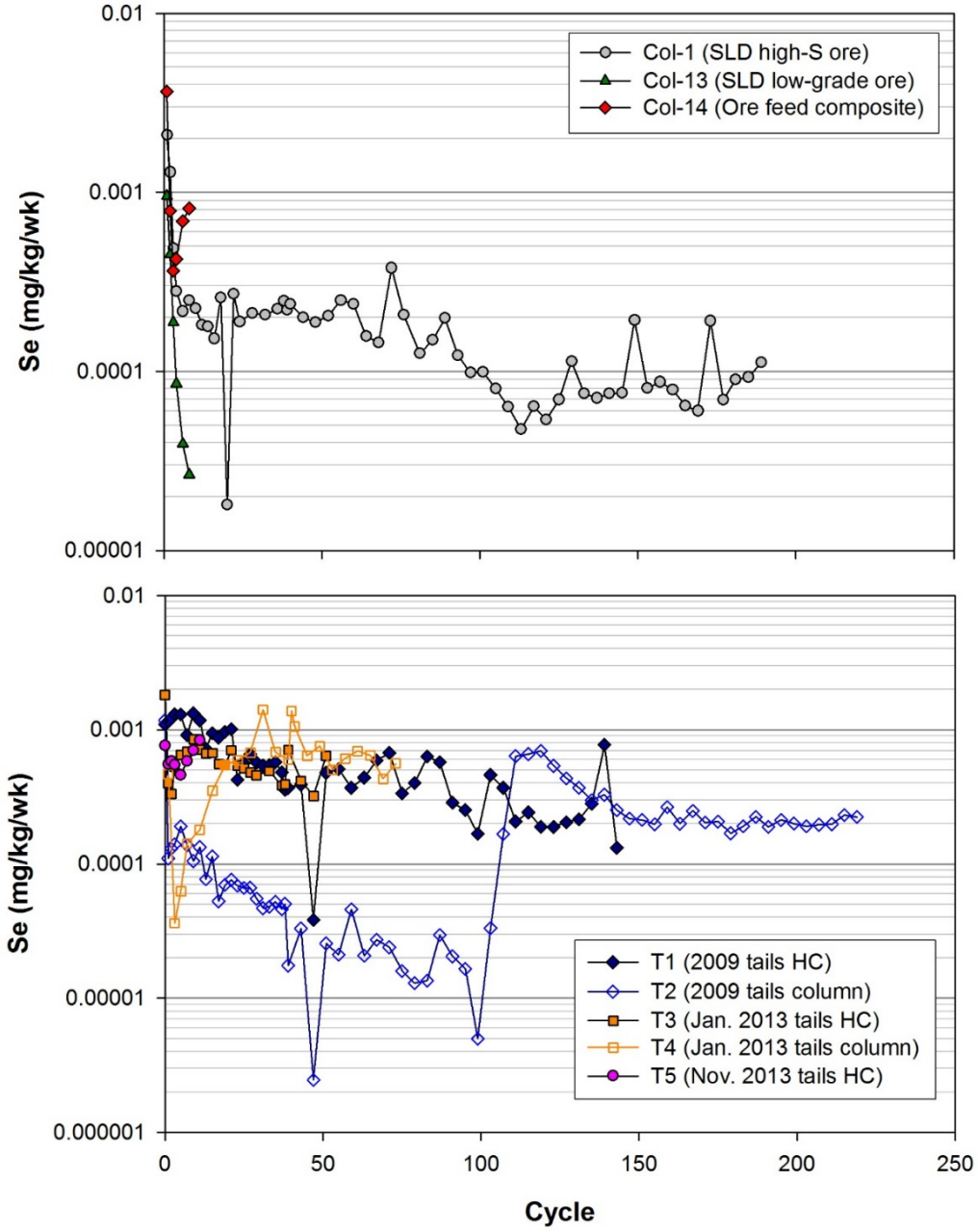


Figure 6-33: Selenium production rates for Ajax ore and tailings laboratory kinetic test cells

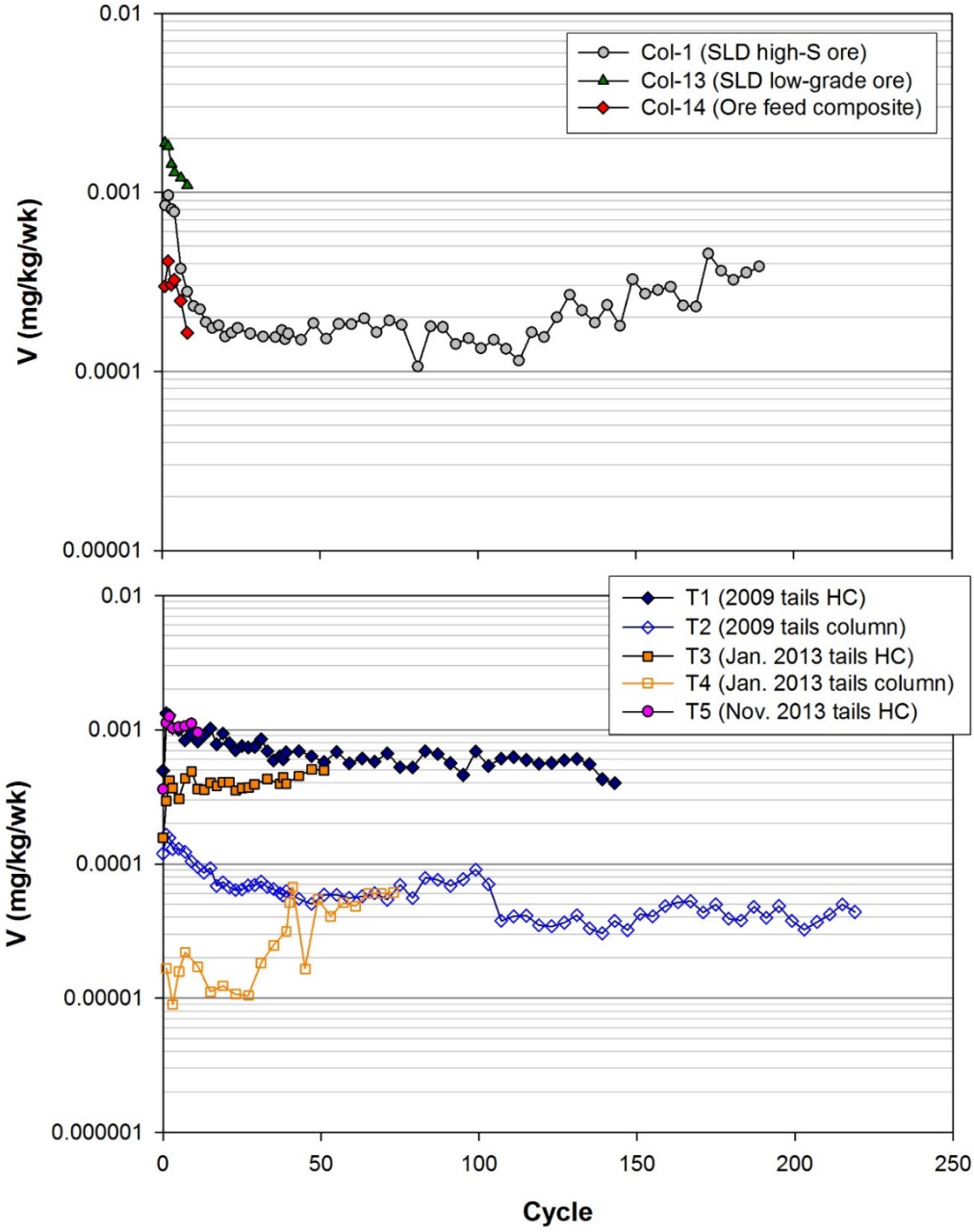


Figure 6-34: Vanadium production rates for Ajax ore and tailings laboratory kinetic test cells

6.1.2.5 Preliminary Saturated Column Results

As indicated in Section 3.1.3.3., the saturated column constructed with November 2013 tailings sample was initiated in 2014. A brief overview of saturated column leachate chemistry results for the first six sampling events is provided below.

Strongly reducing conditions have not developed as indicated by redox-sensitive parameters such as Fe, nitrite, and sulphide that fall below the detection limit in all leachates analyzed to date. pH values remain on a constant, mildly alkaline level (8.2-8.5) for the duration of kinetic testing (not shown). Alkalinity (as $CaCO_3$) and sulphate concentrations show opposing trends with the former increasing to and the latter decreasing to 100 mg/L in the most recent sampling cycle (Figure 6-35). The sulphate concentration produced by the tailings column is an order of magnitude lower than that observed in field bin drainage, which is consistent with the limited potential for sulphide oxidation under saturated conditions.

Concentrations of selected parameters of concern (As, Mo, Se, V, Cu) are plotted over the first six sampling cycles of the November 2013 saturated tailings cell (Figure 6-36). With the exception of selenium, POC concentrations are relatively constant (Mo, V) or increase slightly over time (As, Cu). The former is initially released at 0.0006 mg/L followed by a drop to around 0.0001 mg/L in the most recent sampling cycle.

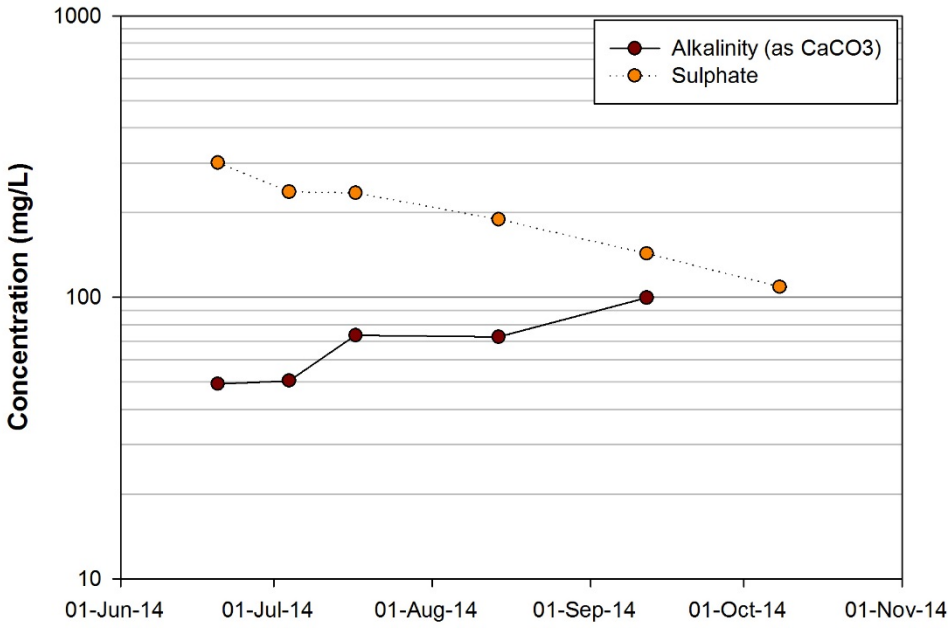


Figure 6-35: Alkalinity and sulphate concentrations in leachates from the saturated tailings (Nov. 2013 tails) column

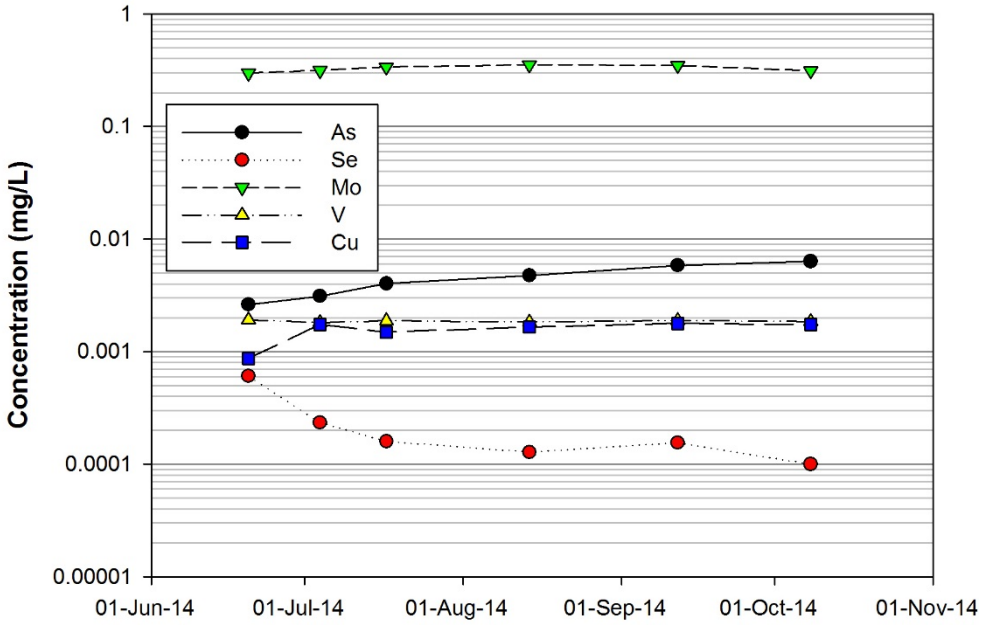


Figure 6-36: Concentrations of POC (As, Se, Mo, V, Cu) in leachates from the saturated tailings (Nov. 2013 tails) column

6.2 Field Kinetic Program (Drainage Quality)

While the laboratory-based tests give insight into the bulk composition of mine materials, weathering behaviour and primary leaching rates under laboratory conditions, they provide limited information on how they will behave geochemically under site conditions. A field based kinetic program was developed and initiated at the Ajax site which consists of five field weathering bins composed of mine rock from the existing Ajax West and Ajax East pits.

Table 6-7 summarizes seven years of leachate water quality testing for the five Ajax field bins representing mine rock material from the three main lithologies: IMH (FB1, FB3), PICR (FB4), and SLD (FB2, FB7). More recently, a tailings field bin was constructed additionally. Appendix D-2.1 provides the complete data set for the field bin leachates. When possible, leachate samples were collected after the accumulation of natural precipitation in the field bins. However, because of the arid climate, it was necessary to irrigate all of the field bins with distilled deionised water several times in order to obtain a sample.

To give a sense of scale to the measured concentrations, the tables compare the leachate water chemistry against the British Columbia Water Quality Guidelines (BC WQG) for protection of freshwater aquatic life with the following notes:

- All metal(loid) guidelines are for totals except Al and Fe which are for dissolved metals. Since field bin leachate concentrations are given as dissolved species, this should be kept in mind when comparing the two values;
- Hardness dependent guidelines (Ag, Cd, Cu, Mn, Ni, Pb and Zn) are based on an average hardness in Jacko Lake (2007 and 2008 values for JACL-S, JACL-D, JACL-02 and JACL-03; Project Description Report, Feb, 2011) of 312 mg $CaCO_3$/L;
- Chromium guidelines are 0.0086 mg/L for (CrIII) and 0.001mg/L (CrVI). To maintain conservatism, only the latter guideline was used as a reference;
- The BC MoE does not have BC-based WQGs for vanadium and uses the Ontario's secondary chronic value of 0.02 mg/L instead.

As for other datasets, the comparison of BC WQG is not intended to define POCs, but rather highlights species that are relatively enriched and may require further investigation.

Table 6-7:
Statistical Distribution of Leachate Results from Field Kinetic Tests

	B1 IMH		B2 SLD Diorite		B3 IMH		B4 PICR		B7 SLD		B8 Tailings		BC WQG	
	median	90th PCTL	median	90th PCTL	median	90th PCTL	median	90th PCTL	median	90th PCTL	median	90th PCTL	**Max**	**30d Avg**
pH	8.1	8.5	7.9	8.1	8.2	8.4	8.3	***9.2***	8.1	8.7	8.0	8.0	6.5-9.0	-
Alkalinity	68	108	48	84	86	111	106	124	65	87	113	115	-	-
Cl	1.6	4.1	0.68	5.1	0.68	1.4	0.87	2.2	0.75	3.3	15	18	-	-
F	0.030	0.24	0.030	0.030	0.030	0.041	0.030	0.96	0.030	0.032	0.010	0.010	1.3	-
NO_3	0.49	***7.7***	1.0	***9.6***	1.1	***13***	0.43	***9.8***	***5.3***	***24***	0.10	0.10	33	3.0
NO_2	0.0039	***0.078***	0.0052	***0.025***	0.0044	***0.054***	0.0013	0.0065	0.010	***0.093***	0.020	0.020	0.060	0.020
SO_4	34	87	***343***	***641***	25	51	97	179	155	***395***	***1880***	***2501***	-	309
Dissolved Metals														
Al	0.016	***0.13***	0.0030	0.016	0.0035	0.038	0.0080	***0.79***	0.0023	0.015	0.0054	0.030	0.10	0.050
As	***0.046***	***0.079***	0.0027	***0.0060***	0.00099	0.0024	***0.027***	***0.039***	***0.020***	***0.040***	0.0011	0.0011	0.0050	-
B	0.025	0.32	0.010	0.099	0.025	0.080	0.11	0.17	0.010	0.038	0.083	0.092	1.2	-
Ba	0.026	0.072	0.051	0.073	0.011	0.037	0.057	0.18	0.036	0.084	0.060	0.081	5.0	1.0
Ca	16	25	107	183	16	23	18	38	53	124	467	537	-	-
Cd	0.000017	0.000053	0.00012	0.00027	0.000017	0.000053	0.000065	0.00011	0.000068	0.00023	0.00010	0.00010	0.0019	0.0005
Co	0.00010	0.00027	0.00010	0.00050	0.00010	0.00012	0.00044	0.0037	0.00013	0.00029	0.00059	***0.0068***	0.11	0.0040
Cr	***0.0018***	***0.0047***	0.00064	***0.0016***	***0.0011***	***0.0019***	***0.0047***	***0.016***	0.00050	0.0010	0.00020	0.00026	0.0010	-
Cu	0.011	***0.025***	0.011	***0.021***	0.0019	0.0030	0.0036	***0.016***	***0.079***	***0.11***	0.0031	0.0032	0.031	0.0125
Fe	0.030	0.24	0.030	0.030	0.030	0.041	0.030	***0.96***	0.030	0.032	0.010	0.010	0.35	-
K	24	43	7.0	8.8	4.8	6.5	62	79	11	16	51	55	-	196
Li	0.0050	0.0055	0.0051	0.011	0.0050	0.0076	0.0050	0.010	0.0050	0.010	0.0049	0.051	0.87	0.096
Mg	7.3	16	38	66	17	25	18	38	21	46	198	239	-	-
Mn	0.0011	0.0054	0.00044	0.0017	0.00019	0.00082	0.00049	0.034	0.00058	0.0061	0.16	0.39	4.0	2.0
Mo	0.017	0.072	0.44	***1.1***	0.063	0.12	0.25	0.49	0.42	0.87	0.21	0.21	2.0	1.0
Na	7.3	15	2.5	3.5	7.1	8.7	6.7	8.9	2.7	4.2	88	115	-	-
Ni	0.00050	0.0012	0.00050	0.0025	0.00050	0.00060	0.0052	0.039	0.00063	0.0015	0.0016	0.017	0.15	-
Pb	0.000050	0.00012	0.000050	0.00025	0.000050	0.000060	0.000050	0.00018	0.000050	0.00010	0.00010	0.00010	0.348	0.0169
Sb	0.0013	0.0024	0.0013	0.0020	0.0018	0.0023	0.0020	0.0028	0.0013	0.0022	0.0020	0.0020	0.020	-
Se	***0.0093***	***0.024***	***0.0046***	***0.014***	***0.0067***	***0.017***	0.0019	***0.0033***	***0.019***	***0.033***	***0.027***	***0.041***	-	0.0020
Si	5.6	7.7	6.4	8.0	5.4	7.7	7.5	9.7	11	15	5.0	8.4	-	-
Sr	0.098	0.22	0.61	1.2	0.19	0.30	0.19	0.37	0.31	0.67	5.2	6.1	-	-
U	0.00032	0.0011	0.00086	0.0020	0.00070	0.0010	0.00034	0.00069	0.00025	0.00066	0.0091	0.0091	0.30	-
V	***0.071***	***0.11***	0.016	***0.039***	0.018	***0.045***	0.019	***0.040***	***0.021***	***0.032***	0.0063	0.014	-	0.020
Zn	0.0030	0.069	0.0030	0.036	0.0028	0.029	0.0030	0.031	0.0021	0.019	0.0038	0.011	0.200	0.174

Notes: Units in mg/L except pH (pH units) and hardness and alkalinity (mg $CaCO_3$/L); shaded values exceed the maximum BC WQG and bold italics exceed the 30-day criteria (BC MOE, 2014).

pH and Anions

Figure 6-37 presents the pH, sulphate, nitrate and nitrite concentrations in the leachate from the field bins over time with the BC WQG plotted for comparison. None of the field bins produced leachate with a pH less than the minimum BC WQG of 6.5, all averaging a pH of around 8. The leachate in the PICR field bin produced 90th percentile a pH of 9.2, slightly greater than the BC WQG maximum of 9.0. The sulphate concentrations in the leachate from FB2 (SLD) consistently exceeded 250 mg/L, while the other SLD bin (FB7) produced lower sulphate concentrations with a median value of 155 mg/L (Table 6-7). Similarly, the PICR field bin (FB4) sulphate values remained below 300 mg/L with a median of 97 mg/L. Consistent with the low solid-phase Total S contents, both IMH bins produced relatively low sulphate concentrations consistently with median values of 34 and 25 mg/L for FB1 and FB3, respectively. The nitrate and nitrite concentrations in the field bin leachate tended to initially exceed the 30d and maximum guidelines, respectively, but an overall decreasing trend with both concentrations falling below the corresponding guidelines in more recent sampling cycles is visible (Figure 6-37).

Dissolved Metals

The trends of selected dissolved elements in the field bin leachates over time are presented in Figure 6-38 and Figure 6-39. Figure 6-38 presents dissolved metals that have had exceedances of the BC WQGs. On two occasions, both Al and Fe concentrations in the PICR leachate exceed the BC WQG. However, these concentration above the guidelines are interpreted to be an artefact from particulate matter contamination in the sample, because Fe is barely soluble in an oxygenated environment at circum-neutral pH. There are corresponding spikes in dissolved Cu concentration in the PICR (FB4) and IMH (FB1) leachates which is also associated with the presence of particulate matter in these samples. FB7 leachate produces consistently elevated Cu concentrations (Figure 6-38). The IMH leachates have produced dissolved metal concentrations typically below or very close to the BC WQGs.

Figure 6-39 presents elements that typically occur as oxyanions in mining environments and have been recognized to represent a possible concern from the static and/or laboratory kinetic testing. The Se concentrations from all the field bins consistently exceed the BC WQG by up to an order of magnitude, with the PICR producing the lowest concentrations fluctuating around the guideline value of 0.002 mg/L. Similarly, V concentrations have been typically at or above the BC secondary guideline of 0.02 mg/L for all the field bins where the IMH materials produce the highest concentrations contact waters. Arsenic concentrations in the field bin leachates consistently exceed the BC WQG by up to an order of magnitude except for the Ajax West SLD and IMH field bins which are consistently below the BC WGQ. The Mo concentrations have approached, but rarely exceeded, the lowest BC WQG of 1 mg/L.

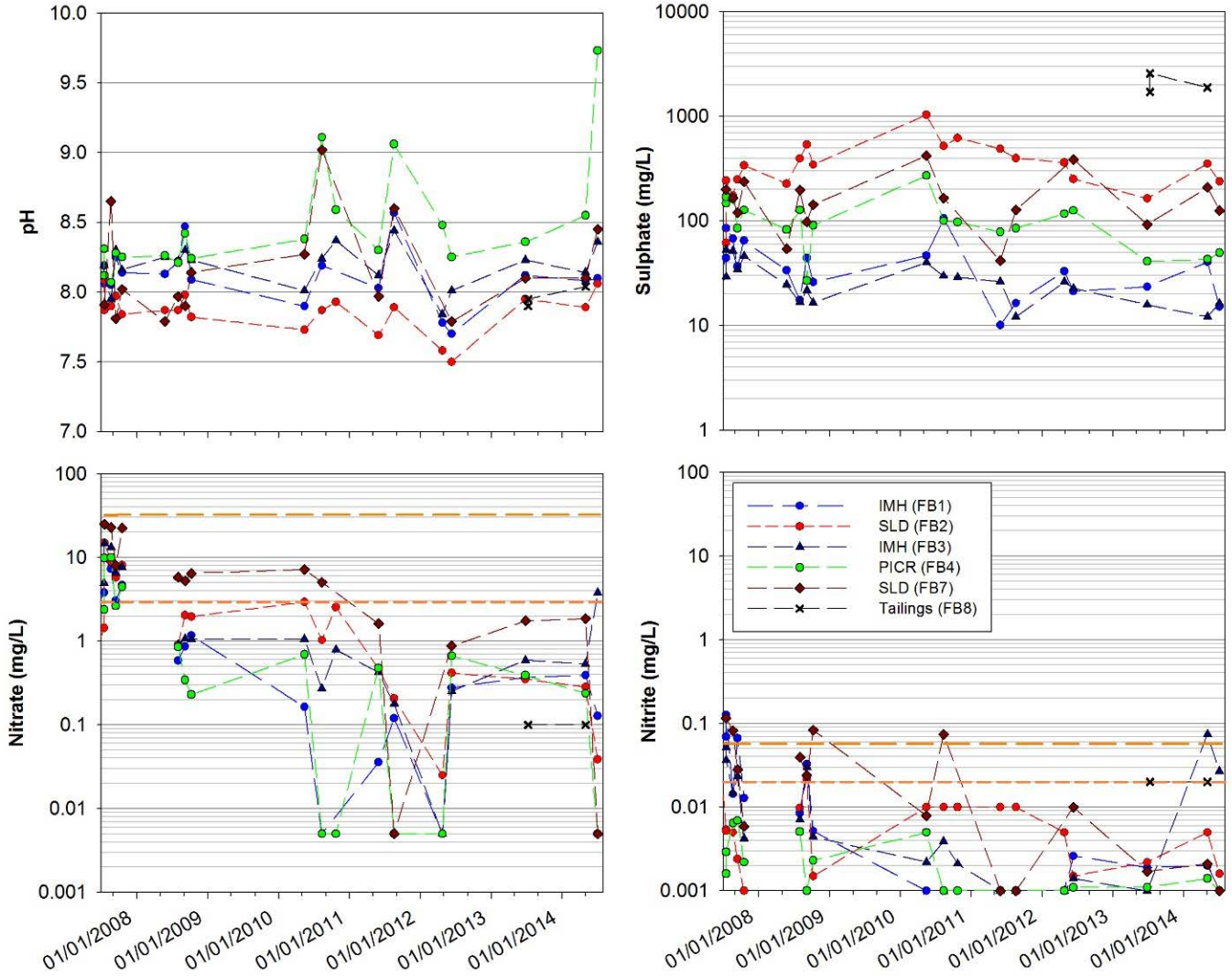


Figure 6-37: pH, sulphate, nitrate and nitrate values in leachate from Ajax field kinetic tests. Short- and long-dashed orange lines represent 30d average and maximum BC WQ guidelines, respectively.

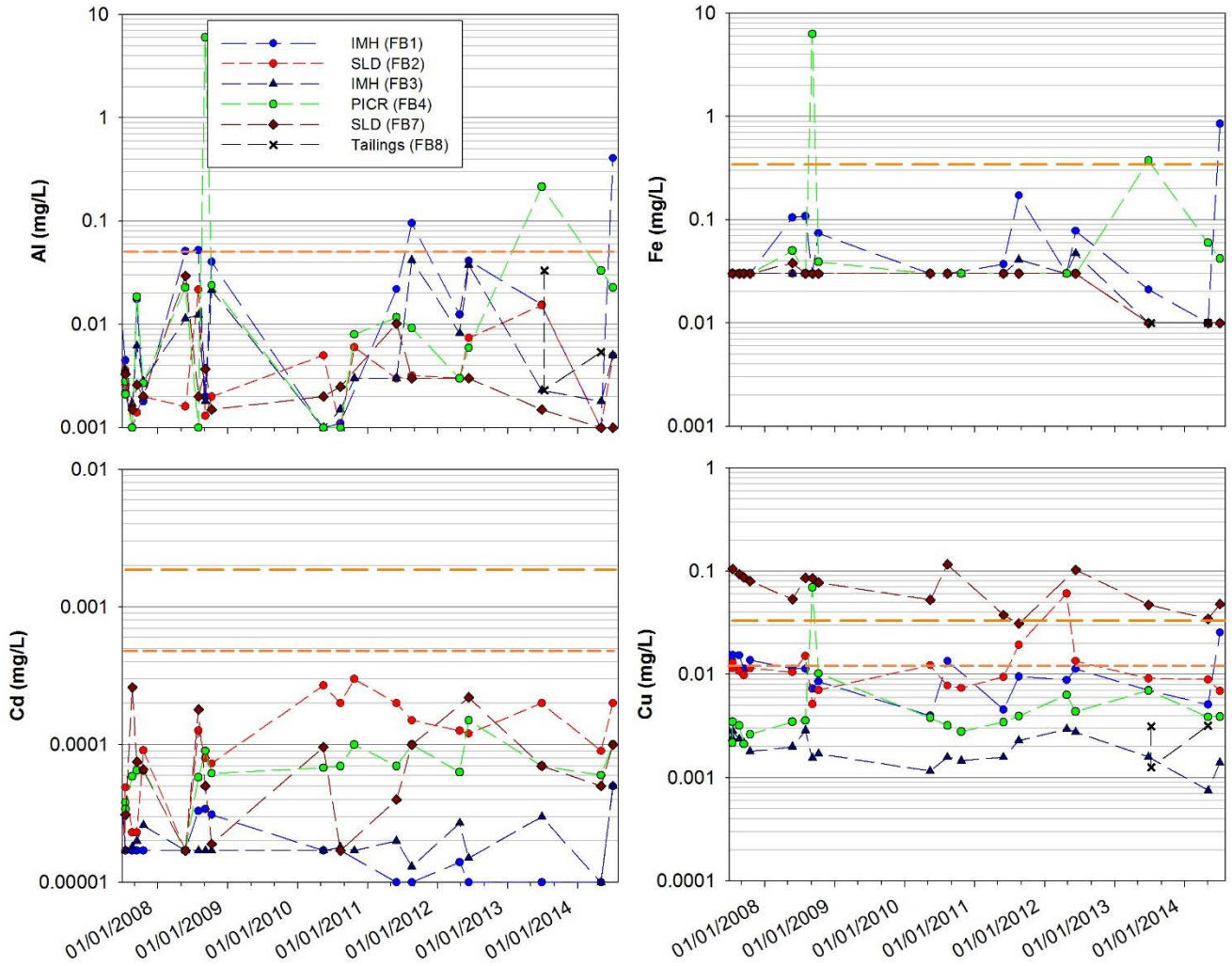


Figure 6-38: Dissolved metal (Al, Fe, Cd, Cu) concentrations in leachate from Ajax field kinetic tests. Short- and long-dashed orange lines represent 30d average and maximum BC WQ guidelines, respectively.

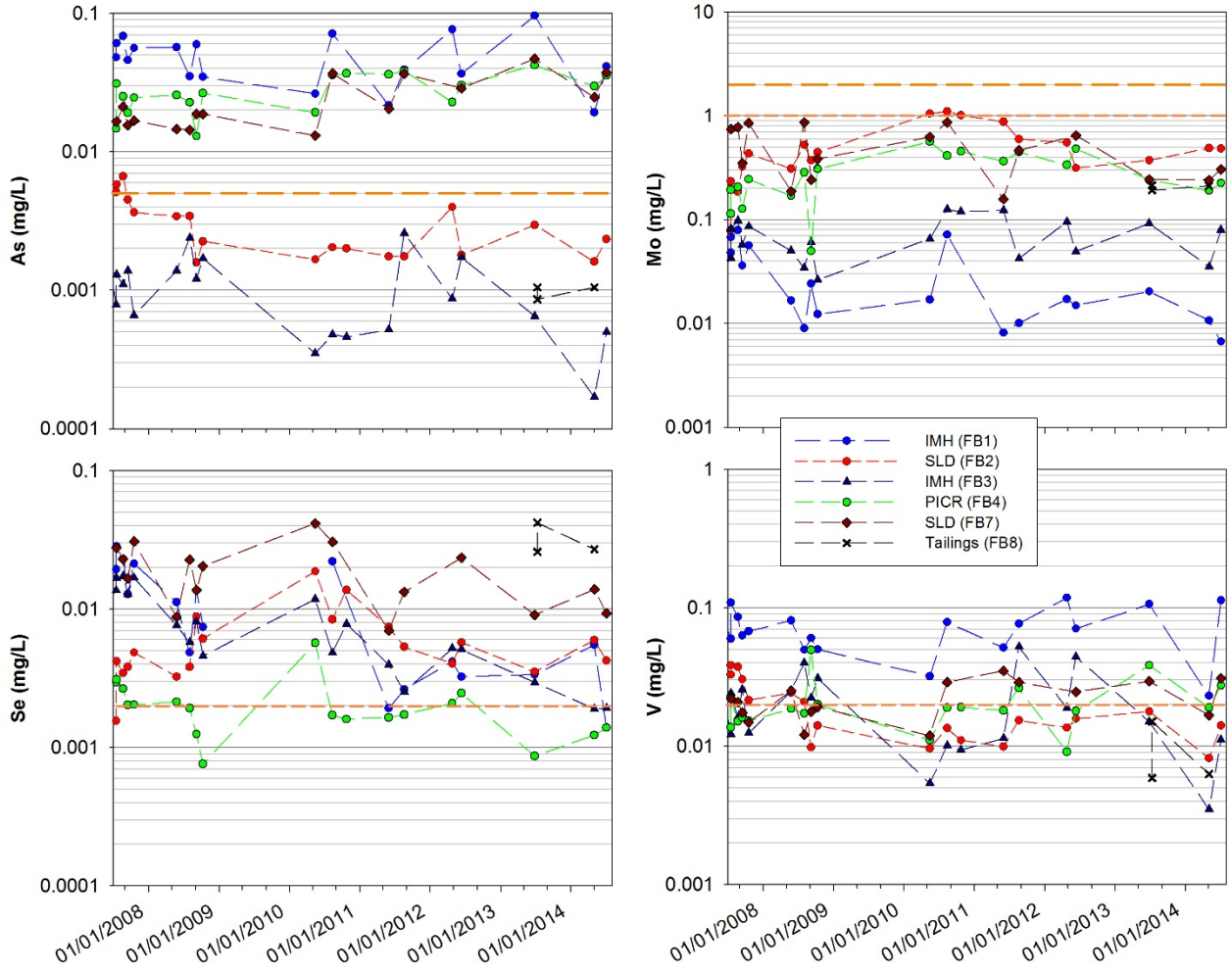


Figure 6-39: Dissolved concentrations elements typically in the form of oxyanions (As, Mo, Se and V) in leachate from Ajax field kinetic tests. Short- and long-dashed orange lines represent 30d average and maximum BC WQ guidelines, respectively.

Loading Rates

Average loading rates were calculated for the mine rock field bins and compared to those calculated for humidity cells of the same lithology. The loading calculations were based on the mass of rock in each bin and the measured leachate volume for each sampling event. For comparison with the laboratory kinetic test data, the loading rates were converted to mg/kg/week. If a volume was not recorded during a sampling event (September and October, 2008, then a loading rate was not calculated for that event. Additionally, the first sampling event from the field bin monitoring was not included in the loading rate calculations. Because the leachate volumes were not regularly monitored and evidence of bin over flowing on occasion, the loading calculations should be considered as semi-quantitative only.

Figure 6-40 shows three column diagrams comparing the geochemical loading rates or selected species and major lithologies considering samples Col-2 through Col-6 with FB1 through FB7 (excluding FB5 and FB6 which represent non-Ajax lithologies). Overall, geochemical loading rates observed in humidity cells are at least an order of magnitude higher than those calculated for field bins with discrepancies being relatively consistent for each of the presented species between major rock types. Specifically, the following trends stand out:

- As and Cu loading rates are generally around one order of magnitude higher than those seen in field bin leachates;
- The discrepancy in loading rates for Mo, Se, and V approaches two orders of magnitude;
- Loading rates for conservative species sulphate and Ca are more than two orders of magnitude higher in humidity cell leachates compared to field bins.

These scale-dependent discrepancies can be explained by differences in geochemical regime between the two experimental set-ups with water-rock ratio, flushing rate and grain size distribution likely constituting the most dominant controls. This is an important finding feeding into the development of geochemical source terms where scale-dependent loading adjustments need to be considered.

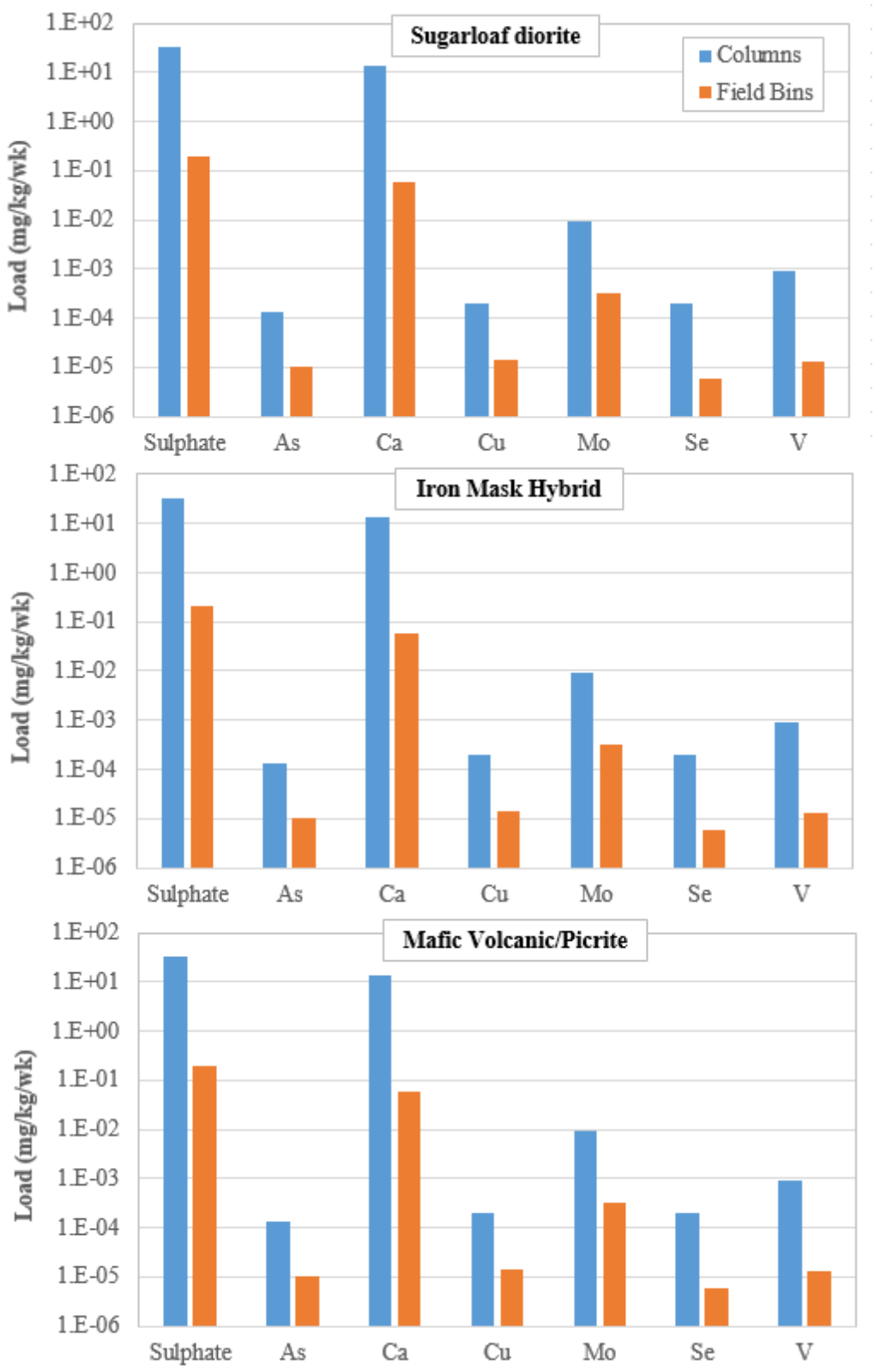


Figure 6-40: Comparison of relative loads calculated for Ajax mine rock field bins and unsaturated columns for the major lithologies.

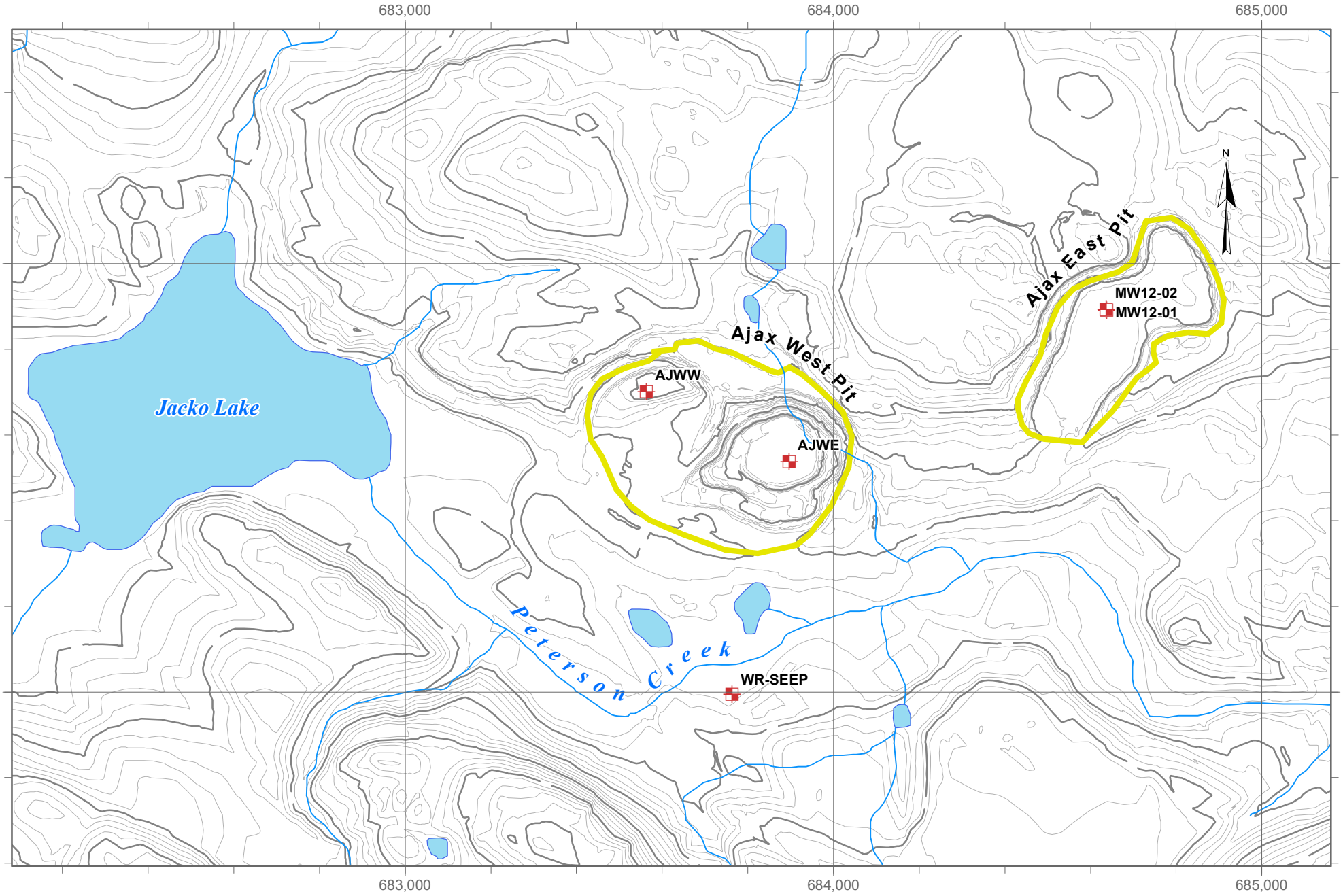
6.3 Site Drainage Water Quality

Natural drainage that has been influenced by the historic Ajax mine workings has been monitored at a number of locations. The water quality data from these sites have been provided by Knight Piésold Ltd. and are presented and discussed in this section. Water quality data is presented below from three locations including:

- a mine rock seepage pond (WR-Seep),
- the Ajax West pit lake (AJWW and AJWE), and
- monitoring wells MW12-01 and MW-12-02 that were installed in 2012 as monitoring sites for mine rock pore water in the backfilled East Pit.

The WR-Seep samples are taken from a pond located at the base of a historic mine rock pile between the mine rock and Peterson Creek. The mine rock in that area likely represents mixed lithologies with seepage collecting in the pond likely being strongly influenced by runoff from the soil cover. Water quality monitoring wells MW12-01 and MW12-02 represent a deep (~40 m) and a shallow (~18 m) sampling location, respectively, within the backfilled Ajax East Pit and are both screened below the water table (~12 m). Pit lake samples are collected from different depths (shallow and deep) within the water column of two small lakes that have developed in the backfilled Ajax West pit. These sites have been exposed to actual weathering conditions in the Ajax site for more than 15 years; mining activities were completed in 1997.

The location of the sampling locations are illustrated in Figure 6-41. Tabulated data collected through September 2014 is provided in Appendix G. Selected parameters from the locations are plotted against BC WQG (Figure 6-42 through Figure 6-46; max. = maximum; 30d = 30-day/chronic guideline). For consistency, all hardness-dependant guidelines (*e.g.*, Cu) were calculated based on a single hardness value of 312 mg/L $CaCO_3$ which represents the hardness reported for Jacko Lake (Knight Piésold, 2011). Note that these guidelines are not directly applicable to the data presented here since dilution effects downstream of the point of mine rock contact are not considered, however they identify species that are relatively concentrated and may need to be scrutinized more thoroughly.



LEGEND

- Water Quality Sample Locations
- Stream/Creek
- Lake
- Pit Outline
- Contours (5m)
- Contours (25m)

DATE SAVED:	Jul 24, 2015
DRAWN BY:	GM
REVIEWED:	BM
VERSION:	1

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

1:12,000

0 100 200 Meters

CLIENT: KGHM

LORAX ENVIRONMENTAL

PROJECT: **Ajax Geochemical Study Characterization**

TITLE: Water Quality Sample Locations

PROJECT #: J933-1

FIGURE: 6-41

P:\J933 Ajax\Drafting\MXD\Geochem Characterization Report\Fig 6-39_Water Quality Sample Locations_20141114.mxd

The sulphate concentrations (Figure 6-42) from the WR-Seep are highly variable between 500 and 2500 mg/L with the highest concentrations measured in 2013. Pore-water sulphate concentrations from the monitoring wells in the East Pit backfill are comparably steady and are likely controlled by gypsum saturation throughout the sampling period near 1600 mg/L to 1800 mg/L. Shallow and deep sample locations show similar sulphate concentrations for each sampling location in the Ajax West Pit lakes with the western lake (AJWW) showing somewhat higher values (up to almost 2000 mg/L) than the eastern lake (AJWE). Overall, the measured sulphate concentrations are consistent with the high gypsum content in the deposit. The variability in the WR-Seep samples can be explained by the variable influence of mine rock versus cover runoff at this site, likely in response to precipitation intensity.

The site monitoring data confirms that the species observed to be elevated in kinetic tests are also elevated at site and exceed BC WQG on a regular basis include the oxyanionic species As, Mo, and Se (Figure 6-43 through Figure 6-45). While Se is elevated at all sampling locations with respect to BC WQG, As and Mo are relatively low in WR-Seep samples reaching the maximum recommended guidelines only once throughout the sampling period. Similar to sulphate, this suggests variable mine rock drainage dilution by cover runoff for most sampling cycles. It should also be noted samples from the monitoring wells were recovered from the saturated zone within the backfilled pit which could lead to an increased solubility for redox-sensitive species.

The only cationic species that can be considered elevated in water quality monitoring stations is Cu (Figure 6-46), which periodically exceeds chronic and maximum BC WQG. Interestingly, in contrast to oxyanions, Cu concentrations are higher in the WR-Seep station compared with the backfill monitoring wells. In the West pit lakes, the chronic guidelines are consistently exceeded, while maximum guidelines are only exceeded temporarily (Figure 6-46).

Overall, the site drainage data is consistent with the field bin leachate composition with a few exceptions. The elevated Cr and V concentrations observed in the field bins (Section 6.2) have not been confirmed by site drainage to date. Both Cr and V are also present as oxyanions under site conditions. Conversely, Mo concentrations in site drainage data commonly exceed the BC WQG, especially in the saturated pit lake and MW-samples, a trend that is not indicated by field bin drainage.

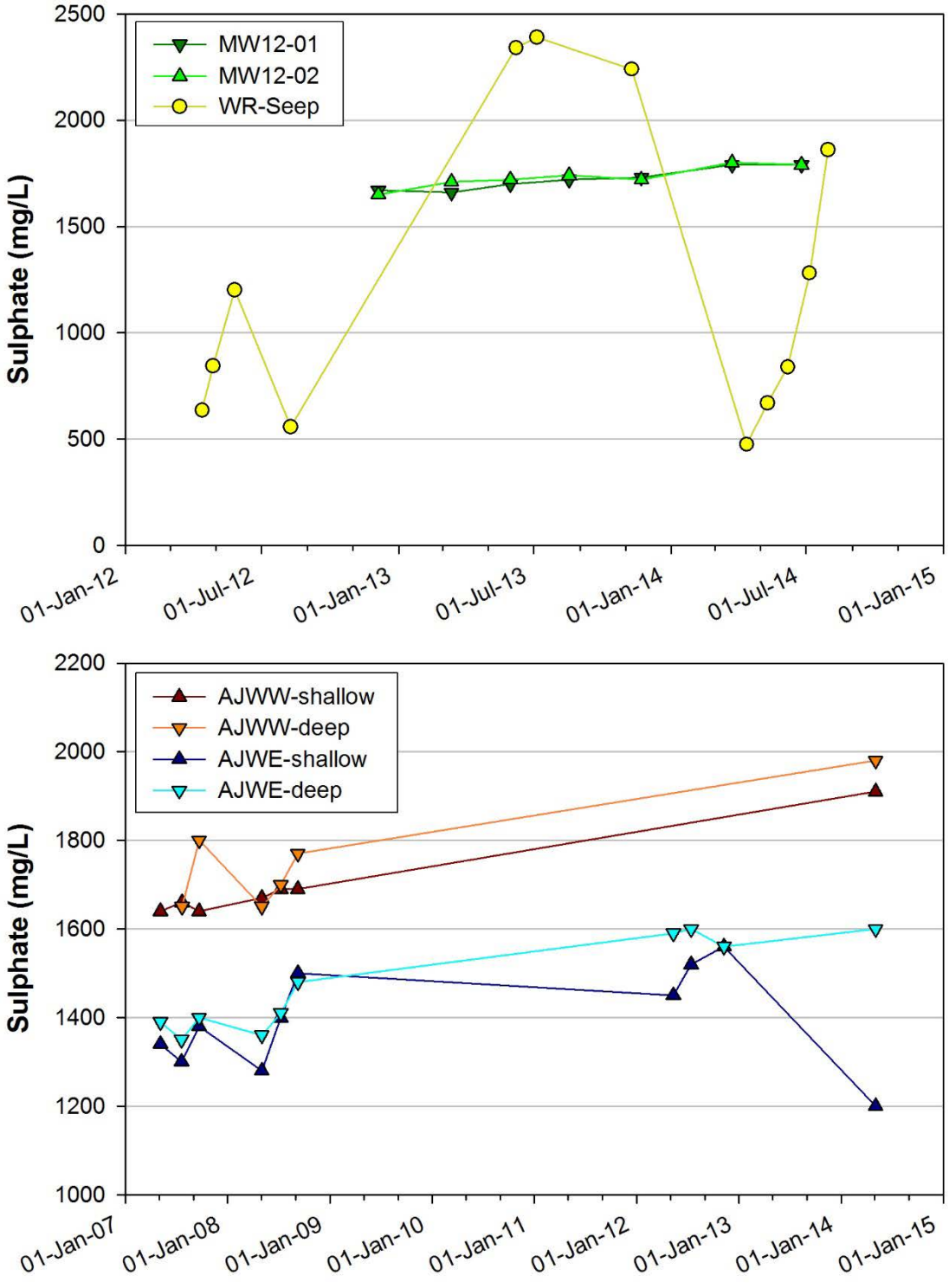


Figure 6-42: Sulphate concentrations at Ajax mine rock and pit lake water quality monitoring sites

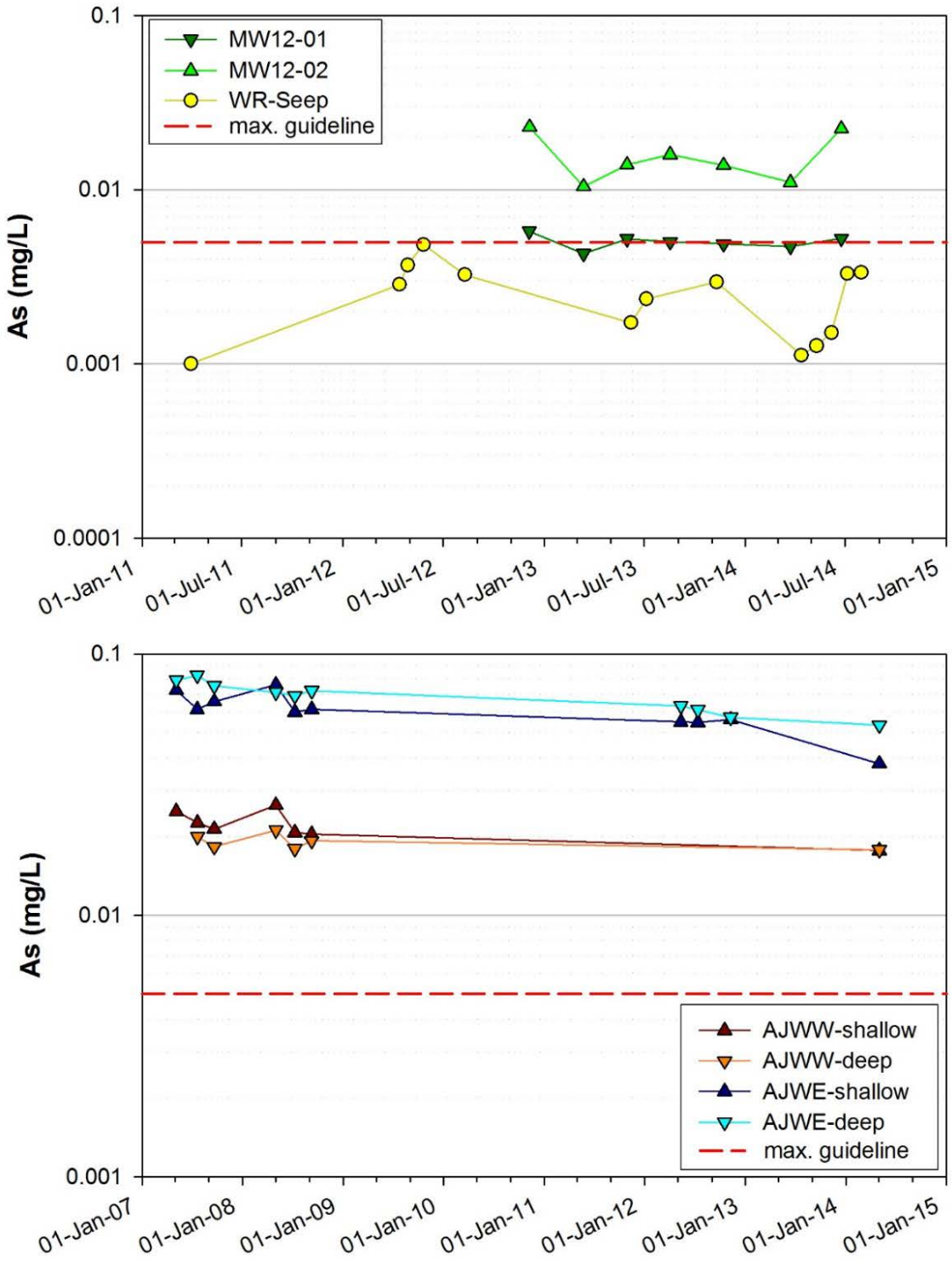


Figure 6-43: Arsenic concentrations at Ajax mine rock and pit lake water quality monitoring sites

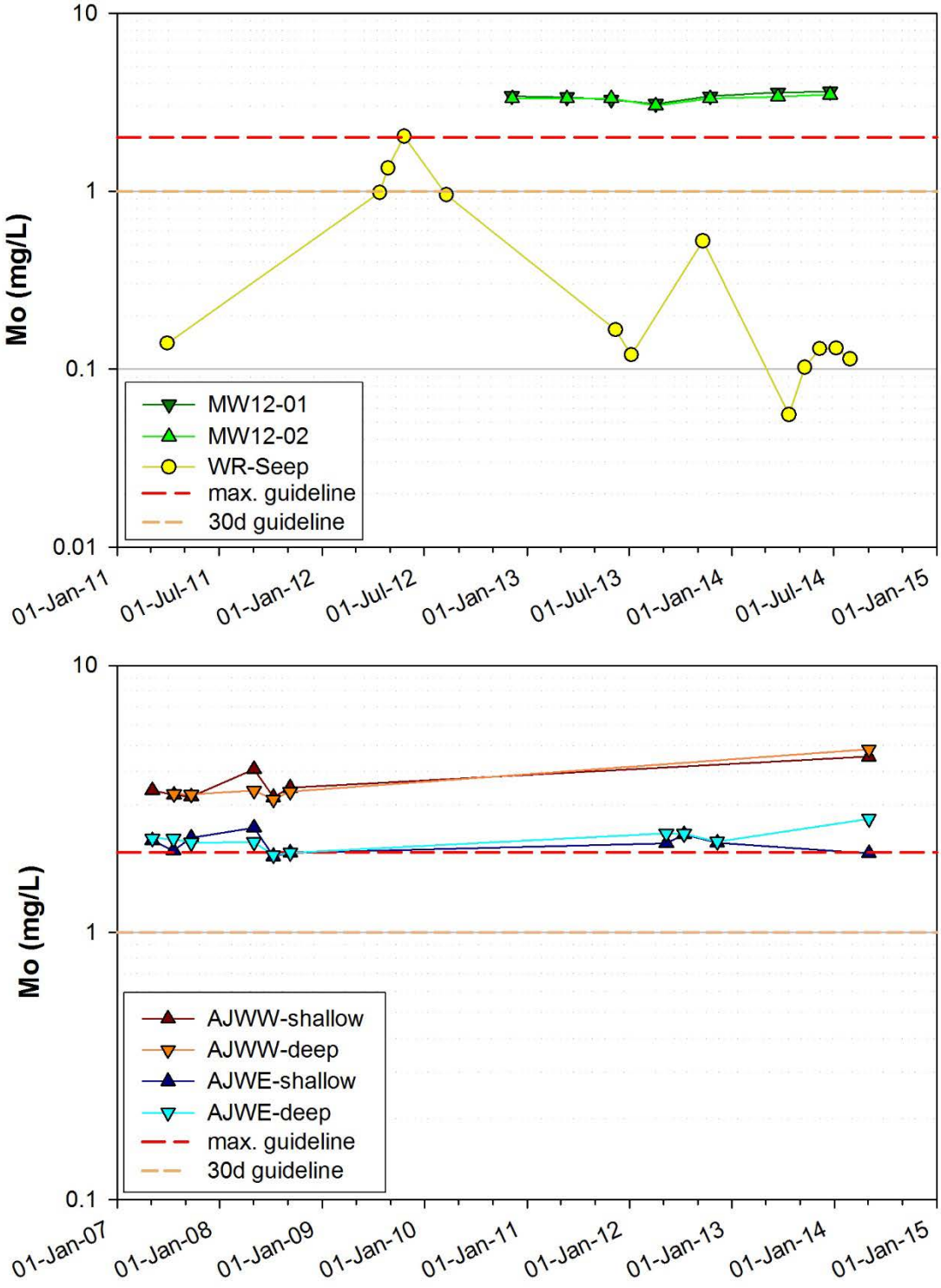


Figure 6-44: Molybdenum concentrations at Ajax mine rock and pit lake water quality monitoring sites

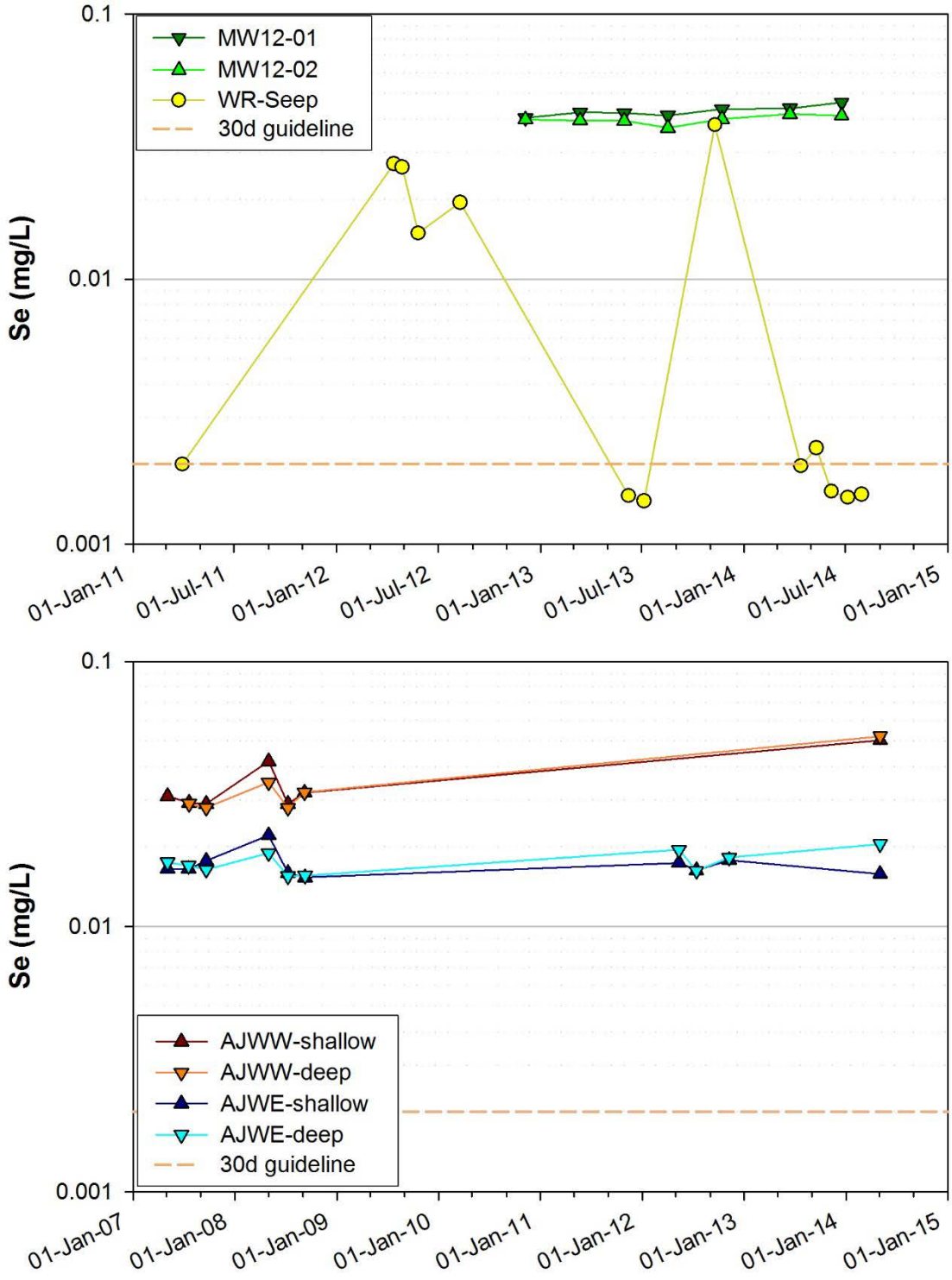


Figure 6-45: Selenium concentrations at Ajax mine rock and pit lake water quality monitoring sites

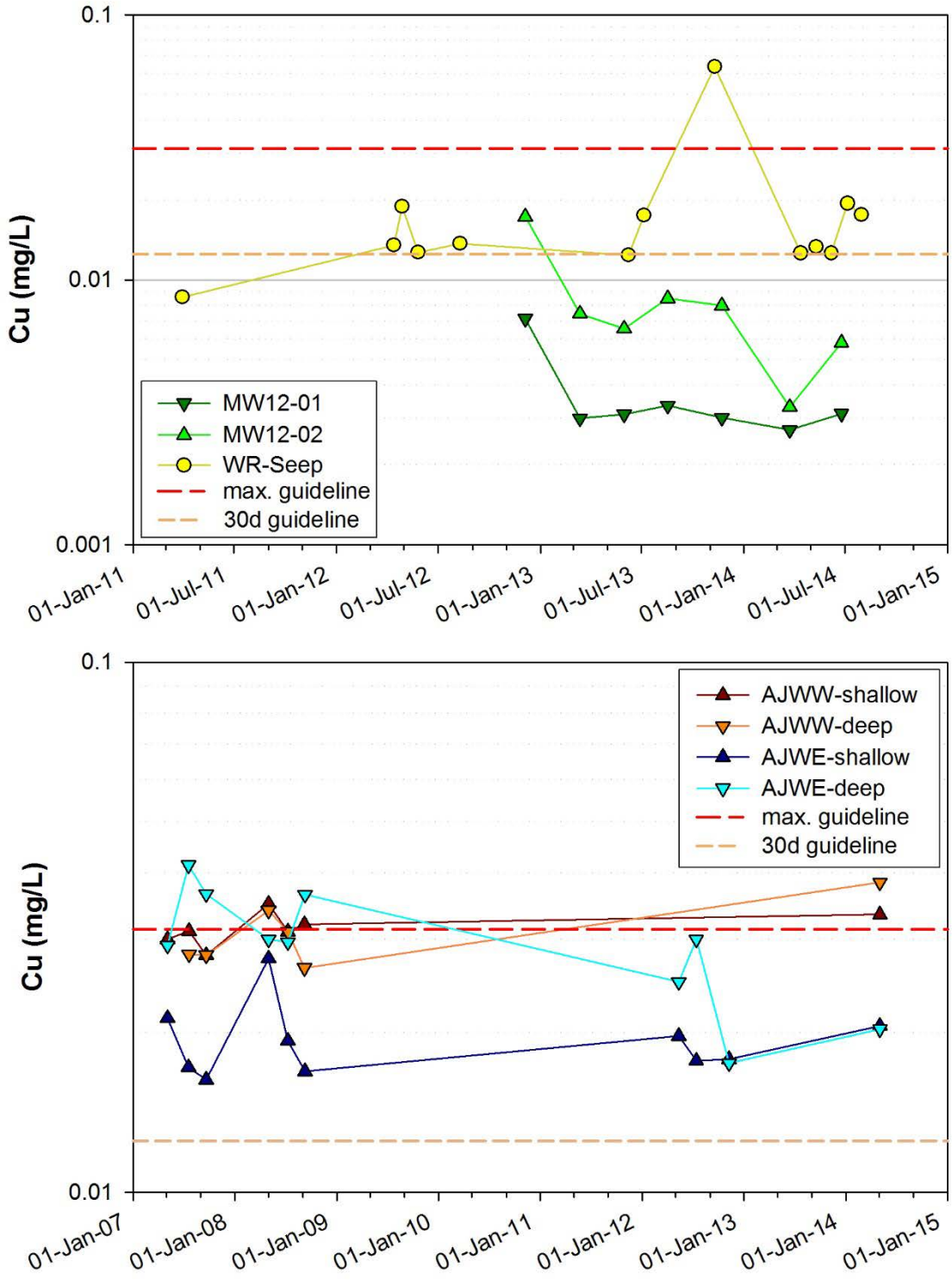


Figure 6-46: Copper concentrations at Ajax mine rock and pit lake water quality monitoring sites

7. Geochemical Implications for Mine Rock Management

7. Geochemical Implications for Mine Rock Management

This section presents the geochemical characterization data to support the rationale for the ML/ARD management strategies presented in Section 11.6 of the EA Application document. This includes the operational measurement of NP and AP for segregation and scheduling of PAG mine rock into MRSFs and identifying mine rock characteristics with low neutral metal leaching potential that may be suitable for general construction purposes.

7.1 Operational NP Determination

This study documented that Bulk NP as determined from siderite-corrected Sobek NP measurements were considerably greater than the CaNP values suggesting that non-carbonate NP was abundant in the MAFV, PICR and SLD units. Kinetic test results in this study also documented that non-carbonate phases were capable of buffering pH in carbonate-deplete rock, which confirmed that non-carbonate forms of NP should be considered when designating material as PAG or NPAG. Based on these results, the available samples from the Ajax ABA database were reanalysed using the modified NP method that measures the overall NP contained in a sample including non-carbonate buffering phases. The results of this assessment with the modified NP are detailed in Appendix C-4.

Conclusions presented in Appendix C-4 are that modified NP measurements corresponded closely with CaNP measurements for the SLD unit despite documentation by the kinetic tests that a portion of the non-carbonate NP measured by the Bulk NP is available to buffer acidity. The comparison of the CaNP and modified NP is shown in Table 7-1 for the four major rock types and illustrates a strong positive correlation for the IMH and most of the SLD samples. MAFV and PICR rock however show variable but systematically higher modified NP values, indicating the presence of a more reactive silicate NP mineral assemblage than found in the SLD unit. Comparison with other parameters that are commonly used as NP proxies in assay databases (*e.g.*, Ca, Ca + Mg; not shown) did not yield a satisfactory correlation with the modified NP and are therefore not a preferred method for estimating NP for ML/ARD management.

NP determination for operational management will be based on a calculation of CaNP from the total carbon (TC) content of a sample for SLD, IMH and SLVH units. For the PICR and MAFV units, a slightly different approach is proposed. Due to the presence of significant non-carbonate NP in these units, a fixed NP value (25^{th} percentile of the non-carbonate NP) is added onto the CaNP derived from TC analysis (Table 7-1). For rock

types where CaNP can be used as a reasonable proxy, the method of carbon analysis needs to be considered. Using a LECO© furnace (which also returns total sulphur content) is a relatively rapid method to quantify the TC content of a sample. If considerable organic material is to be expected, however, the TC content may overestimate the abundance of acid-buffering carbonate minerals. In this case, the more time-consuming analysis of total inorganic carbon (TIC) using an acid-addition technique is warranted.

The Ajax geochemical test program included the analysis of both TC and TIC for a subset of mine rock samples and all overburden samples in order to shed light on the relationship between the two. In agreement with the igneous nature of the site geologic units, it was found that total TC and TIC are virtually identical for the mine rock samples, well within the margin of analytical error (Figure 7-1). As a result, the operational monitoring of TC using a LECO© furnace can be considered appropriate for rock types that have comparable CaNP and modified NP values. Not surprisingly, overburden material shows consistently higher TC contents suggesting the presence of organic material in this unit. However, there does not seem to be a proportional increase in the difference between TC and TIC contents with increasing carbon content (Figure 7-2). A sensitivity analysis yielded that if the largest measured difference between TC and TIC (0.42%) was subtracted from TC in all overburden samples to derive the most conservative TIC (and therefore CaNP) value, all samples would still be classified as NPAG with a minimum carbonate-based NPR of 41.

Modified NP is systematically, but only marginally larger than CaNP in the overburden unit (not shown) such that the use of this parameter would cause little change to this assessment. Due to the excess amount of NP present in all overburden samples, the prediction of NP based on a conservative adjustment of the TC analysis may therefore be useful as a screening measurement in the absence of TIC or modified NP measurements.

Table 7-1:
Operational Determination of NP

Mine Material	NP Calculation
SLD, IMH, SLVH Mine Rock & Ore	NP (Kg $CaCO_3$ / t) = %TC x 83.33
MAFV Mine Rock and Ore	NP (Kg $CaCO_3$ / t) = (%TC x 83.33) + 8 NP
PICR Mine Rock and Ore	(Kg $CaCO_3$ / t) = (%TC x 83.33) + 17 NP
Tailings	(Kg $CaCO_3$ / t) = %TC x 83.33
Overburden	NP (Kg $CaCO_3$ / t) = (%TC – 0.42) x 83.33*

*Screening level calculation

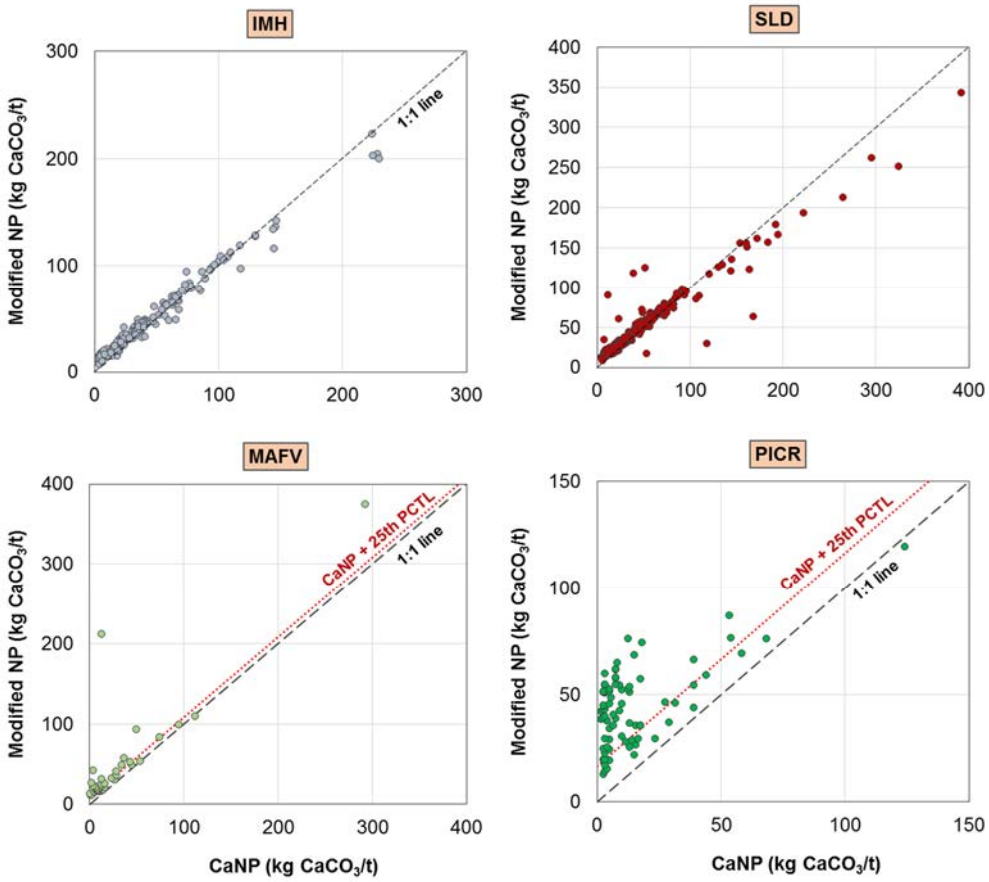


Figure 7-1: CaNP versus modified NP in the major Ajax mine rock units

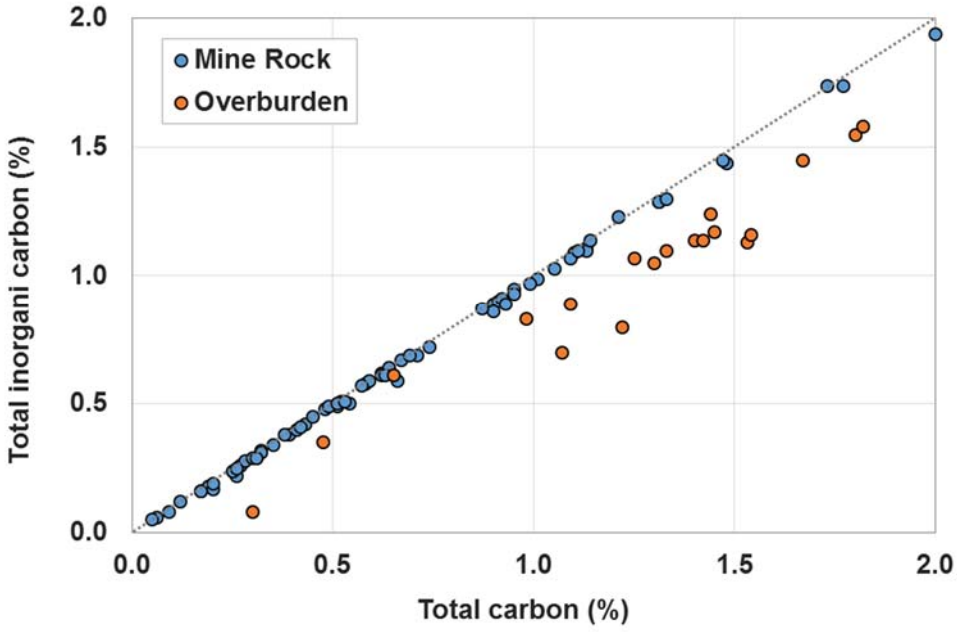


Figure 7-2: Total carbon versus total inorganic carbon in a subset of Ajax static test samples

7.2 NP Depletion Time Estimates

The NP depletion time for each kinetic test cell was calculated using reaction rates and the solid-phase characteristics of the respective kinetic tests samples (Section 6.1.1.3). It was found that positive correlations exist between the total sulphur content of a kinetic test sample and the short- and long-term NP depletion rates calculated as

$$NP\ depletion\ rate = CMR \times SO_4\ release\ rate \qquad (Eq.\ 1).$$

A linear regression was used to predict a theoretical NP depletion value (Figure 7-3) based on the sulphur content of the kinetic test sample. Knowing the total S and the NP for each static test sample, the range of NP depletion times can subsequently be calculated for each geological population using the following relationships:

$$Time\ to\ depletion\ (short\text{-}term,\ years) = Mod.\ NP / (0.0198 \times total\ S \times 52) \qquad (Eq.\ 2)$$

$$Time\ to\ depletion\ (long\text{-}term,\ years) = Mod.\ NP / (0.0073 \times total\ S \times 52) \qquad (Eq.\ 3).$$

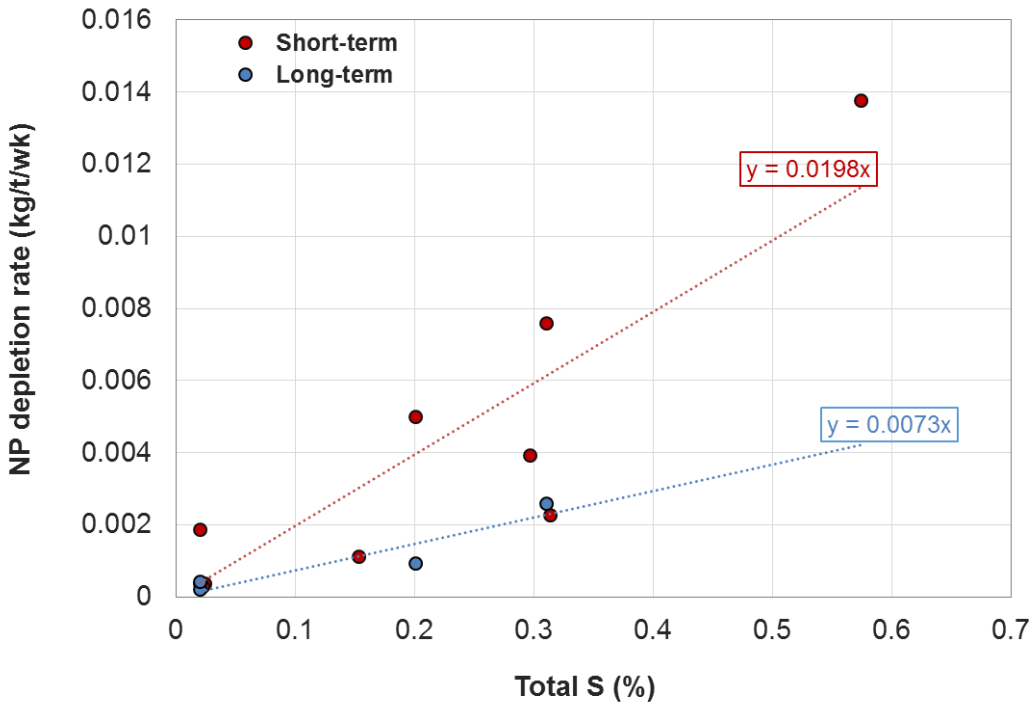


Figure 7-3: Short- and long–term depletion rates relative to original solid phase sulphur content

Carbonates generally have higher reaction rates than pH-buffering silicate phases as documented by CMR values near 1.0 for silicate buffering. As a result, the approach applied above will lead to an overestimation by up to a factor of 2x (or conservative estimate; Lorax, 2015a) of the actual lag time that is required before a PAG sample will turn acidic. The approach is also very conservative in that it applies the sulphide oxidation rate associated with the initial S content and does not account for decreasing oxidation rates as the sulphide is depleted via weathering. A range of estimates for the time of NP depletion is provided for the PAG sample population for each of the major rock units based on the amount of modified NP (Figure 7-4). Accounting for the variable oxidation rates and NP depletion rates that a single sample and the actual depletion lag times will fall between the two presented cases as shown by the dotted line indicated in Figure 7-4.

The first PAG samples to be NP depleted are from the SLD unit, where the initial onset of acidification of individual samples may occur within 10 year of exposure. For the more mafic mine rock units (MAFV and PICR) this is not expected to take place until 30 or 40 years (Figure 7-4). Across mine rock units, a reasonable estimate for NP depletion of half of the exposed materials is on the order of 50 years.

Ore will be either processed immediately or be stored in stockpiles temporarily. Based on the static test result from ore material and the leaching rates observed in the experimental columns, it is predicted that < 10% of the ore material will be NP depleted within the 23 year operating life of the mine, while half of the material will be NP-depleted after around 40 years. These time frames are on the order of or longer than the mine of life such that overall acidic drainage from the temporary ore stockpile would be highly unlikely considering the conservative assumptions made in this assessment, such as:

- Not all material surfaces in a full-scale MRSF will be flushed on a regular basis, such that calculation based on kinetic test cells will likely overestimate the CaNP removal rate, prolonging the time to onset of acidic drainage.
- PAG mine rock will be intermixed with NAG material such that any generated acidity may be neutralized by excess NP contained in the MRSF.

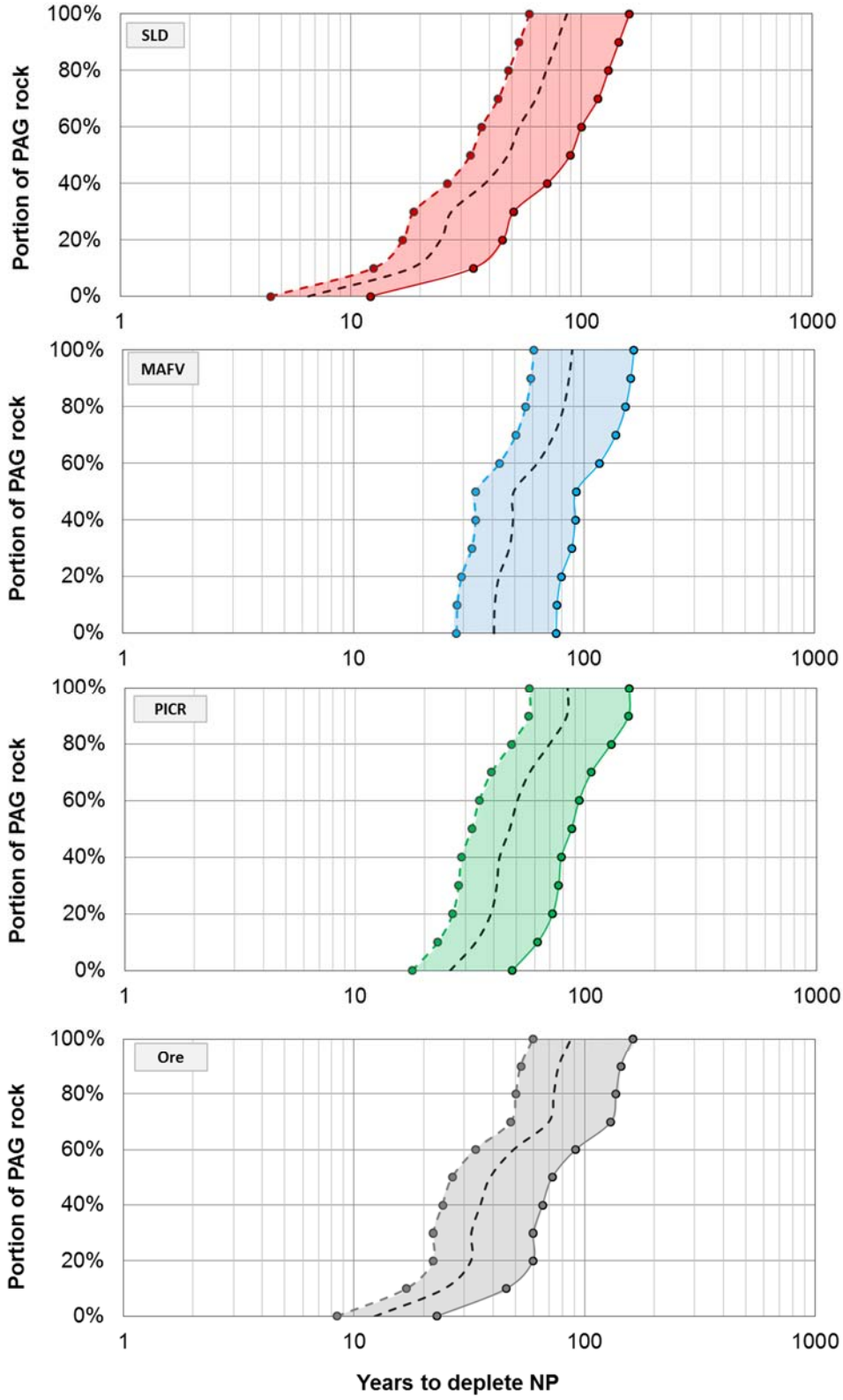


Figure 7-4: Estimated time to deplete NP in PAG material from the major mine rock units and ore

7.3 Operational AP Determination

The non-acid generating sulphate minerals, gypsum and anhydrite, are present in Ajax mine rock at the deeper portions of the pit. The presence of non-acid generating sulphur minerals requires that the AP used for NPR calculation is derived using non-sulphate S. This parameter is calculated as [total S – sulphate S]. A sub-horizontal mineralogical boundary has been defined in the geologic model at an approximate elevation of 700 masl, above which gypsum is depleted. Indeed, when plotting total S versus non-sulphate S for Ajax mine rock static test samples, a near 1:1 correlation is observable for samples above the gypsum boundary, while samples from deeper in the pit appear relatively scattered (Figure 7-5). This illustrates that total S measurements may be used to calculate AP in the shallower portions of the pit (above the gypsum line defined by the geology model), while non-sulphate S measurements will be required in the deeper portions of the pit.

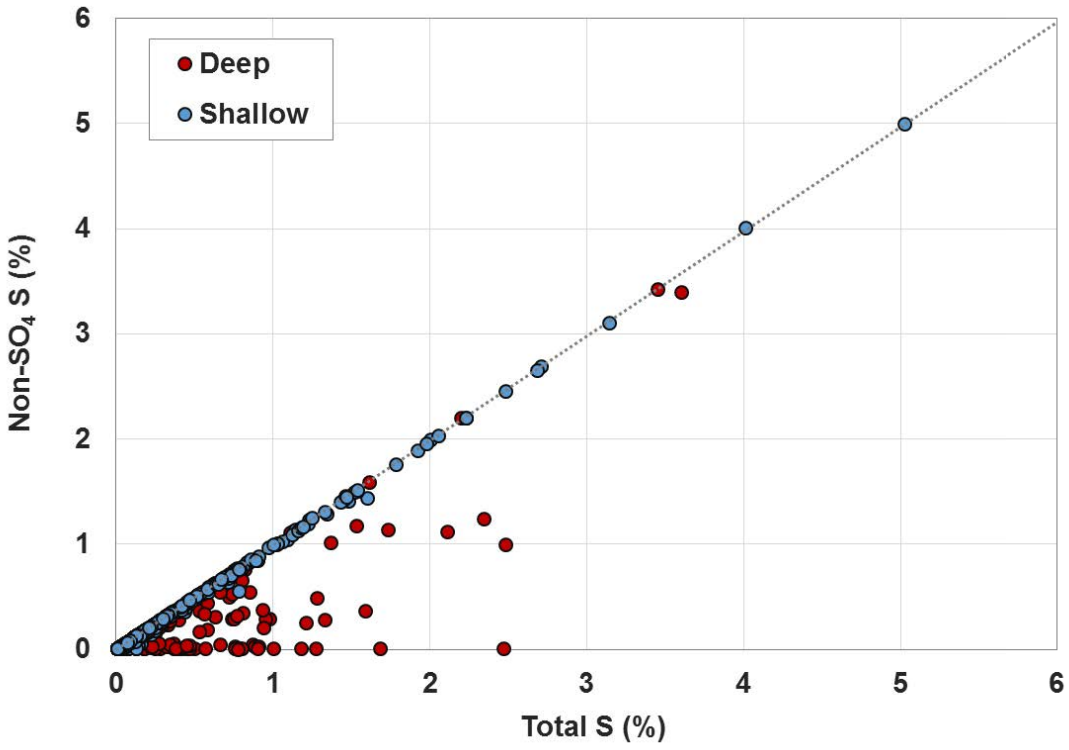


Figure 7-5: Total S versus non-SO_4 S for deep (below 700 masl) and shallow (above 700 masl) Ajax static test samples

7.4 Operational PAG Definition

PAG mine rock will be determined based on the formulas listed in Table 7-2 below.

Table 7-2:
Definition of PAG mine rock and ore

Mine Material	PAG Definition	
	Above Gypsum Plane	**Below Gypsum Plane**
SLD, IMH, SLVH Mine Rock & Ore	(%TC x 83.33) / (S_{Tot} x 31.25) < 2.0	(%TC x 83.33) / [(S_{Tot} - S_{SO4}) x 31.25)] < 2.0
MAFV Mine Rock & Ore	[(%TC x 83.33) + 8] / (S_{Tot} x 31.25) < 2.0	[(%TC x 83.33) + 8] / [(S_{Tot} - S_{SO4}) x 31.25)] < 2.0
PICR Mine Rock & Ore	[(%TC x 83.33) + 17] / (S_{Tot} x 31.25) < 2.0	[(%TC x 83.33) + 17] / [(S_{Tot} - S_{SO4}) x 31.25)] < 2.0
Tailings	%TC x 83.33 / [(S_{Tot} - S_{SO4}) x 31.25)] < 2.0	

8. Conclusions

8. Conclusions

The previous sections discussed the test methods, results and implications regarding the geochemical characterization of the Ajax Deposit. The following key conclusions can be drawn from this assessment:

Acid Base Accounting

- Overall, Ajax mine rock has relatively low sulphide sulphur content, typically <0.02 %. Sulphide S is typically present as pyrite, but chalcopyrite and molybdenite are also occasionally observed. In terms of the major mine rock lithologies, the IMH unit has the lowest sulphide sulphur content with other mine rock units showing slightly higher median sulphide S contents (<0.01 to 0.21%). The highest median value was observed in the MAFV sample population. Sulphide content in the SLD unit is negatively correlated with the degree of albitization.
- All Ajax samples have alkaline paste pH, which indicates that mine rock from the Ajax deposit will initially contain available NP to buffer acid. The bulk NP values (Sobek NP) for all the Ajax samples are notably higher than carbonate neutralization potential (CaNP) values due to the presence of both carbonate and non-carbonate NP. The latter was inferred to occur in the form of magnesium- and/or calcium-rich silicate minerals such as diopside, epidote and amphibole minerals as well as biotite.
- Approximately 78% of the mine rock is estimated to be NPAG based on the static test sample results when applying the CaNPR < 2.0 criterion. If the less conservative bulk NP is used for the derivation of NPR, the NPAG proportion grows to 95% using the same criterion. The aggressive Sobek NP method was initially used for the static test program which may simulate conditions that are unlikely to occur within the Ajax MRSF. To better constrain the quantity of PAG materials, the available static test samples were re-analyzed using the less aggressive modified bulk NP method. The final proportions are presented Appendix C-1.1a. However, these updated results are expected to decrease the quantity of PAG to between 5% and 21% (or NPAG between 79% and 95%).

Carbonate NP depletion calculations indicate that carbonate minerals could be consumed from up to 18% of the mine rock within the first 85 – 108 years after exposure in the mine rock storage facility. Following the depletion of carbonate, the kinetic test results indicate that reactive silicates will continue to provide buffering capacity. Diopside, which is present in the SLD, MAFV and PICR units is one candidate for the silicate buffering.

Clinozoisite, a Ca-rich form of epidote with intermediate reactivity is also present in the SLD unit and may also be contributing to its buffering capacity. Actinolite, an amphibole mineral with intermediate reactivity, is also a common mineral - present in all rock types - that has sufficient reactivity to help buffer pH. Plagioclase as an Albite (Na) end-member in the altered SLD unit is not expected to contribute significantly to pH buffering. Lastly, olivine and its replacement mineral serpentine were identified in the most mafic rocks and are known to be effective neutralizing agents.

A conservative CaNPR criterion of 2.0 provides the basis for segregation and handling of Ajax mine rock, ore and tailings. The conservative nature of this criterion has been demonstrated by a number of independent measures including NAG tests, kinetic testing and the detection of non-carbonate NP.

- Comparison of the NAG and ABA test data indicates that PAG samples defined by the NAG test also have CaNPR <1.0, which provides an independent validation that the 2.0 criterion is more than adequate. In addition, several additional samples determined to be NPAG by the NAG test were classified as PAG using the 2.0 CaNPR criterion, which also indicates that the 2.0 criterion is conservative.
- Mineralogical examinations indicate that the carbonate mineral assemblage is dominated by the Ca-rich minerals calcite and dolomite.
- The widespread occurrence of non-carbonate NP in the SLD, MAFV and PICR units has been demonstrated by bulk Sobek NP measurements that are consistently greater than the corresponding CaNP values. The result of this is that a much greater proportion of samples have NPR values >2 when using the bulk NP measure rather than the CaNP. The proportion of samples with NPR>2 ranges from 100% to 84% for the various ore and major mine rock units.

Further refinements to segregation criteria will be undertaken once additional NP measurements have been completed to evaluate the availability and extent of non-carbonate NP in the Ajax mine rock.

A major factor that makes ore distinct from mine rock is that ore grade rock will be derived predominately from the SLD unit. Although, the general geochemical composition of the ore is similar to SLD mine rock, the most notable exception is increased abundance of copper sulphide minerals chalcopyrite, bornite and covellite in the ore samples, which increases the Cu concentrations. On average, ore samples also have increasing sulphur content with increasing ore grade, however, total sulphur content generally remains below 0.8 %. Carbonate content and molybdenum concentrations also increase with increasing ore grade. Median CaNP values range from 48 kg $CaCO_3$/t in low grade ore to 62 kg $CaCO_3$/t in high grade ore.

Mine Rock Leaching Characteristics

Kinetic testing was conducted to estimate metal loadings from the Ajax geological materials. Fourteen unsaturated columns and six humidity cells were initiated at the SGS laboratory in Burnaby, British Columbia. Three unsaturated columns contained ore, and the remaining columns consisted of samples from the IMH, PICR, MAFV, SLD, and SVHYB units. Samples from the SLD and PICR column tests were further split and four humidity cells were treated to remove CaNP with the objective of determining the availability of the non-carbonate NP to buffer pH following carbonate mineral depletion.

The unsaturated columns and untreated humidity cells have produced leachate pH values ranging from 7 to 8.5. The leachate from the CaNP-depleted humidity cells has pH values ranging from around 5 to 8. Silicate minerals are buffering the pH at 5 to 6 in the CaNP depleted, high-S SLD humidity cell. The silica (Si) and magnesium release rates in this cell are considerably higher than in the corresponding untreated cell, which suggests an accelerated silicate weathering rate. The CaNP-depleted PICR humidity cells have been initiated only recently and conclusive geochemical data is not yet available.

Metal leaching rates from the kinetic tests are relatively low and quite similar between lithologies. Although still low, the kinetic tests indicate the SLD may have a slightly higher leaching potential for most metals than the other lithologies. Another distinct signature is that the silicate-buffered high-S SLD humidity cell with a pH<6.0 produces the highest dissolved metal (Cd, Cu, Ni, Zn) and the lowest oxyanion (As, Mo, Se and V) leach rates of all the cells. The MAFV/PICR cell produces the highest leach rates for As and also produces relatively high Mo and Ni leach rates. The IMH columns produce either the lowest or next lowest leach rates for all the elements considered except for V, which is released at the highest rate by this material type.

Field Bin Drainage Quality

Field bins at the Ajax site have been in place since 2007 and the mine rock they contain had been exposed to natural weathering process for at least 10 years prior to initiation of the field tests. To provide a frame of reference, the field bin data have been compared against BC water quality guidelines for Freshwater Aquatic Life. However, an exceedance of the guidelines in near-source drainage does not necessarily mean that the guideline will be exceeded in a receiving water body that contains aquatic life.

All of the field bins produced leachate with a pH averaging about 8, demonstrating that after at least 15 years of subaerial exposure in the Ajax East and West pits, mine rock is not actively producing acidic drainage. The sulphate concentrations from the SLD field bins were often elevated (up to 1,030 mg/L) while sulphate concentrations remained

relatively low (10 – 100 mg/L) in the IMH field bins. Initially, the concentrations of nitrate were elevated but have steadily dropped over time.

The Cd concentrations in the two SLD field bins have mean concentrations of 0.00012 mg/L, and 0.000068 mg/L. The IMH mine rock produced dissolved metal concentrations typically below or very close to the BC Freshwater Aquatic Life guidelines while the Cd concentration from the PICR field bin has exceeded guideline concentrations on several occasions. The Se concentrations from all of the field bins consistently exceed the corresponding BC guideline by up to an order of magnitude with the exception of the PICR field bin which occasionally releases leachates with Se falling below the guidelines. Arsenic concentrations in the field bin leachates show a non-lithological bimodal distribution with one SLD and one IMH field bin producing values consistently below the BC guideline while all other field bin leachates exceed the guideline. The Mo concentrations have approached, but not exceeded, the guideline of 1 mg/L. The elevated Se, As, Mo and V concentrations are consistent with oxyanion mobility in near-neutral pH environments.

Site Water Chemistry

On several occasions, drainage from an existing Ajax mine rock seep, pit lake water, and pore-water recovered from monitoring wells in backfilled mine rock were sampled and analyzed for a range of parameters. These sites have been exposed to actual weathering conditions for longer than 15 years. The mine rock seep is located at the base of the mine rock pile between the pile and Peterson Creek and is part of the Knight Piesold surface water monitoring program for the site. The mine rock likely represents mixed lithologies. Monitoring wells sample groundwater from deep (~28 m) and shallow (~6 m) locations within the existing Ajax East pit backfill. Pit lake samples have also been collected from different depths (shallow and deep) within the water column of the two small lakes that have developed in the partially backfilled Ajax West pit.

The sulphate concentrations from these water samples are variably elevated and are comparable to those from the SLD field bins. The seeps show a similar tendency for elevated Se concentrations as the field bins with the concentrations being comparable to the highest concentrations measured from the SLD and IMH field bins. Copper, Mo, and As concentrations also exceeded Freshwater Aquatic Life guidelines in the seeps.

The existing Ajax West pit lake water quality has a similar signature as the seeps with elevated concentrations of nitrate, nitrite, Cu, Mo, Se, and SO_4. In addition, As and Cd concentrations also exceed guideline values.

Tailings Geochemistry

Static testing on the Ajax tailings and ore samples show tailings have a low average S content (near 0.25 %) and average CaNP values around 70 kg $CaCO_3$/t. Overall, the tailings are expected to be NPAG.

Five humidity cells, and two unsaturated columns were initiated at SGS laboratories for the Ajax flotation tailings. Additionally, three saturated columns are being operated at the Lorax laboratory to assess the tailings leachate characteristics under suboxic conditions. Tailings samples were collected from five different metallurgical tests conducted between 2009 and 2014.

Tailings kinetic tests show a mean stable leachate pH of 8. As expected, the metal leaching rates from the tailings are relatively low. Consistent with the results of the static tests for the tailings, Mo shows the highest leach rates followed by Cu, Se and V, which all leach at similar rates.

Overburden Geochemistry

The low sulphide sulphur and high CaNP content in overburden samples from within the pit perimeter of the Ajax mine led to NPR values of 21 or higher, therefore no net acid generation is expected from this unit upon exposure. Sulphate and selenium were found to be the only species exceeding the BC contaminated site guidelines in shake flask extracts reacted with overburden samples in two out of the 20 studied samples.

9. Closure

9. Closure

Collection of field data was conducted with the support of the KAM geologists. This Lorax report was prepared and reviewed by the undersigned.

Yours sincerely,
Lorax Environmental Services Ltd.

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Appendices:

KGHM

Appendix A: Static Sample Descriptions and Test Procedures

APPENDIX A-1 STATIC SAMPLE DESCRIPTIONS
APPENDIX A-2 SGS STATIC TESTING PROCEDURES

KGHM

Appendix A-1 Static Sample Descriptions

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
E121669	L-AE-002-1	AE-06-002	176	179	ore	Ore	East SLD	684575	5609949	819
E137718	L-AE-002-2	AE-06-002	311	314	ore	Ore	East SLD	684627	5609924	697
E137875	L-AE-003-4	AE-06-003	198	201	ore	Ore	East SLD	684531	5609841	839
E138016	L-AE-004-1	AE-06-004	109	112	ore	Ore	East SLD	684460	5609882	891
E138027	L-AE-004-2	AE-06-004	139	142	ore	Ore	East SLD	684471	5609876	864
E138048	L-AE-004-3	AE-06-004	199	202	ore	Ore	East SLD	684494	5609863	810
E169022	L11-003	AE-06-007	485	488	ore	Ore	East SVHYB	684695	5609862	545
E168953	L-AE-007-3	AE-06-007	290	293	ore	Ore	East SLD	684632	5609930	716
E169144	L11-004	AE-06-008	298	301	ore	Ore	East SLD	684741	5609956	753
E169611	L11-011	AE-06-010	463	466	ore	Ore	East SVHYB	684901	5609937	624
E169721	L11-015	AE-06-011	471	474	ore	Ore	East SLD	684846	5609916	657
E169797	L11-017	AE-06-012	138	141	ore	Ore	IMH	684839	5610003	869
G6846	L-AE-013-2	AE-06-013	210	213	ore	Ore	East SLD	684741	5609855	806
G6862	L-AE-013-3	AE-06-013	255	258	ore	Ore	East SLD	684713	5609874	776
G8044	L10-128	AE-07-024	280	283	ore	Ore	East SLD	684720	5609816	701
7R10389	7R10389	AE-07-025	570	573	ore	Ore	East SLD	684710	5610022	445
G8491	L11-034	AE-07-027	549	552	ore	Ore	East SLD	684670	5609946	469
7R10790	L11-038	AE-07-030	483	486	ore	Ore	East SLD	684859	5610032	483
7R48314	L11-047	AE-07-034	499	502	ore	Ore	East SLD	684774	5610066	509
7R49166	L10-135	AE-07-038	571	574	ore	Ore	East SLD	684741	5609845	468
7R49187	L11-054	AE-07-039	9	12	ore	Ore	East SLD	684925	5609868	941
7R14776	L10-120	AE-07-042	122	125	ore	Ore	East SLD	684582	5609771	828
7R15193	L11-063	AE-07-044	372	375	ore	Ore	East SLD	684650	5609728	546
Z109206	L10-113	AE-08-045	201	204	ore	Ore	East SLD	684521	5609789	820
7R104653	7R104653	AE-08-054	190	193	ore	Ore	East MAFV	684991	5609880	775
7R104681	L10-160	AE-08-054	267	270	ore	Ore	East SVHYB	685010	5609863	704
7R104742	L11-083	AE-08-055	349	352	ore	Ore	IMH	685010	5609981	719
7R104823	L10-139	AE-08-058	96	99	ore	Ore	East SLD	684701	5609687	856
7R104943	L11-086	AE-08-059	324	327	ore	Ore	East SLD	684680	5609647	611
10E15121	10E15121	AE-10-067	266.75	269.75	ore	Ore	East MAFV	685018	5609953	723
10E15171	10E15171	AE-10-067	395	398	ore	Ore	East MAFV	685018	5609953	723
10E15293	10E15293	AE-10-068	304	307	ore	Ore	East SVHYB	685007	5609931	667
10E15352	10E15352	AE-10-068	458	461	ore	Ore	East SVHYB	685039	5609981	525
10E27569	L11-105	AE-10-074	22.86	25	ore	Ore	East SLD	684713	5609922	896
10E27767	L11-110	AE-10-076	424	427	ore	Ore	East SLD	684928	5609776	506
10E27972	L11-115	AE-10-080	499	502	ore	Ore	East SLD	685014	5609847	457
10E13358	L11-116	AE-10-081	453	456	ore	Ore	East SLD	684256	5609790	535
10E13564	L11-122	AE-10-083	477	478.65	ore	Ore	East SLD	684215	5609782	517
10E27117	L11-130	AE-10-089	248	251	ore	Ore	East SLD	684515	5610022	727
10E27175	L11-133	AE-10-089	399	401.42	ore	Ore	East SLD	684505	5610025	577
10E13821	L11-140	AE-10-091	201	204	ore	Ore	East SVHYB	684329	5609840	787
10E13839	L11-141	AE-10-091	250	253	ore	Ore	East SLD	684329	5609840	736
10E27277	AME1274	AE-10-092	278	281	ore	Ore	East SLD	684471	5609997	701
10E27241	L11-145B duplicate	AE-10-092	181	184	ore	Ore	IMH	684484	5609993	797
10E14923	L11-154	AE-10-099	24	27	ore	Ore	East SLD	684589	5609582	906
7R15639	L10-177	AM-07-003	480	483	ore	Ore	East SLD	685230	5609774	632

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R16228	L11-189	AM-07-007	138	141	ore	Ore	East SLD	685203	5609452	806
7R16236	L11-191	AM-07-007	162	165	ore	Ore	East SLD	685212	5609465	790
7R106536	L10-169	AM-08-010	115	118	ore	Ore	East SLD	684815	5609372	830
Z113247	L10-162	AM-08-012	299	302	ore	Ore	East SLD	684997	5609774	700
7R106838	L11-215	AM-08-012	567	570	ore	Ore	East SLD	685149	5609945	561
7R106851	L11-216	AM-08-012	606	609	ore	Ore	East SLD	685172	5609970	542
Z113530	Z113530	AM-08-016	212	215	ore	Ore	PICR	685337	5609924	766
Z113697	Z113697	AM-09-018	204.5	207.5	ore	Ore	PICR	685110	5609879	748
Z115161	Z115161	AM-09-021	72	75	ore	Ore	PICR	685337	5609924	766
Z114086	Z114086	AM-09-024	267.5	270.5	ore	Ore	PICR	685106	5609954	699
Z114263	L10-172	AM-09-026	267	270	ore	Ore	East SLD	685117	5609827	695
Z114461	L11-233	AM-09-028	280.5	283.5	ore	Ore	East SLD	685100	5609708	633
Z114623	L11-240	AM-09-033	42	45	ore	Ore	East SLD	685173	5609718	870
Z114953	L10-171	AM-10-038	101	104	ore	Ore	East SLD	685117	5609813	832
Z116017	L10-184	AM-10-041	125	128	ore	Ore	East SLD	685180	5609651	782
Z115997	L11-249	AM-10-041	74	77	ore	Ore	East SLD	685181	5609652	833
Z116076	L11-252	AM-10-042	97	100	ore	Ore	East SLD	685136	5609676	812
Z116099	L11-253	AM-10-043	7	10	ore	Ore	East SLD	685228	5609725	908
Z116251	L11-254	AM-10-044	48	51	ore	Ore	East SLD	685172	5609544	857
Z116293	L11-255	AM-10-044	162	166.72	ore	Ore	East SLD	685169	5609545	743
Z116299	L11-256	AM-10-045	21	24	ore	Ore	East SLD	685257	5609492	878
Z116521	L11-270	AM-10-049	73	76	ore	Ore	East SLD	685321	5609630	860
Z116633	L11-272	AM-10-051	102	103.6	ore	Ore	PICR	685349	5609528	801
Z116713	L11-274	AM-10-052	99	102	ore	Ore	East SLD	685363	5609604	810
Z116735	L11-275	AM-10-052	159	162	ore	Ore	East SLD	685363	5609604	750
Z116783	L11-277	AM-10-053	48	51	ore	Ore	PICR	685419	5609503	853
7R146417	L11-278	AM-10-054	178	181	ore	Ore	East SLD	684794	5609578	753
7R146631	7R146631	AM-10-061	198	201	ore	Ore	PICR	685118	5609917	773
10E11979	L11-300	AM-10-069	222	225	ore	Ore	East SLD	685420	5609762	696
10E12767	L11-316	AM-10-076	429	432	ore	Ore	East SLD	685175	5610026	517
10E12845	L11-319	AM-10-077	175	178	ore	Ore	PICR	685176	5609916	803
10E15461	10E15461	AM-10-079	241	244	ore	Ore	PICR	685065	5609916	734
7R96047	L10-070	AN-07-003	59	62	ore	Ore	IMH	684081	5609578	868
7R128031	L10-084	AN-07-005	90	93	ore	Ore	East SLD	684192	5609582	857
7R128115	L10-087	AN-07-005	324	327	ore	Ore	East SLD	684285	5609724	697
7R94318	L11-336	AN-07-011	322	325	ore	Ore	East SLD	684630	5609558	588
7R92488	7R92488	AN-07-013	91.5	94	ore	Ore	East SLD	684735	5609548	849
7R92556	L11-341	AN-07-013	272	275	ore	Ore	East MAFV	684671	5609435	723
7R94397	L10-137	AN-07-014	101	104	ore	Ore	East SLD	684598	5609489	837
7R91871	L11-354	AN-08-023	99	102	ore	Ore	East SLD	684701	5609593	819
7R94851	L10-131	AN-08-025	353.5	356.5	ore	Ore	East SLD	684631	5609609	593
7R94784	L10-129	AN-08-025	168.3	171.3	ore	Ore	East SLD	684580	5609551	761
7R92754	L11-361	AN-08-027	80	82.68	ore	Ore	East SLD	684683	5609554	829
7R93134	SL-01	AN-08-034	8	11	ore	Ore	East SLD	684440	5609515	913
7R93139	SL-03	AN-08-034	20	23	ore	Ore	East SLD	684445	5609522	905
7R93145	SL-06	AN-08-034	38	41	ore	Ore	East SLD	684453	5609532	892

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R93147	SL-07	AN-08-034	44	47	ore	Ore	East SLD	684455	5609536	888
7R93150	SL-08	AN-08-034	50	53	ore	Ore	East SLD	684458	5609539	884
7R93156	SL-11	AN-08-034	68	71	ore	Ore	East SLD	684465	5609550	871
7R93165	SL-15	AN-08-034	92	95	ore	Ore	East SLD	684475	5609563	854
7R93167	SL-16	AN-08-034	98	101	ore	Ore	East SLD	684478	5609567	850
7R93169	SL-17	AN-08-034	104	107	ore	Ore	East SLD	684480	5609570	846
7R93171	SL-18	AN-08-034	110	113	ore	Ore	East SLD	684483	5609574	841
7R93175	SL-20	AN-08-034	122	125	ore	Ore	East SLD	684488	5609581	833
7R93185	SL-22	AN-08-034	146.6	149	ore	Ore	East SLD	684498	5609594	816
7R93230	SL-38	AN-08-034	267	270	ore	Ore	East SLD	684550	5609660	729
7R93236	SL-41	AN-08-034	285	288	ore	Ore	East SLD	684558	5609669	716
Z111605	SL-46	AN-08-034	315	318	ore	Ore	East SLD	684572	5609685	694
Z111607	SL-47	AN-08-034	321	324	ore	Ore	East SLD	684574	5609688	690
Z111614	SL-50	AN-08-034	339	342	ore	Ore	East SLD	684582	5609698	676
Z111623	SL-51	AN-08-034	366	369	ore	Ore	East SLD	684595	5609711	657
Z111625	SL-52	AN-08-034	372	375	ore	Ore	East SLD	684597	5609714	652
Z111627	SL-53	AN-08-034	378	381	ore	Ore	East SLD	684600	5609717	648
Z111629	SL-54	AN-08-034	384	387	ore	Ore	East SLD	684603	5609721	643
Z111631	SL-55	AN-08-034	390	393	ore	Ore	East SLD	684606	5609723	639
Z111638	SL-58	AN-08-034	408	411	ore	Ore	East SLD	684614	5609732	626
Z111640	SL-59	AN-08-034	414	417	ore	Ore	East SLD	684617	5609735	622
Z111644	SL-61	AN-08-034	426	429	ore	Ore	East SLD	684623	5609741	613
Z111646	SL-62	AN-08-034	432	435	ore	Ore	East SLD	684626	5609744	609
Z111648	SL-63	AN-08-034	438	441	ore	Ore	East SLD	684629	5609747	605
Z111650	SL-64	AN-08-034	444	447	ore	Ore	East SLD	684633	5609751	600
Z111652	SL-65	AN-08-034	450	453	ore	Ore	East SLD	684635	5609753	596
Z111654	SL-66	AN-08-034	456	459	ore	Ore	East SLD	684638	5609756	592
Z111656	SL-67	AN-08-034	462	465	ore	Ore	East SLD	684641	5609759	588
Z111658	SL-68	AN-08-034	468	471	ore	Ore	East SLD	684644	5609762	583
Z111660	SL-69	AN-08-034	474	477	ore	Ore	East SLD	684647	5609765	579
7R128611	L11-369	AN-08-036	238.51	241	ore	Ore	East SLD	684224	5609551	688
Z111155	L11-370	AN-08-037	373.99	377	ore	Ore	West SLD	684013	5609450	584
7R93465	L10-121	AN-08-044	100	103	ore	Ore	East SLD	684437	5609508	818
7R93535	L10-122	AN-08-044	287.95	291	ore	Ore	East SLD	684437	5609504	630
7R129032	L11-381	AN-08-048	299.17	301.2	ore	Ore	East SLD	684391	5609723	720
7R93925	L11-384	AN-08-051	178	181	ore	Ore	East SLD	684388	5609628	796
7R95758	L11-386	AN-08-052	222	225	ore	Ore	East SLD	684447	5609430	716
Z111346	L10-109	AN-08-053	303	306	ore	Ore	East SLD	684512	5609823	734
7R129205	L11-389	AN-08-054	245.97	249	ore	Ore	East SLD	684334	5609634	706
Z108585	L10-115	AN-08-055	351	354	ore	Ore	East SLD	684507	5609728	663
7R130406	L10-112	AN-08-060	126	129	ore	Ore	East SLD	684278	5609439	832
7R130453	L11-399	AN-08-060	250	253	ore	Ore	East MAFV	684226	5609373	741
7R103966	L11-404	AN-08-063	250	252.3	ore	Ore	East SLD	684388	5609530	676
7R103984	L11-405	AN-08-063	300	303	ore	Ore	East SLD	684388	5609531	626
7R104248	L10-117	AN-08-068	209	212	ore	Ore	East SLD	684350	5609451	736
7R146892	L10-207	AN-10-075	65	68	ore	Ore	PICR	684605	5609381	832

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R146909	L10-208	AN-10-075	107	110	ore	Ore	East SLD	684599	5609365	796
E66099	L11-423	AW-05-002	446	449	ore	Ore	PXPP	683624	5609558	505
E66214	L-AW-003-3	AW-05-003	159	162	ore	Ore	West SLD	683587	5609438	775
E66282	L-AW-003-4	AW-05-003	345	348	ore	Ore	West SLD	683655	5609529	628
E66413	L-AW-004-4	AW-05-004	234	237	ore	Ore	West SLD	683546	5609622	722
E66425	L-AW-004-5	AW-05-004	270	273	ore	Ore	West SVHYB	683560	5609639	694
E118634	L-AW-005-1	AW-05-005	296	299	ore	Ore	West SVHYB	683753	5609561	671
E118756	L10-027	AW-06-006	281	284	ore	Ore	West SLD	683545	5609542	669
E118815	L10-028	AW-06-006	446	449	ore	Ore	West SVHYB	683601	5609615	534
E118908	L11-426	AW-06-007	51	54	ore	Ore	West SLD	683442	5609558	864
E119230	L10-043	AW-06-009	150	153	ore	Ore	West SLD	683691	5609495	746
E119471	L-AW-012-3	AW-06-012	256	259	ore	Ore	West SVHYB	683680	5609546	696
E121309	L11-430	AW-06-013	498	501	ore	Ore	PXPP	683725	5609567	444
E121447	L-AW-015-3	AW-06-015	295	298	ore	Ore	West SVHYB	683788	5609562	682
E119969	L10-047	AW-06-017	174	177	ore	Ore	West SLD	683797	5609482	778
E120037	L10-048	AW-06-017	366	369	ore	Ore	West SLD	683868	5609596	640
E120447	L11-440	AW-06-020	403	406	ore	Ore	West SVHYB	683526	5609620	552
E120428	L-AW-020-4	AW-06-020	352	355	ore	Ore	West SVHYB	683515	5609597	596
E138609	L-AW-025-3	AW-06-025	618	621	ore	Ore	West MAFV	683394	5609555	413
E138666	L10-018	AW-06-027	114	117	ore	Ore	IMH	683634	5609793	804
E138688	L11-449	AW-06-027	174	177	ore	Ore	IMH	683630	5609788	745
E138991	L10-032	AW-06-030	429	432	ore	Ore	West SVHYB	683698	5609725	489
E139235	L10-025	AW-06-033	219	222	ore	Ore	West SLD	683590	5609601	734
E139433	L11-457	AW-06-034	292	295	ore	Ore	West SLD	683522	5609482	625
E139739	L11-461	AW-06-039	342	345	ore	Ore	West SVHYB	683480	5609627	581
G9775	L10-075	AW-07-047	245	248	ore	Ore	West SLD	684015	5609425	711
G10004	L10-076	AW-07-049	89	92	ore	Ore	PICR	683926	5609300	808
7R12739	L11-485	AW-07-058	398	401	ore	Ore	PXPP	683728	5609455	508
7R13065	L11-488	AW-07-060	240	243	ore	Ore	West SLD	683471	5609489	668
7R13406	L11-489	AW-07-062	198	201	ore	Ore	West SLD	683483	5609418	704
7R13792	L10-016	AW-07-066	176	179	ore	Ore	West SVHYB	683431	5609538	728
7R13814	L11-492	AW-07-066	232	235	ore	Ore	West SVHYB	683433	5609542	672
7R14204	L10-038	AW-07-068	108	111	ore	Ore	West SLD	683737	5609671	832
7R14219	L10-039	AW-07-068	150	153	ore	Ore	IMH	683751	5609697	803
7R14381	L11-494	AW-07-070	138	141	ore	Ore	West SLD	683893	5609546	766
7R91663	L11-500	AW-07-073	311	314	ore	Ore	IMH	683677	5609780	607
Z109558	L11-514	AW-08-080	514	517	ore	Ore	PXPP	683729	5609451	538
Z109748	L11-515	AW-08-082	180	182.34	ore	Ore	West SVHYB	683370	5609534	728
Z107179	L11-523	AW-08-086	166	169	ore	Ore	West SVHYB	683385	5609458	760
Z107591	L10-040	AW-08-090	89.26	92	ore	Ore	West MAFV	683641	5609410	810
7R105211	L11-532	AW-08-092	95	98	ore	Ore	IMH	683997	5609649	875
Z112391	L11-537	AW-08-097	198	201	ore	Ore	IMH	683983	5609650	763
Z112421	L11-538	AW-08-097	277	280	ore	Ore	IMH	683966	5609630	689
Z112522	L10-065	AW-08-098	180	183	ore	Ore	West SLD	684011	5609577	824
7R146165	L11-555	AW-10-105	243	246	ore	Ore	IMH	683362	5609668	662
10E14017	L11-558	AW-10-107	48	51	ore	Ore	IMH	683907	5609736	874

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E14109	L11-562	AW-10-107	294	297	ore	Ore	West SVHYB	683882	5609701	631
10E14128	L11-563	AW-10-107	344	347	ore	Ore	West SVHYB	683875	5609695	583
10E14148	L11-564	AW-10-107	398	401	ore	Ore	West SLD	683869	5609688	530
10E14166	L11-565	AW-10-107	445	448	ore	Ore	PXPP	683863	5609682	484
E211902	L11-567	AW-10-108	412	415	ore	Ore	West SLD	683769	5609761	506
10E14176	L11-568	AW-10-109	24	27	ore	Ore	IMH	683838	5609712	901
E212015	L11-572	AW-10-112	99	102	ore	Ore	IMH	683786	5609780	821
10E14319	L11-581	AW-10-115	63.09	66	ore	Ore	West SLD	683572	5609625	833
E121494	L-AE-001-1	AE-06-001	76	79	mine	IMH	IMH	684548	5609959	919
E121509	L-AE-001-2	AE-06-001	146	149	mine	IMH	East SVHYB	684584	5609934	865
E121650	L11-001	AE-06-002	119	122	mine	IMH	IMH	684552	5609960	869
E137760	L-AE-002-4	AE-06-002	416	419	mine	MAFV	East SLD	684668	5609904	603
E121688	L11-002	AE-06-002	227	230	mine	SLD - mod	East SLD	684595	5609940	773
E137736	L-AE-002-3	AE-06-002	362	365	mine	Unmin. Dyke	East SLD	684647	5609914	651
E137833	L-AE-003-1	AE-06-003	78	81	mine	IMH	IMH	684464	5609883	930
E137849	L-AE-003-2	AE-06-003	126	129	mine	SLD - mod	East SLD	684490	5609865	893
E138200	L10-098	AE-06-005	71	74	mine	IMH	IMH	684485	5609917	931
E168700	L-AE-006-1	AE-06-006	126	129	mine	IMH	East SVHYB	684600	5609971	878
E168728	L-AE-006-3	AE-06-006	207	210	mine	SLD - strong	East SLD	684644	5609944	816
E168886	L10-107	AE-06-007	101	104	mine	IMH	IMH	684567	5609987	885
E168875	L-AE-007-1	AE-06-007	71	74	mine	IMH	IMH	684557	5609996	911
E168930	L-AE-007-2	AE-06-007	227	230	mine	SVHYB	East SLD	684610	5609950	772
E169231	L10-106	AE-06-009	82	85	mine	IMH	IMH	684600	5610035	903
E169369	L11-005	AE-06-009	472	475	mine	SLD - mod	East SLD	684739	5609941	551
E169395	L11-006	AE-06-009	547	550	mine	SLD - mod	East SLD	684763	5609920	484
E169496	L10-119	AE-06-010	139	142	mine	IMH	IMH	684738	5610074	867
E169487	L11-007	AE-06-010	112	115	mine	IMH	IMH	684724	5610083	887
E169518	L11-008	AE-06-010	199	202	mine	IMH	IMH	684772	5610054	822
E169543	L11-009	AE-06-010	271	274	mine	IMH	IMH	684808	5610024	768
E169589	L11-010	AE-06-010	400	403	mine	MAFV	East MAFV	684871	5609965	670
E169613	L11-012	AE-06-011	165	168	mine	IMH	IMH	684662	5610050	860
E169695	L11-014	AE-06-011	399	402	mine	SLD - mod	East SLD	684804	5609951	704
E169660	L11-013	AE-06-011	300	303	mine	SLD - strong	East SLD	684745	5609995	769
E169779	L11-016	AE-06-012	87	90	mine	SLD - mod	IMH	684870	5610027	902
E169993	L11-018	AE-06-013	60	63	mine	SLD - weak	East SLD	684834	5609799	909
G6812	L-AE-013-1	AE-06-013	114	117	mine	SLD - weak	East SLD	684801	5609818	871
G7008	L11-019	AE-07-014	7	10	mine	SLD - weak	East SLD	684777	5609717	942
G7330	L11-020	AE-07-015	534	537	mine	SLD - mod	East SLD	684499	5609927	549
G8690	L11-022	AE-07-016	547	550	mine	MAFV	East SLD	684611	5610011	539
G8532	L11-021	AE-07-016	99	102	mine	SLD - mod	East SLD	684852	5609849	878
G8763	L11-023	AE-07-018	154	157	mine	SLD - mod	East SLD	684849	5609853	815
G7729	L11-024	AE-07-019	472	475	mine	SLD - weak	East SLD	684707	5609768	484
G9034	L11-025	AE-07-021	279	282	mine	SLD - mod	East SLD	684854	5609855	681
G8107	L11-026	AE-07-024	457	460	mine	SLD - mod	East SLD	684658	5609864	542
G8132	L11-027	AE-07-024	529	532	mine	SLD - weak	East SLD	684634	5609885	477
7R10336	L11-032	AE-07-025	423	426	mine	IMH	East SLD	684761	5609977	575

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
G9348	L11-028	AE-07-025	33	36	mine	SLD - mod	East SLD	684907	5609873	920
7R10223	L11-029	AE-07-025	102	105	mine	SLD - mod	East SLD	684879	5609890	861
7R10241	L11-030	AE-07-025	153	156	mine	SLD - mod	East SLD	684859	5609904	816
7R10263	L11-031	AE-07-025	216	219	mine	SLD - mod	East SLD	684835	5609920	760
G8222	L10-144	AE-07-026	230	233	mine	SLD - weak	East SLD	684806	5609762	721
G8280	L11-033	AE-07-026	392	395	mine	SLD - weak	East SLD	684797	5609770	560
7R10735	L10-136	AE-07-030	330	333	mine	IMH	IMH	684881	5610012	633
7R10638	L10-141	AE-07-030	54	57	mine	IMH	IMH	684924	5609978	904
7R10669	L10-142	AE-07-030	141	144	mine	IMH	IMH	684910	5609989	819
7R10628	L11-035	AE-07-030	27	30	mine	IMH	IMH	684929	5609975	930
7R10689	L11-036	AE-07-030	198	201	mine	IMH	IMH	684901	5609996	763
7R10759	L11-037	AE-07-030	396	399	mine	IMH	IMH	684872	5610021	569
7R48041	L11-040	AE-07-032	265	268	mine	SLD - mod	East SLD	684977	5609709	720
7R48073	L11-041	AE-07-032	348	351	mine	SLD - mod	East SLD	685007	5609685	645
7R47964	L11-039	AE-07-032	47.85	50.9	mine	Unmin. Dyke	East SLD	684891	5609767	910
7R48189	L11-042	AE-07-034	148	151	mine	IMH	IMH	684879	5609952	823
7R48216	L11-043	AE-07-034	223	226	mine	IMH	IMH	684853	5609974	756
7R48246	L11-044	AE-07-034	307	310	mine	IMH	IMH	684827	5610000	681
7R48278	L11-045	AE-07-034	397	400	mine	IMH	IMH	684804	5610031	600
7R48296	L11-046	AE-07-034	448	451	mine	IMH	IMH	684789	5610048	554
7R48425	L10-143	AE-07-035	216	219	mine	IMH	IMH	684894	5609939	744
7R48397	L11-048	AE-07-035	138	141	mine	IMH	IMH	684909	5609930	820
7R48537	7R48537	AE-07-035	534	537	mine	SLD - strong	East SLD	684839	5609976	433
7R48465	7R48465	AE-07-035	330	333	mine	SVHYB	East SVHYB	684873	5609951	633
7R48697	L10-118	AE-07-036	361	364	mine	IMH	IMH	684740	5610077	698
7R48647	L10-127	AE-07-036	220	223	mine	IMH	IMH	684813	5610010	799
7R48710	L11-050	AE-07-036	400	403	mine	IMH	IMH	684720	5610097	671
7R48746	L11-051	AE-07-036	499	502	mine	IMH	IMH	684663	5610145	607
7R48605	L11-049	AE-07-036	100	103	mine	SLD - mod	East SLD	684880	5609958	884
7R48670	L10-124	AE-07-036	286	289	mine	Unmin. Dyke	IMH	684778	5610040	752
7R48965	L10-132	AE-07-038	48	51	mine	IMH	IMH	684905	5610048	921
7R49018	L10-133	AE-07-038	193	196	mine	IMH	IMH	684865	5609987	795
7R49056	L10-134	AE-07-038	295	298	mine	IMH	IMH	684834	5609947	707
7R48949	L11-052	AE-07-038	3.66	6	mine	IMH	IMH	684916	5610067	960
7R48988	L11-053	AE-07-038	111	114	mine	IMH	IMH	684888	5610021	865
7R49254	L11-057	AE-07-039	198	201	mine	MAFV	East SLD	684916	5609874	752
7R49281	L11-058	AE-07-039	273	276	mine	MAFV	East MAFV	684913	5609875	677
7R49202	L11-055	AE-07-039	54	57	mine	SLD - mod	East SLD	684923	5609869	895
7R49236	L11-056	AE-07-039	147	150	mine	SLD - mod	East SLD	684917	5609873	802
7R15002	L11-060	AE-07-043	446	449	mine	SLD - weak	East SLD	684505	5609813	506
7R14874	L11-059	AE-07-043	101	104	mine	Unmin. Dyke	East SLD	684621	5609746	823
7R15065	L11-061	AE-07-044	18	20.42	mine	SLD - weak	East SLD	684653	5609728	900
7R15091	L11-062	AE-07-044	89	92	mine	Unmin. Dyke	East SLD	684652	5609729	828
Z109147	L10-099	AE-08-045	38	41	mine	IMH	IMH	684441	5609837	953
Z111778	L10-091	AE-08-047	99	102	mine	IMH	IMH	684493	5610065	877
Z111802	L10-092	AE-08-047	168	171	mine	IMH	IMH	684499	5610061	808

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
Z111744	L11-064	AE-08-047	3.05	9.14	mine	IMH	IMH	684484	5610070	971
Z111838	L10-093	AE-08-047	267	270	mine	SLD - strong	IMH	684506	5610057	710
Z111761	L11-065	AE-08-047	51	54	mine	Unmin. Dyke	IMH	684489	5610067	925
7R97516	L11-066	AE-08-048	3.05	6	mine	IMH	IMH	684418	5609841	981
7R97532	L11-067	AE-08-048	48	51	mine	IMH	IMH	684407	5609822	942
7R97550	L11-068	AE-08-048	99	102	mine	IMH	IMH	684395	5609801	897
7R97563	L11-069	AE-08-048	135	138	mine	IMH	IMH	684386	5609788	865
7R97620	L11-070	AE-08-048	286	289	mine	Unmin. Dyke	East SLD	684351	5609732	729
7R104506	L10-156	AE-08-049	230	233	mine	IMH	IMH	685024	5609968	783
7R104470	L10-155	AE-08-049	128	131	mine	IMH	East SLD	684990	5609905	855
7R104465	L11-071	AE-08-049	113.25	116	mine	IMH	East SLD	684985	5609896	866
7R129828	L11-074	AE-08-050	98	101	mine	IMH	IMH	684270	5609771	897
7R129846	L11-075	AE-08-050	149	152	mine	IMH	IMH	684259	5609755	850
7R129863	L11-076	AE-08-050	197	200	mine	IMH	IMH	684249	5609739	806
Z110338	L11-077	AE-08-052	146	149	mine	SLD - mod	East SLD	684883	5609734	845
Z110366	L10-159	AE-08-052	220	223	mine	SLD - weak	East SLD	684844	5609692	798
Z110401	L11-078	AE-08-052	318	321	mine	SLD - weak	East SLD	684786	5609639	740
Z110431	L11-079	AE-08-052	402	405	mine	SLD - weak	East SLD	684732	5609592	694
Z110453	L11-080	AE-08-052	464	465.43	mine	SLD - weak	East MAFV	684691	5609559	665
7R97677	L11-081	AE-08-053	48	51	mine	IMH	IMH	684332	5609784	953
7R97771	7R97771	AE-08-053	298	301	mine	MAFV	East SLD	684482	5609705	769
7R97787	7R97787	AE-08-053	346	348	mine	SLD - mod	East SLD	684509	5609690	734
7R97714	L11-082	AE-08-053	149.52	152	mine	SLD - weak	East SLD	684394	5609752	880
Z110733	L10-163	AE-08-054	438	441	mine	SLD - strong	East SLD	685052	5609824	542
Z110931	L10-148	AE-08-055	250	253	mine	IMH	IMH	684960	5609921	781
7R104762	L11-084	AE-08-055	403	406	mine	IMH	IMH	685039	5610012	686
Z110872	L10-147	AE-08-055	85	88	mine	MAFV	East SLD	684889	5609822	892
Z111439	L11-085	AE-08-057	76	79	mine	SLD - weak	East SLD	684829	5609720	899
Z112126	L11-088	AE-08-060	249	252	mine	SLD - weak	East SLD	684908	5609690	723
Z112169	L11-090	AE-08-060	369	372	mine	SLD - weak	East SLD	684942	5609652	615
Z112104	L11-087	AE-08-060	189	192	mine	SLD - weak	East SLD	684890	5609708	778
Z112148	L11-089	AE-08-060	312	315	mine	SLD - weak	East SLD	684926	5609671	666
7R106974	L10-158	AE-08-062	304	307	mine	MAFV	East SVHYB	685005	5609883	651
7R106904	L10-157	AE-08-062	117	120	mine	SVHYB	East SLD	684965	5609849	831
Z113402	L11-094	AE-08-063	447	450	mine	PICR	PICR	684831	5609729	527
Z113271	L11-091	AE-08-063	80	83	mine	SLD - mod	East SLD	684934	5609814	868
Z113300	L11-092	AE-08-063	161	164	mine	SLD - mod	East SLD	684916	5609796	791
Z113349	L11-093	AE-08-063	299	302	mine	SLD - weak	East SLD	684879	5609765	662
7R145773	L11-097	AE-10-064	224.12	227	mine	IMH	IMH	684796	5609991	709
7R145803	L11-098	AE-10-064	300	303	mine	IMH	IMH	684797	5610020	639
7R145822	L11-099	AE-10-064	348	351	mine	IMH	IMH	684798	5610039	595
7R145844	L11-100	AE-10-064	403	406	mine	IMH	IMH	684799	5610061	544
10E15024	L11-101	AE-10-066	77	79.55	mine	SLD - mod	IMH	684943	5609930	879
10E15095	L11-103	AE-10-067	198	201	mine	IMH	IMH	684999	5609921	781
10E15144	10E15144	AE-10-067	325	328	mine	MAFV	East MAFV	685018	5609953	723
10E15068	L11-102	AE-10-067	126	129.1	mine	Unmin. Dyke	East SLD	684978	5609887	841

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E27533	L11-104	AE-10-070	98	100	mine	Unmin. Dyke	East SLD	684758	5610009	821
10E27605	L11-106	AE-10-074	116	117.96	mine	Unmin. Dyke	East SLD	684717	5609925	803
10E27685	L11-107	AE-10-076	214	217	mine	SLD - mod	East SLD	684913	5609744	712
10E27707	L11-108	AE-10-076	274	277	mine	SLD - weak	East SLD	684917	5609753	653
10E27729	L11-109	AE-10-076	328	331	mine	Unmin. Dyke	East SLD	684921	5609761	600
10E13151	L11-111	AE-10-078	98	101	mine	SLD - mod	East SLD	684583	5609677	854
10E13142	10E13142	AE-10-078	74	77	mine	SLD - strong	East SLD	684575	5609661	869
7R97645	7R97645	AE-10-079	314	317	mine	SLD - mod	East SLD	684296	5609805	673
10E27822	L11-112	AE-10-080	115	118	mine	SLD - mod	East SLD	684920	5609746	815
10E27916	L11-114	AE-10-080	351	354	mine	SLD - mod	East SLD	684974	5609810	595
10E27841	L11-113	AE-10-080	166	168.85	mine	SLD - mod	East SLD	684930	5609760	767
10E15629	L11-117	AE-10-082	99	102	mine	IMH	IMH	684572	5610054	878
10E15676	L11-118	AE-10-082	225	228	mine	SLD - strong	East SLD	684575	5610054	752
10E15697	L11-119	AE-10-082	282	285	mine	SLD - strong	East SLD	684576	5610054	695
10E13431	L11-120	AE-10-083	123	126	mine	IMH	IMH	684272	5609795	865
10E13478	L11-121	AE-10-083	250	253	mine	SVHYB	East SVHYB	684251	5609791	740
10E15745	L11-123	AE-10-086	8	11	mine	IMH	IMH	684571	5610053	969
10E15797	L11-124	AE-10-086	149	152	mine	IMH	IMH	684590	5610042	830
10E15888	10E15888	AE-10-086	389	392	mine	SLD - strong	East SLD	684620	5610022	591
10E13607	L11-125	AE-10-087	48.23	51	mine	IMH	IMH	684286	5609807	939
10E13626	L11-126	AE-10-087	99	102	mine	IMH	IMH	684279	5609813	888
10E13664	L11-128	AE-10-087	197.05	200	mine	IMH	IMH	684265	5609823	792
10E13645	L11-127	AE-10-087	147	150	mine	Unmin. Dyke	IMH	684272	5609817	842
10E27113	10E27113	AE-10-089	236	239	mine	SLD - strong	East SLD	684516	5610021	739
10E27137	L11-131	AE-10-089	299	302	mine	SLD - strong	East SLD	684511	5610023	675
10E27156	L11-132	AE-10-089	350	353	mine	SLD - strong	East SLD	684508	5610024	625
10E27073	L11-129	AE-10-089	133	136	mine	Unmin. Dyke	IMH	684524	5610020	842
10E28289	L11-134	AE-10-090	97	100	mine	IMH	East SVHYB	684449	5609936	891
10E28275	10E28275	AE-10-090	60	61.7	mine	SLD - mod	IMH	684449	5609936	930
10E28406	L11-135	AE-10-090	398	401	mine	SLD - mod	East SLD	684447	5609944	592
10E13747	L11-136	AE-10-091	3.05	6	mine	IMH	IMH	684328	5609842	985
10E13764	L11-137	AE-10-091	48	51	mine	IMH	IMH	684328	5609842	940
10E13783	L11-138	AE-10-091	99	102	mine	IMH	IMH	684328	5609841	889
10E13802	L11-139	AE-10-091	150	153	mine	IMH	IMH	684328	5609841	838
10E13858	L11-142	AE-10-091	301	304	mine	SLD - mod	East SLD	684329	5609840	687
10E27183	L11-143	AE-10-092	27	30	mine	IMH	IMH	684504	5609986	950
10E27209	L11-144	AE-10-092	99	101	mine	IMH	IMH	684495	5609990	879
10E27239	L11-145A duplicate	AE-10-092	178	181	mine	IMH	IMH	684484	5609993	800
10E27254	L11-146	AE-10-092	217	220	mine	IMH	East SLD	684479	5609995	761
10E27285	10E27285	AE-10-092	299	302	mine	SLD - strong	East SLD	684469	5609998	680
10E13938	L11-147	AE-10-093	49	52	mine	IMH	IMH	684406	5609853	937
10E45071	L11-148	AE-10-093	398	401	mine	SLD - mod	East SLD	684326	5609908	601
10E27477	L11-149	AE-10-095	394	397	mine	SLD - mod	East SLD	684569	5609953	588
10E45102	L11-150	AE-10-096	24	27	mine	IMH	IMH	684411	5609916	965
10E45129	L11-151	AE-10-096	99	102	mine	IMH	East SVHYB	684403	5609925	891
10E45204	L11-152	AE-10-096	298	301	mine	SLD - strong	East SLD	684377	5609946	695

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E45268	L11-153	AE-10-098	48	51	mine	IMH	IMH	684422	5609912	940
10E14951	L11-155	AE-10-099	98	101	mine	SLD - strong	East SLD	684616	5609629	855
7R49847	L11-159	AM-07-002	78	81	mine	SLD - mod	East SLD	684946	5609618	835
7R49870	L10-167	AM-07-002	131	134	mine	SLD - mod	East SLD	684956	5609634	786
7R49940	L10-168	AM-07-002	315	318	mine	SLD - mod	East SLD	684997	5609692	616
7R49829	L11-158	AM-07-002	27	30	mine	SLD - mod	East SLD	684938	5609603	883
7R49890	L11-160	AM-07-002	182	185.45	mine	SLD - mod	East SLD	684967	5609650	738
7R49908	L11-161	AM-07-002	229	232	mine	SLD - mod	East SLD	684977	5609665	695
7R15556	L11-166	AM-07-003	249	252	mine	SLD - mod	East SLD	685090	5609632	748
7R15521	L10-175	AM-07-003	150	153	mine	SLD - mod	East SLD	685041	5609568	806
7R15485	L11-163	AM-07-003	48	51	mine	SLD - mod	East SLD	684999	5609503	872
7R15503	L11-164	AM-07-003	99	102	mine	SLD - mod	East SLD	685019	5609536	839
7R15538	L11-165	AM-07-003	198	201	mine	SLD - mod	East SLD	685064	5609599	777
7R15575	L11-167	AM-07-003	300	303	mine	SLD - mod	East SLD	685118	5609664	720
7R15602	L10-176	AM-07-003	378	381	mine	SLD - weak	East MAFV	685166	5609712	679
7R15474	L11-162	AM-07-003	15.84	18	mine	SLD - weak	East SLD	684987	5609483	895
7R15589	L11-168	AM-07-003	339	342	mine	SLD - weak	East SLD	685141	5609688	699
7R15758	L11-173	AM-07-004	300.76	303	mine	MAFV	East SLD	685195	5609616	684
7R15703	L10-186	AM-07-004	148	151	mine	SLD - weak	East SLD	685133	5609533	795
7R15653	L11-169	AM-07-004	8	11	mine	SLD - weak	East SLD	685083	5609449	896
7R15668	L11-170	AM-07-004	50	53	mine	SLD - weak	East SLD	685097	5609475	866
7R15722	L11-171	AM-07-004	199	202	mine	SLD - weak	East SLD	685152	5609561	758
7R15740	L11-172	AM-07-004	250	253	mine	SLD - weak	East SLD	685174	5609590	720
7R15684	L10-185	AM-07-004	94	97	mine	Unmin. Dyke	East SLD	685113	5609501	834
7R15952	L10-187	AM-07-005	98	101	mine	SLD - weak	PICR	685044	5609379	833
7R15934	L11-174	AM-07-005	47	50	mine	SLD - weak	East SLD	685063	5609410	869
7R15972	L11-175	AM-07-005	153	156	mine	SLD - weak	PICR	685023	5609347	794
7R16077	L11-177	AM-07-006	122.84	125	mine	PICR	PICR	685046	5609385	797
7R16057	L11-176	AM-07-006	74.45	76.45	mine	SLD - weak	PICR	685059	5609407	838
7R16257	L11-196	AM-07-007	222	225	mine	PICR	PICR	685236	5609500	747
7R16261	L11-197	AM-07-007	234	237	mine	PICR	PICR	685241	5609507	739
7R16265	L11-198	AM-07-007	246	249	mine	PICR	PICR	685246	5609514	731
7R16267	L11-199	AM-07-007	252	255	mine	PICR	PICR	685249	5609518	726
7R16269	L11-200	AM-07-007	258	261	mine	PICR	PICR	685251	5609521	722
7R16232	L11-190	AM-07-007	150	153	mine	SLD - weak	East SLD	685207	5609458	798
7R16181	L11-178	AM-07-007	6	9	mine	SLD - weak	East SLD	685155	5609371	900
7R16186	L11-179	AM-07-007	18	21	mine	SLD - weak	East SLD	685159	5609379	892
7R16190	L11-180	AM-07-007	30	33	mine	SLD - weak	East SLD	685163	5609386	883
7R16194	L11-181	AM-07-007	42	45	mine	SLD - weak	East SLD	685167	5609393	875
7R16198	L11-182	AM-07-007	54	57	mine	SLD - weak	East SLD	685171	5609401	866
7R16202	L11-183	AM-07-007	66	69	mine	SLD - weak	East SLD	685176	5609408	858
7R16206	L11-184	AM-07-007	78	81	mine	SLD - weak	East SLD	685180	5609415	849
7R16210	L11-185	AM-07-007	90	93	mine	SLD - weak	East SLD	685184	5609423	841
7R16215	L11-186	AM-07-007	102	105	mine	SLD - weak	East SLD	685189	5609430	832
7R16219	L11-187	AM-07-007	114	117	mine	SLD - weak	East SLD	685193	5609437	824
7R16224	L11-188	AM-07-007	126	129	mine	SLD - weak	East SLD	685198	5609444	815

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R16240	L11-192	AM-07-007	174	177	mine	SLD - weak	East SLD	685217	5609473	781
7R16245	L11-193	AM-07-007	186	189	mine	SLD - weak	East SLD	685221	5609480	773
7R16249	L11-194	AM-07-007	198	201	mine	SLD - weak	East SLD	685226	5609486	764
7R16253	L11-195	AM-07-007	210	213	mine	SLD - weak	East SLD	685231	5609493	756
7R16462	L11-201	AM-07-008	51	54	mine	SLD - weak	East SLD	685133	5609331	868
7R106422	L10-173	AM-08-009	93	96	mine	SLD - weak	East SLD	684884	5609394	844
7R106397	L11-202	AM-08-009	24.38	27	mine	SLD - weak	OVBN	684908	5609438	891
7R106409	L11-203	AM-08-009	57	60	mine	SLD - weak	East SLD	684897	5609417	868
7R106464	L11-205	AM-08-009	213	216	mine	SLD - weak	East SLD	684837	5609317	765
7R106495	L11-206	AM-08-009	297.15	300	mine	SLD - weak	PICR	684800	5609262	713
7R106433	L11-204	AM-08-009	126	129	mine	Unmin. Dyke	East SLD	684872	5609373	821
7R106512	L11-207	AM-08-010	49	52	mine	SLD - weak	East SLD	684839	5609416	874
7R106567	L11-208	AM-08-010	202	205	mine	SLD - weak	East SLD	684777	5609317	775
7R106600	L11-209	AM-08-010	298	301	mine	SLD - weak	East SLD	684724	5609253	727
7R106643	L11-210	AM-08-011	54	57	mine	SLD - weak	East SLD	684769	5609439	873
7R106670	L11-211	AM-08-011	122	125	mine	SLD - weak	East SLD	684745	5609392	829
7R106716	L11-212	AM-08-011	253	256	mine	SLD - weak	East SLD	684687	5609302	755
Z113194	L10-161	AM-08-012	157	160	mine	SLD - mod	East SLD	684932	5609690	794
Z113213	L11-214	AM-08-012	204.45	207	mine	SLD - mod	East SLD	684952	5609718	761
Z113145	L11-213	AM-08-012	24	27	mine	SLD - weak	East SLD	684885	5609612	891
Z108295	L11-217	AM-08-014	197	200	mine	SLD - mod	East SLD	685285	5609774	778
Z108348	L11-218	AM-08-014	341	344	mine	SLD - weak	East SLD	685362	5609715	672
Z108461	L10-191	AM-08-015	146	149	mine	PICR	PICR	685352	5609741	818
Z108475	L11-219	AM-08-015	180	183	mine	PICR	PICR	685371	5609728	794
Z108493	L11-220	AM-08-015	228	231	mine	SLD - mod	East SLD	685400	5609709	760
Z113416	L11-221	AM-08-015	278	281	mine	SLD - mod	East SLD	685428	5609687	725
Z115088	L11-223	AM-09-019	260	263	mine	SLD - mod	East SLD	685375	5609894	653
Z115188	L11-224	AM-09-021	147	150	mine	PICR	PICR	685426	5609859	785
Z115143	Z115143	AM-09-021	24	27	mine	PICR	PICR	685337	5609924	766
Z113928	Z113928	AM-09-022	163.5	165.6	mine	PICR	East SLD	685273	5609885	803
Z115291	L10-188	AM-09-023	36	39	mine	IMH	PICR	685409	5609951	874
Z114014	L11-225	AM-09-024	82	85	mine	IMH	PICR	685065	5609897	871
Z114034	L11-226	AM-09-024	132.5	135.5	mine	IMH	PICR	685076	5609913	825
Z115425	L11-227	AM-09-025	32	35	mine	PICR	PICR	685430	5609939	888
Z115486	L11-228	AM-09-025	197	200	mine	PICR	PICR	685524	5609884	765
Z114203	L10-164	AM-09-026	112	115	mine	PICR	PICR	685074	5609856	841
Z114179	L11-229	AM-09-026	50.9	54	mine	SLD - mod	PICR	685056	5609866	899
Z114375	L11-230	AM-09-028	49.5	52.5	mine	SLD - mod	East SLD	685099	5609708	864
Z114395	L11-231	AM-09-028	100	103	mine	SLD - mod	East SLD	685099	5609708	813
Z114409	L11-232	AM-09-028	139	142	mine	SLD - mod	East SLD	685099	5609708	774
E211294	L11-235	AM-09-030	62.8	64	mine	SLD - mod	East SLD	685250	5609599	842
E211314	L11-236	AM-09-030	113.5	117.96	mine	SLD - mod	East SLD	685251	5609600	789
E211274	L11-234	AM-09-030	12.5	15.5	mine	SLD - weak	East SLD	685249	5609598	891
E211334	L11-237	AM-09-030	173	176	mine	SLD - weak	East SLD	685252	5609600	731
Z114516	L10-174	AM-09-031	89	92	mine	SLD - mod	East SLD	685131	5609765	850
Z114487	L11-238	AM-09-031	18.5	20.55	mine	SLPH	OVBN	685106	5609722	901

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
Z115653	L10-192	AM-09-032	23.47	26.52	mine	PICR	PICR	685507	5609910	893
Z115681	L11-239	AM-09-032	99.6	102.6	mine	PICR	PICR	685533	5609946	831
Z114705	L10-182	AM-09-033	255	258	mine	MAFV	East SLD	685173	5609720	657
Z114674	L10-180	AM-09-033	175	178	mine	PICR	PICR	685173	5609719	737
Z114643	L11-241	AM-09-033	94.31	97	mine	PICR	PICR	685173	5609718	818
Z114691	L11-242	AM-09-033	217	220	mine	SLD - weak	East SLD	685173	5609719	695
E211571	L11-243	AM-09-034	594	597	mine	SLD - mod	East SLD	685039	5610041	477
E211563	E211563	AM-09-034	573	576	mine	SLD - mod	East SLD	685050	5610031	492
E211408	L10-193	AM-09-035	82.2	85.2	mine	PICR	East SLD	685405	5609722	857
Z114753	L10-178	AM-09-036	109.5	112.5	mine	PICR	PICR	685199	5609774	820
Z114728	L11-244	AM-09-036	44.5	47.5	mine	PICR	PICR	685185	5609741	875
Z114861	L11-246	AM-09-036	391.35	393.3	mine	PICR	East SLD	685262	5609906	580
Z114795	L10-179	AM-09-036	219	222	mine	SLD - mod	East SLD	685223	5609827	728
Z114773	L11-245	AM-09-036	162	165	mine	SLD - mod	East SLD	685211	5609799	776
Z114883	L10-165	AM-10-037	61	64	mine	SLD - mod	East SLD	685022	5609766	865
Z114933	L10-170	AM-10-038	49	52	mine	PICR	East SLD	685116	5609810	884
Z115924	L10-189	AM-10-040	33	36	mine	SLD - mod	East SLD	685275	5609694	881
Z115962	L10-190	AM-10-040	130	133	mine	SLD - mod	East SLD	685272	5609693	784
Z115942	L11-247	AM-10-040	81	84	mine	SLD - mod	PICR	685274	5609693	833
Z116008	Z116008	AM-10-041	103	106	mine	PICR	PICR	685180	5609652	804
Z115974	L11-248	AM-10-041	9.3	14	mine	Unmin. Dyke	East SLD	685182	5609652	897
Z116039	L11-250	AM-10-041	185	188	mine	Unmin. Dyke	East SLD	685179	5609651	722
Z116048	L11-251	AM-10-042	24	27	mine	SLD - mod	East SLD	685134	5609675	885
Z116143	L10-183	AM-10-043	114	117	mine	SLD - mod	East SLD	685252	5609776	817
Z116309	L11-257	AM-10-045	48	51	mine	SLD - weak	East SLD	685257	5609492	852
Z116321	L11-258	AM-10-045	76.65	78.33	mine	SLD - weak	East SLD	685256	5609492	824
Z116323	L11-259	AM-10-046	16	18	mine	MAFV	East SLD	685009	5609667	897
Z116339	L11-260	AM-10-046	58	61	mine	SLD - mod	East SLD	685009	5609668	855
Z116355	L11-261	AM-10-046	100	103	mine	SLD - mod	East SLD	685009	5609669	813
Z116372	L11-262	AM-10-046	145	148	mine	SLD - mod	East SLD	685009	5609671	768
Z116383	L11-263	AM-10-046	174	175.87	mine	SLD - mod	East SLD	685010	5609672	739
Z116399	L11-264	AM-10-047	49	52	mine	SLD - mod	East SLD	684904	5609715	875
Z116442	L11-265	AM-10-048	7.4	10	mine	SLD - mod	East SLD	685099	5609643	898
Z116457	L11-266	AM-10-048	49	52	mine	SLD - mod	East SLD	685099	5609643	856
Z116476	L11-267	AM-10-048	100	103	mine	SLD - mod	East SLD	685098	5609643	805
Z116494	L11-268	AM-10-048	148	151	mine	SLD - mod	East SLD	685098	5609643	757
Z116536	L10-194	AM-10-049	115	118	mine	SLD - mod	East SLD	685342	5609611	830
Z116497	L11-269	AM-10-049	10	13	mine	SLD - weak	East SLD	685291	5609660	905
Z116622	L11-271	AM-10-051	72	75	mine	SLD - weak	East SLD	685349	5609527	831
Z116604	L10-195	AM-10-051	24	27	mine	SLD - weak	East SLD	685350	5609525	879
Z116679	L11-273	AM-10-052	9	12	mine	SLD - mod	East SLD	685364	5609603	899
Z116768	L11-276	AM-10-053	9	12	mine	SVHYB	East SLD	685419	5609503	891
7R146363	L10-209	AM-10-054	35	38	mine	SLD - weak	East SLD	684799	5609508	878
7R146375	L10-210	AM-10-054	68	71	mine	SLD - weak	East SLD	684798	5609523	849
7R146715	L11-279	AM-10-061	425	428	mine	SLD - mod	East SLD	685215	5609925	567
10E11492	L11-280	AM-10-063	6.71	9	mine	SLD - mod	East SLD	685462	5609579	899

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E11507	L11-281	AM-10-063	48	51	mine	SLD - mod	East SLD	685463	5609578	857
10E11526	L11-282	AM-10-063	99	102	mine	SLD - mod	East SLD	685465	5609578	806
10E11559	L11-283	AM-10-064	48	51	mine	SLD - weak	PICR	685611	5609615	858
10E11618	L11-284	AM-10-065	12.19	15	mine	PICR	PICR	685441	5609702	901
10E11634	L11-285	AM-10-065	54	57	mine	PICR	PICR	685466	5609688	872
10E11674	L11-287	AM-10-065	156	159	mine	PICR	PICR	685529	5609653	799
10E11651	L11-286	AM-10-065	97	99.56	mine	SLD - weak	PICR	685493	5609673	841
10E11729	L11-288	AM-10-066	132.8	135	mine	PICR	East SLD	685369	5609796	778
10E11774	L11-290	AM-10-066	248	251	mine	PICR	PICR	685370	5609797	662
10E11751	L11-289	AM-10-066	188	190.25	mine	SLD - mod	PICR	685369	5609796	722
7R146741	L11-292	AM-10-067	50.35	53	mine	SLD - mod	East SLD	685066	5609727	872
7R146727	L11-291	AM-10-067	12.19	15	mine	SLD - mod	East SLD	685058	5609737	908
7R146759	L11-293	AM-10-067	98	101	mine	SLD - mod	East SLD	685077	5609715	826
7R146779	L11-294	AM-10-067	150	153	mine	SLD - mod	East SLD	685088	5609702	778
7R146874	L11-295	AM-10-067	393	396	mine	SLD - weak	East SLD	685141	5609635	551
10E11898	L11-299	AM-10-068	294.7	297.79	mine	MAFV	East SLD	685311	5609833	623
10E11828	L11-296	AM-10-068	112	115	mine	PICR	East SLD	685346	5609808	801
10E11849	L11-297	AM-10-068	168	171	mine	PICR	East SLD	685334	5609815	746
10E11867	L11-298	AM-10-068	216	219	mine	SLD - mod	East SLD	685325	5609821	700
10E12043	L11-303	AM-10-070	104	107	mine	PICR	PICR	685416	5609768	821
10E12009	L11-301	AM-10-070	15	18	mine	SLD - mod	East SLD	685378	5609790	896
10E12025	L11-302	AM-10-070	57	60	mine	SLD - weak	PICR	685396	5609780	861
10E12107	L11-304	AM-10-071	147.55	150	mine	PICR	PICR	685459	5609743	804
10E12238	L11-305	AM-10-073	228	231	mine	PICR	PICR	685515	5609828	696
10E12318	L11-306	AM-10-074	99	102	mine	MAFV	PICR	685283	5609960	828
10E12407	L11-307	AM-10-075	4	7	mine	IMH	IMH	685279	5609963	923
10E12433	L11-308	AM-10-075	73	76	mine	IMH	IMH	685245	5609985	867
10E12458	L11-309	AM-10-075	142	145	mine	IMH	IMH	685211	5610005	811
10E12471	L11-310	AM-10-075	175	178	mine	IMH	IMH	685196	5610017	784
10E12495	L11-311	AM-10-075	240.04	243	mine	IMH	IMH	685167	5610038	730
10E12546	L11-312	AM-10-075	373	376	mine	MAFV	East MAFV	685111	5610087	619
10E12575	L11-313	AM-10-075	447	450	mine	MAFV	East SLD	685081	5610116	558
10E12631	L11-314	AM-10-076	69	72	mine	IMH	IMH	685262	5609972	863
10E12656	L11-315	AM-10-076	138	141	mine	IMH	East MAFV	685244	5609985	797
10E12801	L11-317	AM-10-077	60	63	mine	IMH	IMH	685249	5609947	886
10E12831	L11-318	AM-10-077	140	142	mine	IMH	IMH	685198	5609925	829
10E12899	L11-320	AM-10-078	122	125	mine	IMH	PICR	685230	5609946	823
10E15502	10E15502	AM-10-079	347	350	mine	PICR	PICR	685065	5609916	734
10E43273	L11-321	AM-10-085	39	42	mine	IMH	IMH	685297	5609989	892
10E43297	L11-322	AM-10-085	105	108	mine	IMH	IMH	685282	5609998	828
10E43315	L11-323	AM-10-085	151	154	mine	PICR	PICR	685272	5610004	783
10E43447	L11-324	AM-10-086	102	105	mine	IMH	IMH	685261	5610011	842
10E43522	L11-325	AM-10-086	302	305	mine	MAFV	East MAFV	685175	5610077	674
10E28897	10E28897	AM-11-087	32	35	mine	IMH	IMH	685265	5610483	915
10E28888	10E28888	AM-11-087	8	11	mine	IMH	OVBN	685274	5610498	932
10E28891	10E28891	AM-11-087	14	17	mine	IMH	IMH	685272	5610495	928

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E28893	10E28893	AM-11-087	20	23	mine	IMH	IMH	685269	5610491	924
10E28895	10E28895	AM-11-087	26	29	mine	IMH	IMH	685267	5610487	919
10E28899	10E28899	AM-11-087	38	41	mine	IMH	IMH	685263	5610480	911
10E28902	10E28902	AM-11-087	44	47	mine	IMH	IMH	685261	5610476	907
10E28904	10E28904	AM-11-087	50	53	mine	IMH	IMH	685259	5610473	902
10E28906	10E28906	AM-11-087	56	59	mine	IMH	IMH	685256	5610469	897
10E28908	10E28908	AM-11-087	62	65	mine	IMH	IMH	685255	5610465	894
10E28911	10E28911	AM-11-087	68	71	mine	IMH	IMH	685252	5610462	890
10E28913	10E28913	AM-11-087	74	76.53	mine	IMH	IMH	685250	5610458	885
10E28915	10E28915	AM-11-087	79	82	mine	IMH	IMH	685248	5610455	882
10E28917	10E28917	AM-11-087	86	88.66	mine	IMH	IMH	685246	5610451	877
10E28919	10E28919	AM-11-087	91	94	mine	IMH	IMH	685244	5610448	873
10E28922	10E28922	AM-11-087	97	100	mine	IMH	IMH	685242	5610444	869
10E28924	10E28924	AM-11-087	103	106	mine	IMH	IMH	685239	5610440	864
10E28926	10E28926	AM-11-087	109	112	mine	IMH	IMH	685237	5610437	860
10E28928	10E28928	AM-11-087	115	118	mine	IMH	IMH	685235	5610434	856
10E28931	10E28931	AM-11-087	121	124	mine	IMH	IMH	685233	5610430	852
10E28933	10E28933	AM-11-087	127	130	mine	IMH	IMH	685231	5610427	848
10E28935	10E28935	AM-11-087	133	136	mine	IMH	IMH	685228	5610423	843
10E28937	10E28937	AM-11-087	139	142	mine	IMH	IMH	685226	5610420	839
10E28939	10E28939	AM-11-087	145	148	mine	IMH	IMH	685224	5610416	835
10E28942	10E28942	AM-11-087	151	154	mine	IMH	IMH	685221	5610413	830
10E28944	10E28944	AM-11-087	157	160	mine	IMH	IMH	685219	5610409	826
10E28946	10E28946	AM-11-087	163	166	mine	IMH	IMH	685216	5610406	822
10E28948	10E28948	AM-11-087	169	172	mine	IMH	IMH	685214	5610402	818
10E28951	10E28951	AM-11-087	175	178	mine	IMH	IMH	685212	5610399	813
10E28953	10E28953	AM-11-087	181	184	mine	IMH	IMH	685209	5610395	808
10E28955	10E28955	AM-11-087	187	190	mine	IMH	IMH	685207	5610392	805
10E28957	10E28957	AM-11-087	193	196	mine	IMH	IMH	685204	5610389	800
10E28959	10E28959	AM-11-087	199	202	mine	IMH	IMH	685202	5610385	796
10E28962	10E28962	AM-11-087	205	208	mine	IMH	IMH	685199	5610382	792
10E28964	10E28964	AM-11-087	211	214	mine	IMH	IMH	685197	5610379	787
10E28966	10E28966	AM-11-087	217	220	mine	IMH	IMH	685194	5610375	782
10E28968	10E28968	AM-11-087	223	226	mine	IMH	IMH	685192	5610372	779
10E28971	10E28971	AM-11-087	229	232	mine	IMH	IMH	685189	5610369	775
10E28973	10E28973	AM-11-087	235	238	mine	IMH	IMH	685186	5610365	770
10E28975	10E28975	AM-11-087	241	244	mine	IMH	IMH	685184	5610362	766
10E28977	10E28977	AM-11-087	247	249.02	mine	IMH	IMH	685181	5610359	762
7R92101	L11-329	AN-07-001	291	294	mine	SLD - mod	East SLD	684877	5609778	703
7R92027	L11-326	AN-07-001	81	84	mine	SLD - weak	East SLD	684798	5609656	855
7R92069	L11-327	AN-07-001	201	204	mine	SLD - weak	East SLD	684841	5609727	769
7R92085	L11-328	AN-07-001	246	249	mine	SLD - weak	East SLD	684858	5609753	736
7R96029	L10-069	AN-07-002	91	94	mine	IMH	IMH	684109	5609633	860
7R96074	L10-071	AN-07-003	127	130	mine	IMH	IMH	684079	5609580	800
7R96150	L10-073	AN-07-003	343	346	mine	SLD - mod	East SLD	684075	5609590	584
7R96097	7R96097	AN-07-003	190	193	mine	SLD - mod	East SLD	684077	5609583	737

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R96100	L10-072	AN-07-003	199	202	mine	SLD - strong	East SLD	684077	5609583	728
7Z103593	L11-330	AN-07-004	449	452	mine	SLD - weak	East SLD	684783	5609812	573
7R128076	L10-085	AN-07-005	214	217	mine	IMH	East SLD	684238	5609658	770
7R128054	L11-331	AN-07-005	150	153	mine	SLD - mod	East SLD	684213	5609619	814
7R92250	L10-149	AN-07-006	99	102	mine	MAFV	East MAFV	684792	5609643	823
7Z104354	L10-150	AN-07-006	249	252	mine	Unmin. Dyke	East SLD	684828	5609699	689
7Z104450	L10-152	AN-07-006	516	519	mine	Unmin. Dyke	PICR	684908	5609784	449
7R94158	L10-140	AN-07-007	229	232	mine	SLD - weak	East SLD	684680	5609637	701
7R92376	L11-334	AN-07-010	213	216	mine	SLD - weak	East SLD	684768	5609603	699
7R92329	L11-332	AN-07-010	81	84	mine	Unmin. Dyke	East SLD	684769	5609604	831
7R92354	L11-333	AN-07-010	150	153	mine	Unmin. Dyke	East SLD	684768	5609604	762
7R94280	L11-335	AN-07-011	214	217	mine	SLD - weak	East SLD	684629	5609557	696
7R128331	L11-338	AN-07-012	433	436	mine	MAFV	East MAFV	684244	5609643	513
7R128276	L11-337	AN-07-012	280	283	mine	SLD - mod	East SLD	684212	5609606	657
7R92544	L11-340	AN-07-013	239	242	mine	MAFV	East MAFV	684681	5609456	745
7R92525	L10-153	AN-07-013	190	193	mine	SLD - weak	East SLD	684698	5609488	780
7R92473	L11-339	AN-07-013	52	55	mine	SLD - weak	East SLD	684750	5609572	876
7R94422	L10-138	AN-07-014	173	176	mine	PICR	PICR	684575	5609445	784
7Z105528	L11-343	AN-07-015	333	336	mine	MAFV	West MAFV	683965	5609380	686
7Z105546	L11-344	AN-07-015	374.59	377	mine	PICR	West MAFV	683945	5609357	658
7Z105444	L11-342	AN-07-015	99	102	mine	SLD - mod	East SLD	684057	5609515	853
7R92615	L11-345	AN-07-016	124	127	mine	SLD - weak	East SLD	684740	5609554	801
7R92632	L11-346	AN-07-016	175	178	mine	SLD - weak	East SLD	684727	5609535	755
7R92655	L11-347	AN-07-016	226.5	229	mine	SLD - weak	East SLD	684715	5609517	710
7R92673	L11-348	AN-07-016	273	276	mine	SLD - weak	East SLD	684703	5609500	668
7Z103696	L10-088	AN-07-017	143	146	mine	SLD - mod	East SLD	684104	5609437	821
7R94566	L11-349	AN-07-018	199.15	202	mine	SLD - mod	East SLD	684591	5609483	727
Z110017	L11-350	AN-08-021	208	211	mine	SLD - weak	East SLD	684124	5609466	724
7R96230	L11-351	AN-08-022	50	53	mine	IMH	IMH	684139	5609591	891
7R96246	L11-352	AN-08-022	93	95	mine	IMH	IMH	684155	5609617	861
7R91888	L11-355	AN-08-023	149	152	mine	MAFV	East SLD	684709	5609613	774
7R91844	L11-353	AN-08-023	24	27	mine	SLD - mod	East SLD	684689	5609564	888
7R91930	L11-357	AN-08-023	264	267	mine	SLD - weak	East SLD	684726	5609655	669
7R91964	L11-358	AN-08-023	350	353	mine	SLD - weak	East SLD	684741	5609686	588
7R91907	L11-356	AN-08-023	199	201	mine	SVHYB	East SLD	684717	5609632	729
7R130766	L11-359	AN-08-024	149	152	mine	SLD - mod	East SLD	684275	5609642	820
7R94821	L11-360	AN-08-025	272.83	275.83	mine	Unmin. Dyke	East SLD	684609	5609584	666
7R96273	L10-077	AN-08-026	75	78	mine	IMH	IMH	684134	5609584	856
7R96305	L10-078	AN-08-026	154	157	mine	SLD - mod	East SLD	684150	5609608	782
7R92820	L10-146	AN-08-027	261	264	mine	PICR	East MAFV	684682	5609551	648
7R92773	L10-145	AN-08-027	133	136	mine	SLD - weak	East SLD	684683	5609553	776
7R92805	L11-363	AN-08-027	220	223	mine	SLD - weak	East SLD	684682	5609552	689
7R92791	L11-362	AN-08-027	183	186	mine	SLD - weak	East MAFV	684682	5609552	726
7R94973	L11-364	AN-08-028	272	275	mine	SLD - weak	East SLD	684539	5609491	640
7R96524	L10-079	AN-08-029	165	168	mine	SLD - mod	East MAFV	684122	5609560	760
7R96600	L10-080	AN-08-029	370	373	mine	Unmin. Dyke	East SLD	684122	5609560	555

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R92933	L11-365	AN-08-030	201.5	204	mine	SLD - weak	East SLD	684610	5609425	770
7R128868	L11-366	AN-08-031	48	51	mine	SLD - mod	East SLD	684237	5609565	883
7R128467	L11-367	AN-08-031	312.55	315	mine	SLD - mod	East SLD	684300	5609652	641
7R95038	L11-368	AN-08-032	159	162	mine	SLD - mod	East SLD	684510	5609436	766
7R93062	7R93062	AN-08-033	173	176	mine	MAFV	East MAFV	684648	5609484	754
7R93137	SL-02	AN-08-034	14	17	mine	SLD - mod	East SLD	684443	5609518	909
7R93141	SL-04	AN-08-034	26	29	mine	SLD - mod	East SLD	684448	5609525	900
7R93143	SL-05	AN-08-034	32	35	mine	SLD - mod	East SLD	684450	5609529	896
7R93152	SL-09	AN-08-034	56	59	mine	SLD - mod	East SLD	684460	5609543	879
7R93154	SL-10	AN-08-034	62	65	mine	SLD - mod	East SLD	684463	5609546	875
7R93158	SL-12	AN-08-034	74	77	mine	SLD - mod	East SLD	684468	5609553	866
7R93160	SL-13	AN-08-034	80	83	mine	SLD - mod	East SLD	684470	5609557	862
7R93162	SL-14	AN-08-034	86	89	mine	SLD - mod	East SLD	684473	5609560	858
7R93173	SL-19	AN-08-034	116	119	mine	SLD - mod	East SLD	684485	5609577	837
7R93186	SL-23	AN-08-034	149	152	mine	SLD - mod	East SLD	684499	5609596	814
7R93187	SL-24	AN-08-034	152	155	mine	SLD - mod	East SLD	684501	5609597	811
7R93188	SL-25	AN-08-034	155	158	mine	SLD - mod	East SLD	684502	5609599	809
7R93189	SL-26	AN-08-034	158	161	mine	SLD - mod	East SLD	684503	5609601	807
7R93190	SL-27	AN-08-034	161	164	mine	SLD - mod	East SLD	684505	5609602	805
7R93191	SL-28	AN-08-034	164	167	mine	SLD - mod	East SLD	684506	5609604	803
7R93192	SL-29	AN-08-034	167	170	mine	SLD - mod	East SLD	684507	5609606	800
7R93207	SL-30	AN-08-034	205.6	208	mine	SLD - mod	East SLD	684524	5609627	773
7R93208	SL-31	AN-08-034	208	211	mine	SLD - mod	East SLD	684525	5609628	771
7R93209	SL-32	AN-08-034	211	214	mine	SLD - mod	East SLD	684526	5609630	769
7R93210	SL-33	AN-08-034	214	217	mine	SLD - mod	East SLD	684528	5609631	767
7R93211	SL-34	AN-08-034	217	220	mine	SLD - mod	East SLD	684529	5609633	765
7R93212	SL-35	AN-08-034	220	223	mine	SLD - mod	East SLD	684530	5609634	763
7R93226	SL-36	AN-08-034	255.3	258	mine	SLD - mod	East SLD	684545	5609653	737
7R93228	SL-37	AN-08-034	261	264	mine	SLD - mod	East SLD	684548	5609657	733
7R93232	SL-39	AN-08-034	273	276	mine	SLD - mod	East SLD	684553	5609663	724
7R93234	SL-40	AN-08-034	279	282	mine	SLD - mod	East SLD	684556	5609666	720
7R93239	SL-42	AN-08-034	291	294	mine	SLD - mod	East SLD	684561	5609673	711
7R93241	SL-43	AN-08-034	297	300	mine	SLD - mod	East SLD	684564	5609676	707
Z111601	SL-44	AN-08-034	303	306	mine	SLD - mod	East SLD	684566	5609679	703
Z111603	SL-45	AN-08-034	309	312	mine	SLD - mod	East SLD	684569	5609682	698
Z111609	SL-48	AN-08-034	327	330	mine	SLD - mod	East SLD	684577	5609691	685
Z111611	SL-49	AN-08-034	333	336	mine	SLD - mod	East SLD	684580	5609695	681
Z111634	SL-56	AN-08-034	396	399	mine	SLD - weak	East SLD	684609	5609726	635
Z111636	SL-57	AN-08-034	402	405	mine	SLD - weak	East SLD	684611	5609729	631
Z111642	SL-60	AN-08-034	420	423	mine	SLD - weak	East SLD	684620	5609738	618
Z111663	SL-70	AN-08-034	480	483	mine	SLD - weak	East SLD	684651	5609768	575
Z111665	SL-71	AN-08-034	486	489	mine	SLD - weak	East SLD	684654	5609771	571
Z111667	SL-72	AN-08-034	492	494	mine	SLD - weak	East SLD	684657	5609773	567
7R128646	L10-096	AN-08-036	335	338	mine	SLD - mod	East SLD	684222	5609551	591
7R128566	L10-095	AN-08-036	121	124	mine	SLD - strong	East SLD	684226	5609549	805
7R95234	L10-125	AN-08-038	279	282	mine	MAFV	East SLD	684599	5609672	711

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R95197	L11-373	AN-08-038	174	177	mine	SLD - mod	East SLD	684558	5609616	789
7R95161	L11-371	AN-08-038	72	75	mine	SLD - mod	East SLD	684519	5609558	865
7R95179	L11-372	AN-08-038	123	126	mine	SLD - mod	East SLD	684539	5609587	828
Z110128	L11-374	AN-08-039	297	299	mine	MAFV	East MAFV	684101	5609367	726
7R95363	L11-375	AN-08-041	364	367	mine	SLD - weak	East SLD	684573	5609647	587
7R96683	L11-376	AN-08-042	12.19	17.37	mine	MAFV	OVBN	684115	5609547	915
Z111269	L11-377	AN-08-042	300	303	mine	MAFV	West MAFV	683991	5609376	724
Z111204	L10-081	AN-08-042	118	121	mine	SLD - weak	East SLD	684076	5609484	844
Z110153	L11-378	AN-08-043	323	325.95	mine	Unmin. Dyke	PICR	684150	5609434	632
7R93492	L11-379	AN-08-044	174	177	mine	SLD - mod	East SLD	684437	5609506	744
7R96717	L10-100	AN-08-046	71	74	mine	IMH	East SLD	684357	5609682	893
7R96770	L10-102	AN-08-046	216	219	mine	SLD - mod	East SLD	684412	5609776	797
7R93638	L10-123	AN-08-047	170	173	mine	SLD - weak	East SLD	684370	5609411	797
7R93657	L11-380	AN-08-047	220	223	mine	SLPH	PICR	684350	5609384	760
7R95606	L11-382	AN-08-049	148	151	mine	SLD - weak	East SLD	684441	5609421	811
7R95625	L10-126	AN-08-049	201	204	mine	SLPH	East SLD	684422	5609391	773
7R93808	L11-383	AN-08-050	199	202	mine	SLD - weak	East SLD	684390	5609440	738
7R93884	L10-108	AN-08-051	73	75	mine	MAFV	East SLD	684351	5609563	872
7R93976	L11-385	AN-08-051	322	325	mine	SLD - strong	East SLD	684439	5609710	690
7R93954	L10-110	AN-08-051	262	265	mine	SLD - strong	East SLD	684417	5609676	735
7R96811	L11-387	AN-08-053	33	36	mine	IMH	IMH	684402	5609661	918
7R96826	L11-388	AN-08-053	74	77	mine	SLD - weak	East SLD	684417	5609687	888
7R129226	L10-103	AN-08-054	299	302	mine	SLD - mod	East SLD	684348	5609655	659
7R95872	L11-390	AN-08-055	192.65	195	mine	SLD - mod	East SLD	684453	5609641	783
Z108571	L11-391	AN-08-055	312	315	mine	SLD - mod	East SLD	684494	5609707	693
7R95890	L10-114	AN-08-055	240	243	mine	SLD - strong	East SLD	684469	5609667	747
7R130170	L11-392	AN-08-056	430	433	mine	SLD - weak	East SLD	684436	5609660	533
7R95907	L11-393	AN-08-057	22.3	25	mine	MAFV	East SLD	684392	5609536	906
7R103852	L11-397	AN-08-057	400	403	mine	MAFV	East SLD	684462	5609673	561
7R103808	L11-396	AN-08-057	283	286	mine	SLD - mod	East SLD	684441	5609631	668
7R95975	L11-395	AN-08-057	197	200	mine	SLD - strong	East SLD	684425	5609601	746
7R95937	L11-394	AN-08-057	97	100	mine	Unmin. Dyke	East SLD	684406	5609564	838
7R130302	L10-111	AN-08-058	292	295	mine	SLD - mod	East SLD	684323	5609519	631
7R130426	L11-398	AN-08-060	179	182	mine	Unmin. Dyke	East SLD	684256	5609410	793
7R129409	L11-400	AN-08-061	297	300	mine	SLPH	East SLD	684273	5609537	626
7R130565	L11-402	AN-08-062	222	225	mine	SLD - mod	East SLD	684271	5609437	721
7R130514	L11-401	AN-08-062	78	81	mine	SLD - strong	East SLD	684306	5609486	852
7R130583	L11-403	AN-08-062	269	271.14	mine	Unmin. Dyke	East SLD	684260	5609422	679
7R130901	L11-406	AN-08-064	99	102	mine	Unmin. Dyke	East SLD	684281	5609467	843
7R104095	L11-407	AN-08-065	225	228	mine	PICR	East SLD	684312	5609396	764
7R129569	L11-409	AN-08-067	324	327	mine	PICR	PICR	684139	5609343	703
7R129512	L11-408	AN-08-067	170	173	mine	SLD - strong	East SLD	684214	5609431	806
7R104217	L10-116	AN-08-068	130	133	mine	SLD - mod	East SLD	684364	5609482	809
7R129667	L10-105	AN-08-069	235	238	mine	SLD - mod	East SLD	684222	5609452	712
7R129621	L10-104	AN-08-069	117	120	mine	Unmin. Dyke	East SLD	684252	5609492	819
7R131347	L11-410	AN-08-070	399	402	mine	SLD - mod	East SLD	684253	5609611	558

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R129763	L11-411	AN-08-072	49	52	mine	SLD - strong	East SLD	684457	5609658	903
7R97301	L11-412	AN-08-073	48	51	mine	IMH	East SLD	684377	5609651	897
7R97391	L10-094	AN-08-073	285	288	mine	SLD - strong	East SLD	684309	5609699	675
7R97303	7R97303	AN-08-073	53.45	56	mine	SLD - strong	East SLD	684376	5609652	892
7R105090	L10-154	AN-08-074	74	77	mine	SLD - weak	East SLD	684674	5609424	860
7R146878	L10-206	AN-10-075	19	22	mine	PICR	PICR	684610	5609397	868
10E14763	L11-413	AN-10-077	48	51	mine	PICR	PICR	684549	5609397	856
10E14792	L11-414	AN-10-077	124	127	mine	PICR	East SLD	684525	5609350	800
10E43198	L11-415	AN-10-079	45	48	mine	PICR	PICR	684626	5609336	861
10E43219	L11-416	AN-10-079	99	102	mine	PICR	East SLD	684605	5609305	822
10E14861	L11-417	AN-10-080	48	51	mine	PICR	PICR	684599	5609380	858
10E14877	L11-418	AN-10-080	92	95	mine	PICR	East SLD	684584	5609353	825
10E14896	L11-419	AN-10-080	140	142.34	mine	PICR	East SLD	684565	5609327	790
10E43235	L11-420	AN-10-081	48	51	mine	PICR	PICR	684626	5609423	850
E65802	L11-421	AW-05-001	73	76	mine	MAFV	West MAFV	683530	5609428	843
E65820	L11-422	AW-05-001	124	127	mine	PICR	PICR	683546	5609455	803
E66201	L-AW-003-2	AW-05-003	120.15	123.15	mine	PICR	West MAFV	683574	5609418	806
E66368	L-AW-004-2	AW-05-004	108	111	mine	MAFV	West SLD	683501	5609558	821
E66355	L-AW-004-1	AW-05-004	72	75	mine	PICR	West SLD	683489	5609539	849
E66394	L-AW-004-3	AW-05-004	183	186	mine	SLD - mod	West SLD	683527	5609598	762
E118701	L11-425	AW-06-006	93	96	mine	MAFV	PICR	683495	5609447	825
E118937	L11-427	AW-06-007	130	133	mine	MAFV	West SLD	683467	5609601	805
E119328	L10-042	AW-06-009	426	429	mine	MAFV	PXPP	683744	5609566	485
E119187	L-AW-009-1	AW-06-009	27	30	mine	MAFV	West SLD	683670	5609458	861
E119198	L-AW-009-2	AW-06-009	57	60	mine	MAFV	West SLD	683675	5609467	833
E121011	L11-429	AW-06-010	49	52	mine	MAFV	West SLD	683582	5609503	862
E121001	L11-428	AW-06-010	19.4	22.4	mine	PICR	West SLD	683573	5609485	884
E121035	L10-034	AW-06-010	115	118	mine	SLD - mod	West SLD	683605	5609544	814
E119551	L10-037	AW-06-012	481	484	mine	MAFV	PXPP	683766	5609649	515
E119390	L-AW-012-1	AW-06-012	28	31	mine	PICR	PICR	683602	5609432	877
E119400	L-AW-012-2	AW-06-012	55	58	mine	PICR	PICR	683610	5609446	856
E119657	L11-434	AW-06-014	313	316	mine	MAFV	PXPP	683612	5609443	587
E119576	L11-431	AW-06-014	86	89	mine	PICR	PICR	683598	5609424	813
E119628	L11-432	AW-06-014	229	232	mine	PICR	PICR	683607	5609437	671
E119641	L11-433	AW-06-014	268	271	mine	PICR	West SLD	683610	5609440	632
E121360	L-AW-015-1	AW-06-015	54	57	mine	PICR	PICR	683707	5609421	861
E121370	L-AW-015-2	AW-06-015	84	87	mine	PICR	West SLD	683716	5609440	839
E119771	L11-435	AW-06-016	109	112	mine	SLD - mod	West SLD	683719	5609427	802
E119893	L11-436	AW-06-016	457	460	mine	SLD - mod	PXPP	683807	5609537	483
E119934	L10-046	AW-06-017	75	78	mine	PICR	West SLD	683765	5609419	847
E120177	L11-437	AW-06-018	448	451	mine	MAFV	PXPP	683847	5609522	491
E120301	L11-439	AW-06-019	372	375	mine	SLD - mod	West SLD	683771	5609433	533
E120222	L10-049	AW-06-019	147	150	mine	SLD - mod	West SLD	683754	5609394	754
E120249	L11-438	AW-06-019	222	225	mine	SLD - mod	West SLD	683760	5609407	681
E120352	L-AW-020-1	AW-06-020	60	63	mine	PICR	West SLD	683467	5609502	784
E120353	L-AW-020-2	AW-06-020	139	142	mine	PICR	West SLD	683468	5609503	781

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
E120891	L-AW-023-4	AW-06-023	452	455	mine	MAFV	West MAFV	683916	5609548	521
E120748	L-AW-023-1	AW-06-023	49	52	mine	PICR	PICR	683792	5609367	851
E120820	L11-441	AW-06-023	251	254	mine	SLD - mod	West SLD	683846	5609457	686
E120804	L-AW-023-2	AW-06-023	207	210	mine	SLD - mod	West SLD	683833	5609437	722
E140116	L10-050	AW-06-024	195	198	mine	SLD - mod	PICR	683803	5609384	710
E140178	L11-442	AW-06-024	372	375	mine	SLD - mod	PICR	683826	5609420	538
E138438	L11-443	AW-06-025	132	135	mine	IMH	IMH	683601	5609740	807
E138472	L11-444	AW-06-025	231	234	mine	IMH	IMH	683568	5609698	724
E138414	L-AW-025-1	AW-06-025	66	69	mine	IMH	IMH	683622	5609770	863
E138456	L-AW-025-2	AW-06-025	183	186	mine	IMH	IMH	683585	5609718	765
E140304	L11-445	AW-06-026	228	231	mine	SLD - strong	West SLD	683905	5609462	737
E140362	L11-446	AW-06-026	393	396	mine	SLD - weak	West SLD	683975	5609571	635
E138628	L11-447	AW-06-027	6	9	mine	IMH	IMH	683641	5609803	912
E138648	L11-448	AW-06-027	60	63	mine	IMH	IMH	683637	5609798	858
E138710	L11-450	AW-06-027	237	240	mine	IMH	IMH	683625	5609783	681
E138730	L10-019	AW-06-027	294	297	mine	SLD - weak	IMH	683621	5609779	624
E140539	L11-451	AW-06-028	472	475	mine	MAFV	West MAFV	683973	5609487	484
E140546	L10-066	AW-06-029	45	48	mine	MAFV	West SLD	683887	5609330	864
E140596	L10-067	AW-06-029	186	189	mine	SLD - strong	West SLD	683937	5609412	761
E138864	L10-029	AW-06-030	69	72	mine	IMH	IMH	683712	5609746	849
E138906	L10-030	AW-06-030	189	192	mine	IMH	IMH	683707	5609739	729
E138841	L11-452	AW-06-030	6	9	mine	IMH	IMH	683714	5609750	912
E138878	L11-453	AW-06-030	108	111	mine	IMH	IMH	683710	5609744	810
E138931	L10-031	AW-06-030	258	261	mine	SLD - weak	West SVHYB	683705	5609734	660
E138925	L11-454	AW-06-030	243	246	mine	SLD - weak	IMH	683705	5609735	676
E140714	L10-068	AW-06-031	150	153	mine	PICR	PICR	683894	5609349	756
E139196	L11-456	AW-06-033	108	111	mine	MAFV	West SLD	683549	5609540	819
E139161	L11-455	AW-06-033	9	12	mine	PICR	West SLD	683515	5609484	894
E139173	L10-024	AW-06-033	42	45	mine	SLD - mod	West SLD	683526	5609503	869
E168619	L11-458	AW-06-036	323	326	mine	SLD - weak	East SLD	684074	5609422	604
E168644	L10-082	AW-06-038	83	86	mine	PICR	PICR	683977	5609269	826
E168651	L10-083	AW-06-038	104	107	mine	PICR	PICR	683976	5609258	808
E168678	L11-459	AW-06-038	182	185	mine	PICR	PICR	683971	5609218	741
E139645	L11-460	AW-06-039	75	78	mine	PICR	PICR	683437	5609550	833
E139915	L10-006	AW-06-040	217	220	mine	IMH	IMH	683459	5609682	744
E139962	L10-008	AW-06-040	349	352	mine	IMH	IMH	683507	5609755	645
E139904	L11-462	AW-06-040	184	187	mine	IMH	West SVHYB	683447	5609664	769
E139938	L10-007	AW-06-040	280	283	mine	SLD - mod	IMH	683482	5609716	697
E140028	L10-009	AW-06-041	84	87	mine	PICR	PICR	683405	5609588	830
E140041	L11-463	AW-06-041	120	123	mine	PICR	IMH	683416	5609602	797
G9428	L10-003	AW-07-043	266	269	mine	IMH	IMH	683445	5609745	724
G9399	L11-464	AW-07-043	182	185	mine	IMH	IMH	683425	5609683	777
G9413	L11-465	AW-07-043	221	224	mine	IMH	IMH	683435	5609712	753
G9499	L11-467	AW-07-045	250	253	mine	IMH	IMH	683435	5609677	690
G9512	G9512	AW-07-045	289	292	mine	SLD - weak	IMH	683445	5609695	657
G9452	L11-466	AW-07-045	118	121	mine	SLD - weak	West MAFV	683404	5609615	801

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
G9515	L11-468	AW-07-045	298	301	mine	SLD - weak	IMH	683447	5609699	649
G9607	L10-004	AW-07-046	251	254	mine	IMH	IMH	683380	5609622	661
G9597	L11-470	AW-07-046	224	227	mine	IMH	IMH	683379	5609615	688
G9626	L11-471	AW-07-046	305	308	mine	IMH	West SVHYB	683383	5609634	609
G9557	L11-469	AW-07-046	110	113	mine	PICR	PICR	683378	5609587	798
G9919	L11-472	AW-07-048	297	300	mine	MAFV	West MAFV	683990	5609400	628
G9941	L11-473	AW-07-048	360	363	mine	MAFV	West MAFV	684009	5609421	571
G9987	L11-474	AW-07-049	41	44	mine	PICR	PICR	683924	5609297	855
G10021	L11-475	AW-07-049	137	140	mine	PICR	PICR	683928	5609304	760
G10039	L11-476	AW-07-049	188	191	mine	PICR	PICR	683930	5609307	709
G10097	L10-089	AW-07-050	191	194	mine	PICR	East SLD	684106	5609411	750
7R12174	L11-477	AW-07-052	274	277	mine	PICR	PICR	684071	5609350	629
7R12112	L10-090	AW-07-052	100	103	mine	SLD - weak	East MAFV	684050	5609320	797
7R12239	L11-478	AW-07-055	99	102	mine	SLD - weak	East MAFV	684135	5609374	803
7R12394	L11-479	AW-07-056	189	192	mine	PICR	PICR	684089	5609303	727
7R12364	L10-097	AW-07-056	105	108	mine	SLD - weak	East MAFV	684108	5609328	803
7R12485	L11-480	AW-07-057	49	52	mine	PICR	PICR	683827	5609324	849
7R12536	L11-481	AW-07-057	190	193	mine	PICR	PICR	683831	5609333	709
7R12509	L10-062	AW-07-057	115	118	mine	SLD - weak	West MAFV	683829	5609328	783
7R12496	7R12496	AW-07-057	76	79	mine	SLD - weak	PICR	683828	5609326	822
7R12573	L11-482	AW-07-057	291	294	mine	SLD - weak	PICR	683834	5609339	607
7R12629	L11-483	AW-07-058	86	89	mine	MAFV	PICR	683697	5609401	814
7R12672	L10-045	AW-07-058	209	212	mine	PICR	West SLD	683708	5609423	694
7R12655	L10-044	AW-07-058	161	164	mine	SLD - weak	West SLD	683704	5609415	740
7R12712	L11-484	AW-07-058	323	326	mine	SLD - weak	West SLD	683720	5609442	583
7R12874	L11-486	AW-07-059	248	251	mine	PICR	PICR	683673	5609448	656
7R13012	L11-487	AW-07-060	98	101	mine	MAFV	West SLD	683448	5609459	807
L14-001	L14-001	AW-07-065	52	54	mine	PICR	PICR	683602	5609321	785
L14-002	L14-002	AW-07-065	115	117	mine	PICR	PICR	683602	5609321	785
L14-003	L14-003	AW-07-065	188	190	mine	PICR	PICR	683602	5609321	785
7R14266	L10-060	AW-07-069	102.8	105.8	mine	SLD - strong	West SVHYB	683929	5609510	791
7R14327	L10-061	AW-07-069	272	275	mine	SVHYB	West SLD	684002	5609617	683
7R14284	L11-493	AW-07-069	151	154	mine	SVHYB	West SVHYB	683948	5609541	760
7R14413	L10-052	AW-07-070	228	231	mine	IMH	IMH	683933	5609605	711
7R14435	L10-053	AW-07-070	291	294	mine	IMH	West SLD	683962	5609644	672
7R14404	L10-051	AW-07-070	201	204	mine	SLD - mod	West SLD	683920	5609587	728
7R16757	L10-023	AW-07-072	171	174	mine	IMH	IMH	683632	5609715	769
7R16731	L11-495	AW-07-072	99	102	mine	IMH	IMH	683651	5609744	832
7R16998	L10-020	AW-07-073	137	140	mine	IMH	IMH	683677	5609785	781
7R91632	L10-021	AW-07-073	230	233	mine	IMH	IMH	683677	5609782	688
7R16948	L11-496	AW-07-073	6	9	mine	IMH	IMH	683677	5609788	912
7R16969	L11-497	AW-07-073	58	61	mine	IMH	IMH	683677	5609787	860
7R91617	L11-498	AW-07-073	187	190	mine	IMH	IMH	683677	5609783	731
7R91646	L11-499	AW-07-073	263	266	mine	IMH	IMH	683677	5609781	655
7R91689	L11-501	AW-07-073	380	383	mine	SLD - weak	West SLD	683677	5609777	538
Z108699	L11-502	AW-08-074	144	147	mine	IMH	IMH	683686	5609702	788

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
Z110464	L10-010	AW-08-078	60	63	mine	IMH	IMH	683598	5609856	895
Z110511	L10-011	AW-08-078	189	192	mine	IMH	IMH	683558	5609802	785
Z110552	L10-013	AW-08-078	304	307	mine	IMH	IMH	683517	5609760	686
7R104579	L11-503	AW-08-078	6	9	mine	IMH	IMH	683612	5609879	942
7R104581	L11-504	AW-08-078	12	15	mine	IMH	IMH	683610	5609876	937
Z110487	L11-505	AW-08-078	123	126	mine	IMH	IMH	683579	5609830	841
Z110532	L11-506	AW-08-078	249	252	mine	IMH	IMH	683538	5609779	733
Z110620	L10-014	AW-08-078	496	499	mine	SLD - weak	West SLD	683444	5609696	520
7R97879	L11-507	AW-08-079	9	12	mine	IMH	IMH	683842	5609725	909
7R97901	L11-508	AW-08-079	72	75	mine	IMH	IMH	683835	5609712	848
7R97927	L11-509	AW-08-079	147	150	mine	IMH	IMH	683827	5609696	775
7R97953	L11-510	AW-08-079	219	222	mine	IMH	IMH	683817	5609683	705
7R97961	L11-511	AW-08-080	8	11	mine	IMH	AIR	683906	5609735	916
7R97986	L11-512	AW-08-080	77	80	mine	IMH	IMH	683882	5609693	867
Z109453	L11-513	AW-08-080	225	228	mine	IMH	IMH	683830	5609606	760
Z109871	L11-518	AW-08-083	125	128	mine	MAFV	West MAFV	683358	5609517	792
Z109834	L11-516	AW-08-083	23	26	mine	PICR	PICR	683382	5609554	883
Z109852	L11-517	AW-08-083	74	77	mine	PICR	PICR	683370	5609535	838
7R105656	L10-005	AW-08-084	141	144	mine	PICR	PICR	683335	5609478	804
Z109906	L11-519	AW-08-084	49	52	mine	PICR	PICR	683370	5609532	870
Z109924	L11-520	AW-08-084	90	92.56	mine	PICR	West MAFV	683355	5609508	840
Z109964	L10-015	AW-08-085	90	93	mine	SLD - weak	PICR	683421	5609518	815
Z107163	L10-017	AW-08-086	124	127	mine	PICR	PICR	683396	5609475	796
Z107126	L11-521	AW-08-086	25	28	mine	PICR	PICR	683422	5609518	882
Z107144	L11-522	AW-08-086	73	76	mine	PICR	PICR	683410	5609497	840
Z107182	L11-524	AW-08-087	19.81	22	mine	PICR	PICR	683435	5609433	883
Z107203	L11-525	AW-08-087	79	82	mine	PICR	PICR	683427	5609421	825
7R105849	L11-526	AW-08-087	146	149	mine	PICR	PICR	683417	5609407	760
Z107234	L10-026	AW-08-088	102	105	mine	PICR	PICR	683472	5609400	799
Z107204	L11-527	AW-08-088	21.34	24	mine	SLD - weak	PICR	683473	5609400	880
Z107407	L10-033	AW-08-089	69	72	mine	PICR	PICR	683512	5609378	831
Z107454	L11-528	AW-08-089	198	201	mine	PICR	PICR	683513	5609381	702
Z107623	L10-041	AW-08-090	173	176	mine	PICR	PICR	683641	5609417	727
Z107564	L11-529	AW-08-090	16.76	19	mine	SLD - weak	PICR	683639	5609403	883
Z107776	L10-002	AW-08-091	100	103	mine	PICR	West MAFV	683342	5609590	804
Z107749	L11-530	AW-08-091	22	25	mine	PICR	PICR	683343	5609589	882
Z112224	L10-058	AW-08-092	154	157	mine	IMH	IMH	683976	5609620	828
7R105192	L10-057	AW-08-092	44	47	mine	IMH	IMH	684014	5609676	915
7R105179	L11-531	AW-08-092	6.1	8.23	mine	IMH	AIR	684025	5609697	945
Z112251	L11-533	AW-08-092	230	233	mine	SLD - mod	IMH	683947	5609584	768
Z112274	L11-534	AW-08-092	296	298.35	mine	SLD - mod	West SLD	683921	5609553	716
7R106000	L10-022	AW-08-096	131	134	mine	MAFV	West MAFV	683305	5609520	797
Z108071	L11-535	AW-08-096	95.5	98	mine	MAFV	West MAFV	683316	5609538	826
Z108055	L10-001	AW-08-096	51	54	mine	PICR	PICR	683328	5609560	863
7R106263	L11-536	AW-08-097	140	143	mine	IMH	IMH	683995	5609665	818
Z112502	L11-539	AW-08-097	499	502	mine	MAFV	PXPP	683913	5609585	478

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R105245	L10-059	AW-08-097	89	92	mine	SLD - mod	IMH	684007	5609677	866
7R106313	L10-064	AW-08-098	105	108	mine	IMH	IMH	684042	5609621	877
Z112654	L11-540	AW-08-098	539.05	542	mine	PICR	PICR	683834	5609393	573
Z112558	Z112558	AW-08-098	276	277.65	mine	SLD - strong	West SLD	683970	5609524	757
7R106339	L10-063	AW-08-099	54	57	mine	IMH	IMH	684065	5609667	903
7R106362	L11-541	AW-08-099	120	123	mine	IMH	IMH	684047	5609644	843
Z112994	L10-036	AW-08-101	188	191	mine	MAFV	West MAFV	683584	5609398	711
Z112955	L11-542	AW-08-101	74	77	mine	PICR	PICR	683590	5609409	825
Z112975	L11-543	AW-08-101	134	137	mine	PICR	PICR	683587	5609403	765
Z113017	L11-544	AW-08-101	247.05	249.02	mine	PICR	PICR	683581	5609392	653
Z113057	L10-054	AW-08-102	78	81	mine	MAFV	PICR	683781	5609344	820
Z113035	L11-545	AW-08-102	17.37	20	mine	MAFV	PICR	683781	5609344	880
Z113095	L10-056	AW-08-102	179	182	mine	PICR	PICR	683781	5609344	719
Z113076	L11-546	AW-08-102	129.5	132	mine	PICR	PICR	683781	5609344	768
Z113111	L11-547	AW-08-102	227	230.85	mine	PICR	PICR	683781	5609344	669
Z113130	L11-548	AW-08-102	278.75	281.85	mine	SLD - weak	PICR	683780	5609344	619
L14-004	L14-004	AW-09-103	23	25	mine	PICR	PICR	683520	5609371	879
L14-005	L14-005	AW-09-103	135	137	mine	PICR	PICR	683520	5609371	879
E211248	L11-552	AW-09-104	247.73	249.72	mine	SLD - mod	PICR	683883	5609339	634
7R146104	L11-553	AW-10-105	81	84	mine	IMH	West SVHYB	683424	5609661	812
7R146128	L11-554	AW-10-105	143	146	mine	IMH	IMH	683400	5609663	755
7R146309	L10-196	AW-10-106	272	275	mine	IMH	IMH	683609	5609875	662
7R146299	L10-197	AW-10-106	246	249	mine	IMH	IMH	683615	5609869	687
7R146278	L10-198	AW-10-106	195	198	mine	IMH	IMH	683625	5609856	735
7R146239	L10-199	AW-10-106	95	98	mine	IMH	IMH	683650	5609833	829
7R146220	L10-200	AW-10-106	45	48	mine	IMH	IMH	683663	5609821	876
7R146258	L11-556	AW-10-106	144	147	mine	IMH	IMH	683638	5609844	783
7R146329	L11-557	AW-10-106	324	327	mine	IMH	IMH	683599	5609888	613
10E14036	L11-559	AW-10-107	99	102	mine	IMH	IMH	683903	5609728	824
10E14054	L11-560	AW-10-107	147	150	mine	IMH	IMH	683898	5609722	777
10E14091	L11-561	AW-10-107	246	248	mine	IMH	IMH	683887	5609708	680
E211778	L11-566	AW-10-108	80	83	mine	IMH	IMH	683773	5609758	838
10E14194	L11-569	AW-10-109	72	75	mine	IMH	IMH	683822	5609683	866
E211944	L11-570	AW-10-110	6	9	mine	IMH	IMH	683801	5609700	913
E211987	L11-571	AW-10-112	24	27	mine	IMH	IMH	683777	5609764	895
E212052	L11-574	AW-10-112	198	201	mine	IMH	IMH	683800	5609799	726
E212071	L11-575	AW-10-112	249	252	mine	IMH	IMH	683808	5609809	676
E212088	L11-576	AW-10-112	297	300	mine	IMH	IMH	683815	5609818	630
E212108	L11-577	AW-10-112	351	354	mine	IMH	IMH	683823	5609829	578
E212033	L11-573	AW-10-112	147	150	mine	SVHYB	IMH	683793	5609789	775
10E14312	L11-578	AW-10-113	143	146	mine	IMH	IMH	683607	5609706	779
E212142	L11-582	AW-10-116	51	54	mine	SLD - mod	West SLD	683477	5609571	864
7R146994	L10-201	AW-10-118	35	38	mine	IMH	IMH	684047	5609818	933
7R147010	L10-202	AW-10-118	78	81	mine	IMH	IMH	684050	5609831	893
7R147040	L10-204	AW-10-118	152	155	mine	IMH	IMH	684056	5609853	823
7R147062	L10-205	AW-10-118	207	210	mine	IMH	IMH	684061	5609870	770

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
7R146982	L11-583	AW-10-118	3.05	6	mine	IMH	IMH	684044	5609808	965
7R147050	L11-584	AW-10-118	175.05	178	mine	IMH	IMH	684058	5609860	801
7R147089	L11-586	AW-10-118	272	275	mine	IMH	IMH	684066	5609888	709
7R147110	L11-587	AW-10-118	323	326	mine	IMH	IMH	684070	5609903	660
7R147075	L11-585	AW-10-118	241	242.68	mine	SLD - weak	IMH	684063	5609879	739
7R147023	L10-203	AW-10-118	112	115	mine	Unmin. Dyke	IMH	684053	5609841	861
10E14345	L11-589	AW-10-122	24	27	mine	IMH	IMH	684082	5609690	927
10E14373	L11-590	AW-10-122	99	102	mine	IMH	IMH	684086	5609692	852
10E14392	L11-591	AW-10-122	150	153	mine	IMH	IMH	684090	5609694	801
10E14409	L11-592	AW-10-122	198	201	mine	IMH	IMH	684093	5609695	752
10E14447	L11-594	AW-10-122	300	303	mine	SLD - mod	East SLD	684099	5609698	652
10E14428	L11-593	AW-10-122	249	252	mine	Unmin. Dyke	East SLD	684096	5609696	703
10E14585	AME1363	AW-10-125	227.8	230	mine	SLD - mod	East SLD	684157	5609705	738
10E28868	10E28868	AW-11-126	140	143	mine	IMH	IMH	684110	5610215	877
10E28846	10E28846	AW-11-126	8	11	mine	IMH	IMH	684164	5610291	971
10E28847	10E28847	AW-11-126	14	15.9	mine	IMH	IMH	684162	5610288	967
10E28849	10E28849	AW-11-126	25.73	29	mine	IMH	IMH	684157	5610281	958
10E28850	10E28850	AW-11-126	32	35	mine	IMH	IMH	684154	5610276	953
10E28851	10E28851	AW-11-126	38	41	mine	IMH	IMH	684152	5610273	949
10E28852	10E28852	AW-11-126	44	47	mine	IMH	IMH	684149	5610269	944
10E28853	10E28853	AW-11-126	50	53	mine	IMH	IMH	684147	5610266	940
10E28854	10E28854	AW-11-126	56	59	mine	IMH	IMH	684144	5610263	936
10E28855	10E28855	AW-11-126	62	65	mine	IMH	IMH	684142	5610260	933
10E28856	10E28856	AW-11-126	68	71	mine	IMH	IMH	684140	5610257	928
10E28857	10E28857	AW-11-126	74	77	mine	IMH	IMH	684137	5610253	924
10E28858	10E28858	AW-11-126	80	83	mine	IMH	IMH	684134	5610249	919
10E28859	10E28859	AW-11-126	86	89	mine	IMH	IMH	684132	5610246	916
10E28860	10E28860	AW-11-126	92	95	mine	IMH	IMH	684130	5610243	911
10E28861	10E28861	AW-11-126	98	101	mine	IMH	IMH	684127	5610239	907
10E28862	10E28862	AW-11-126	104	107	mine	IMH	IMH	684125	5610236	903
10E28863	10E28863	AW-11-126	110	113	mine	IMH	IMH	684122	5610233	899
10E28864	10E28864	AW-11-126	116	119	mine	IMH	IMH	684120	5610229	894
10E28865	10E28865	AW-11-126	122	125	mine	IMH	IMH	684118	5610226	890
10E28867	10E28867	AW-11-126	134	137	mine	IMH	IMH	684113	5610218	882
10E28869	10E28869	AW-11-126	146	149	mine	IMH	IMH	684108	5610211	873
10E28871	10E28871	AW-11-126	158	161	mine	IMH	IMH	684103	5610204	864
10E28872	10E28872	AW-11-126	164	167	mine	IMH	IMH	684101	5610201	861
10E28873	10E28873	AW-11-126	170	173	mine	IMH	IMH	684098	5610197	855
10E28874	10E28874	AW-11-126	176	179	mine	IMH	IMH	684096	5610194	852
10E28875	10E28875	AW-11-126	182	185	mine	IMH	IMH	684093	5610191	848
10E28876	10E28876	AW-11-126	188	191	mine	IMH	IMH	684091	5610187	844
10E28877	10E28877	AW-11-126	194	197	mine	IMH	IMH	684089	5610184	839
10E28878	10E28878	AW-11-126	200	203	mine	IMH	IMH	684085	5610179	834
10E28879	10E28879	AW-11-126	206	209	mine	IMH	IMH	684084	5610177	831
10E28880	10E28880	AW-11-126	212	215	mine	IMH	IMH	684081	5610173	827
10E28881	10E28881	AW-11-126	218	221	mine	IMH	IMH	684078	5610169	822

KGHM ID	Lorax ID	Drill Hole	From	To	Designation	Lithology	Geomet unit	X	Y	Z
10E28882	10E28882	AW-11-126	224	227	mine	IMH	IMH	684076	5610166	818
10E28883	10E28883	AW-11-126	230	233	mine	IMH	IMH	684074	5610163	814
10E28884	10E28884	AW-11-126	236	239	mine	IMH	IMH	684071	5610159	810
10E28885	10E28885	AW-11-126	242	245	mine	IMH	IMH	684069	5610156	806
10E28886	10E28886	AW-11-126	248	251	mine	IMH	IMH	684067	5610152	801
10E28870	10E28870	AW-11-126	152	155	mine	SLD - weak	IMH	684106	5610208	869
10E28848	10E28848	AW-11-126	19	22	mine	Unmin. Dyke	IMH	684160	5610285	963
10E28866	10E28866	AW-11-126	128	131	mine	Unmin. Dyke	IMH	684115	5610222	886
113925	113925	AX06-07	16	18	mine	IMH	IMH	683278	5609780	898
113977	113977	AX06-07	106	108	mine	IMH	IMH	683278	5609780	898
113577	113577	AX06-09	63	65	mine	IMH	IMH	683278	5609780	898
113613	113613	AX06-09	121	123	mine	IMH	IMH	683278	5609780	898
113642	113642	AX06-09	173	175	mine	IMH	IMH	683278	5609780	898
146683	146683	AX06-10	83	85	mine	MAFV	PICR	684371	5609380	827
146674	146674	AX06-10	69	71	mine	PICR	PICR	684371	5609380	827
146691	146691	AX06-10	99	101	mine	PICR	PICR	684371	5609380	827
L14-006	L14-006	KAX-13-004	40	42	mine	MAFV	PICR	683354	5609308	857
L14-007	L14-007	KAX-13-004	67	69	mine	PICR	PICR	683354	5609308	857
AX000395	AX000395	KAX-13-036	72	74	mine	PICR	PICR	683531	5609389	832
AX033505	AX033505	KAX-13-099	29	31	mine	PICR	PICR	683708	5609393	874
AX033547	AX033547	KAX-13-099	97	99	mine	PICR	West MAFV	683693	5609367	813
AX033593	AX033593	KAX-13-099	176	178	mine	PICR	PICR	683677	5609336	742
AX023453	AX023453	KAX-13-100	96.3	98.3	mine	PICR	PICR	685340	5609924	806
AX023454	AX023454	KAX-13-100	98.3	100.3	mine	PICR	PICR	685340	5609924	806
AX023476	AX023476	KAX-13-100	136	138	mine	PICR	PICR	685340	5609924	806
AX003726	AX003726	KAX-13-101	12	14	mine	IMH	OVBN	683775	5609995	932
AX003761	AX003761	KAX-13-101	78	80	mine	IMH	IMH	683779	5610023	873
AX003793	AX003793	KAX-13-101	132	134	mine	IMH	IMH	683779	5610023	873
AX023664	AX023664	KAX-13-103	9.14	11.17	mine	IMH	IMH	685258	5610225	918
AX023688	AX023688	KAX-13-103	50.29	52.29	mine	IMH	IMH	685258	5610225	918
AX023708	AX023708	KAX-13-103	88.5	90.5	mine	IMH	IMH	685258	5610225	918
AX022630	AX022630	KAX-13-104	12	14	mine	IMH	IMH	683779	5610023	873
AX022643	AX022643	KAX-13-104	33.5	35.5	mine	IMH	IMH	683779	5610023	873
AX003952	AX003952	KAX-13-105	8	10	mine	IMH	IMH	683779	5610023	873
AX003981	AX003981	KAX-13-105	58	60	mine	IMH	IMH	683779	5610023	873
AX004015	AX004015	KAX-13-105	124	126	mine	IMH	IMH	683779	5610023	873

Appendix A-2 SGS Static Testing Procedures

SGS

SGS Canada Inc.

Static Testing Procedures for Abacus Mining and Exploration

November, 2014

1.0 Sample Receiving and Preparation

Samples were logged in and sample weights recorded. Wet samples were air dried and mixed. Samples with large particle size material (>6.35 mm) was crushed and a 200 g split pulverized for analysis.

2.0 Analysis

2.1 Paste pH

Paste pH was conducted according to the procedure by Sobek A., et. al., 1978 "Field and Laboratory Methods Applicable to Overburdens and Minesoils" (Report EPA-600/2-78-054).

2.2 Acid Base Accounting with Siderite Correction

The samples were analyzed by the Modified Acid Base Accounting procedure outlined in MEND Project 1.16.1b, 1991 and included a correction for the presence of siderite. For the siderite correction the acid leachate is filtered and treated with 30% hydrogen peroxide to convert ferrous to ferric iron. Excess peroxide is boiled off, the solution is cooled and back tritrated to pH 8.3. The procedure is described in MEND: Project 1.16.1b, 1991 Method 3: Modification of Conventional EPA Neutralization Potential Determination by Addition of Hydrogen Peroxide.

2.3 Total Sulphur and Total Carbon

Total sulphur and carbon were determined by Leco furnace.

2.4 Total Inorganic carbon

Total inorganic carbon was conducted using a coulometer. In this procedure a known weight of sample is placed into a glass test tube and acidified with 25% hydrochloric acid. The sample is boiled to evolve CO_2 which is measured by coulometric titration with the Carbon Dioxide Analyzer.

2.5 Sulphate-Sulphur

Sulphate-sulphur procedure is based on a modified sulphate-sulphur method by Sobek, A. A., et. al. 1978, "Field and Laboratory Methods Applicable to Overburdens And

Minesoils" Report EPA-600/2-78-054. In this procedure sulphate sulphur is dissolved in 25% hydrochloric acid and dissolved sulphur is then measured by ICP.

2.6 Sulphide-Sulphur

Sulphide-sulphur procedure is based on a modified method by Sobek, A. A., et. al. 1978, "Field and Laboratory Methods Applicable to Overburdens And Minesoils" Report EPA-600/2-78-054. In this procedure the residue after the sulphate sulphur has been removed is further treated with 1:7 (nitric acid to water) nitric acid to oxidize the sulphide-sulphur. The resulting leachate is then analyzed for sulphur by ICP.

2.7 Insoluble Sulphur

Insoluble sulphur is calculated from the difference between total sulphur and the sum of sulphate and sulphide sulphur (Total S – Sulphate S + Sulphide S). Insoluble sulphur is acid insoluble sulphur which is attributed to refractory sulphate compounds such as barite and alunite, and to organic sulphur found in coal.

2.8 Total Metals

Total metals were conducted by digesting 0.500 g of sample in 5 mL of 3:1 HCl/HNO_3 (aqua regia) at 95^{o}C for 1.5 hours. The extract is then diluted to 25.0 mL and analyzed for metals by ICP-MS.

2.9 Shake Flask Extraction

The shake flask extractions were conducted on 250 g of dried sample at a 3:1 liquid to solid ratio. The leachate was filtered and submitted for analysis. Analysis included pH, conductivity, acidity, alkalinity, chloride, sulphate, and dissolved metals. pH was measured using the pH meter; conductivity was determined using the conductivity meter; acidity was determined by titration with base to an end point of either pH 4.5 (free acidity) and pH 8.3 (total acidity); alkalinity was determined by titration with an acid to an end point of pH 4.5; sulphate was measured by the turbidimetric method and chloride was conducted by the ion chromatography. Metals analysis was conducted by ICP-MS/OES.

2.10 Grain Size Analysis

Grain size analysis was conducted according to ASTM E 276 – 03 using a 6.35 mm as the largest sieve down to finer gradations on a Ro-Tap mechanical sieve shaker with 100.0 g of dry "as received" sample.

2.11 Humidity Cell Tests

The mine rock humidity cell is made from acrylic tubing, with a height 20.3 cm and an inside diameter of 10.2 inches. 1.00 kg of crushed sample was added in 4 – 250 g splits to minimize grain size segregation during rock addition. The cell has a fixed base plate with a

leachate drainage hole fitted with a tubing nipple. Approximately one inch above the base, a perforated plexiglass plate is fitted to support the sample. The plate is covered with 1 layer of 80 micron nylon mesh to prevent loss of fines while allowing upward flow of air and downward flow of leachate. A hose nipple is fitted to the side wall below the support plate for the dry and humid air inlet. The cell is equipped with a removable lid with a central hose nipple for air outlet. The air inlet and leachate drain are equipped with suitable pinch valves.

The Tailings Humidity Cell is made from acrylic tubing with an inside diameter of 20.3 cm and a height of 10.2 cm. The cell has a fixed base plate with a leachate drainage hole fitted with a tubing nipple. A perforated acrylic support plate is placed inside the cell one inch above the base plate and covered with a Shark Skin® filter paper and one layer of 80 micron nylon mesh. Inflow of humid and dry air is through an air inlet in the lid.

The humidity cell tests were conducted according to "Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials", MEND Report 1.20.1. December 2009.

2.12 Unsaturated Column Tests

The unsaturated columns were constructed in the same manner as the humidity cell except they were ~60 cm long to accommodate up to 5.00 kg of sample. Columns were aerated with dry and/or humid for 3 days each and trickle leached on the 7th day with approximately 300-500 mL of nanopure water at a rate of ~1 mL/min. The columns were allowed to drain overnight. Leachate was collected, filtered and analyzed for general parameter, metals and anions where applicable.

2.13 Analytical

Depending on the mine material analysis included pH, conductivity, acidity, alkalinity, chloride, sulphate, fluoride, nitrate, nitrite and dissolved metals. General parameters (pH, conductivity, redox potential, acidity and alkalinity) were measured using a MAN-TECK PC-Titrate unit. Sulphate was measured by the turbidimetric method and chloride, nitrate and nitrite were conducted by ion chromatography. Fluoride was measure by specific ion electrode. Total and weak acid dissociable cyanide was conducted by Skalar Segmented Flow Autoanalyzer. Metal analysis was conducted by ICP-MS/OES and mercury was determined by cold vapour atomic absorption spectroscopy (CVAAS). The analysis are described in "Standard Methods for the Examination of Water and Wastewater", 20th Edition APHA AWWA, and WEF, 1998.

Appendix B: Mineralogical Test Results

APPENDIX B-1 MINE ROCK & ORE

APPENDIX B-1.1 FIELD BIN XRD REPORT

APPENDIX B-1.2 FIELD BIN PETROGRAPHY REPORT

APPENDIX B-1.3 LAB KINETIC TEST XRD REPORT

APPENDIX B-1.4 LAB KINETIC TEST PETROGRAPHY REPORT

APPENDIX B-1.5 AJAX CARB CORRECTION FACT

APPENDIX B-2 TAILINGS

APPENDIX B-2.1 TAILINGS XRD REPORT

KGHM

Appendix B-1 Mine Rock & Ore

APPENDIX B-1.1 FIELD BIN XRD REPORT

QUANTITATIVE PHASE ANALYSIS OF SEVEN POWDER SAMPLES USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA.

(Project : Abacus)

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August 31, 2007

EXPERIMENTAL METHOD

The seven samples were reduced into fine powder to the optimum grain-size range for X-ray analysis (<10μm) grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Step-scan X-ray powder-diffraction data were collected over a range 3-80°2θ with CoKα radiation on a standard Siemens (Bruker) D5000 Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a Vantec-1 strip detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6°.

RESULTS AND DISCUSSION

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 using Search-Match software by Siemens (Bruker). X-ray powder-diffraction data were refined with Rietveld program Topas 3 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinement are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots for the samples are shown in Figures 1-7.

The broad peak shown in all plots at about 7.0º2θ is from a clay mineral, the identity of which is not certain. However, the crystal structure of vermiculite fits well and is used as a proxy.

Table 1. Results of quantitative phase analysis (wt. %)

Mineral	Ideal formula	Iron Mask Ajax East	Sugarloaf Ajax West	Iron Mask Ajax West	Picrite Ajax West	Cherry Creek Cr.	Pothook Crescent	Sugarloaf Ajax East
Quartz	SiO_2	5.3	7.3	4.6	0.8	4.0	2.4	2.2
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$		11.9	18.6		5.3	8.5	9.2
Biotite	$K(Mg,Fe^{2+})_3AlSi_3O_{10}(OH)_2$	14.4			2.9			
K-feldspar	$KAlSi_3O_8$					16.3	9.4	6.4
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$		34.0	12.4		28.5	39.6	36.6
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	10.9	7.4	17.5	34.0	10.2	8.7	7.6
Lizardite	$Mg_3Si_2O_5(OH)_4$	0.9			5.4			
Talc	$Mg_3Si_4O_{10}(OH)_2$				8.7			
Vermiculite	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	10.7	10.5	16.8	6.5	8.2	13.1	7.3
Actinolite	$Ca_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$	5.5	4.4	1.9	31.2			6.2
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$			1.7				
Augite		32.5						
Calcite	$CaCO_3$	10.1	16.1	16.2	5.7	9.8	8.3	13.7
Ankerite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2$		7.4	3.9		13.0	2.3	8.7
Siderite	$Fe^{2+}CO_3$							0.4
Pyrite	FeS_2						1.9	
Magnetite	Fe_3O_4	8.4		3.1	4.7	1.3	4.8	1.7
Hematite	α-Fe_2O_3			3.2		2.8	1.0	
Hydroxylapatite ?	$Ca_5(PO_4)_3(OH)$	1.2	1.0			0.6		
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0

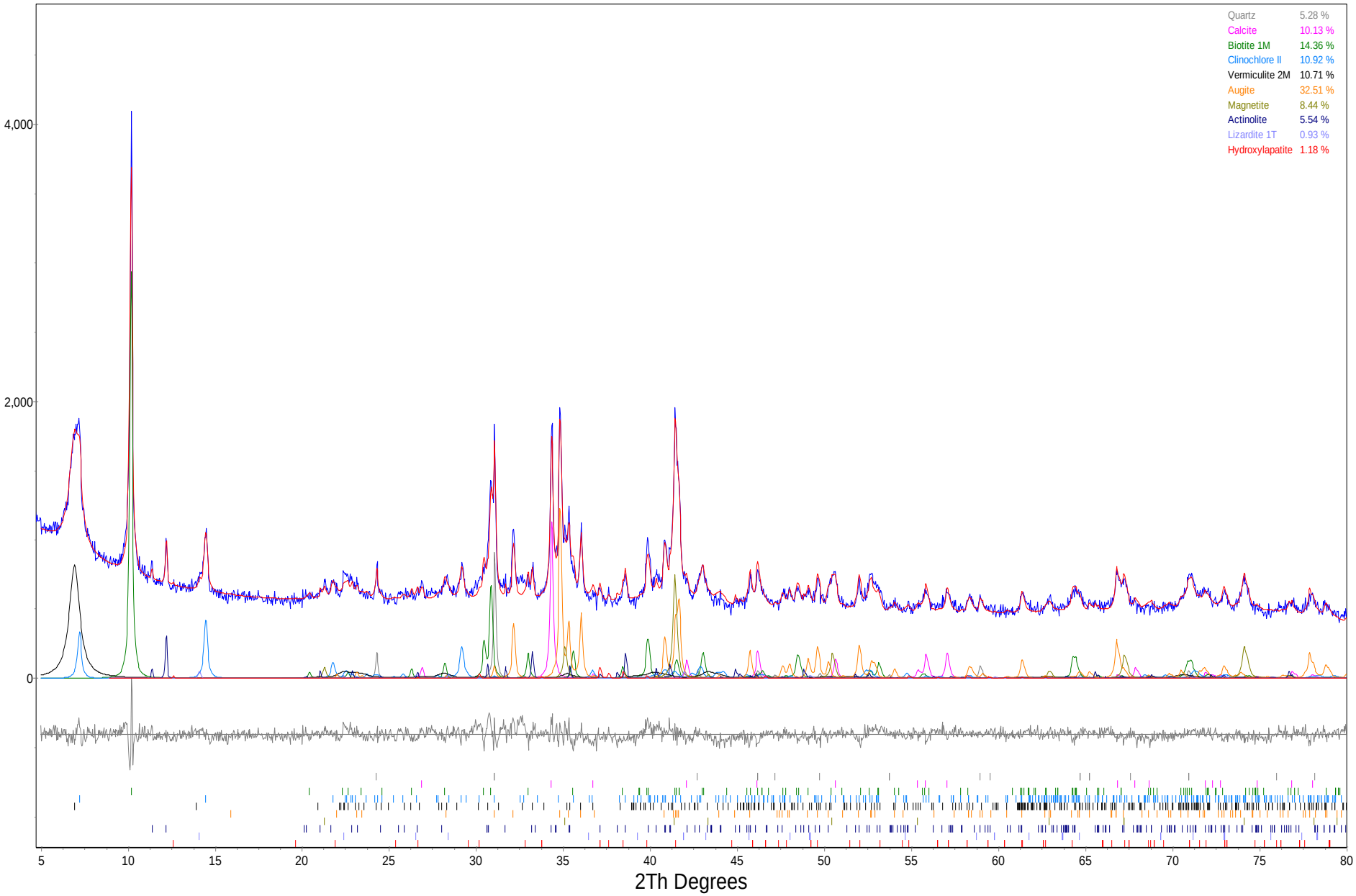

Figure 1. Rietveld refinement plot of sample **Lorax Iron Mask (Ajax East)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

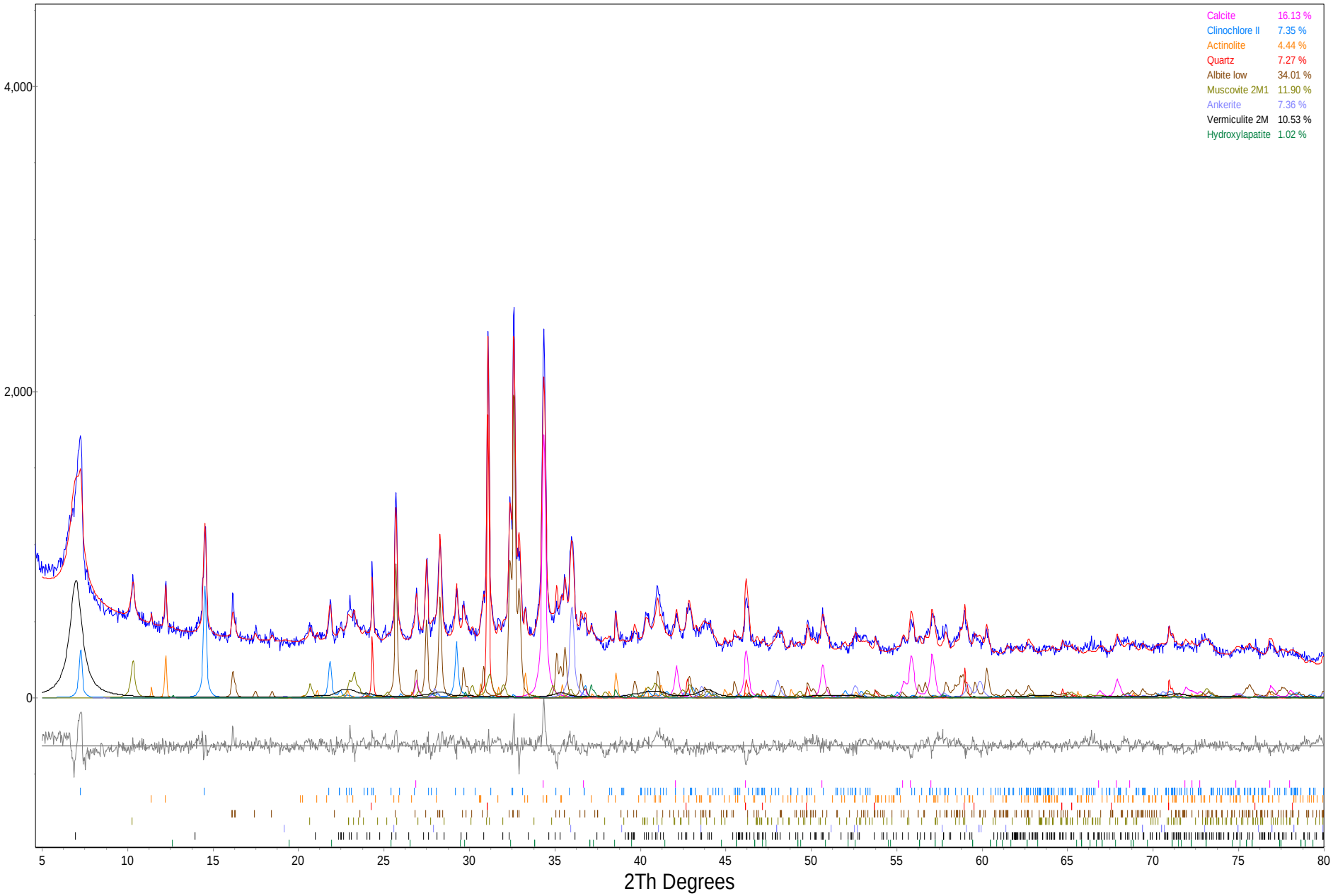

Figure 2. Rietveld refinement plot of sample **Lorax Sugarloaf (Ajax West)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

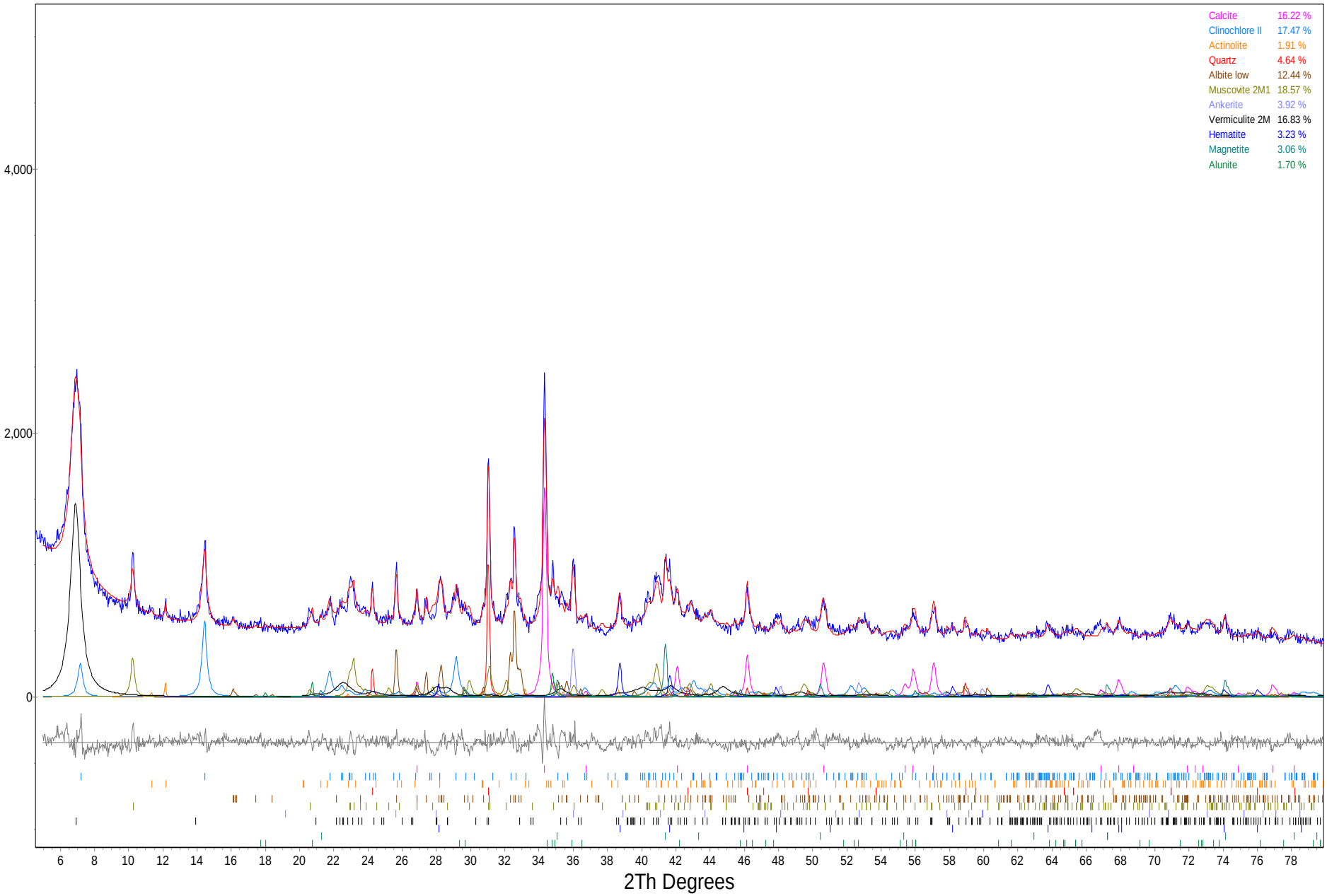

Figure 3. Rietveld refinement plot of sample **Lorax Iron Mask (Ajax West)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

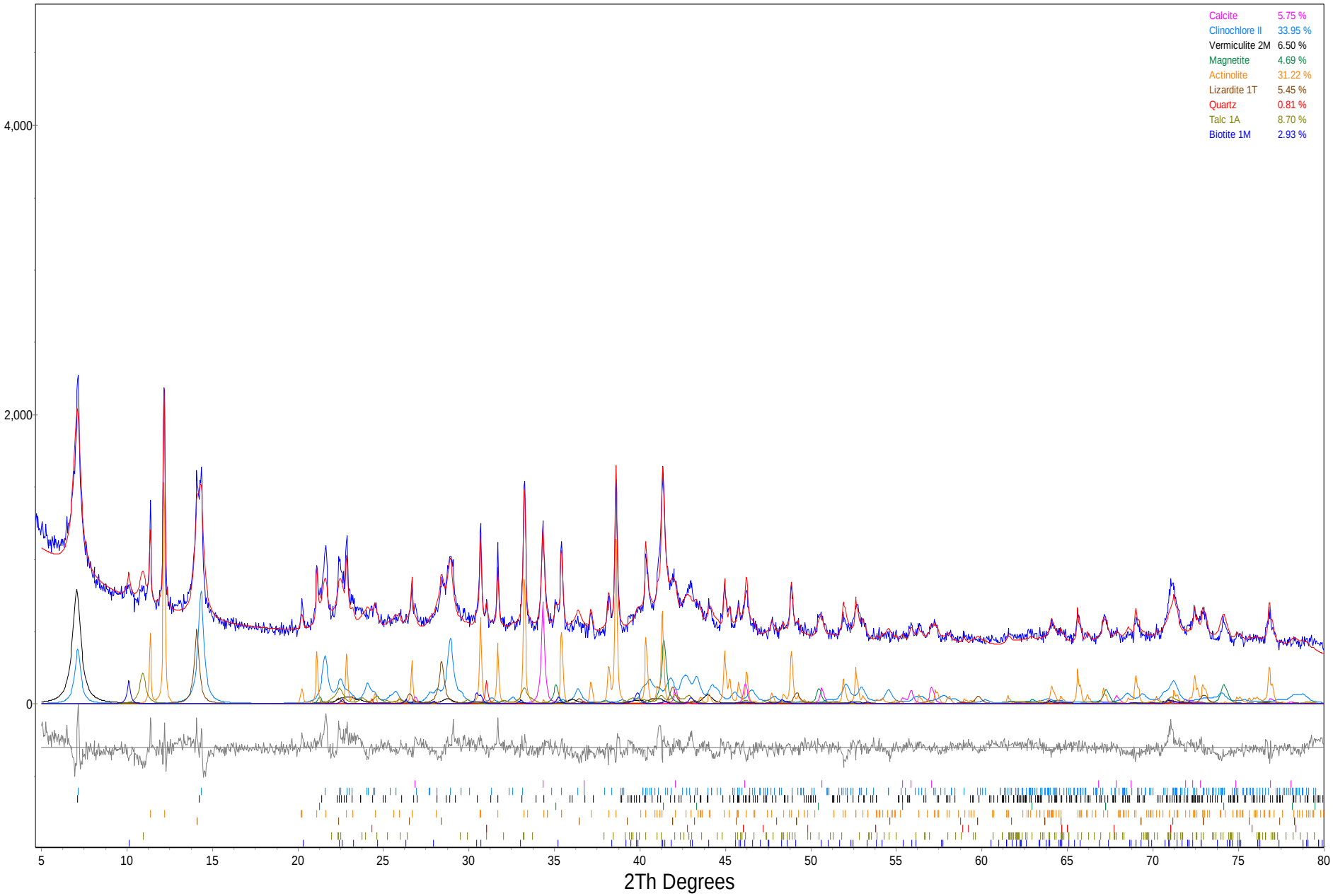

Figure 4. Rietveld refinement plot of sample **Lorax Picrite (Ajax West)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

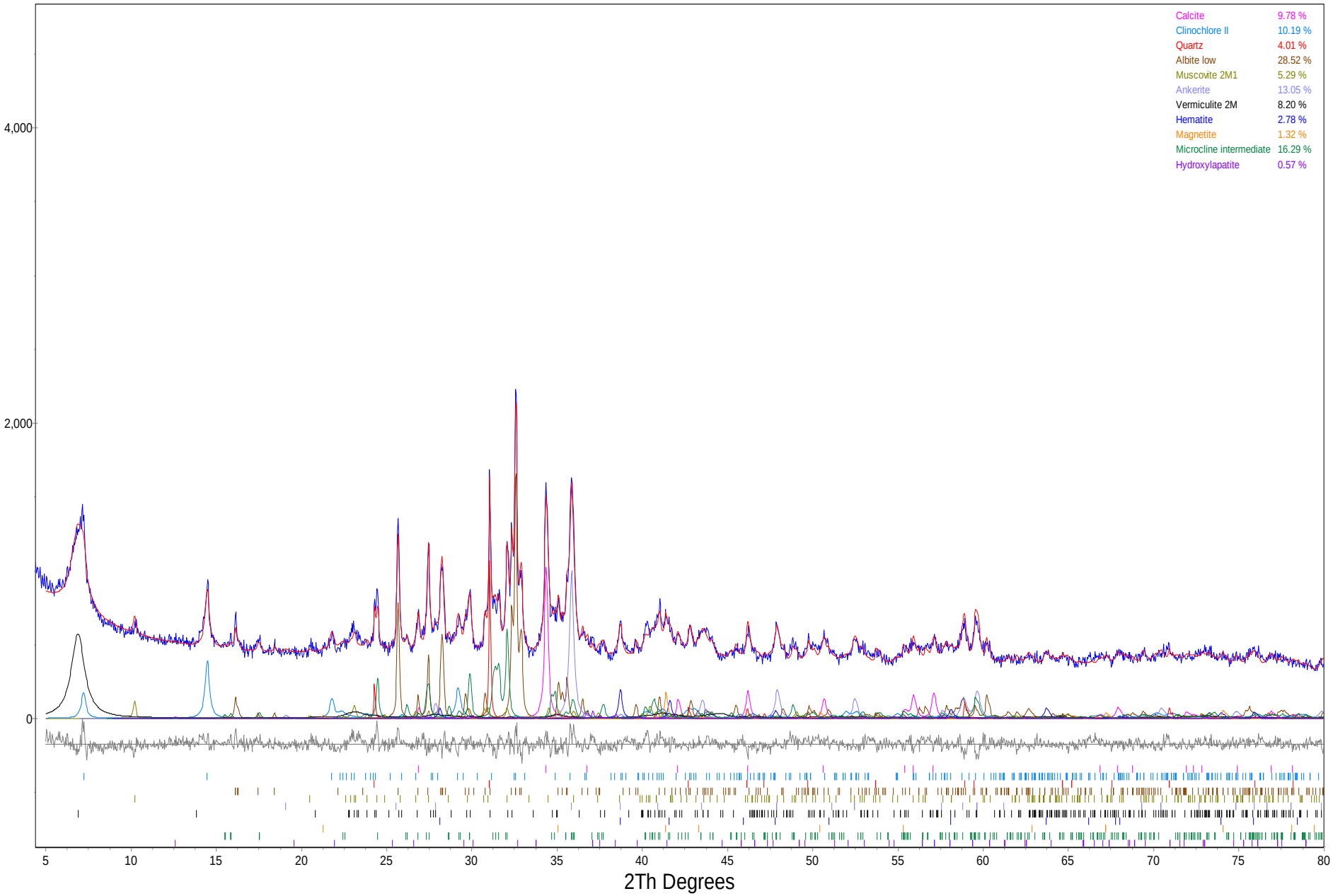

Figure 5. Rietveld refinement plot of sample **Lorax Cherry Creek (Crescent)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

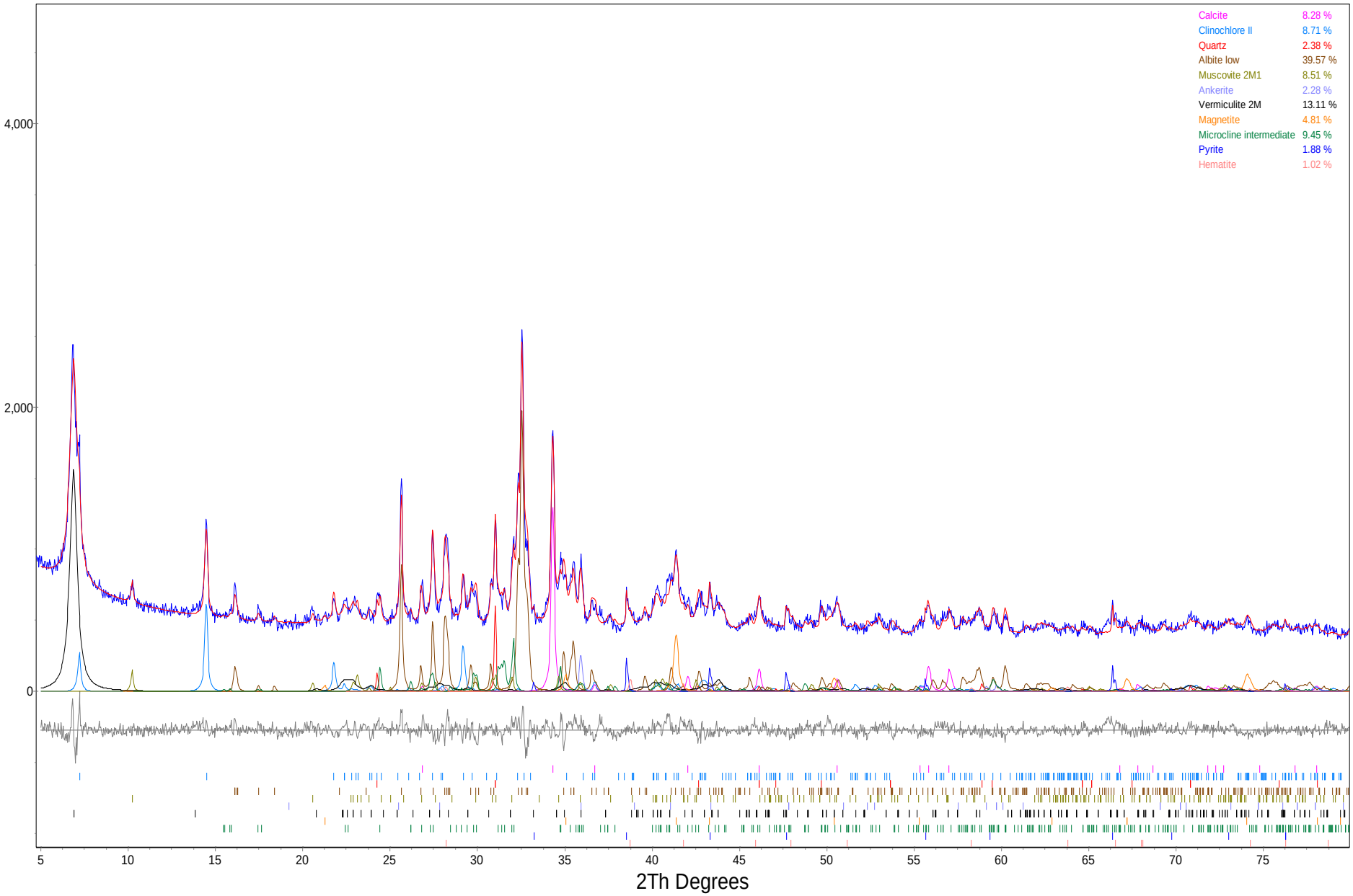

Figure 6. Rietveld refinement plot of sample **Lorax Poothook (Crescent)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

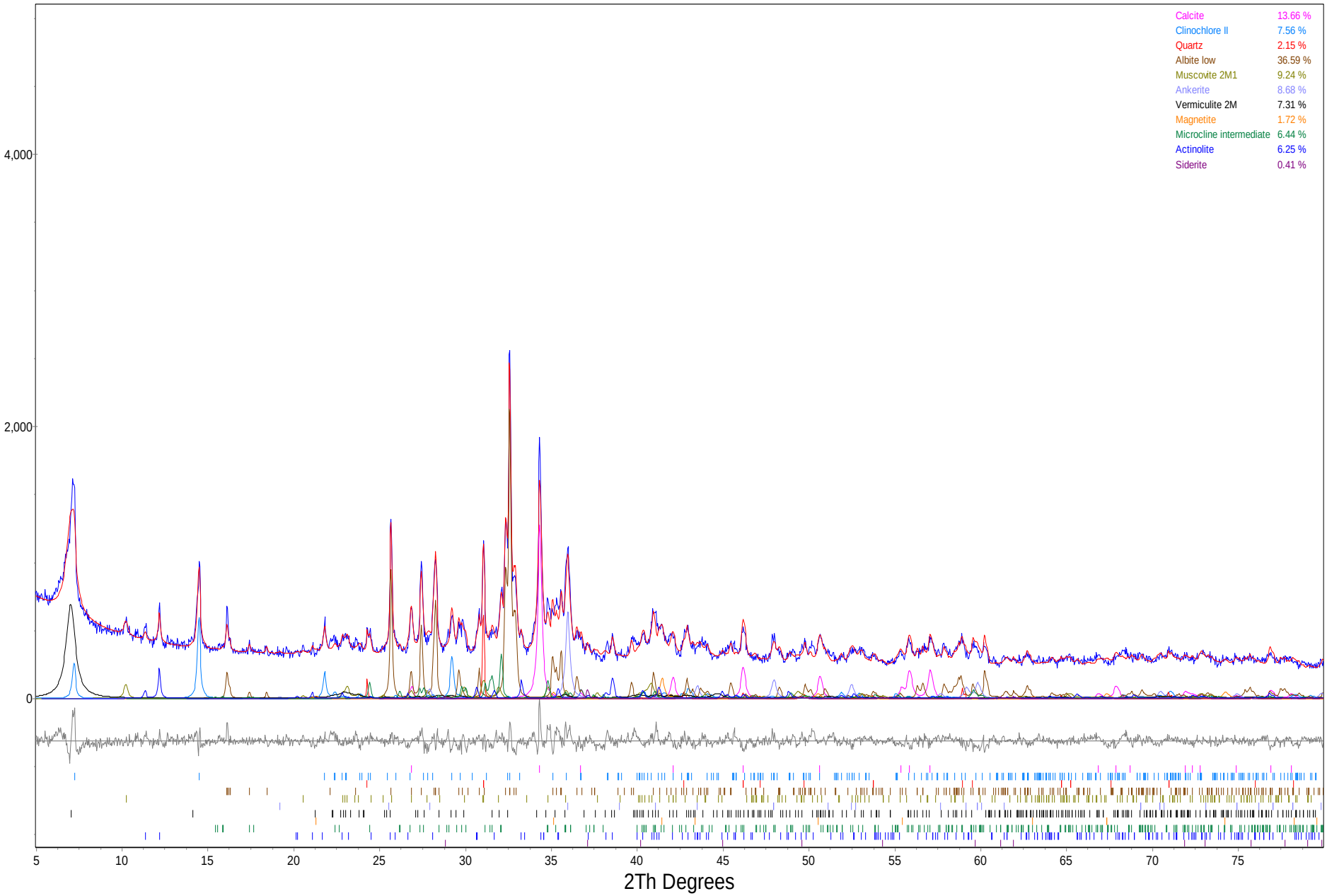

Figure 7. Rietveld refinement plot of sample **Lorax Sugarloaf (Ajax East)** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

APPENDIX B-1.2 FIELD BIN PETROGRAPHY REPORT

MINERAL SERVICES

CANADA

REPORT NO. MSC07/059R

PETROGRAPHY OF 7 WASTE ROCK SAMPLES FROM THE ABACUS AFTON MINING CAMP PROJECT (B.C)

Report prepared for

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TABLE OF CONTENTS

CONDITIONS AND DISCLAIMER III

1. INTRODUCTION 1

2. METHODS 1

3. SAMPLE DESCRIPTIONS 2

3.1. SAMPLE BIN 1 IRON MASK 2
3.2. SAMPLE BIN 2 SUGARLOAF 6
3.3. SAMPLE BIN 3 IRON MASK 10
3.4. SAMPLE BIN 4 PICRITE 14
3.5. SAMPLE BIN 5 CHERRY CREEK 18
3.6. SAMPLE BIN 6 POTHOOK 22
3.7. SAMPLE BIN7 SUGARLOAF 26

4. SUMMARY AND CONCLUSION 30

4.1 GANGUE MINERALS 30
4.2 CARBONATE 30
4.3 SULFIDES/OXIDES 31

5. BIBLIOGRAPHY 31

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PETROGRAPHY OF 7 WASTE ROCK SAMPLES FROM THE ABACUS AFTON MINING CAMP PROJECT (B.C)

1. INTRODUCTION

This report presents the petrographic descriptions of 7 crushed samples collected from waste piles within the open pits of the former Afton Mining camp, South Central British Columbia.

Polished thin sections of the material and corresponding offcuts stained for K-feldspar were received, as well as left over crushed powder. Results from Rietveld XRD analyses and a brief description of the lithologies were provided by the client.

The purpose of the study was to characterize the mineralogy with particular emphasis on the sulphur-bearing minerals present.

2. METHODS

Petrographic descriptions were performed in the office of Mineral Services Canada Inc. using a Nikon eclipse E400 microscope equipped with transmitted and reflected light. Sample descriptions with representative photomicrographs are presented in Section 3 and 4. All percentages in the descriptions are approximate.

3. SAMPLE DESCRIPTIONS

3.1. Sample Bin 1 Iron Mask

Hand sample description:

The sample consists of a very fine-grained powder, greenish in colour, with rare coarser fragments up to 7 mm long. The sample is strongly magnetic and produces a strong reaction with cold dilute HCl. A weak yellow stain is sporadically visible indicating the presence of a small amount (<< 1%) of K-feldspar.

Thin section description:

Fragments mostly consist of altered mafic clasts, made up of granular clinopyroxene ± magnetite variably replaced by masses of intermixed biotite / vermiculite ± carbonate (likely calcite). The identification of vermiculite is largely based on the XRD results as distinction between clay minerals using petrographic criteria is unreliable. Masses of actinolite, quartz, chlorite and epidote sporadically occur within the same clasts. A few plagioclase grains were also observed in clasts, pitted by sericite or replaced by cloudy K-feldspar.

Trace amounts of pyrite and chalcopyrite occur in the sample, occurring as inclusions within magnetite or as very small liberated grains displaying variably thick coronas of (Fe, Cu) – oxides.

Most clast-forming minerals also occur as very small mineral fragments throughout the sample.

Modal composition and characterization of the minerals present in the section are shown in Table 1 and representative photomicrographs are presented in Figure 1.

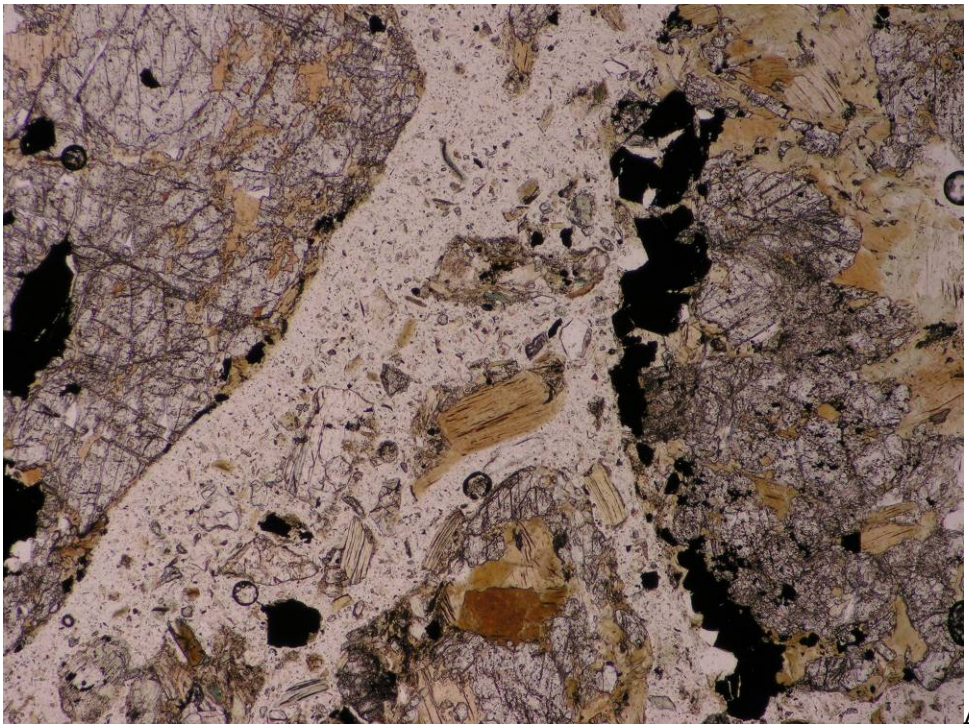
***Table 1**: Modal composition and phase occurrences in sample Bin 1 Iron Mask.*

MAJOR MINERALS

Mineral	%	Distribution & Characteristics
Pyroxene	40	Small anhedral grains in granular clusters, dominate most clasts.
Biotite / vermiculite (XRD)	30	Small foliated sheaves and masses of pleochroic biotite and foliated masses of a non-pleochroic phase (likely vermiculite as suggested by XRD), commonly enclosing clinopyroxene in clasts (replacing it). Associated with magnetite and locally altered to chlorite.
Magnetite	10	Disseminated in fragments as small anhedral masses (<0.4mm). Also as liberated grains and masses. Locally with inclusions of chalcopyrite and micro-inclusions of pyrite.
Carbonate (calcite)	8	Fine-grained liberated grains and disseminated grains in mafic clasts.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Actinolite	3	Disseminated small acicular grains in masses, commonly with carbonate.
Quartz	3	Liberated small grains and disseminated grains and clusters in clasts.
Epidote - clinozoisite	1	Fine-grained granular clusters sporadically occurring in clinopyroxene – biotite clasts.
Chalcopyrite	tr-1	Small liberated grains (<150µm) with clear, straight grain boundaries or variably rimmed by coronas of (Fe, Cu)-oxides. Also in clasts, and as very small (< 50µm) inclusions in magnetite.
K-feldspar	tr	Disseminated cloudy to brownish masses, after primary feldspars.
Plagioclase	tr	Disseminated rare small anhedral grains, pitted by sericite or altered to secondary K-feldspar.
Chlorite	tr	Small foliated sheaves replacing biotite.
Pyrite	tr	Micro-inclusions (<5µm) in magnetite.
Rutile	tr	One cluster.
(Fe, Cu) oxides	tr	Reddish stain throughout, disseminated masses and variably thick coronas around chalcopyrite.


A

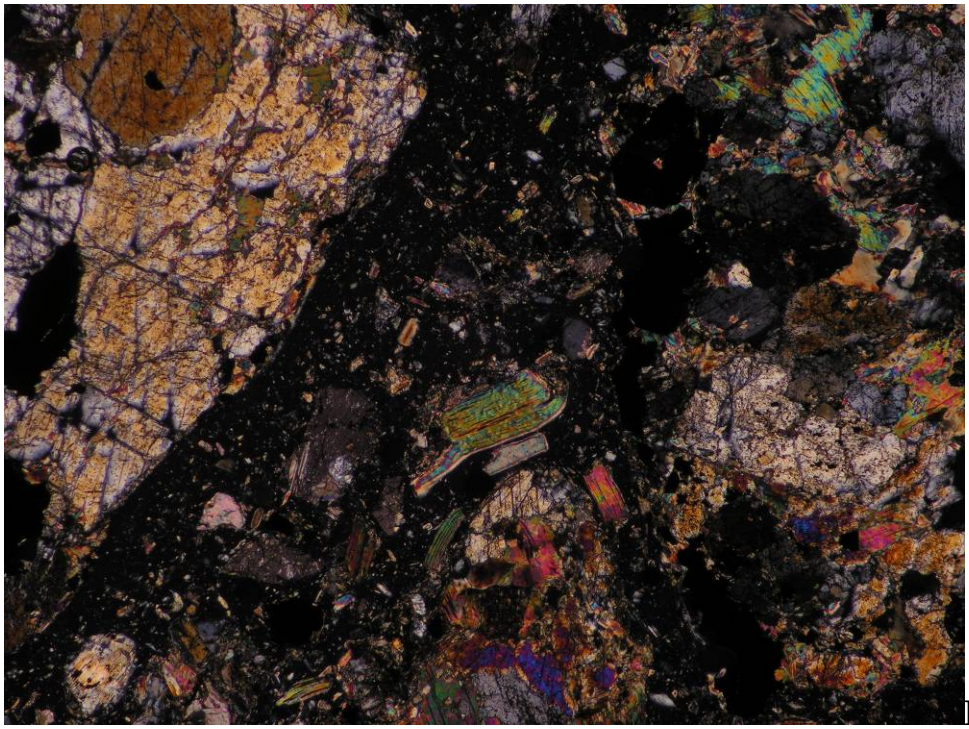
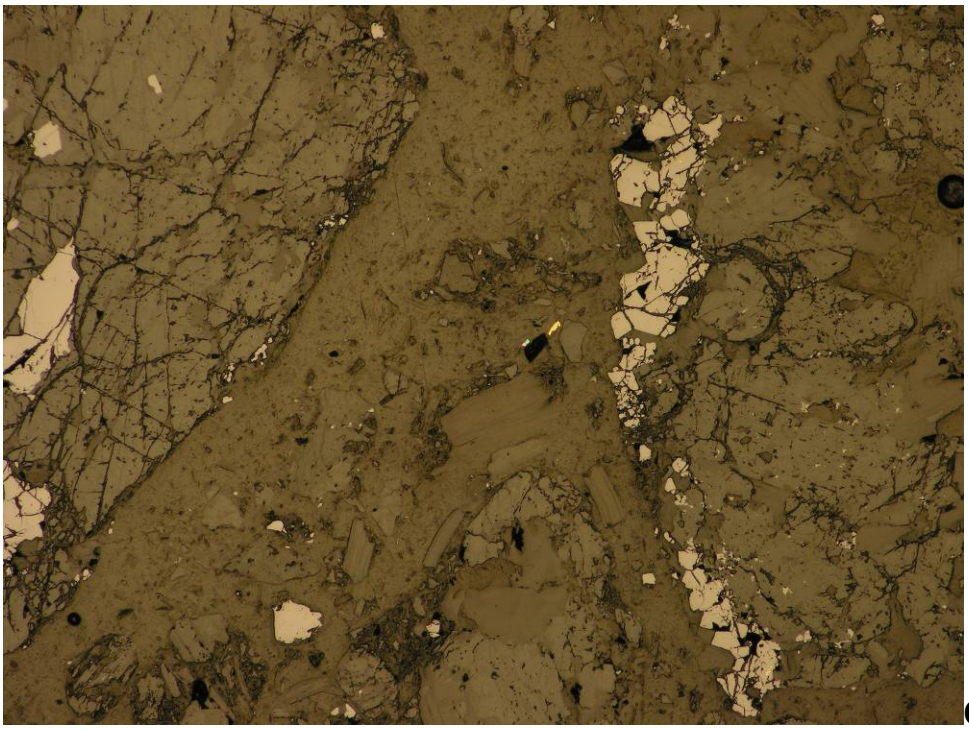
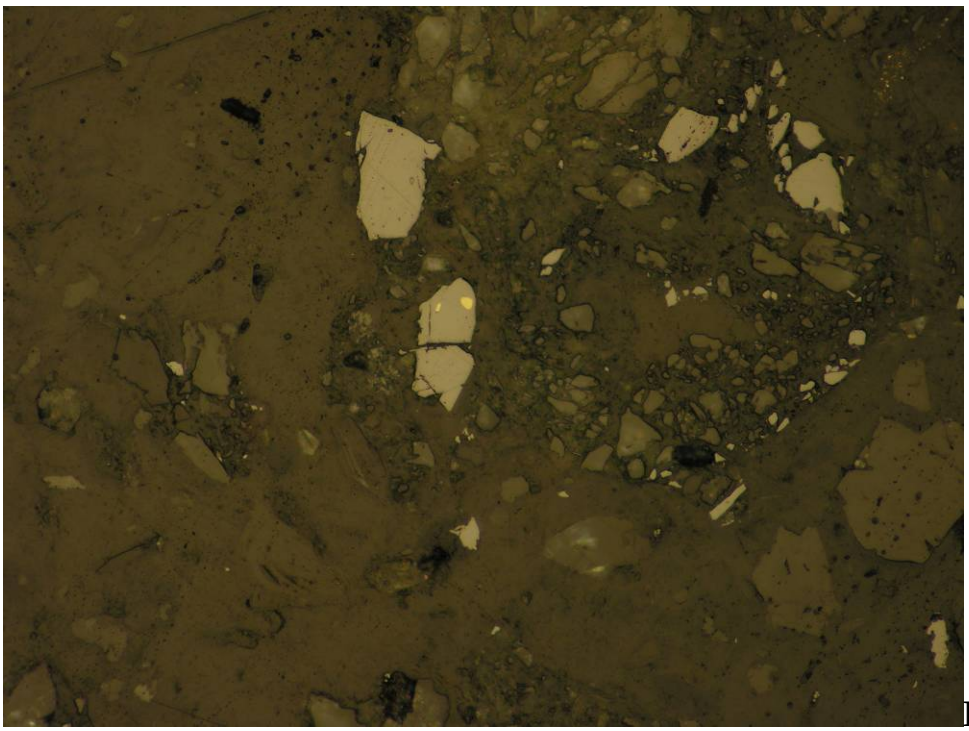

B

Fig. 1 A & B: *Overview of sample Bin 1 Iron Mask, showing fragments of colourless clinopyroxene, altered by brown intermixed biotite / vermiculite. Opaque minerals are disseminated throughout. A) PPL, B) XPL, FOV = ~ 2.7 mm.*



C

Fig. 1 C: *same view of sample Bin 1 Iron Mask, showing opaque minerals in clasts consist essentially of magnetite. Note the very small chalcopyrite (yellow) in the centre-right. RL, FOV = ~ 2.7 mm.*



D

Fig. 1D: *Detailed view of sample Bin 1 Iron Mask, showing inclusions of pyrite within magnetite. RL, FOV = ~ 0.7 mm.*

3.2. Sample Bin 2 Sugarloaf

Hand sample description:

The sample consists of off-white mineral particles and lithic clasts up to 2-3mm in size. Rare fragments are magnetic, and a strong reaction is produced with cold dilute HCl. Few fine masses of brassy yellow sulphide are visible on the off-cut and patches of K-feldspar (as indicated by weak yellow staining) are also present (<<1%).

Thin section description:

The sample is dominated by altered felsic clasts (95%), made up of fine-grained anhedral plagioclase, commonly twinned and variably cloudy. Plagioclase is variably altered by small sheaves of muscovite-sericite or replaced by fine-grained granular carbonate. Carbonate replacement is pervasive in numerous clasts. Clusters of epidote-clinozoisite ± titanite ± rutile ± chlorite ± sulphides are disseminated throughout the fragments, likely replacing earlier mafic phases. Quartz and masses of actinolite also occur.

Two types of carbonate were observed, one colourless (likely calcite) and the other darker, pleochroic (likely ankerite as suggested by XRD). Both seem to occur as plagioclase replacement with calcite additionally occurring as coarser-grained material in possible vein fragments. These are barren of sulphides.

Sulphides are present in significant amounts and include chalcopyrite and lesser pyrite. These are disseminated within felsic clasts. Trace possible bornite was observed associated with chalcopyrite that is also sporadically rimmed by (Fe, Cu) oxides or by covellite. Very fine-grained hematite is also locally disseminated and is commonly intergrown with or contains inclusions of magnetite.

Modal composition and characterization of the minerals present in the section are shown in Table 2 and representative photomicrographs are presented in Figure 2.

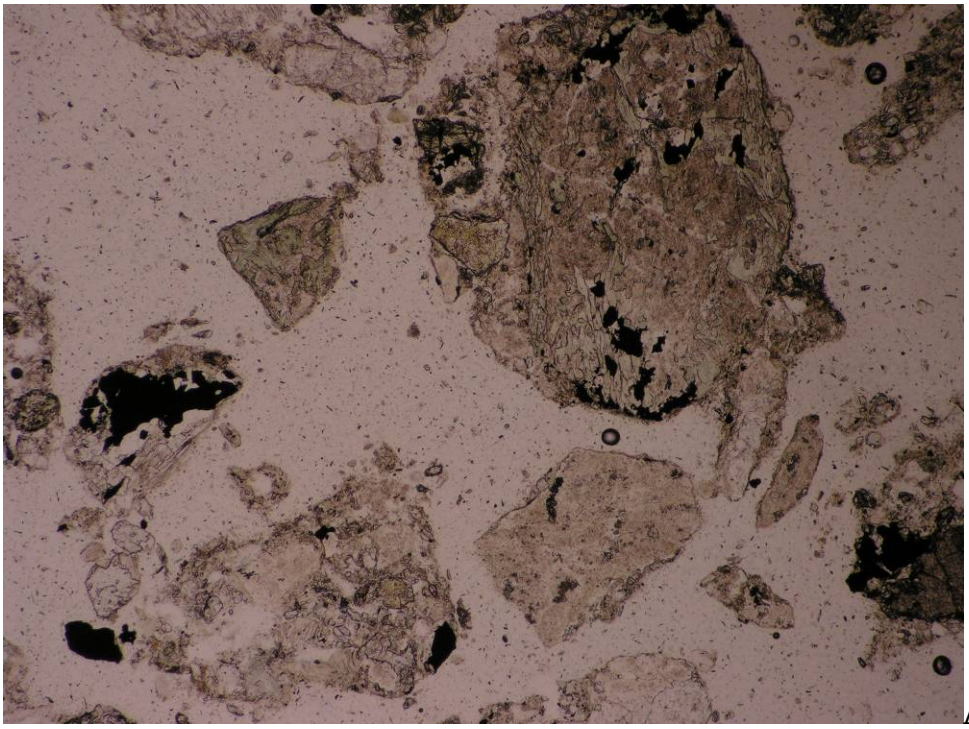
***Table 2**: Modal composition and phase occurrences in sample Bin 2 Sugarloaf.*

MAJOR MINERALS

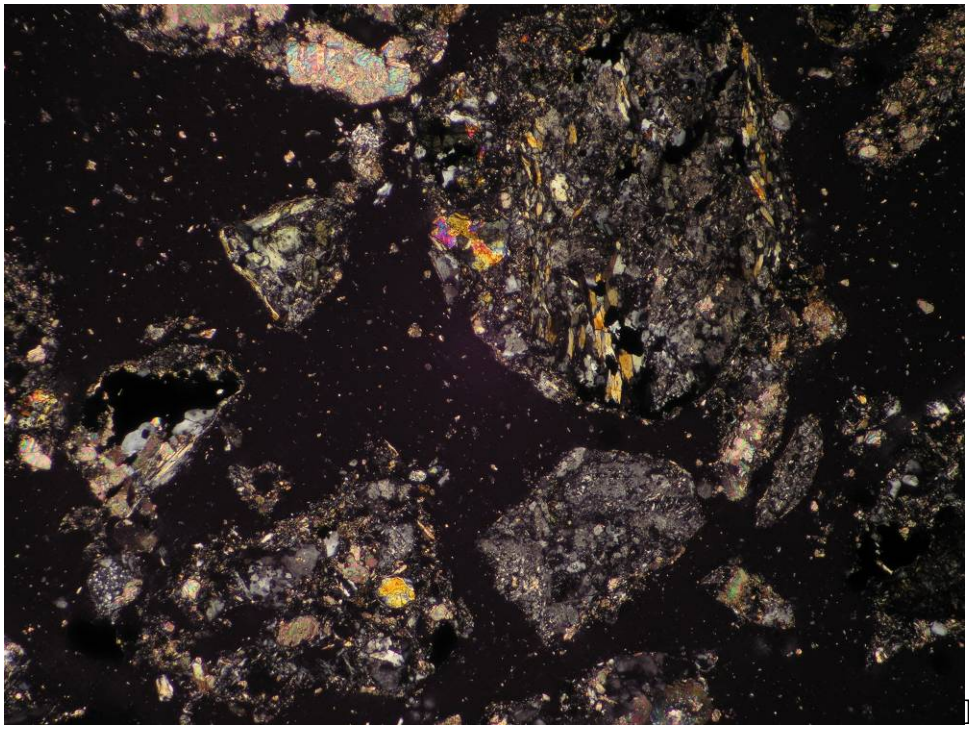
Mineral	%	Distribution & Characteristics
Plagioclases	30	Small anhedral grains forming the framework of most fragments. Variably cloudy, and altered by sericite and or carbonate.
Carbonate	25	1) Colourless: Small disseminated grains and clusters in clasts and liberated grains. Most common type. 2) Brownish, finer-grained than colourless type. Limited to granular clusters in clasts.
Chlorite	10	Small foliated sheaves in clasts, associated with rutile ± carbonate ± epidote ± titanite.
Muscovite -sericite	10	Very small sheaves replacing plagioclase.
Actinolite	5	Disseminated masses of small acicular grains and subhedral grains in clasts.
Quartz	5	Disseminated small anhedral grains and clusters in plagioclase-rich clasts and in possible vein material, associated with chlorite and / or carbonate.
Clay	5	Disseminated in clasts as microcrystalline patches with worm-like texture. Brownish colour.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Chalcopyrite	2	Disseminated small anhedral grains and masses (<250µm) in clasts and rare liberated grains. Typically with clear, straight grain boundaries but rims of (Fe, Cu) oxides (including covellite) also occur.
Epidote - clinozoisite	2	Fine-grained granular clusters in clasts, associated with chalcopyrite or actinolite.
Pyrite	tr-1	Few anhedral to subhedral grains in clasts up to 1mm in size, associated with chalcopyrite and with chalcopyrite filling fractures. Also as liberated grains. Grain boundaries are typically clean and sharp.
Rutile	tr-1	Disseminated small granular clusters intermixed with titanite.
Titanite	tr-1	Few small clusters commonly intermixed with rutile or associated with chlorite.
(Fe, Cu) oxides	tr	Variably thick coronas around chalcopyrite.
Magnetite	tr	Disseminated small grains in fragments and inclusions in hematite.
Bornite	tr	Few extremely small grains associated with chalcopyrite.
Hematite	tr	Disseminated small grains, locally with inclusions of magnetite.
Covellite	tr	Local rim around chalcopyrite.

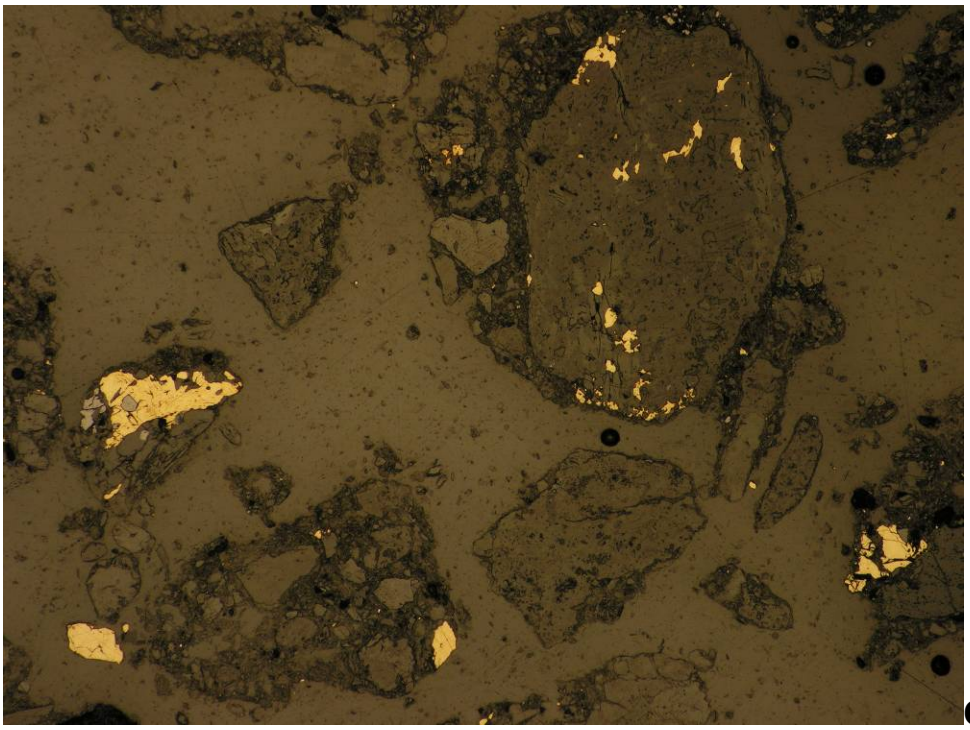


A



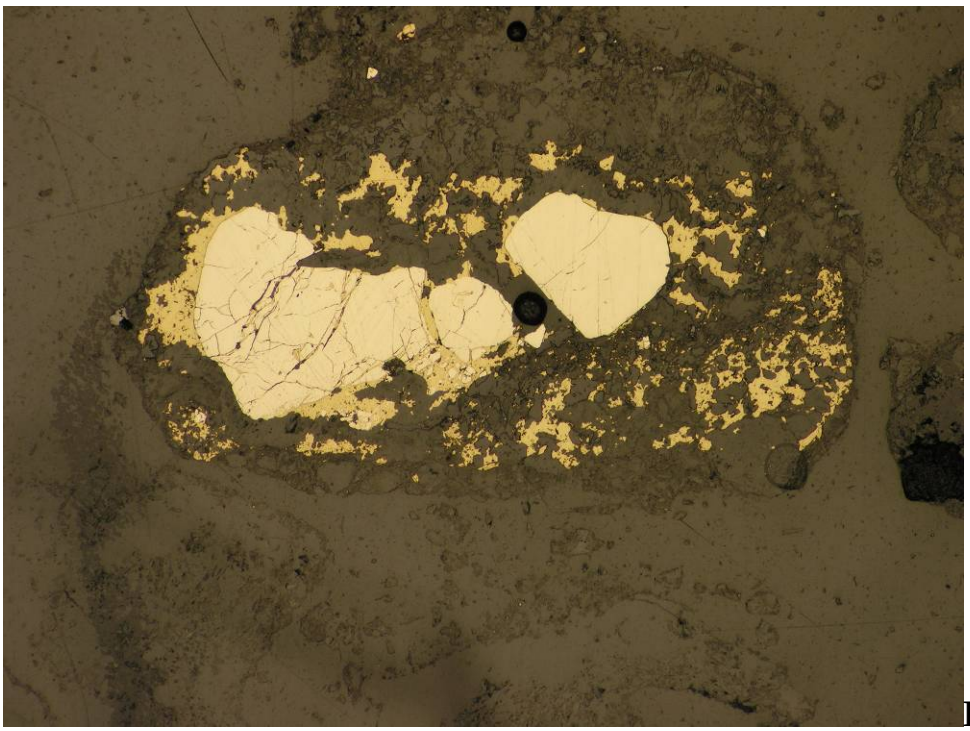
B

Fig. 2A: *Overview of sample Bin 2 Sugarloaf, showing cloudy plagioclase-dominated clasts (low birefringence, XPL photomicrograph) containing disseminated mafic alteration phases (high birefringence minerals, XPL photomicrograph) and opaque minerals. PPL, FOV = ~ 2.7 mm.*



C

Fig. 2C: *Same view of sample Bin 2 Sugarloaf showing yellow chalcopyrite as the main opaque phase. Magnetite occurs with chalcopyrite in the left centre clast. RL, FOV = ~ 2.7 mm.*



D

Fig. 2C: *Different view of sample Bin 2 Sugarloaf showing pyrite cut and partially rimmed by chalcopyrite. RL, FOV = ~ 2.7mm.*

3.3. Sample Bin 3 Iron Mask

Hand sample description:

The sample is similar to the previous one, characterized by a darker, more greenish colour. Mineral particles and lithic clasts up to 2-3mm in size form most of the sample. Magnetic fragments are common and a strong reaction is produced with cold dilute HCl. Weakly stained patches of K-feldspar occur locally (<<1%). Oxidized reddish fragments also occur throughout.

Thin section description:

This sample is distinguished from the previous one by its higher degree of alteration. Sheaves of sericite and chlorite and especially masses of clay are more common than in the previous sample, occurring at the expense of primary phases, especially plagioclase. Trace amounts of K-feldspar also occur, mostly suggested by cobaltinitrite stain. Oxidation is also more pronounced, marked by commonly orange-stained clasts. Clinopyroxene, biotite and hornblende are locally preserved but mafic phases are typically altered to clusters of epidote / clinozoisite ± chlorite ± carbonate ± clay and are commonly associated with disseminated magnetite, itself variably replaced by hematite and intermixed with (Fe, Cu)-oxides.

Three types of carbonate were recognized in the sample. Colourless carbonate (calcite) occurs as liberated grains and clusters (<5%) as well as thin veinlets and disseminated grains in clasts. Cloudy carbonate (ankerite, suggested by XRD) also occurs, forming disseminated patches throughout the clasts. The third type is orange in colour, very fine-grained to microcrystalline and occurs in thin ribbons and masses throughout. This type was not recognized by XRD, and it is possible that it is produced by Fe-oxide staining of another type of carbonate.

Sulphides are extremely rare in the sample, consisting of few small masses of chalcopyrite, variably rimmed by (Fe, Cu), oxides and of one liberated mass of pyrite.

Modal composition and characterization of the minerals present in the section are shown in Table 3 and representative photomicrographs are presented in Figure 3.

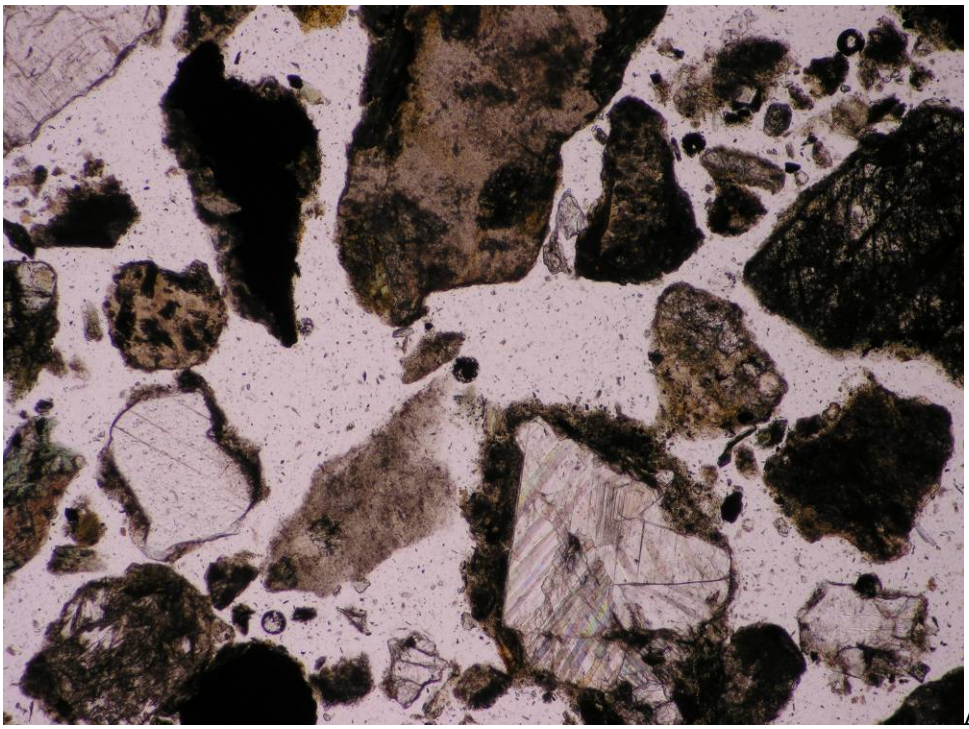
***Table 3**: Modal composition and phase occurrences in sample Bin 3 Iron Mask*

MAJOR MINERALS

Mineral	%	Distribution & Characteristics
Carbonate	25	3 types: 1) Colourless: small anhedral to elongated grains and clusters in clasts (veins) and liberated fragments. 2) Cloudy, pleochroic, fine- to very fine-grained. Forms granular clusters in clast, after plagioclase. 3) Orange, microcrystalline. In patches and ribbons in clasts.
Muscovite -sericite	20	Very small sheaves occurring in clusters, replacing plagioclase.
Chlorite	15	Small masses of foliated sheaves in clasts, locally after biotite.
Clay	15	Brownish aphanitic masses in clasts.
Plagioclase	10	Small anhedral grains in granular fragments. Variably cloudy and replaced by sericite and or carbonate. Locally displaying polysynthetic twinning.
Magnetite / hematite	5	Disseminated small to medium-sized grains and masses of magnetite up to 2mm in size occurring in fragments, variably intermixed with and replaced by hematite.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Epidote - clinozoisite	3	Fine- to very fine-grained granular clusters in clasts.
Quartz	2	Disseminated small anhedral grains and clusters in clasts.
(Fe, Cu)-oxides	2	Stain throughout; rims around sulphides.
Hornblende	tr-1	Rare clusters of fine anhedral grains in clasts.
Clinopyroxene	tr-1	Disseminated anhedral grains in clasts.
Pyrite	tr	One liberated mass approximately 400µm in size.
K-feldspar	tr	Suggested by stain, likely as very local alteration of plagioclase.
Chalcopyrite	tr	Rare small masses (< 100 µm) rimmed by (Fe, Cu)-oxides.
Biotite	tr	Masses of sheaves throughout clasts.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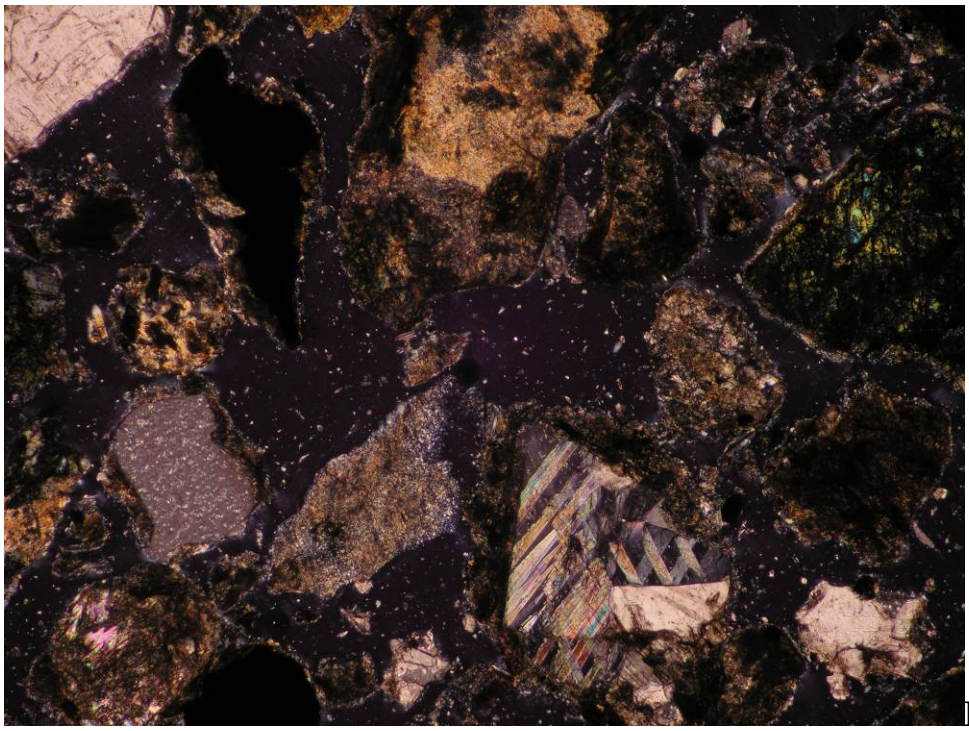
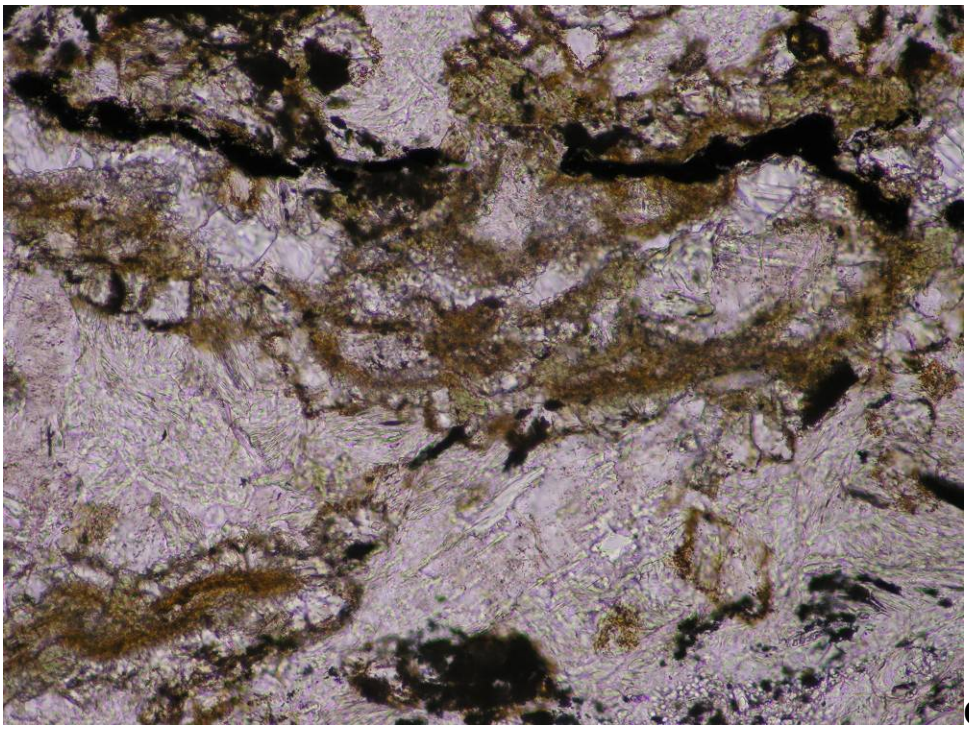
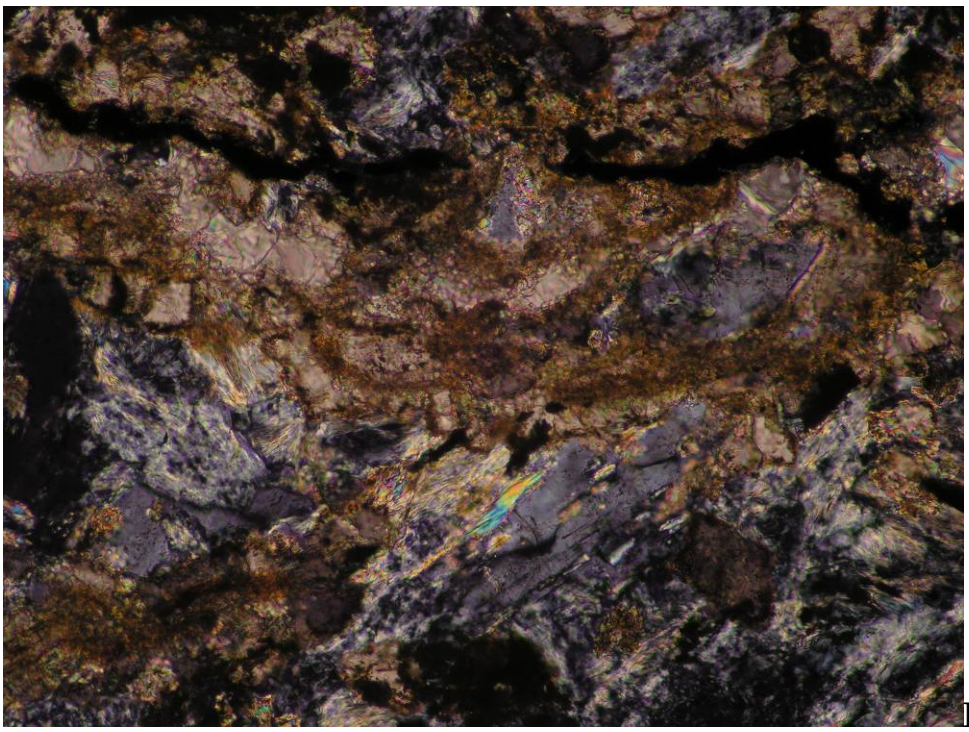

B

Fig. 3A & B: *Overview of sample Bin 3 Iron Mask, showing clasts of colourless carbonate as well as brownish to black altered clasts. PPL, FOV = ~ 2.7 mm*



C



D

Fig. 3C & D: *Detailed view of sample Bin 3 Iron Mask showing colourless carbonate occurring with feldspar. Thin ribbons of a very fine-grained reddish brown material form a lining on colourless carbonate. This is interpreted as a possible third carbonate phase. C) PPL, D) XPLL, FOV = ~ 2.7 mm.*

3.4. Sample Bin 4 Picrite

Hand sample description:

Mineral particles and lithic clasts up to 2-3mm in size form most of the sample that is characterized by the common presence of dark mafic fragments. The sample is strongly magnetic, and a moderate reaction is produced with cold dilute HCl. No yellow-stained masses were observed on the off-cut indicating no K-feldspar is present.

Thin section description:

This pervasively altered sample is dominated by mafic clasts of intermixed chlorite and actinolite, variably associated with clay and typically containing disseminated very fine-grained magnetite. Serpentine occurs in clusters throughout clasts, sporadically preserving olivine and talc forms masses of slender sheaves, both typically associated with chlorite and magnetite. Masses of biotite were also observed throughout.

Colourless carbonate occurs as liberated grains and clusters and as thin veinlets in clasts.

Sulphides are rare in the sample and include disseminated very fine pyrite and chalcopyrite with variably developed rims of (Fe, Cu)-oxides, micro-inclusions of pyrite in magnetite and one liberated grain of chalcopyrite. Magnetite is the most common oxide and occurs disseminated throughout the clasts. It commonly displays a dark grey core (possible chromite) and a brownish rim with strongly irregular boundaries. Hematite is locally associated with magnetite (likely replacing it) and (Fe, Cu)-oxides also locally stain the sample.

Modal composition and characterization of the minerals present in the section are shown in Table 4 and representative photomicrographs are presented in Figure 4.

***Table 4**: Modal composition and phase occurrences in sample Bin 4 Picrite.*

MAJOR MINERALS

Mineral	%	Distribution & Characteristics
Chlorite	35	Small foliated sheaves in clasts intermixed with actinolite or in masses with serpentine.
Actinolite	30	Masses of small acicular grains commonly intermixed with chlorite and forming the clast groundmass.
Clay	10	Brown aphanitic masses in clasts.
Magnetite	7	Disseminated small to very small grains, masses and clusters (<700 µm) in clasts. Commonly containing cores of darker material (possible chromite) and displaying highly irregular grain boundaries.
Carbonate	5	Small disseminated masses and ribbons (possible veinlets) in clasts and liberated grains.
Talc	5	Small, slender masses of sheaves in clasts.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Serpentine	3	Small masses with characteristic mesh-texture.
Biotite	2	Masses of sheaves throughout.
Chalcopyrite	tr	Rare very small grains (<100 µm) in clast. Boundaries rimmed by (Fe, Cu)-oxides.
Olivine	tr	Few small grains in clasts preserved from serpentine replacement
Pyrite	tr	Rare very small anhedral grains in clasts, typically displaying clear grain boundaries. Also as micro-inclusions in magnetite.
(Fe, Cu) oxides	tr	Orange-red oxidation patches throughout and rims around chalcopyrite.
Hematite	tr	Rare partial rims around magnetite.

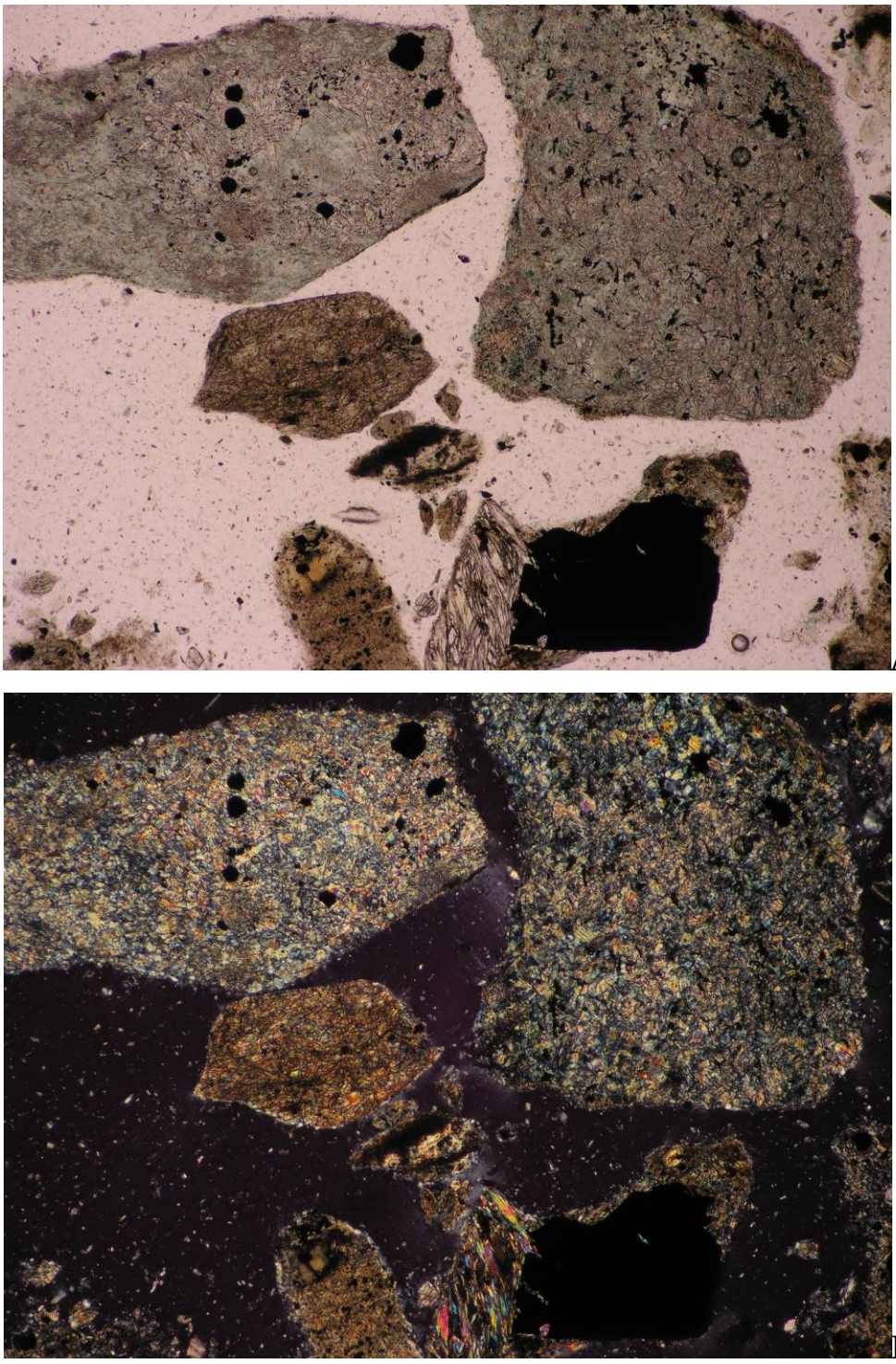
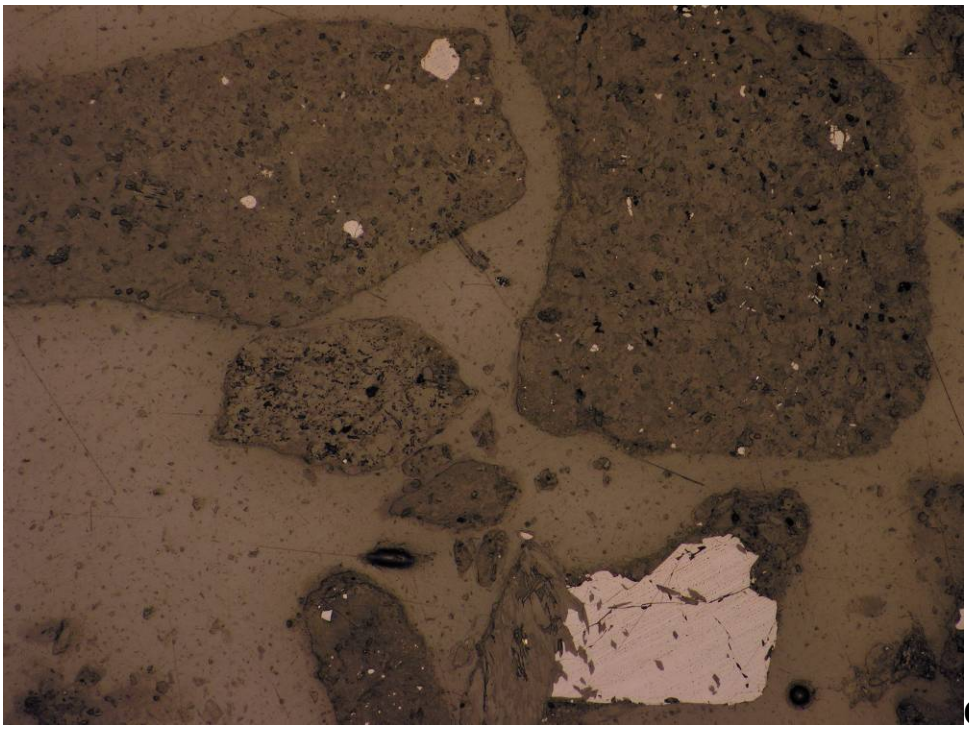
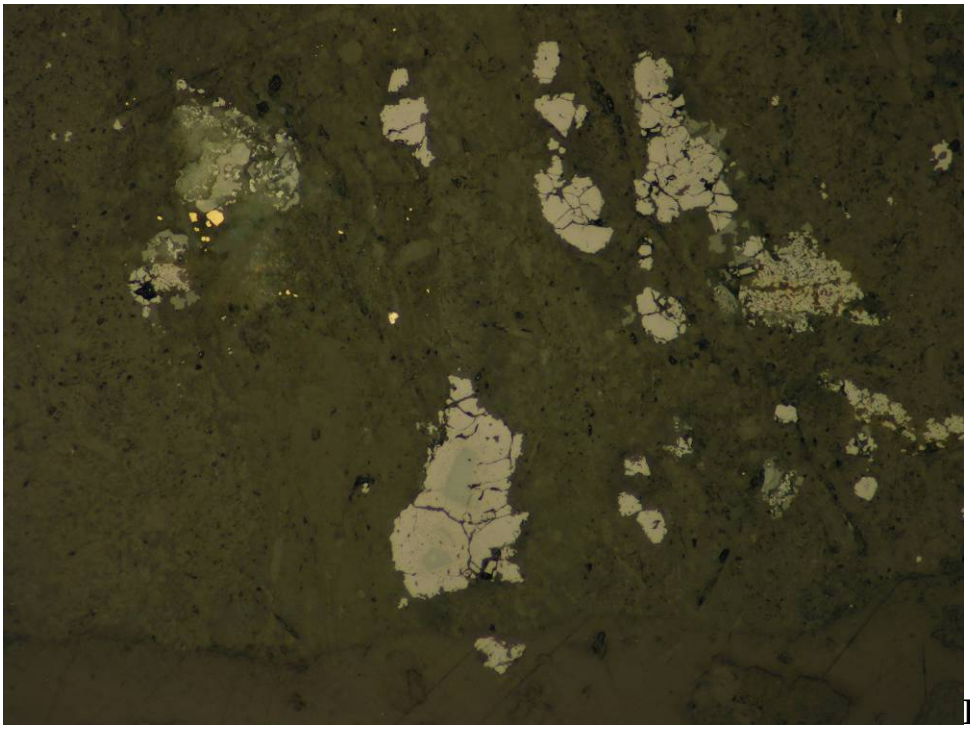


Fig. 4A & B: *View of sample Bin 4 Picrite showing clasts dominated by chlorite ± actinolite ± opaque minerals (green and pink in PPL), talc (colourless) ± opaque minerals or clay (brownish). A) PPL, B) XPL, FOV = ~ 7 mm.*



C

Fig. 4C: *Same view of sample Bin 4 Picrite showing magnetite forming most of the opaque phases. PPL, FOV = ~ 2.7 mm.*



D

Fig. 4D: *Detailed view of sample Bin 4 Picrite showing darker cores of possible chromite within magnetite and very small grains of disseminated chalcopyrite. RL, FOV = ~ 0.7 mm.*

3.5. Sample Bin 5 Cherry Creek

Hand sample description:

The sample is formed by off-white to brownish mineral particles and lithic clasts up to 2-3mm in size. Magnetic fragments are common and a strong reaction is produced with cold dilute HCl. Rare weakly stained patches of K-feldspar occur in the offcut (<<1%). Oxidized reddish fragments are common and brassy yellow masses of sulphides were also observed (~1%).

Thin section description:

The lithology in this strongly altered sample is similar to that of sample Bin 2 Sugarloaf, comprising fine-grained felsic fragments, characterized by strong alteration. Fine-grained, cloudy plagioclase is commonly replaced by secondary brownish K-feldspar, itself variably replaced by sericite and / or carbonate. No primary mafic phases were observed but clusters of chlorite ± epidote ± titanite ± rutile ± sulphides are common. Patches of brown possible clay also occur.

Carbonate is typically fine-grained, granular and disseminated within felsic clasts. It is colourless (likely calcite) stained by orange (Fe, Cu)-oxides or dark, cloudy and patchy (possible ankerite) intermixed with chlorite. Veinlets of fine-grained colourless carbonate also occur throughout the clasts.

Chalcopyrite and lesser pyrite are disseminated in clasts, chalcopyrite commonly displaying fractures and rims of grey (Fe, Cu)-oxides while pyrite grain boundaries are commonly sharp. However, pyrite cores are locally corroded. Trace bornite was observed, associated with chalcopyrite. Magnetite is also disseminated, only locally preserved from hematite alteration.

Modal composition and characterization of the minerals present in the section are shown in Table 5 and representative photomicrographs are presented in Figure 5.

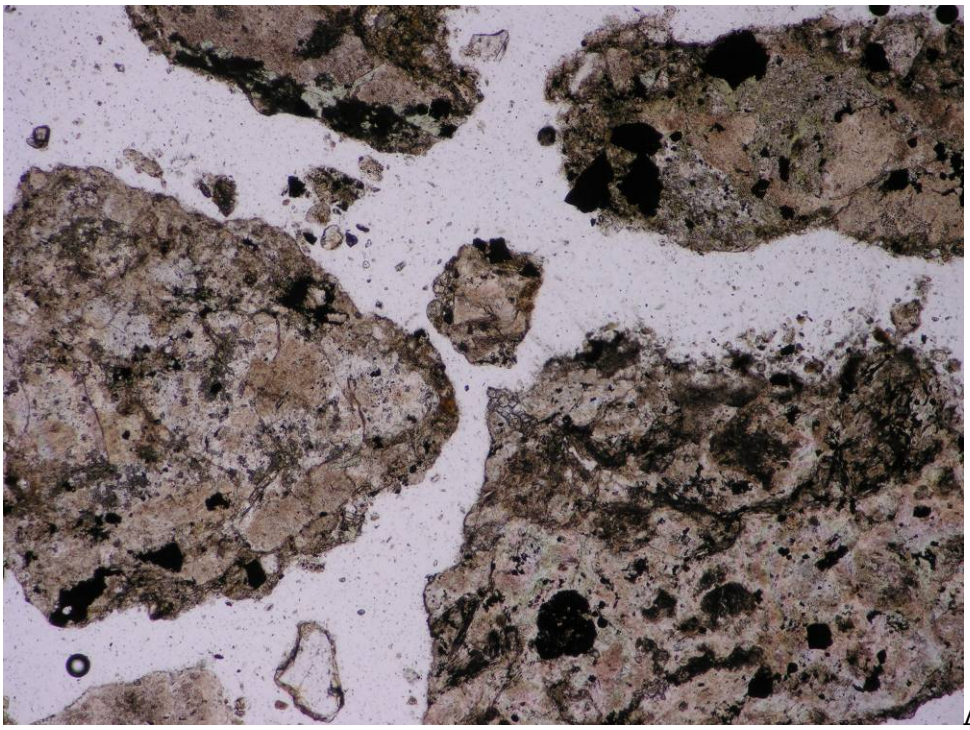
***Table5**: Modal composition and phase occurrences in sample Bin 5 Cherry Creek.*

MAJOR MINERALS

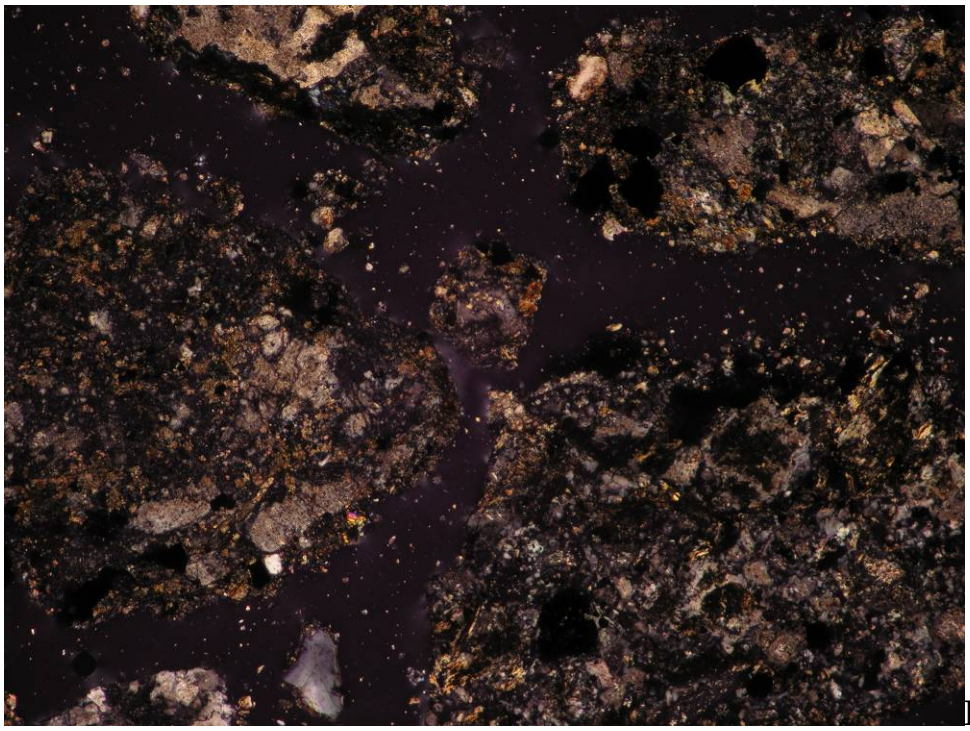
Mineral	%	Distribution & Characteristics
Feldspars	40	Small anhedral grains forming the framework of most fragments. Commonly cloudy to brownish due to alteration by secondary K-feldspar and variable replacement by sericite and or carbonate.
Carbonate	20	2 types: 1) Colourless small disseminated grains and clusters in clasts, commonly stained by (Fe, Cu)-oxides. 2) Brownish, fine-grained, patchy, associated with chlorite.
Chlorite	10	Small foliated sheaves and masses of sheaves in clasts, after actinolite or associated with sulphides,
Epidote - clinozoisite	8	Disseminated fine- to very fine-grained granular clusters in felsic clasts,
Muscovite -sericite	5	Extremely small sheaves after feldspars,
Clay	5	Dark brown masses throughout,

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Quartz	2	Disseminated small anhedral grains and clusters in clasts,
Hematite	2	Disseminated very small subhedral rectangular grains and clusters (typically <40 µm), sporadically preserving magnetite cores.
Chalcopyrite	1	Disseminated small to very small anhedral grains and masses (typically <100µm but up to 600 µm) in clasts. Commonly fractured with rims of (Fe, Cu) oxides and sporadically associated with bornite. Sporadic liberated grains.
Magnetite	1	Disseminated small subhedral rectangular grains (< 150 µm) variably replaced by hematite.
Pyrite	tr	Rare anhedral grains and clusters (< 100µm) in clasts typically with corroded cores but sharp grain boundaries.
Rutile	tr	Disseminated small granular clusters.
Titanite	tr	Rare small clusters commonly intermixed with rutile or associated with chlorite.
(Fe, Cu) oxides	tr	Variably thick coronas around chalcopyrite and stain throughout.
Bornite	tr	Rare small masses associated with chalcopyrite.

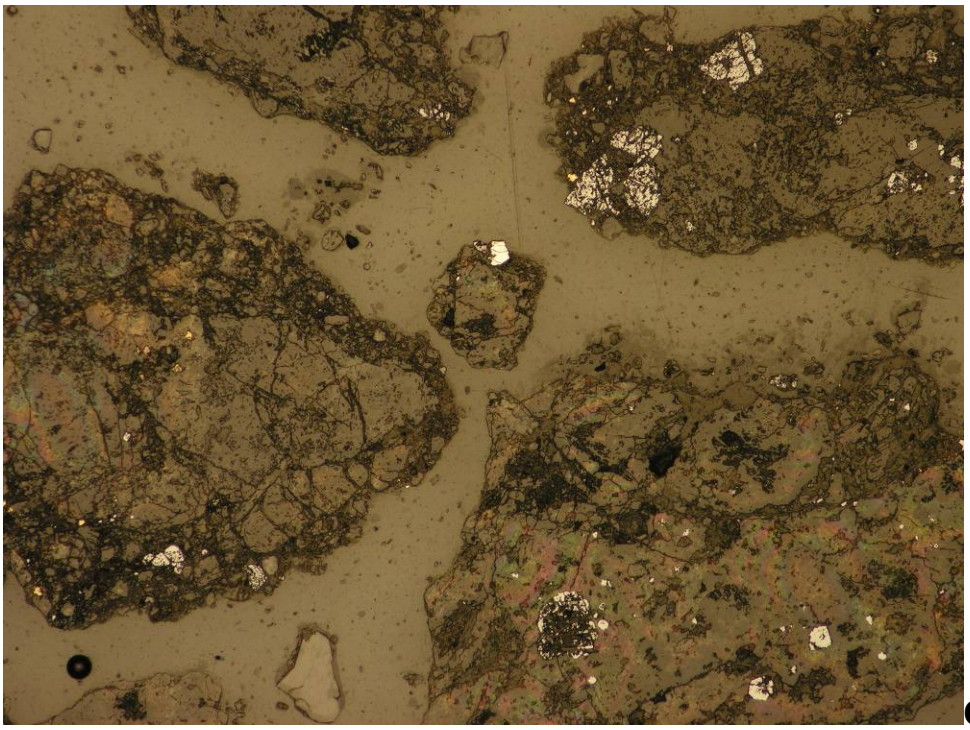


A



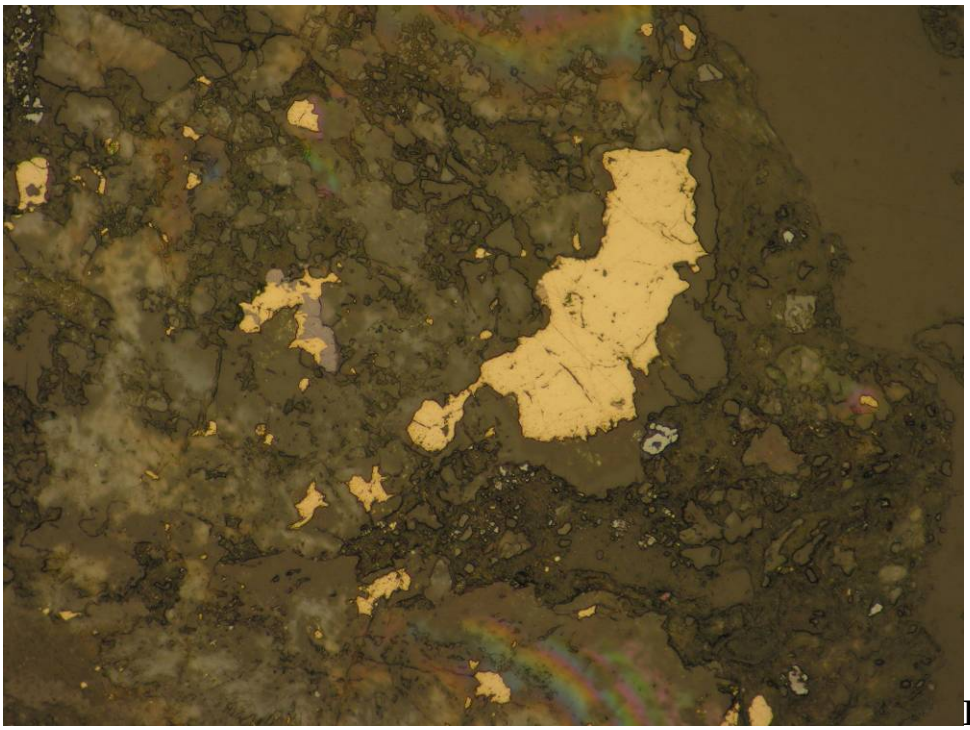
B

Fig. 5A & B: *View of sample Bin 5 Cherry Creek showing colourless to brownish feldspar dominated clasts. The cloudy to brownish aspect of plagioclase is mostly due to K-feldspar alteration. A) PPL, B) XPL, FOV = ~2. 7 mm.*



C

Fig. 5C: *Same view of sample Bin 5 Cherry Creek showing disseminated magnetite (grey) with trace pyrite (off-white) and chalcopyrite (bright yellow). RL, FOV = ~ 2.7 mm.*



D

Fig. 5D: *Magnified view of sample Bin 5 Cherry Creek showing chalcopyrite associated with purple-tarnished bornite. RL, FOV = ~ 0.7 mm.*

3.6. Sample Bin 6 Pothook

Hand sample description:

The sample consists of off-white to greenish grey mineral particles up to 2-3mm in size. Magnetic fragments are common and a strong reaction is produced with cold dilute HCl. Weakly yellow stained patches of K-feldspar are more common than in previous samples (~1%). Pinkish fragments of possible plagioclase also occur throughout.

Thin section description:

The sample appears less oxidized and less altered than the previous one, consisting of fragments of a similar lithology. Fine-grained granular primary feldspars form most fragments, variably altered by secondary brownish K-feldspar, sericite and / or carbonate. Clusters of epidote – clinozoisite ± chlorite ± titanite ± rutile ± sulphides / oxides are common and disseminated quartz and sheaves of biotite (possibly associated with vermiculite) are also present. Dark brown irregular masses of clay additionally occur throughout the clasts.

Two types of carbonate were recognized in the sample. Colourless carbonate occurs as anhedral to subhedral grains and clusters, disseminated in clasts (possible veins) and as liberated grains or granular fragments (<2%). The other type is darker, cloudy and pleochroic, occurring in patches as alteration of feldspars.

The dominant opaque minerals are magnetite, pyrite and chalcopyrite, all occurring as disseminated small grains within lithic clasts. Magnetite is commonly fractured along cleavage planes and coated by hematite. Pyrite and chalcopyrite are also commonly fractured but coated by (Fe, Cu)-oxides. Liberated grains of pyrite were sporadically observed in amounts well below 1%.

Modal composition and characterization of the minerals present in the section are shown in Table 6 and representative photomicrographs are presented in Figure 6.

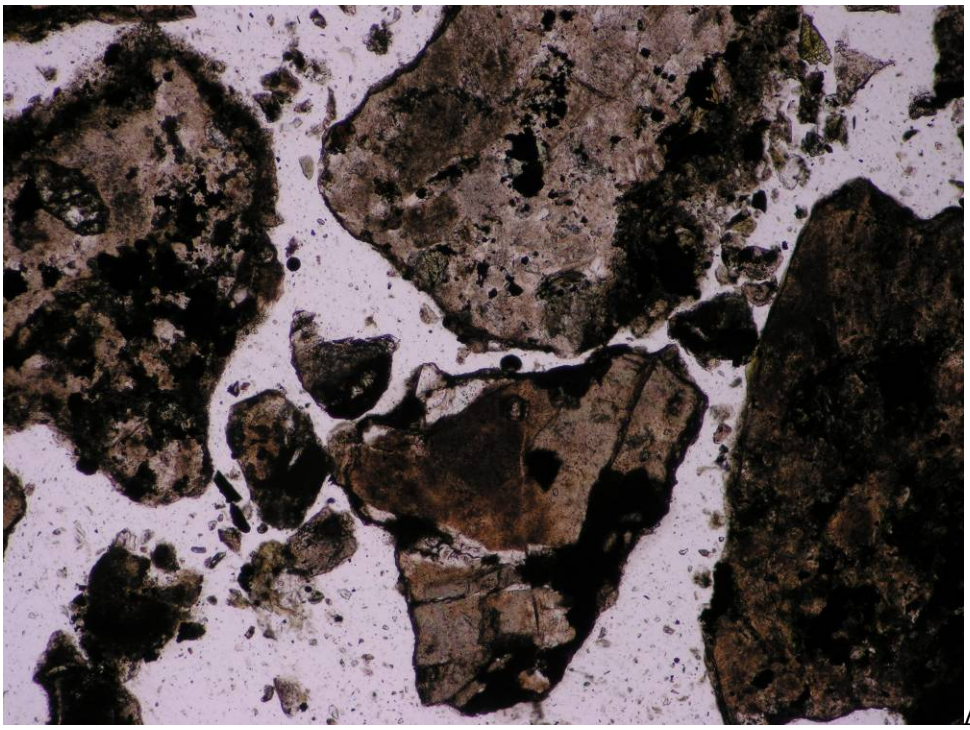
***Table 6**: Modal composition and phase occurrences in sample Bin 6 Pothook.*

MAJOR MINERALS

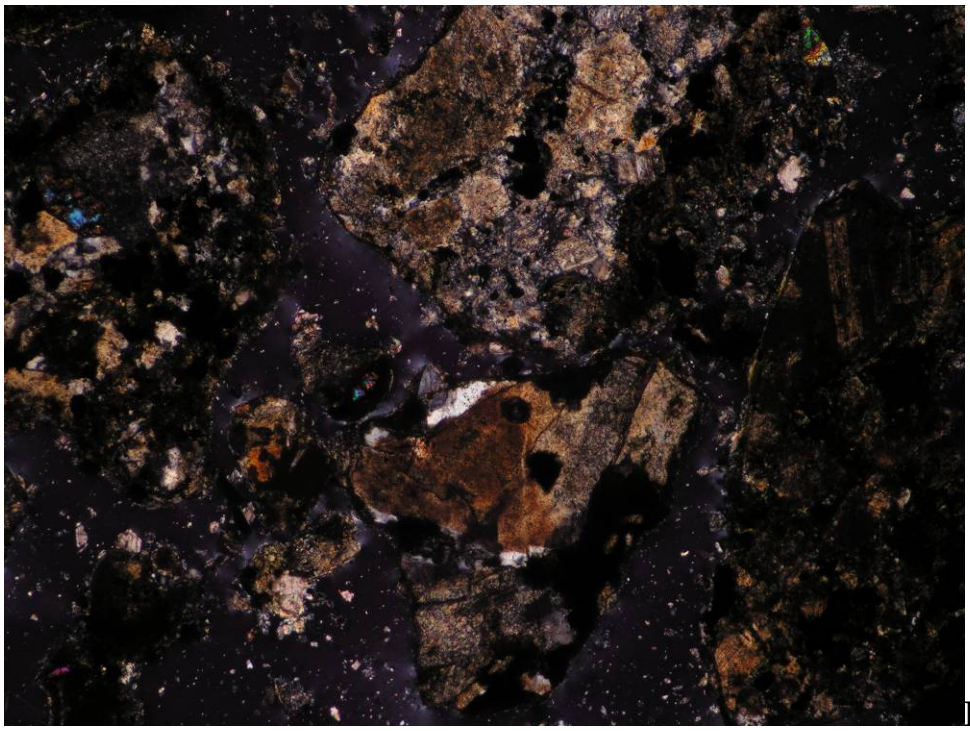
Mineral	%	Distribution & Characteristics
Feldspars	45	Small anhedral grains forming most fragments. Commonly cloudy to brownish due to alteration by secondary K-feldspar. Also variably replaced by sericite and /or carbonate.
Carbonate	12	2 types: 1) Colourless disseminated small grains and clusters in clasts and as liberated grains; 2) Brownish, fine-grained, patchy, after feldspar.
Muscovite - sericite	10	Extremely small sheaves after feldspar.
Epidote - clinozoisite	8	Disseminated fine- to very fine-grained granular clusters in felsic clasts.
Magnetite	5	Disseminated subhedral grains (< 400 µm), fractured and variably replaced by Fe-oxides, especially along cleavages.
Chlorite	5	Masses of small foliated sheaves associated with sulphides / oxides in clasts.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Clay	3	Brown, patchy masses throughout.
Quartz	3	Disseminated small grains and clusters in clasts.
Biotite	3	Masses of foliated sheaves in clasts.
Pyrite	2	Small to very small anhedral to subhedral grains and clusters (< 400µm) in clasts typically with sharp grain boundaries; although rims of (Fe, Cu)-oxides were also observed. Also as liberated grains.
Hematite	tr-1	Common alteration of magnetite.
Chalcopyrite	tr-1	Disseminated small to very small anhedral grains and masses in clasts (<150µm). Commonly fractured with rims of (Fe, Cu) oxides.
Rutile	tr	Disseminated small granular clusters.
Titanite	tr	Few small clusters.
(Fe, Cu) oxides	tr	Variably thick rims around chalcopyrite and pyrite.

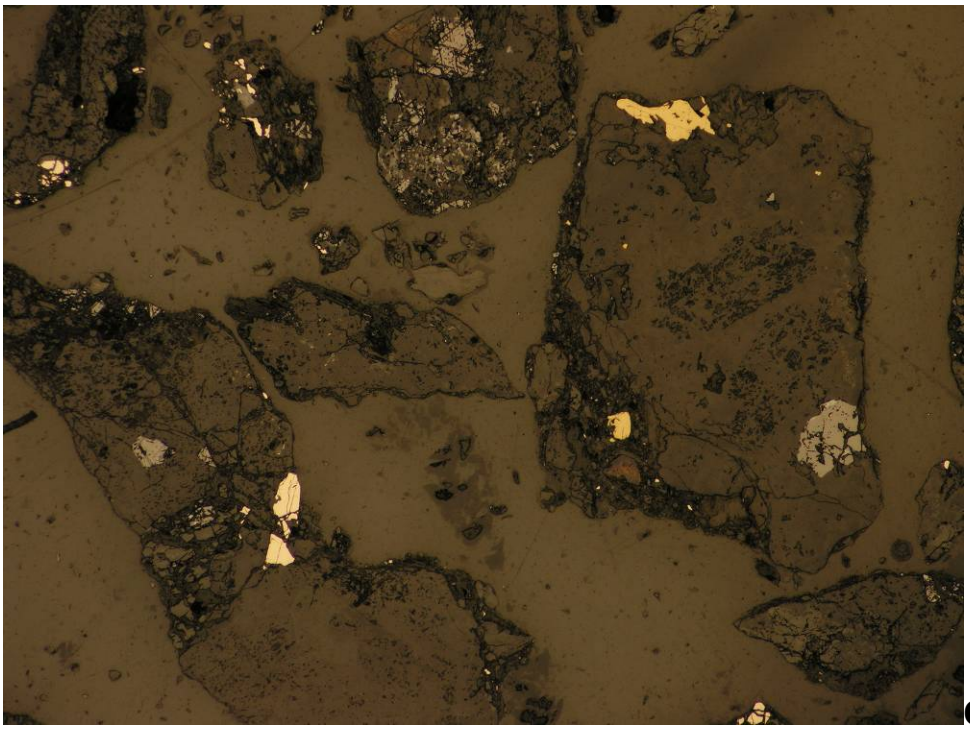


A



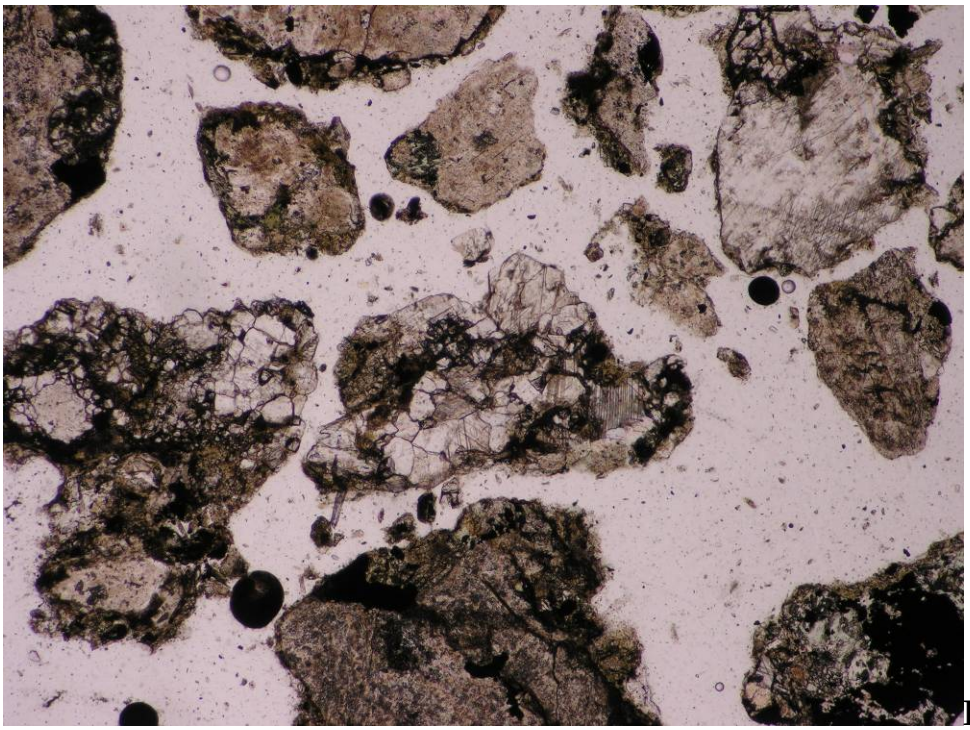
B

Fig. 6 A & B: *Representative view of sample Bin 6 Pothook showing brownish K-feldspar-altered plagioclase-dominated clasts. The brown colour of secondary K-feldspar is enhanced by the fact that the section is slightly thick. A) PPL, B) XPL, FOV = ~ 2.7 mm.*



C

Fig. 6 C: *View of sample Bin 6 Pothook showing the dissemination of magnetite (grey), chalcopyrite (bright yellow) and pyrite (off-white) throughout the sample. RL, FOV = ~ 2.7 mm.*



D

Fig. 6D: *View of sample Bin 6 Pothook showing colourless granular carbonate throughout the clasts. PPL, FOV = ~ 2.7 mm.*

3.7. Sample Bin7 Sugarloaf

Hand sample description:

The sample consists of mineral particles and lithic clasts, up to 2-3mm in size displaying a pale brownish colour. Magnetic fragments occur throughout but are less common than in the previous samples. Reaction with cold dilute HCl is strong. Rare weakly yellow stained patches of K-feldspar were observed (<<1%). Pinkish possible plagioclase fragments and brassy yellow masses of sulphides also occur throughout.

Thin section description:

The sample is mineralogically similar to the previous one, characterized by feldspar-dominated fragments. Feldspar is variably altered, replaced by secondary, brownish K-feldspar, sericite and / or carbonate. Replacement by turbid clay also occurs in some fragments. Disseminated grains of quartz occur and clusters of clinopyroxene are locally preserved; although mafic phases are typically replaced by fine-grained aggregates of actinolite ± chlorite ± carbonate ± epidote ± titanite ± sulphides / oxides.

Three types of carbonate occur in the sample. Colourless carbonate (likely calcite as indicated by XRD results) is dominant and occurs as liberated fine-grained granular clusters and broken grains, likely representing vein material. The second type of carbonate is cloudy, weakly coloured and pleochroic, (XRD suggests ankerite), mostly occurring in clasts as an alteration product of feldspar and mafic minerals. The third type is orange-red (siderite), very fine-grained and occurs sporadically disseminated in felsic clasts.

Fine- to very fine-grained chalcopyrite and pyrite are disseminated in clasts and occur as rare liberated grains. Pyrite grain boundaries are sporadically corroded and rimmed by (Fe, Cu)-oxides that also stain the sample. Covellite locally rims chalcopyrite. Magnetite is also disseminated, variably pitted and replaced by red hematite.

Modal composition and characterization of the minerals present in the section are shown in Table 7 and representative photomicrographs are presented in Figure 7.

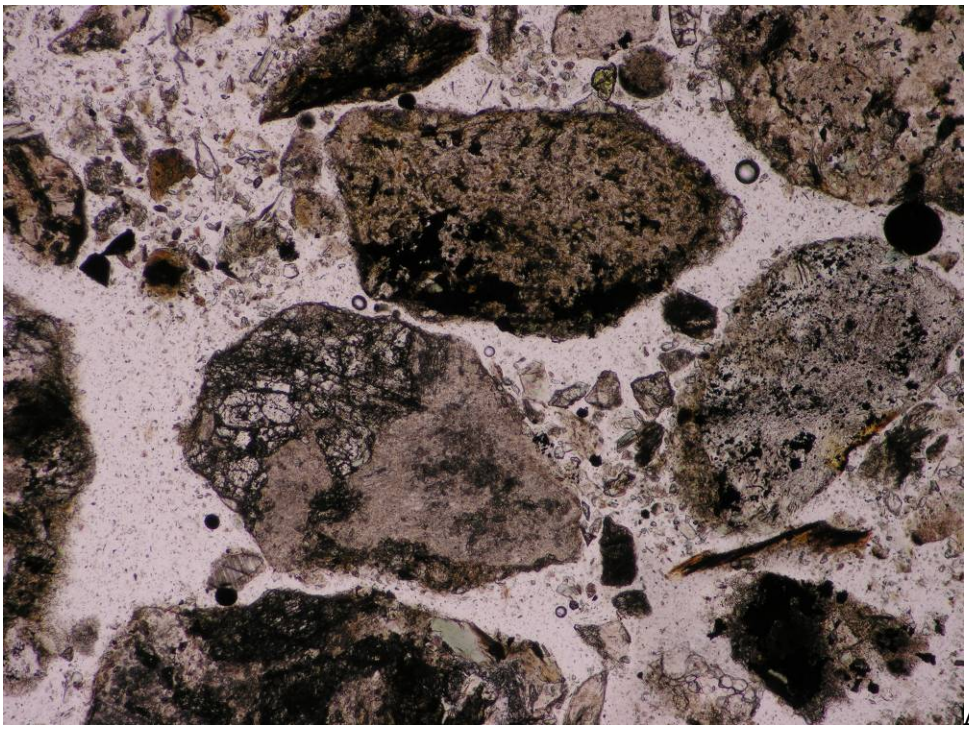
Table 7: *Modal composition and phase occurrences in sample Bin7 Sugarloaf.*

MAJOR MINERALS

Mineral	%	Distribution & Characteristics
Feldspars	40	Forms a granular framework in most fragments. Fine-grained, anhedral to subhedral, variably altered by sericite and / or carbonate. Displays polysynthetic twinning and cloudy to brownish colours due to replacement by secondary K-feldspar.
Carbonate	20	3 types: 1) Colourless, granular. Typically occurring in fine-grained clusters with or without quartz (/vein fragments). 2) Cloudy, pleochroic. Fine-grained, patchy. Occurs in clasts, as alteration of feldspar. 3) Reddish. Very fine-grained to microcrystalline. Occurs in rare clusters.
Chlorite	8	Masses of small sheaves throughout clasts.
Muscovite / sericite	5	Very small sheaves and anhedral grains after feldspar.
Actinolite	5	Small acicular grains throughout clasts, associated with chlorite ± carbonate ± epidote ± titanite ± sulphides / oxides.
Clay	5	Dark brown, aphanitic in patches throughout clasts.

MINOR MINERALS

Mineral	%	Distribution & Characteristics
Epidote / clinozoisite	3	Small anhedral grains in clusters throughout clasts.
Quartz	3	Very fine-grained, anhedral in clusters within felsic, mafic and carbonate clasts and as liberated grains.
Chalcopyrite	2	Anhedral grains and masses (<500 µm) in clasts and liberated. Typically displaying sharp grain boundaries, but sporadically rimmed by covellite.
Magnetite	1-2	Anhedral grains (<200 µm) in clasts. Locally replaced along grain boundaries by hematite.
Clinopyroxene	tr-1	Small anhedral grains in clasts.
(Fe-Cu)-oxides	tr-1	Thin rims around sulphides and orange stain throughout.
Titanite	tr-1	Clusters of small subrounded grains throughout clasts.
Pyrite	tr-1	Small anhedral grains (<250 µm), in clasts and liberated. Display clean, unaltered to corroded Fe-oxide coated grain boundaries.
Covellite	tr	Local rim around chalcopyrite.



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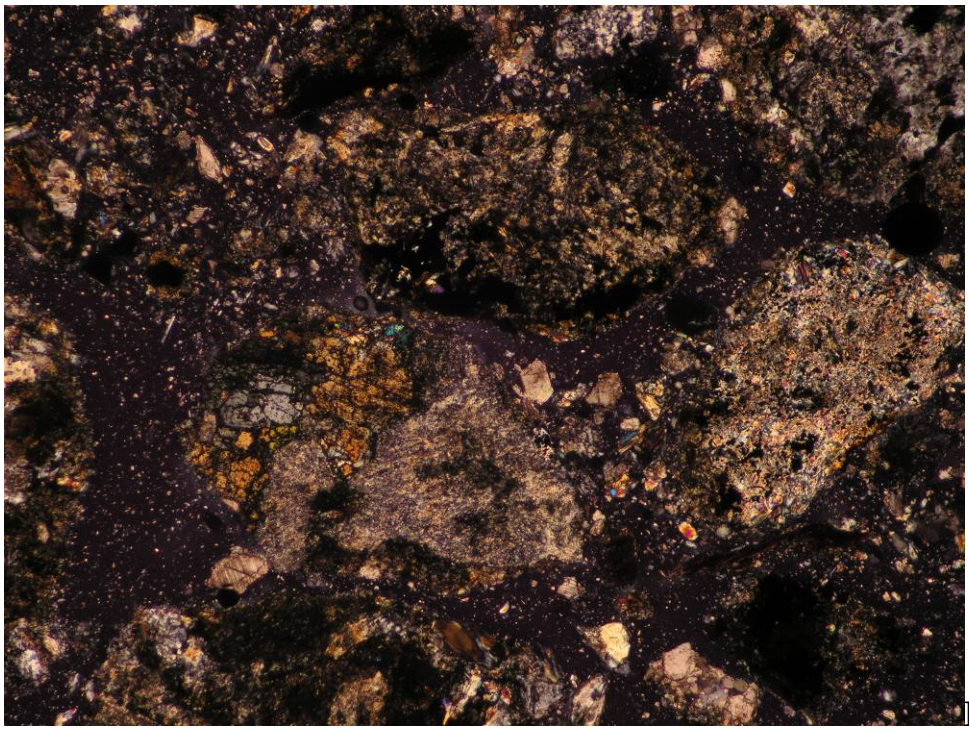
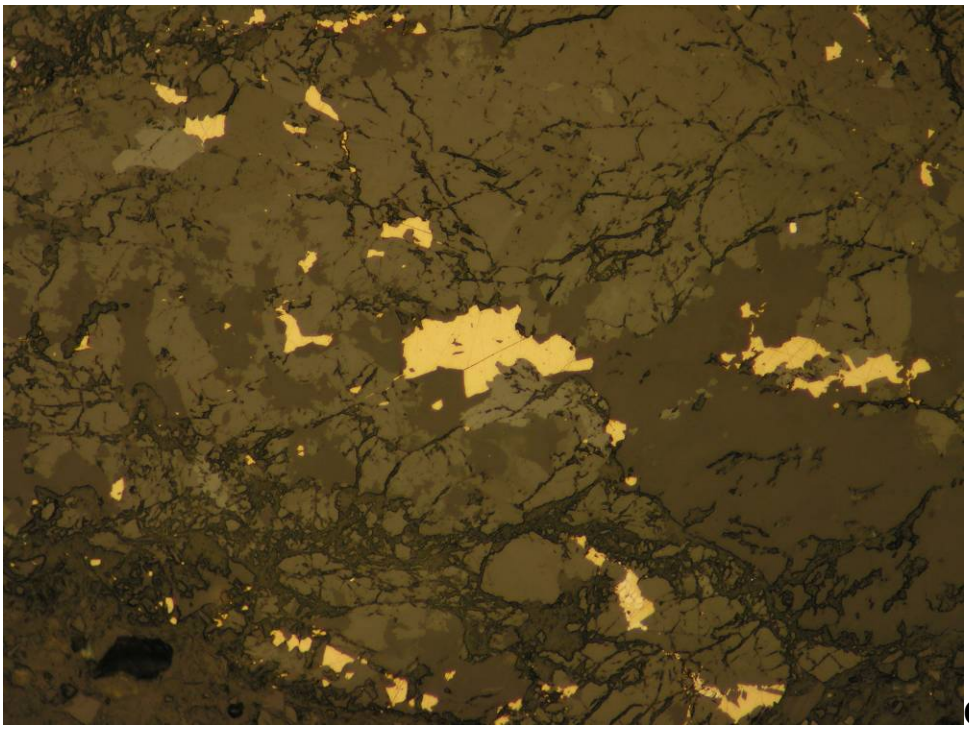


B

Fig. 7 A & B: *Representative view of sample Bin7 Sugarloaf showing altered plagioclase-dominated clasts. A) PPL, B) XPL, FOV = ~ 7 mm.*



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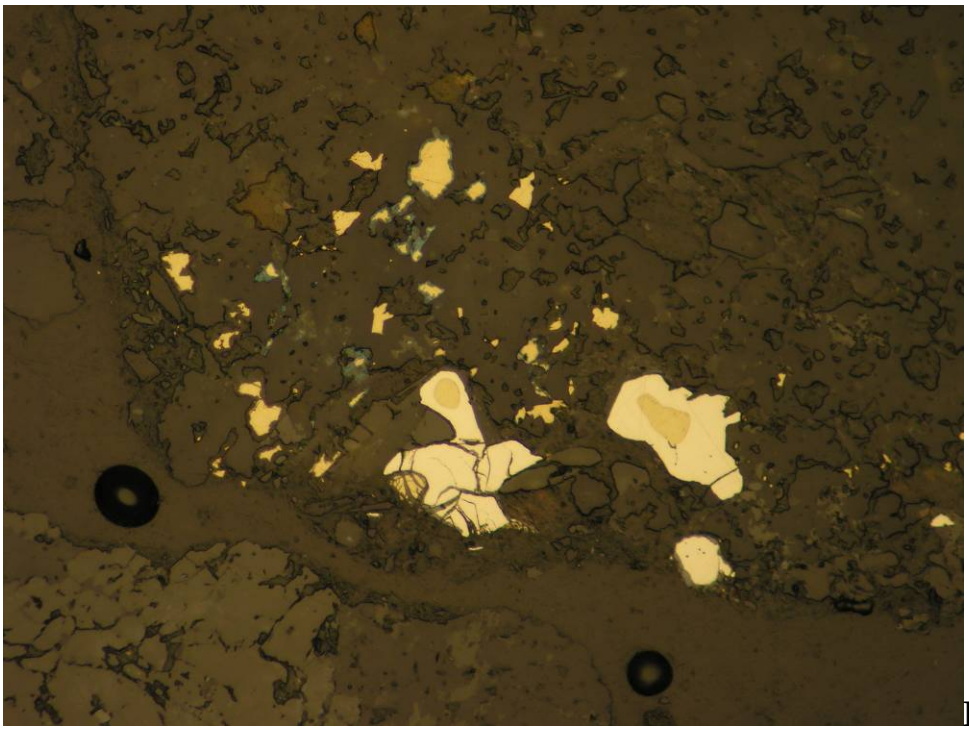

D

Fig. 7 C & D: *Detailed views of sample Bin7 Sugarloaf showing C) disseminated chalcopyrite with clear grain boundaries and D) disseminated chalcopyrite with rims of blue covellite and cores of chalcopyrite within pyrite. RL, FOV = ~ 0.7 mm*

4. SUMMARY AND CONCLUSION

Three broad lithologies are represented in the sample suite, characterized by different gangue, sulphide and oxide mineralogy.

4.1 Gangue minerals

Five of the seven samples represent variably altered, fine-grained silica-saturated felsic rocks (samples Bin 2 Sugarloaf, Bin 3 Iron Mask, Bin 5 Cherry Creek, Bin 6 Pothook and Bin 7 Sugarloaf). These are likely of dioritic composition as suggested by geology descriptions provided by the Client. They dominantly consist of plagioclase and various amounts of K-feldspar (likely mostly secondary), variably altered by sericite and carbonate. They typically do not preserve any primary mafic phases except for some hornblende grains in sample Bin 3 Iron Mask, sheaves of biotite in sample Bin 6 Pothook and trace clinopyroxene grains in sample Bin 7 sugarloaf. Mafic phases are typically altered to chlorite ± actinolite ± epidote / clinozoisite ± titanite ± rutile ± vermiculite (identified by XRD). Sample 2 Sugarloaf and Bin 3 Iron Mask differ from the other diorite-classified samples. Sample 2 Sugarloaf is characterized by the absence of K-feldspar and magnetite suggesting no potassic alteration affected the sample. Sample Bin 3 Iron Mask is marked by lower plagioclase content, by a lack of K-feldspar and by a higher concentration of vermiculite, possibly due to more pervasive sericite – carbonate alteration at the expense of K-feldspar, but also to a higher content of mafic minerals.

Sample Bin 1 Iron Mask represents a pervasively altered mafic rock, characterized by the presence of trace amounts of felsic phases. Clinopyroxene forms most of the fragments and is variably altered by biotite ± clay ± carbonate. Disseminated actinolite and epidote / clinozoisite are present.

Sample Bin 4 Picrite is of a pervasively altered ultramafic rock, dominantly consisting of actinolite ± chlorite ± talc ± clay. Olivine is sporadically preserved but typically altered to serpentine ± chlorite. Small amounts of carbonate and biotite also occur.

4.2 Carbonate

Based on visual estimation, the felsic samples contain approximately 12 to 25% carbonate, whereas the mafic samples contain 5-8% carbonate.

The most common carbonate type is colourless probable calcite and occurs as granular clusters, commonly liberated and likely representing vein material. Disseminated grains in clasts are also common.

Cloudy and pleochroic carbonate (likely dolomite and /or ankerite) also occurs in all felsic samples, typically forming anhedral grains and masses in clasts.

An orange-stained microcrystalline carbonate (likely siderite) was recognized in samples Bin 3 Iron Mask and Bin 7 Sugarloaf. This occurs in trace amounts within clasts.

4.3 Sulphides/Oxides

Mineralization in all samples is weak, consisting of pyrite and chalcopyrite in amounts varying from trace amounts to approximately 2%. Magnetite occurs in all samples and is variably altered to hematite.

The felsic samples are typically more mineralized than the mafic samples (except for sample Bin 3 Iron Mask), with pyrite and chalcopyrite occurring disseminated throughout clasts or sporadically forming liberated grains. Pyrite and chalcopyrite are also typically coarser-grained than in mafic samples (up to 600 µm). Grain boundaries are commonly corroded and rimmed by (Fe, Cu)-oxides, including covellite in sample Bin 2 Sugarloaf. Trace very fine-grained bornite was additionally observed associated with chalcopyrite in samples Bin 2 sugarloaf and Bin 5 Cherry Creek.

In mafic samples, pyrite and chalcopyrite occur in trace amounts, chalcopyrite forming disseminated very small grains and blebs in clasts, inclusions in magnetite and sporadic liberated grains. Pyrite grains are rare and sporadically occur as inclusions within magnetite. Rims of (Fe, Cu)-oxides are common around chalcopyrite.

Magnetite occurs in amounts ranging from 2-5% in felsic samples and from 7-10% in mafic samples, forming small anhedral to subhedral masses variably altered to hematite. A possible association with chromite was observed in sample Bin 4 Picrite.

Weathered orange-brown Fe-stained clasts also occur in most samples.

5. BIBLIOGRAPHY

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Geology reported by:
Alexandra Mauler, Ph. D.

Signed and sealed on December14, 2007
by Tom Novicki, P. Geo.
APEG BC Lic. # 30747

APPENDIX B-1.3 LAB KINETIC TEST XRD REPORT

QUANTITATIVE PHASE ANALYSIS OF EIGHT POWDER SAMPLES USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA.

(Project: 1018 Abacus – PO# 42321)

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March 29, 2011

QUANTITATIVE PHASE ANALYSIS OF TWO POWDER SAMPLES USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA.

Project: 1018 Abacus Ajax Mine – PO# 42477

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March 21, 2012 – REVISED on Aug 15, 2012

EXPERIMENTAL METHOD

The two samples of **Project 1018 Abacus Ajax Mine** were reduced to the optimum grain-size range for quantitative X-ray analysis (<10 μm) by grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Continuous-scan X-ray powder-diffraction data were collected over a range 3-80°2θ with CoKa radiation on a Bruker D8 Focus Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6°.

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 and Search-Match software by Siemens (Bruker). X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1 – 2.

The clinozoisite shares the main peak position (i.e. overlaps) with ankerite-dolomite and when present in small amounts it can be missed because other diagnostic peaks are also overlapped. The only peaks that seem to justify the presence of clinozoisite are at 20.5 deg 2Th and 12.7 deg 2Th. In the REVISED analysis both clinozoisite and ankerite-dolomite have been used.

Also, for both samples the crystal structure of muscovite 1M polytype has been added to that of the more common muscovite 2M which enhances the fitting.

Table 1. Results of quantitative phase analysis (wt.%)

Mineral	**Ideal Formula**	**Col 2Ac-WR***	**Col 2Sul-WR***
Quartz	SiO_2	6.0	5.9
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	9.6	8.9
Muscovite 2M	$KAl_2(AlSi_3O_{10})(OH)_2$	4.5	3.7
Muscovite 1M	$KAl_2(AlSi_3O_{10})(OH)_2$	4.4	4.4
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	41.7	42.4
K-Feldspar	$KAlSi_3O_8$	7.8	7.1
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	11.7	11.1
Ankerite – Dolomite ?	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	0.7	0.7
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$	3.8	4.3
Clinozoisite	$Ca_2Al_3(SiO_4)_3(OH)$	5.2	6.3
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	3.5	3.7
Chalcopyrite ?	$CuFeS_2$	0.3	0.7
Pyrite ?	FeS_2	0.8	0.7
Total		100.0	100.0

*Revised

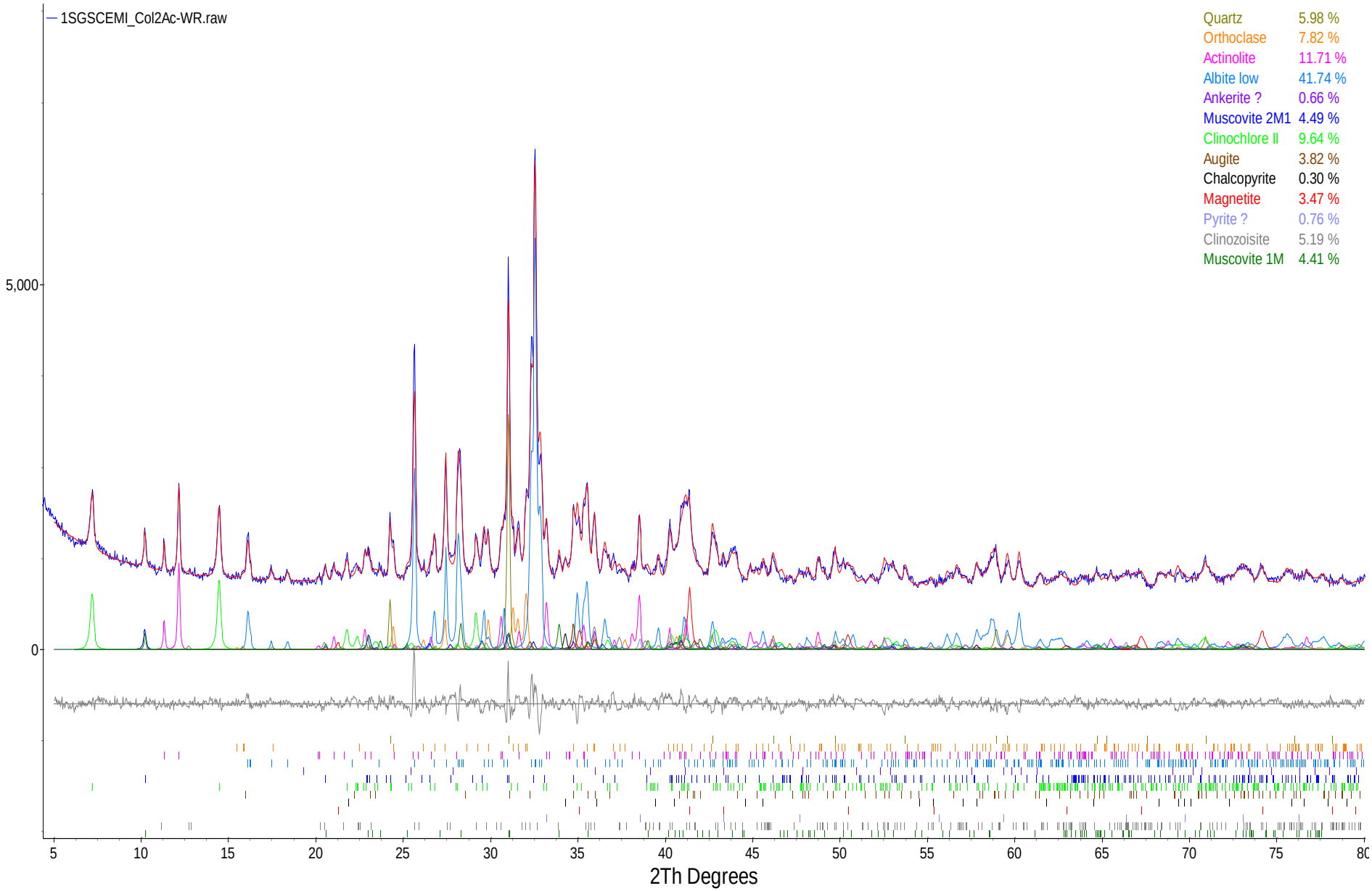

Figure 1. Rietveld refinement plot of sample **SGS CEMI "Col 2Ac-WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases. REVISED

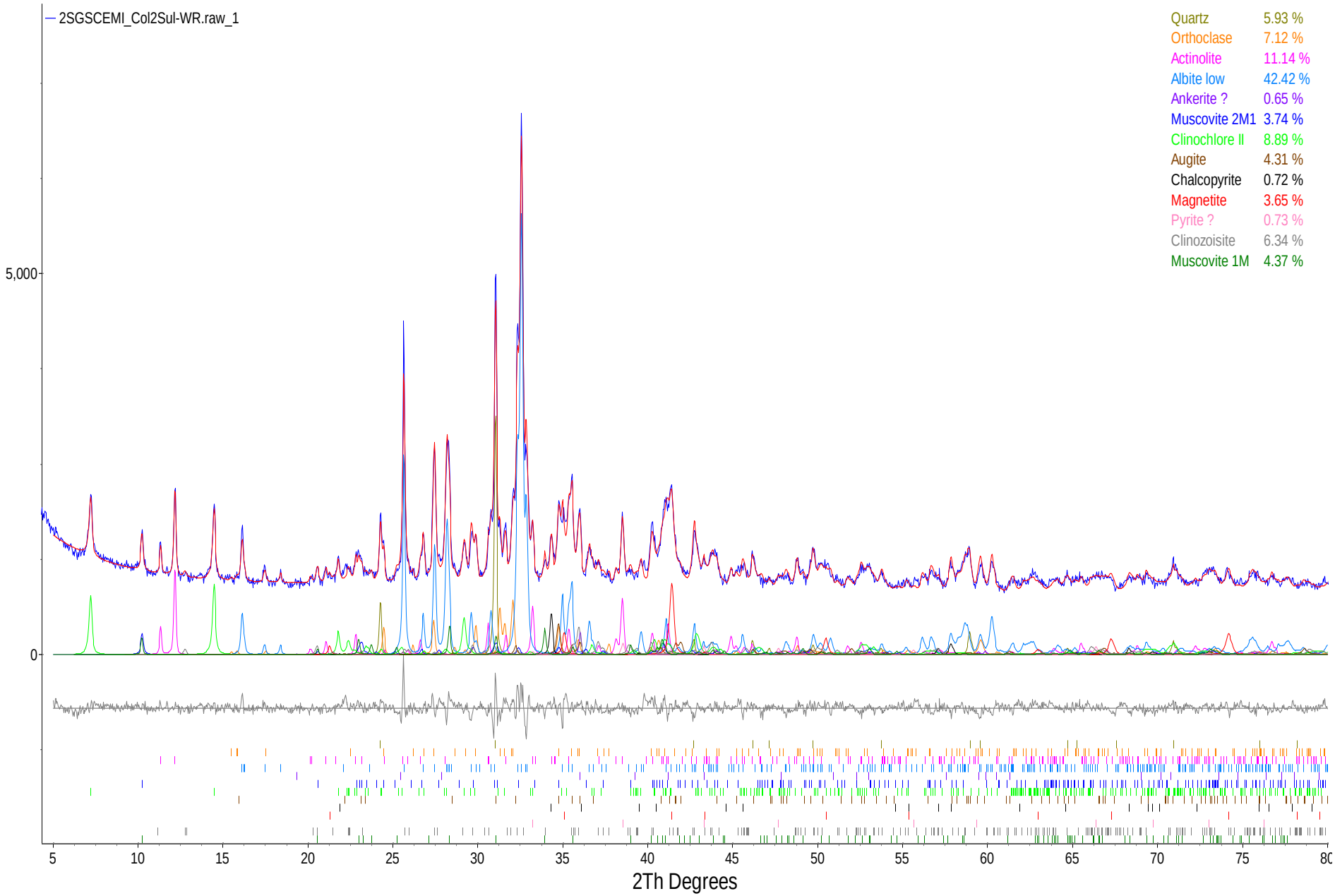

Figure 2. Rietveld refinement plot of sample **SGS CEMI "Col 2Sul-WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases. REVISED

EXPERIMENTAL METHOD

The eight samples of **Project 1018 Abacus** were reduced to the optimum grain-size range for quantitative X-ray analysis (<10 μm) by grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Step-scan X-ray powder-diffraction data were collected over a range 3-80°2θ with CoKa radiation on a Bruker D8 Focus Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6°.

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 and Search-Match software by Siemens (Bruker). X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1 – 8.

Table 1. Results of quantitative phase analysis (wt.%)

Mineral	**Ideal Formula**	**COL 1 – ORE**	**COL 2 – WR**	**COL 2 – WR NP Removed**	**COL 3 – WR**	**COL 3 – WR NP Removed**	**COL 4 – WR**	**COL 5 – WR**	**COL 6 - WR**
Quartz	SiO_2	3.1	5.2	5.1	2.8	2.7	1.3	3.4	1.3
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	6.7	8.1	8.6	11.4	10.6	8.8	12.0	16.1
Vermiculite	$(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$	2.1	1.2	1.2	1.6	2.3	0.2	1.0	0.7
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	7.2	5.8	6.6	6.1	5.4	3.4	4.4	4.2
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	1.2	1.1			1.6	2.7	4.3	13.0
Gypsum	$CaSO_4 \cdot 2H_2O$	2.1			1.3				0.8
K-Feldspar	$KAlSi_3O_8$	5.5	7.2	7.5	5.2	4.0	6.0	2.4	3.6
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	42.1	41.6	43.4	31.3	35.8	18.0	9.4	8.0
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	11.6	10.8	10.3	19.7	20.6	5.5	6.6	44.9
Diopside	$CaMgSi_2O_6$		3.6	2.9	1.9	2.7	34.8	38.7	4.2
Clinozoisite	$Ca_2Al_3(SiO_4)_3(OH)$	7.3	6.8	8.3	7.0	7.5	4.7		
Calcite	$CaCO_3$	4.7	3.4		3.1	0.5	2.5	5.6	
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	2.5			1.2	1.0			
Hydroniumjarosite	$(H_3O^{1+})_2Fe_6^{3+}(SO_4)_4(OH)_{12}$	1.5	1.0	1.3			1.5	0.9	
Jarosite	$K_2Fe_6^{3+}(SO_4)_4(OH)_{12}$					0.8			
Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$								0.4
Magnetite	$Fe^{2+}Fe^{3+}{}_2O_4$	0.9	4.3	3.9	2.5	2.6	10.8	10.7	2.1
Pyrite	FeS_2	1.4		0.8	1.9	2.0		0.5	0.8
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

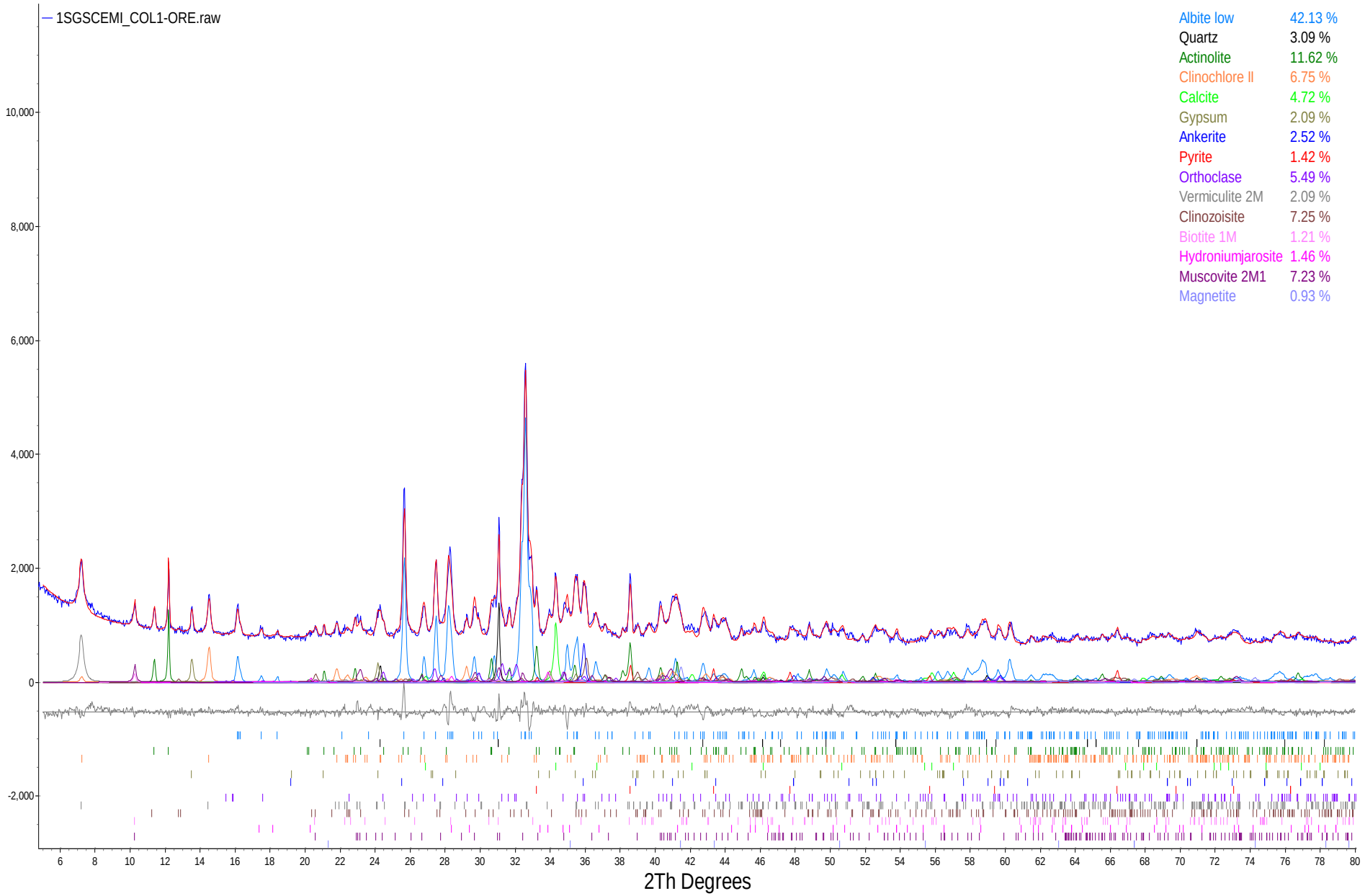

Figure 1. Rietveld refinement plot of sample **SGS CEMI "COL 1 – ORE"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

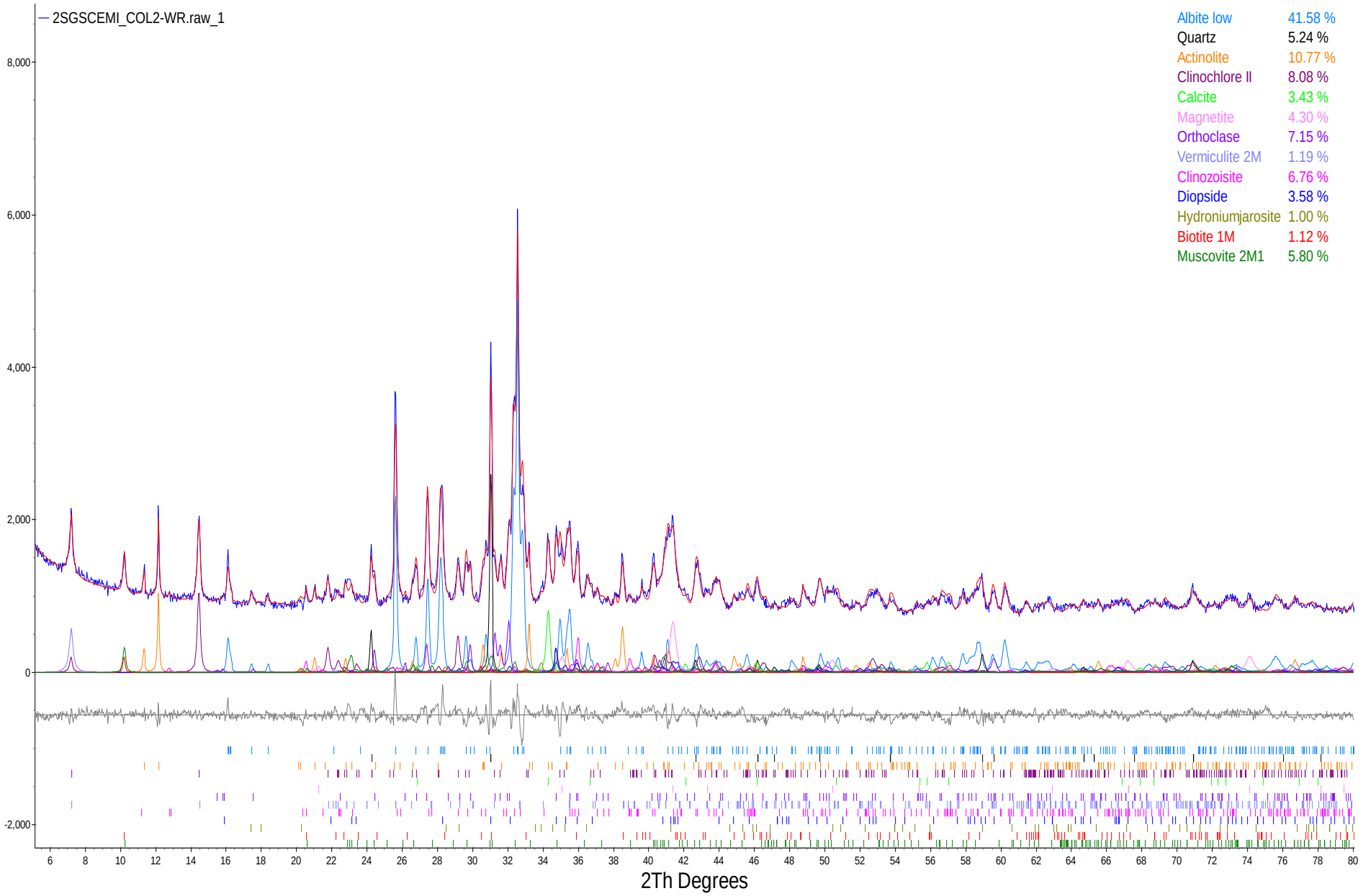

Figure 2. Rietveld refinement plot of sample **SGS CEMI "COL 2 – WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

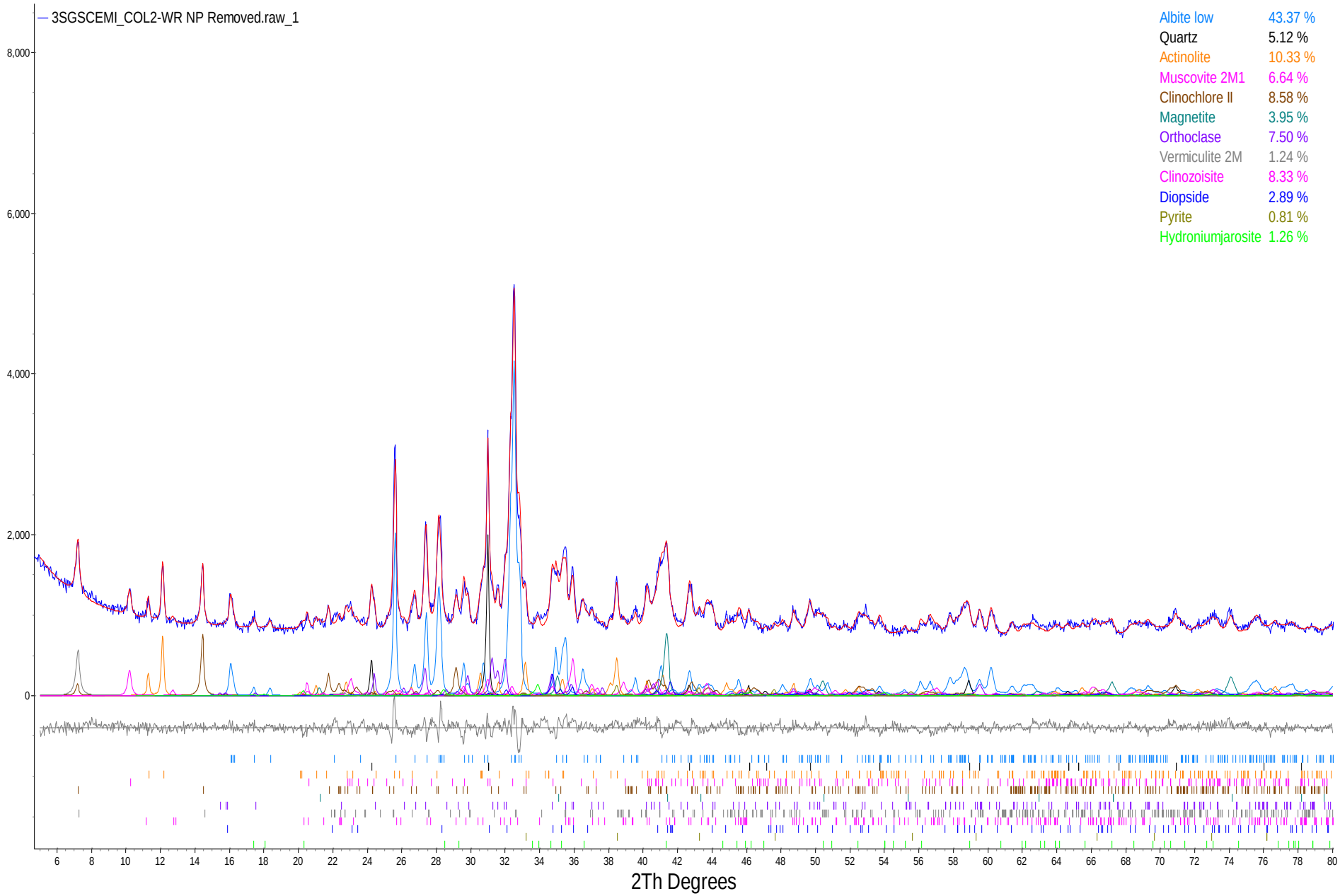

Figure 3. Rietveld refinement plot of sample **SGS CEMI "COL 2 – WR NP Removed"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

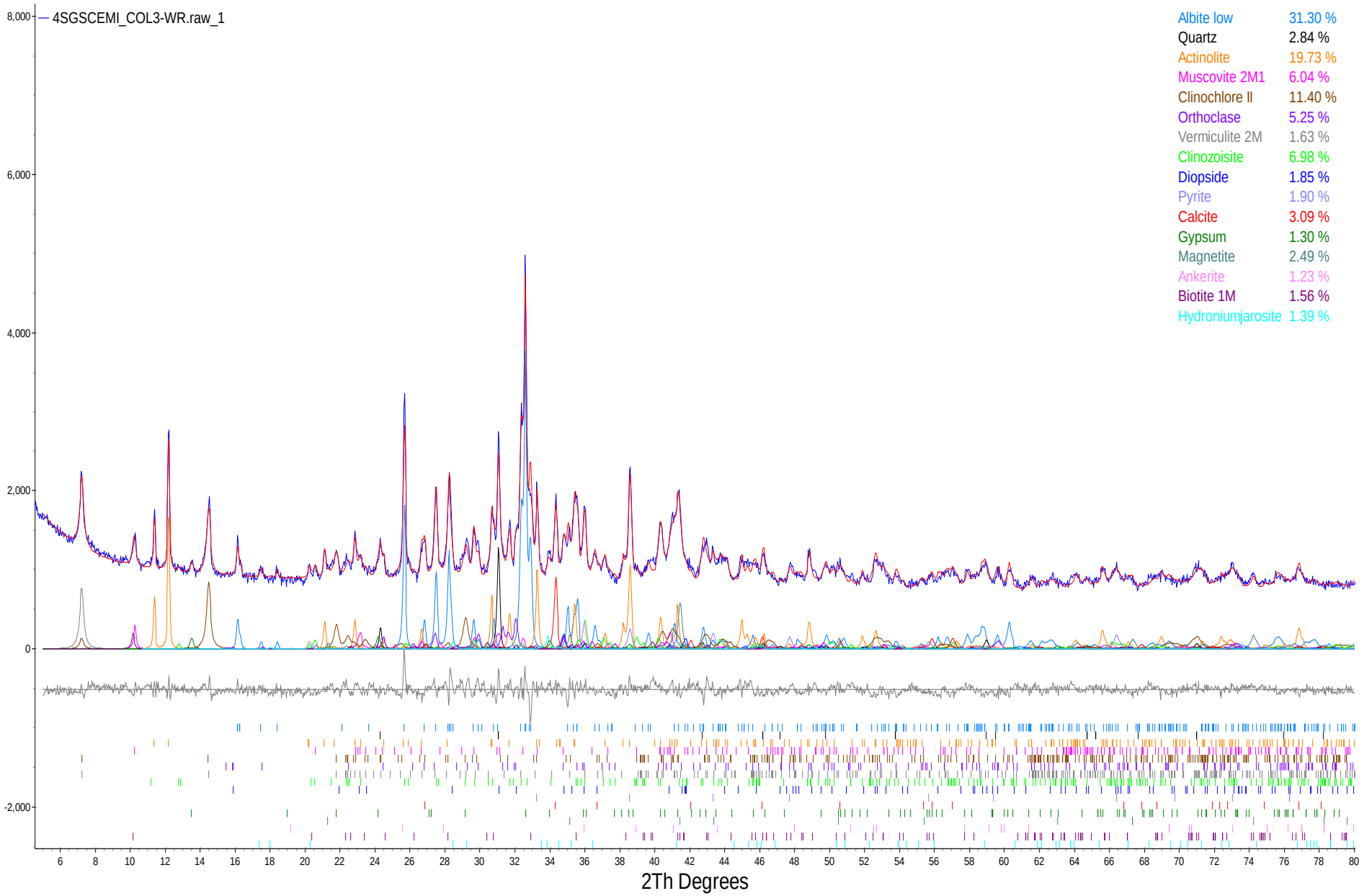

Figure 4. Rietveld refinement plot of sample **SGS CEMI "COL 3 – WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

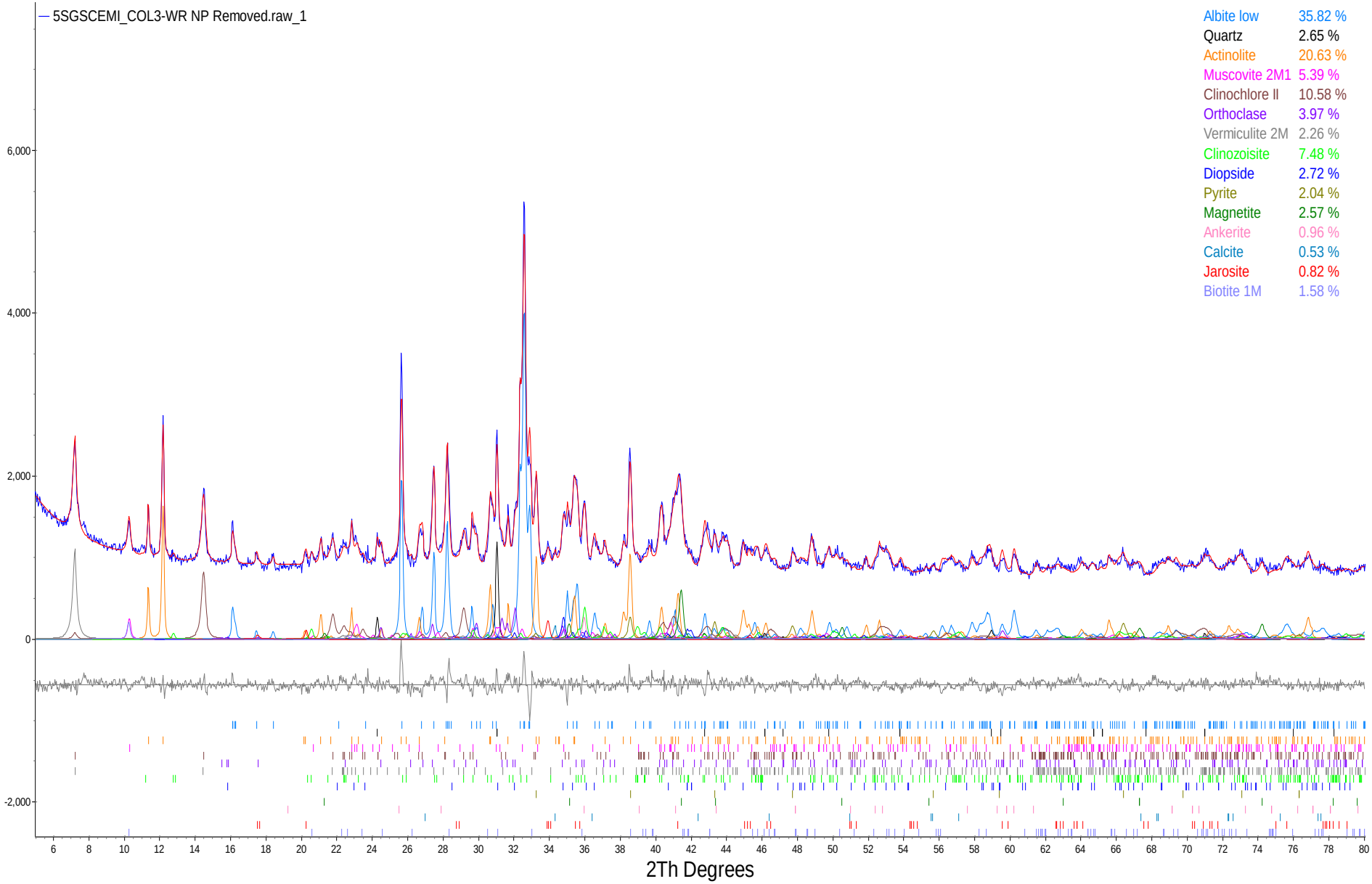

Figure 5. Rietveld refinement plot of sample **SGS CEMI "COL 3 – WR NP Removed"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

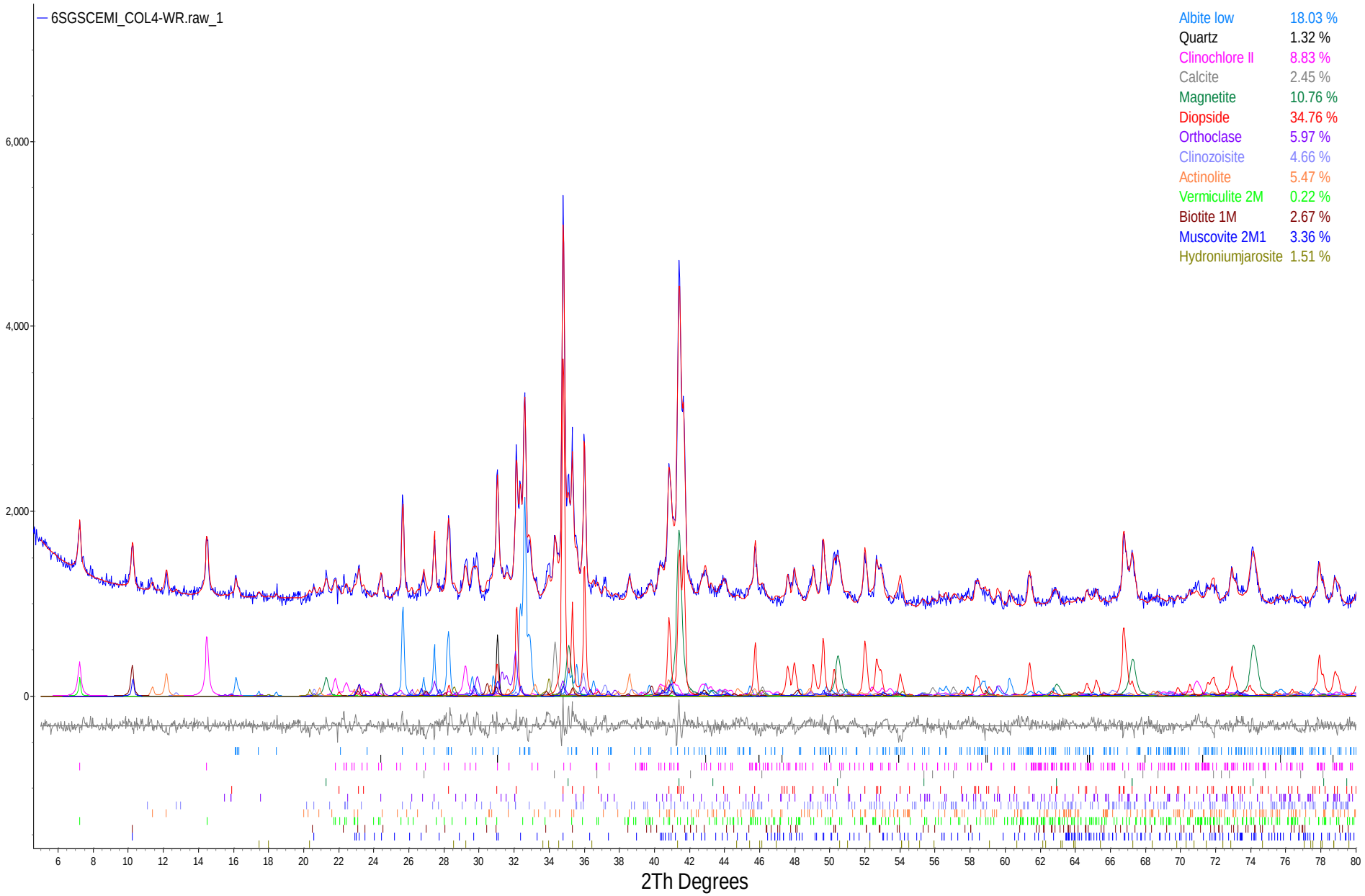

Figure 6. Rietveld refinement plot of sample **SGS CEMI "COL 4 – WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

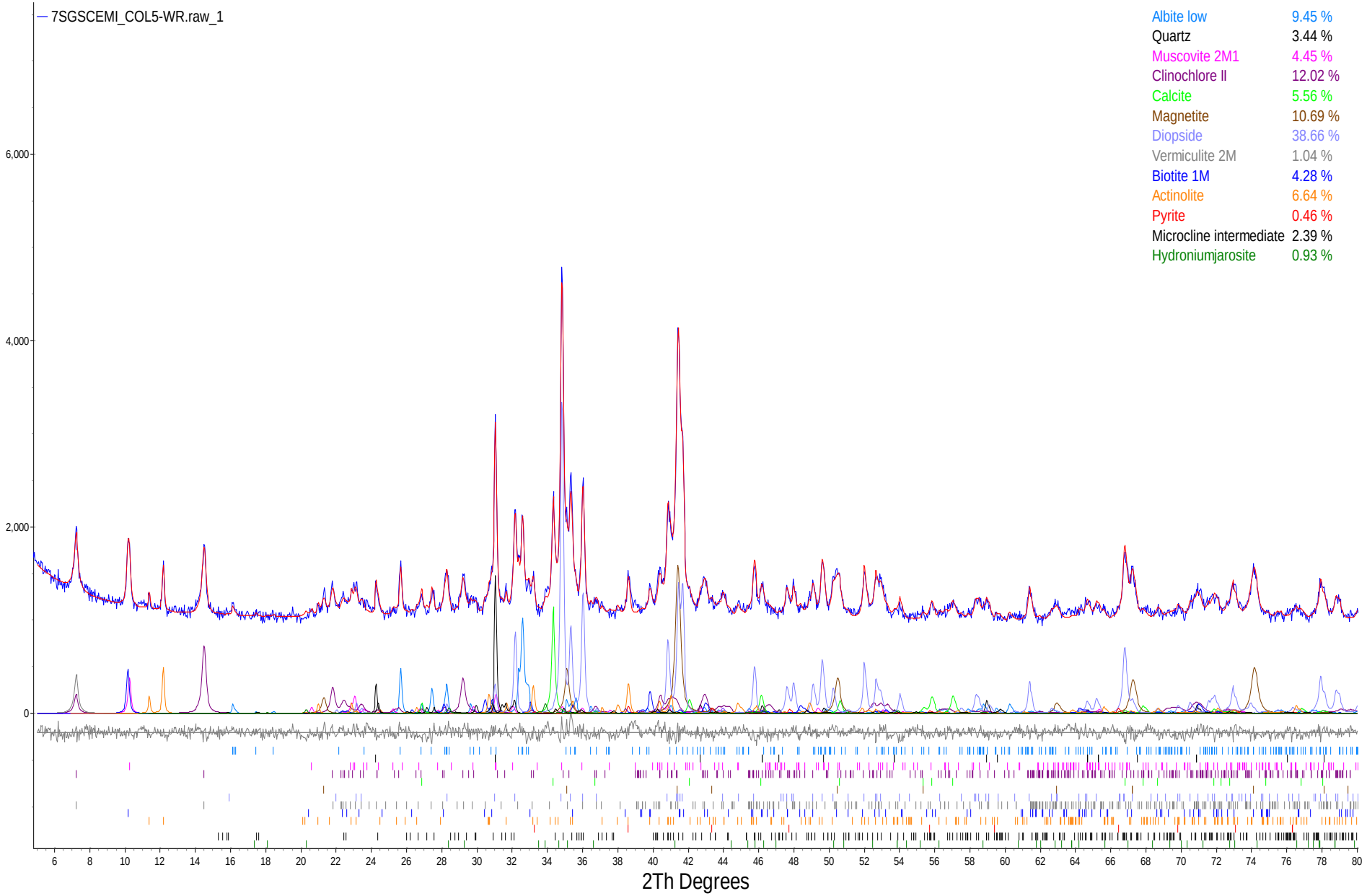

Figure 7. Rietveld refinement plot of sample **SGS CEMI "COL 5 – WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

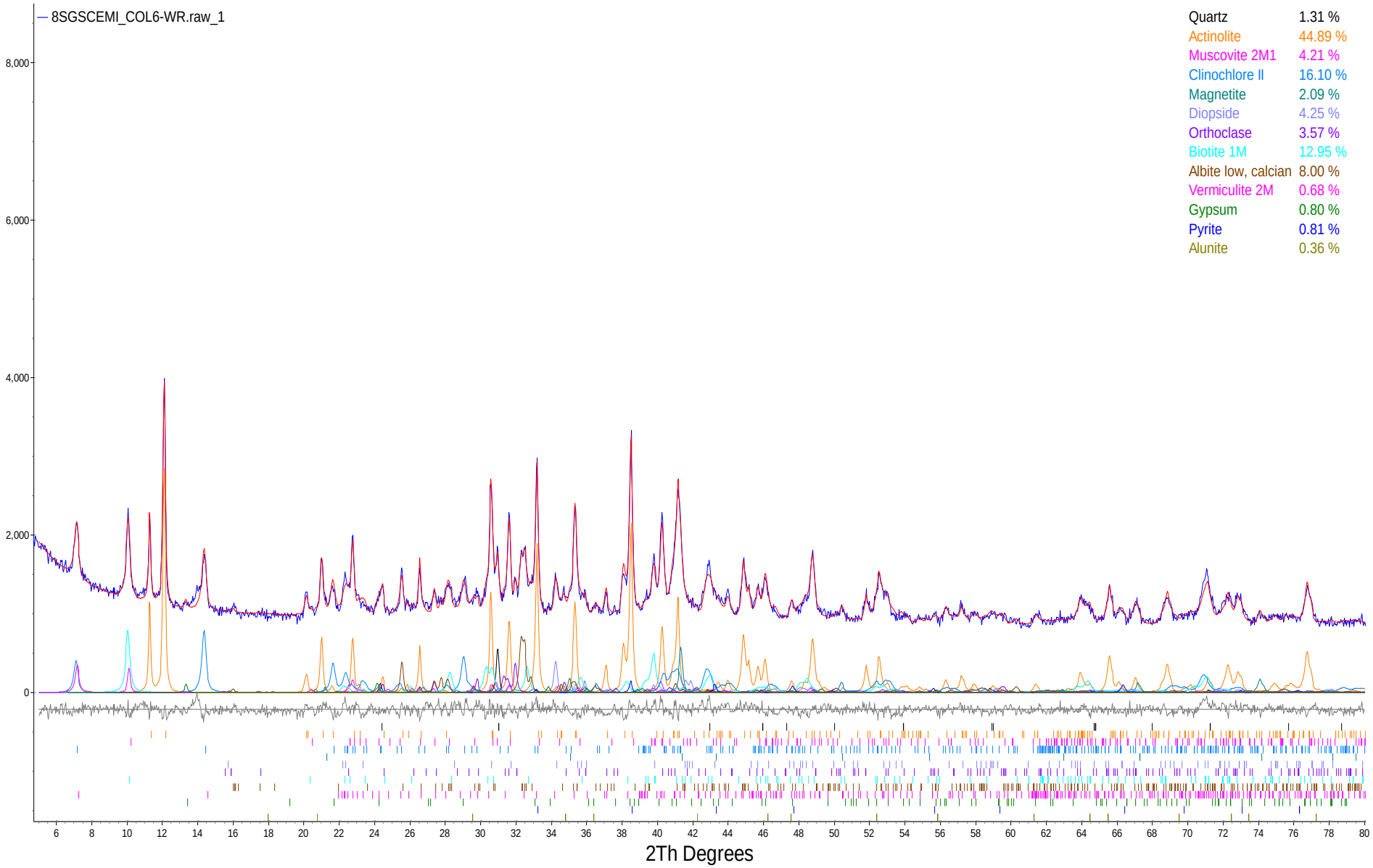

Figure 8. Rietveld refinement plot of sample **SGS CEMI "COL 6 – WR"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*SGS Canada Inc*
Project Number/ LIMS No.	*14094-101A/MI4520-JUN14*
Batch No.	*1018 Abacus Ajax Mine*
Reporting Date:	*June 30, 2014*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 40 kV, 35 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

1) Method Summary
2) Summary of Mineral Asemblages
3) Semi-Quantitative XRD Results
4) XRD Pattern(s)

Bernie C. Yeung, B.Sc.
Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

Method Summary

Mineral Identification and Interpretation:

Mineral identification and interpretation involves matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD) database and released on software as Powder Diffraction Files (PDF).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

Quantitative Rietveld Analysis:

Quantitative Rietveld Analysis is performed by using Topas 4.2 (Bruker AXS), a graphics based profile analysis program built around a non-linear least squares fitting system, to determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile until it matches the obtained experimental patterns.

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.05wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

Summary of Rietveld Quantitative Analysis X-ray Diffraction Results

Quantitative X-ray Diffraction Results

Mineral/Compound	Column 9 JUN4520-01 (wt %)	Column 10 JUN4520-02 (wt %)	Column 11 JUN4520-03 (wt %)	Column 12 JUN4520-04 (wt %)	Column 13 JUN4520-05 (wt %)	Column 14 JUN4520-06 (wt %)
Quartz	0.5	0.7	0.0	3.6	1.9	3.4
Albite	44.1	-	-	42.6	55.2	40.5
Diopside	20.6	4.3	1.1	9.0	5.7	11.8
Chlorite	14.6	20.5	18.3	15.3	10.1	17.3
Epidote	7.5	-	-	3.7	6.0	6.3
Muscovite	4.6	-	-	1.6	1.3	1.8
Calcite	3.9	-	-	2.9	6.5	9.2
Tremolite	4.2	38.0	39.7	21.4	12.2	9.6
Magnetite	-	5.6	5.5	-	-	-
Phlogopite	-	19.8	20.2	-	-	-
Lizardite	-	5.1	9.3	-	-	-
Forsterite	-	6.1	5.8	-	-	-
Gypsum	-	-	-	-	1.0	-
TOTAL	100	100	100	100	100	100

Zero values indicate that the mineral was included in the refinement, but the calculated concentration is below a measurable value.

Dashes indicate that the mineral was not identifed by the analyst and not included in the refinement calculation for the sample.

Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Diopside	$CaMgSi_2O_6$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Epidote	$Ca_2(Al,Fe)Al_2O(SiO_4)(Si_2O_7)(OH)$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Calcite	$CaCO_3$
Tremolite	$Ca_2Mg_5Si_8O_{22}(OH)_2$
Magnetite	Fe_3O_4
Phlogopite	$KMg_3(AlSi_3O_{10})(OH)$
Lizardite	$Mg_3Si_2O_5(OH)_4$
Forsterite	Mg_2SiO_4
Gypsum	$CaSO_4 \cdot 2H_2O$

SGS Canada Inc
14094-101A/MI4520-JUN14
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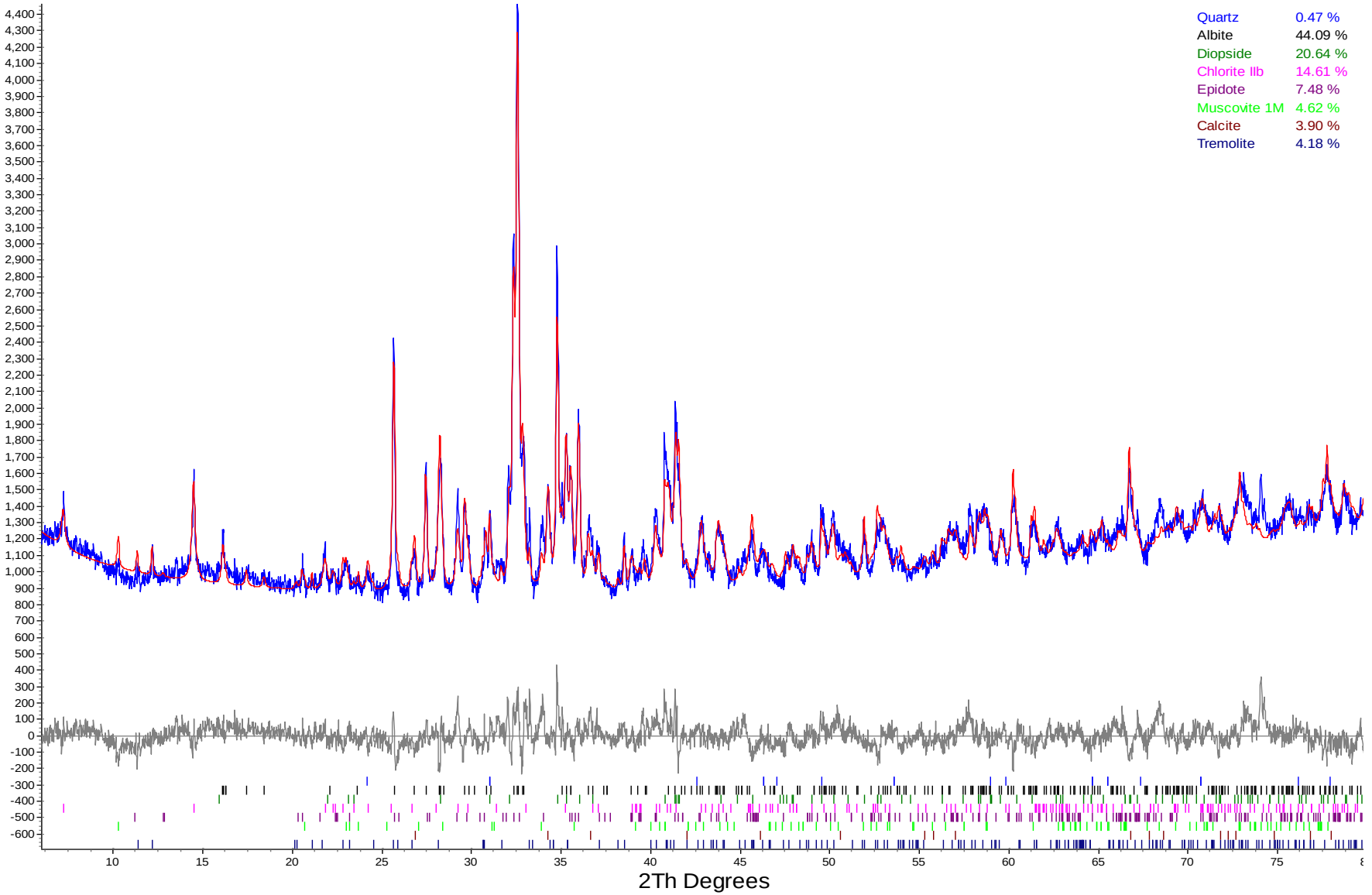
Jun4520-1 riet.raw_1



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30-Jun-14

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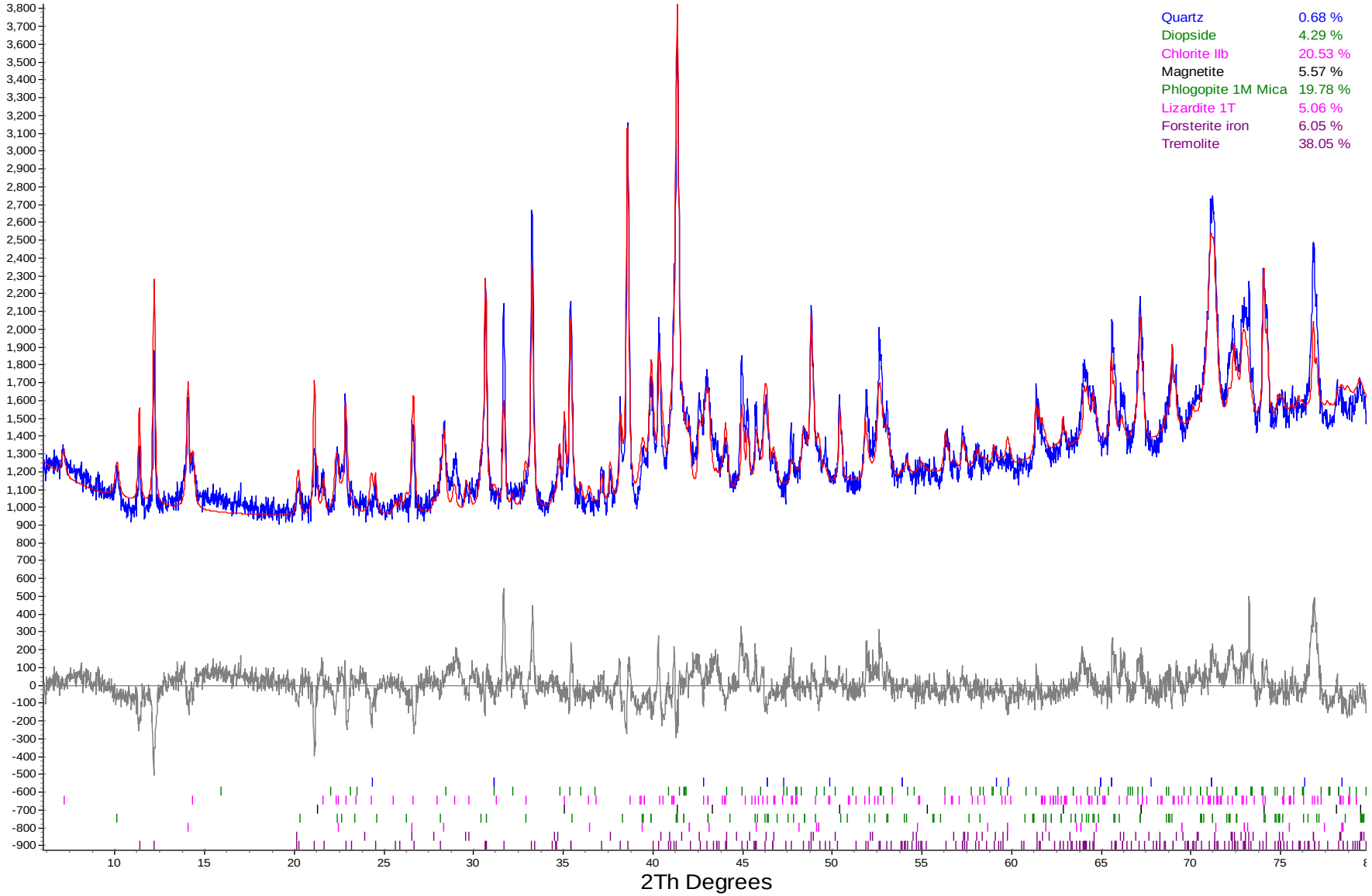

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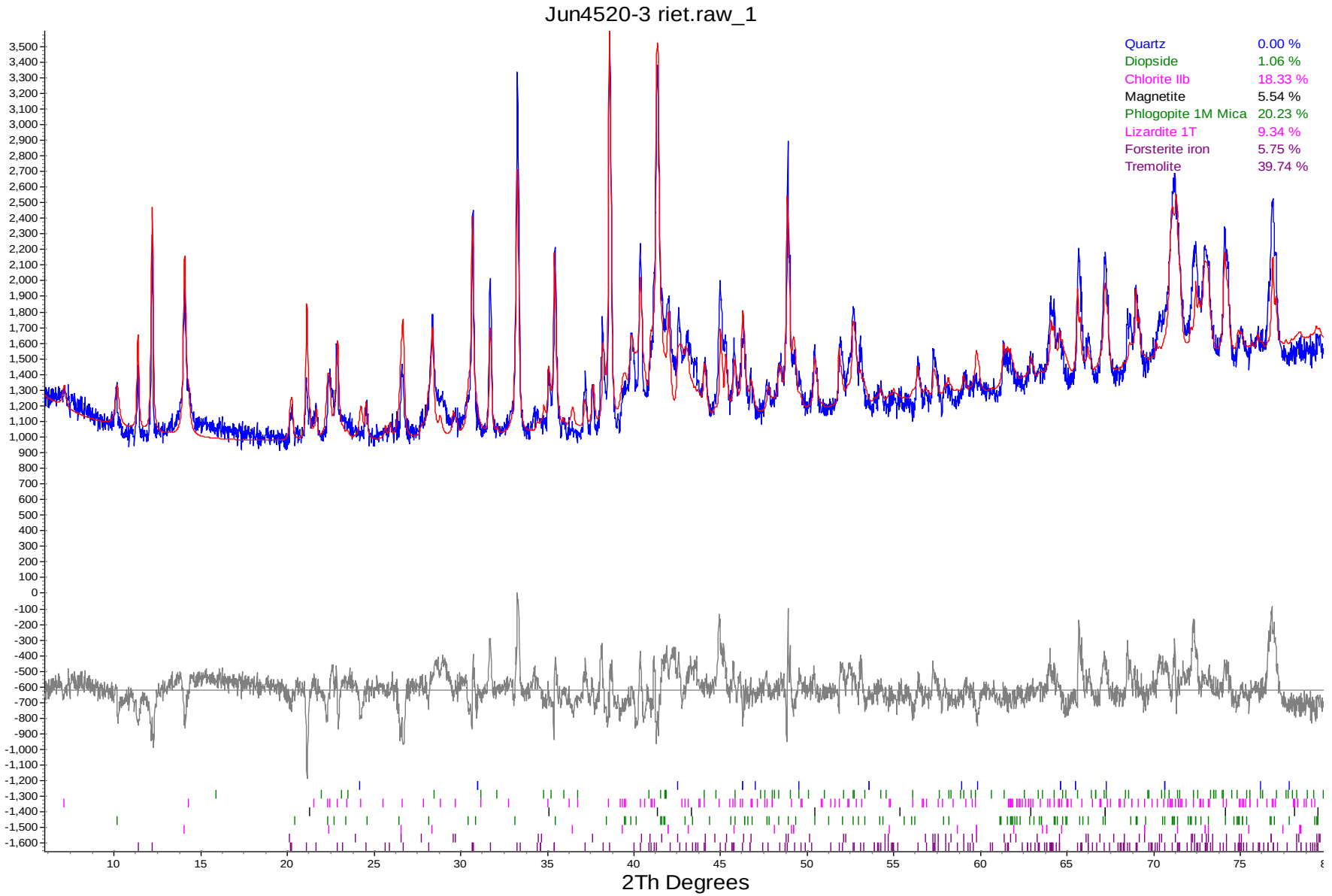

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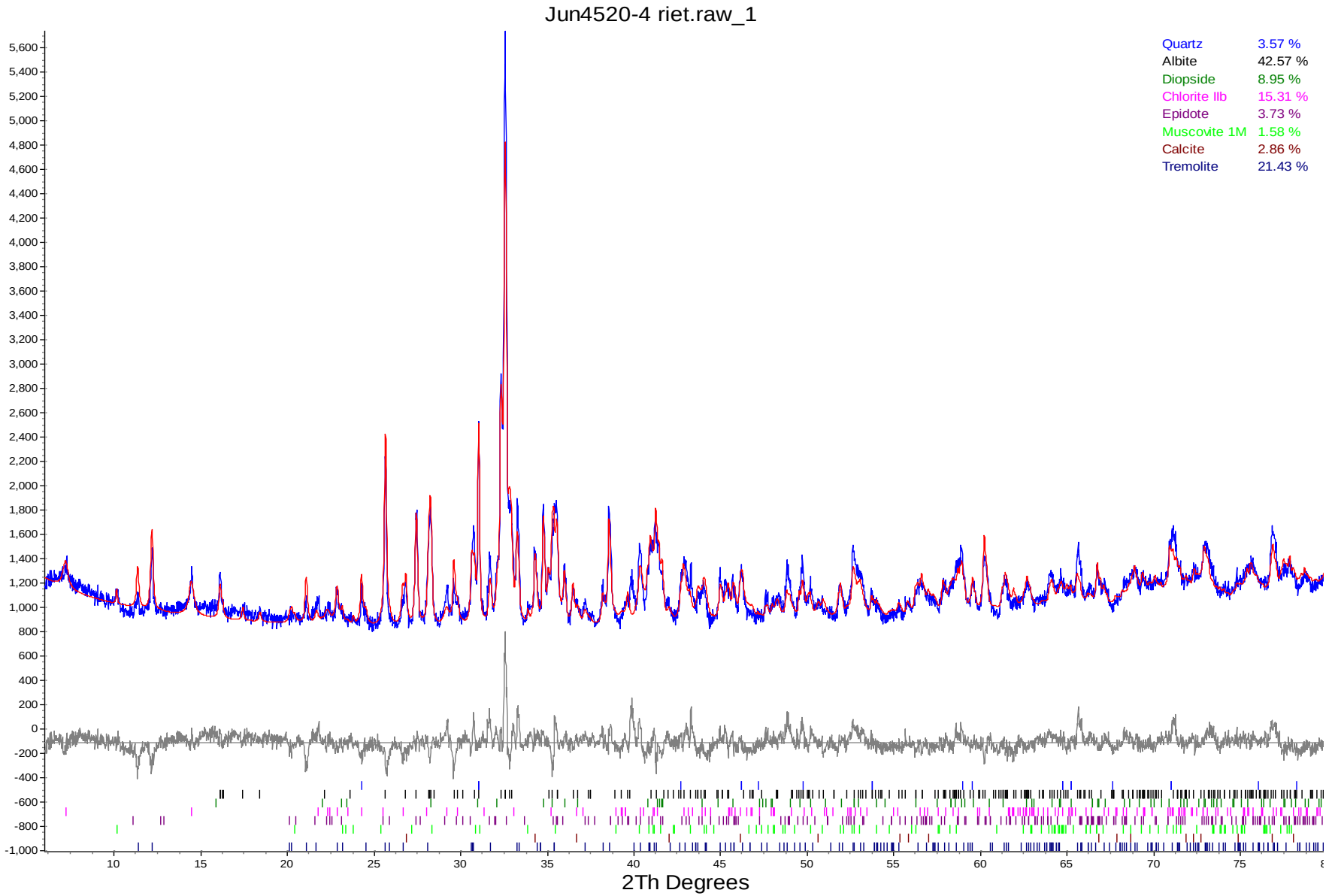

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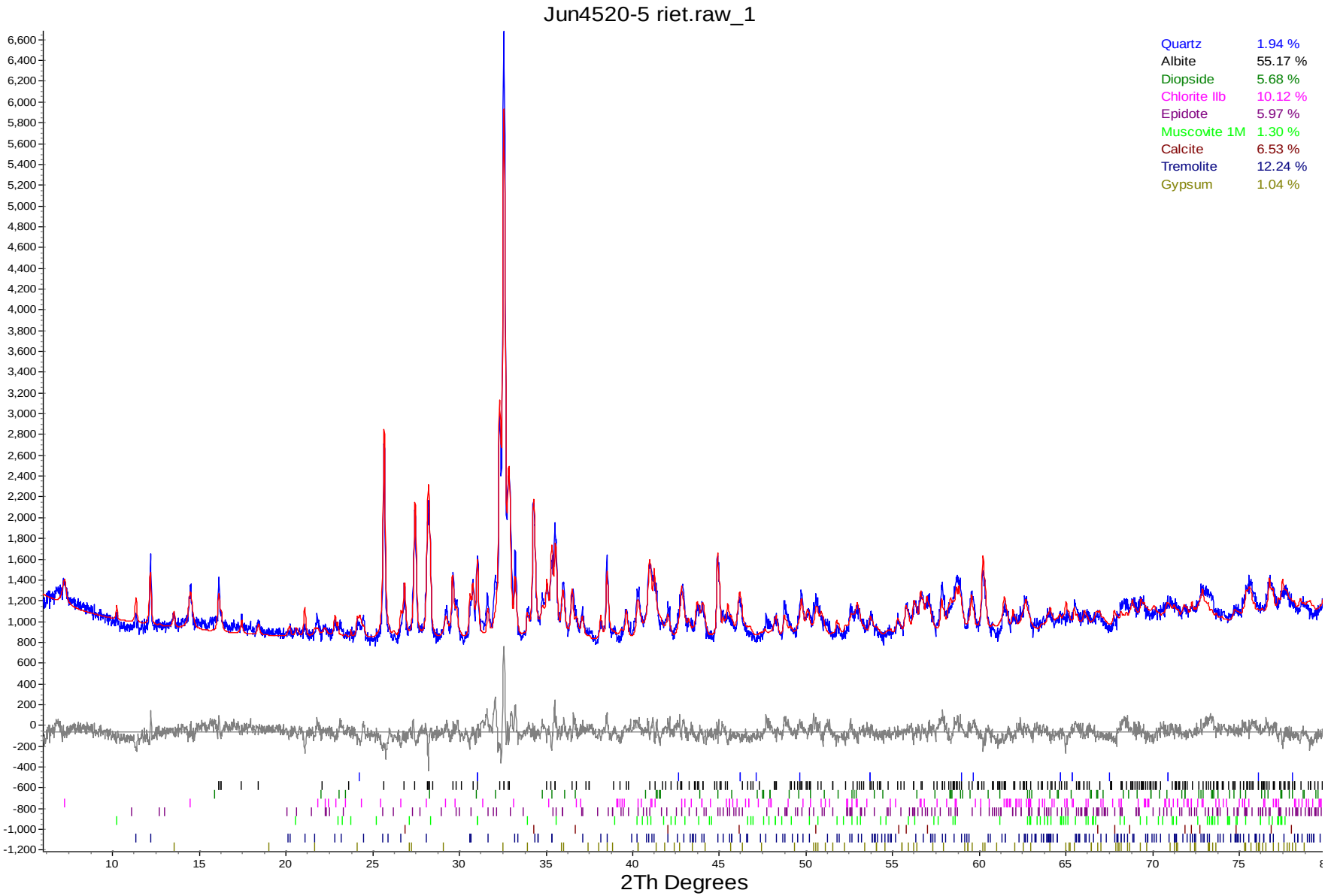
30-Jun-14



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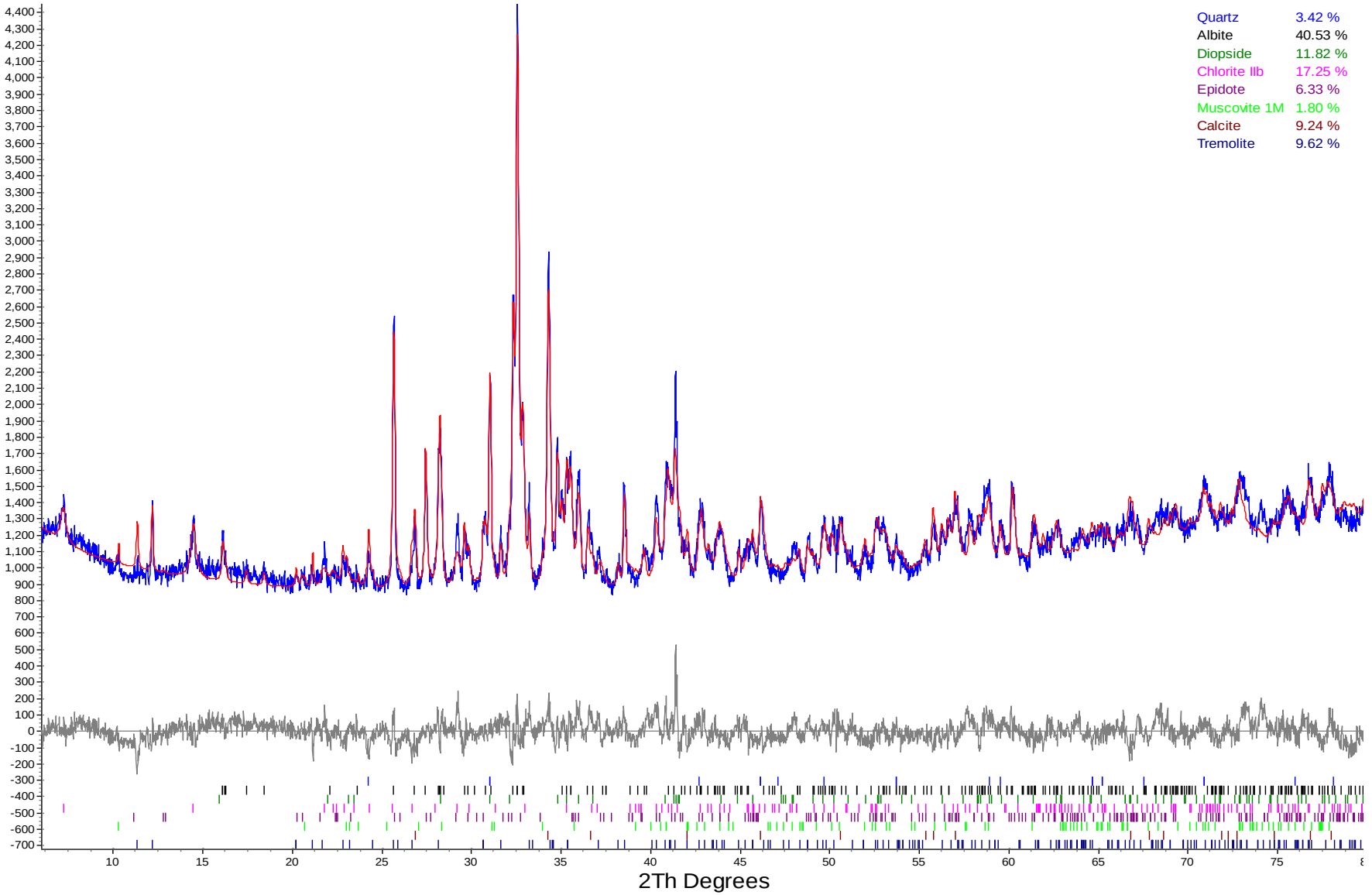

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Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*SGS Canada Inc*
Project Number/ LIMS No.	*14094-101A/MI4506-JUL14*
Batch No.	*1018 Abacus Ajax Mine*
Reporting Date:	*July 16, 2014*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 40 kV, 35 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

1) Method Summary
2) Summary of Mineral Asemblages
3) Semi-Quantitative XRD Results
4) XRD Pattern(s)

Bernie C. Yeung, B.Sc.
Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

Report Prepared by: Kim Gibbs

Method Summary

Mineral Identification and Interpretation:

Mineral identification and interpretation involves matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD) database and released on software as Powder Diffraction Files (PDF).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

Quantitative Rietveld Analysis:

Quantitative Rietveld Analysis is performed by using Topas 4.2 (Bruker AXS), a graphics based profile analysis program built around a non-linear least squares fitting system, to determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile until it matches the obtained experimental patterns.

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.05wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

SGS Minerals
a division of SGS Canada Inc.
P.O. Box 4300, 185 Concession Street, Lakefield, Ontario, Canada K0L 2H0
Tel: (705) 652-2000 Fax: (705) 652-6365 www.sgs.com www.sgs.com/met
Member of the SGS Group (SGS SA)

Summary of Rietveld Quantitative Analysis X-ray Diffraction Results

Quantitative X-ray Diffraction Results

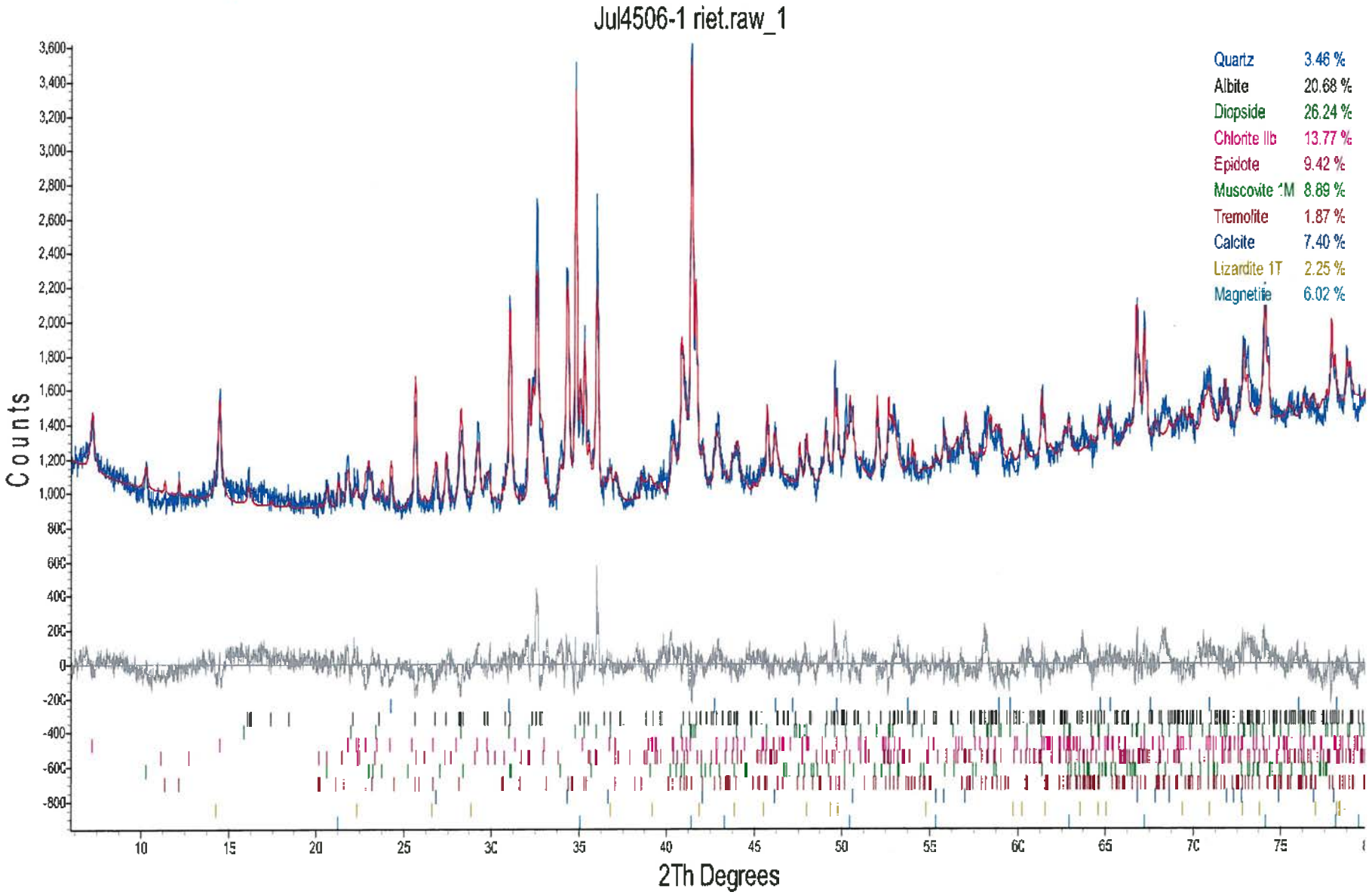
Mineral/Compound	Column 7 JUL4506-01 (wt %)	Column 8 JUL4506-02 (wt %)
Quartz	3.5	1.7
Albite	20.7	8.8
Diopside	26.2	35.6
Chlorite	13.8	11.9
Epidote	9.4	7.0
Muscovite	8.9	-
Tremolite	1.9	4.3
Calcite	7.4	3.2
Lizardite	2.3	1.5
Magnetite	6.0	9.5
Muscovite	-	6.2
Brucite	-	2.4
Hematite	-	2.7
Biotite	-	3.8
Jarosite	-	1.2
TOTAL	100	100

Zero values indicate that the mineral was included in the refinement, but the calculated concentration is below a measurable value.

Dashes indicate that the mineral was not identifed by the analyst and not included in the refinement calculation for the sample.

Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Diopside	$CaMgSi_2O_6$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Epidote	$Ca_2(Al,Fe)Al_2O(SiO_4)(Si_2O_7)(OH)$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Tremolite	$Ca_2Mg_5Si_8O_{22}(OH)_2$
Calcite	$CaCO_3$
Lizardite	$Mg_3Si_2O_5(OH)_4$
Magnetite	Fe_3O_4
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Brucite	$Mg(OH)_2$
Hematite	Fe_2O_3
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Jarosite	$KFe_3(SO_4)_2(OH)_6$

SGS Canada Inc
14094-101A/MI4506-JUL14
07/16/2014



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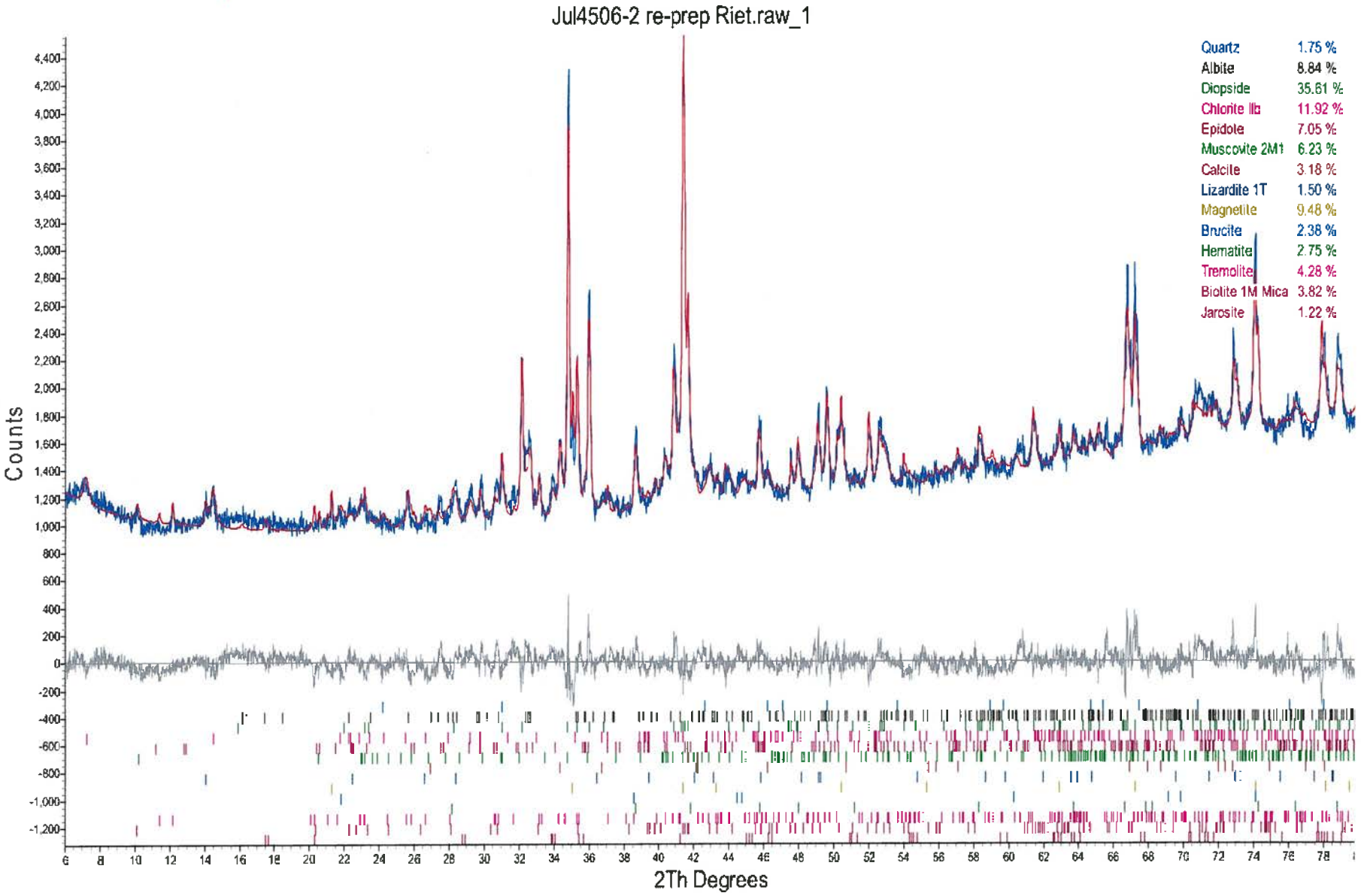
07/16/2014



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APPENDIX B-1.4 LAB KINETIC TEST PETROGRAPHY REPORT

Mineral Services
AN MS GROUP BUSINESS

REPORT NO. MSC11/025R

PETROGRAPHY OF EIGHT ORE AND WASTE SAMPLES

FROM ABACUS' AJAX (AU, CU) PROJECT

Report prepared for
Lorax Environmental Services Ltd
2289 Burrard Street
Vancouver, B.C.
V6J 3H9

By
Mineral Services Canada Inc.
205-930 Harbourside Drive
North Vancouver, B.C.
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August 2, 2011

TABLE OF CONTENTS

1. INTRODUCTION 1

2. METHODS 1

3. RESULTS 2

3.1 GANGUE MINERALS 2
3.1.1 SUGARLOAF DIORITE AND HYBRID 2
3.1.2 IRON MASK HYBRID (DIORITIC TO GABBROIC) 2
3.1.3 NICOLA GROUP MAFIC VOLCANICS 3
3.2 CARBONATE 3
3.3 SULPHIDES/OXIDES 3
3.4 SULPHATES 4

4. SUMMARY AND CONCLUSION 4

5. PROFESSIONAL SEAL 5

APPENDIX A-1: INDIVIDUAL SAMPLE DESCRIPTIONS A-1

APPENDIX A-2: MINERAL MODAL ABUNDANCE ESTIMATES A-2

APPENDIX B: PHOTOMICROGRAPHS B-1

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Discussions, conclusions and / or summaries are presented to assist the reader in highlighting key points; however they cannot be interpreted in isolation and must be considered with reference to and in the context of the body of the report.

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PETROGRAPHY OF EIGHT ORE AND WASTE SAMPLES

FROM ABACUS' AJAX (AU, CU) PROJECT

1. INTRODUCTION

This report presents the results of petrographic analyses of eight samples received from Stephanie Simpson of Lorax Environmental. Thin sections were submitted as well as results of Rietveld XRD analysis and brief lithological information. The aim of the study was to characterize the mineralogy of the samples, focusing on the presence of carbonates, sulphides and sulphates. MSC numbers 1 – 8 were assigned to the samples and lithology information as provided by the client are indicated in Table 1. Sample 1 is an ore sample while samples 2 to 8 are waste rock samples.

Table 1: List of samples examined as part of this investigation.

MSC Sample Number	Lorax Sample Name	Lorax Lithology
1	Col1-Ore	Sugarloaf Diorite and Hybrid
2	Col2-WR	Sugarloaf Diorite and Hybrid
3	Col3-WR	Sugarloaf Diorite and Hybrid
4	Col4-WR	Iron Mask Hybrid (dioritic to gabbroic)
5	Col5-WR	Iron Mask Hybrid (dioritic to gabbroic)
6	Col6-WR	Nicola Group Mafic Volcanics
7	Col2-WR-NP-removed	Sugarloaf Diorite and Hybrid
8	Col3-WR-NP-removed	Sugarloaf Diorite and Hybrid

2. METHODS

Petrographic descriptions were performed in the office of Mineral Services Canada Inc. using a Nikon Eclipse E400 microscope equipped with transmitted and reflected light. The microscopic characteristics of the samples are described in Appendix A and illustrated in a series of representative photomicrographs presented in Appendix B. All modal abundance percentages in the descriptions are approximate.

3. RESULTS

3.1 Gangue minerals

All samples are made up of mineral and lithic fragments ranging in size from 2 µm to 9 mm. Textures and mineralogy of the non-sulphide gangue in the lithic fragments vary depending on the lithology of the samples as described in Table 1.

3.1.1 Sugarloaf Diorite and Hybrid

In samples 1, 2, 3, 7 and 8, mineral fragments consist mainly of feldspars and amphibole (actinolite). Biotite, clinopyroxene, quartz and apatite occur as accessory phases while sericite, chlorite, carbonate, rutile, titanite, epidote and clay occur as alteration products. Textures vary throughout the fragments from very fine-grained equigranular feldspar ± biotite ± clinopyroxene to amphibole-phyric with amphibole phenocrysts reaching up to 3 mm in size (sample 1). Fragments are more typically porphyritic in samples 1, 3 and 8 and equigranular in samples 2 and 7. Quartz is interstitial to feldspars in all samples or occurs in thin veinlets throughout lithic fragments. Feldspars are typically dark brown, turbid and pitted by very fine-grained sericite. They are on rare occasions partially replaced by carbonate (sample 1), by alunite (samples 2, 3, 7 and 8) or by dark microcrystalline clay (likely smectite) in samples 1 and 3. Polysynthetic twinning characteristic of plagioclase and zoning are recognized in the least altered feldspars. Amphibole (actinolite suggested by its pale colour and low extinction angles as well as by XRD analyses) is variably replaced by chlorite ± epidote ± titanite ± rutile. Biotite is locally corroded and partially altered to clay (likely vermiculite). Thin carbonate veinlets locally cut lithic fragments. A few lithic fragments made up of granular epidote (clinozoisite) occur throughout most samples and combined with the presence of chlorite suggest an extensive propylitic alteration phase. Possible gypsum veins are additionally observed in samples 1 and 3.

3.1.2 Iron Mask Hybrid (dioritic to gabbroic)

In samples 4 and 5, lithic fragments are fine to medium-grained and made up of various amounts of clinopyroxene and feldspars (plagioclase essentially) with accessory biotite, amphibole (actinolite), magnetite and interstitial quartz. In most fragments in sample 5, clinopyroxene is the dominant mafic phase and forms a granular assemblage with feldspars, while in sample 4 more mafic fragments of clinopyroxene and magnetite with lesser feldspars and biotite form approximately half of the sample.

Alteration essentially consists of the partial replacement of feldspars by sericite or locally by carbonate. Rare patches of alunite occur in lithic fragments in both samples. Mafic phases (pyroxene essentially) are replaced to various extents by actinolite ± chlorite ± carbonate ± epidote ± titanite ± rutile. Biotite is locally replaced by clay (vermiculite).

3.1.3 Nicola Group Mafic Volcanics

Sample 6 is the only sample from the Nicola Group Mafic Volcanics and is essentially made up of two types of lithic fragments: approximately 60% consist of extensively altered volcanic rock while 40% comprise fine-grained granular to porphyritic amphibole (actinolite) diorite.

The volcanic fragments are vaguely porphyritic and made up of a microcrystalline groundmass of sheaves of biotite ± amphibole ± chlorite ± serpentine ± clay (vermiculite) ± possible talc. Amphibole phenocrysts and microphenocrysts are variably scattered in the groundmass of these fragments and serpentine pseudomorphs (after olivine) are locally observed; quartz microveinlets or containing disseminated magnetite and sulphides locally cut this type of fragments. The diorite fragments are fine-grained, porphyritic and made up of feldspar ± amphibole ± biotite ± pyroxene with interstitial quartz. Feldspars are variably replaced by sericite and amphibole is locally replaced by chlorite ± carbonate ± epidote ± titanite ± rutile. Rare quartz veins cut some fragments.

3.2 Carbonate

The abundance of carbonate in samples 1 to 6 varies from 2% in samples 4 and 6 to 5% in samples 1, 3 and 5. The most common carbonate is colourless with varying relief (calcite) or cloudy to slightly brownish (possible dolomite-ankerite as suggested by XRD). Carbonate occurs in lithic fragments as thin veinlets or as small patches replacing feldspars or associated with chlorite (± epidote ± titanite ± rutile) as a result of the alteration of mafic phases (typically amphibole). It also occurs as liberated grains and clusters that possibly represent granular vein fragments.

In some lithic fragments in sample 3, carbonate grains and clusters are rimmed by a microcrystalline yellowish transparent mineral that could be jarosite or possibly a different carbonate.

No carbonate is observed in samples 7 and 8, although XRD analyses suggest the occurrence of 1.5% carbonate in sample 8.

3.3 Sulphides/oxides

The abundance of sulphides is less than 3% in all the samples. Sulphides present consist of pyrite (all samples except samples 4 and 5) and chalcopyrite (all samples) with additional bornite and covellite in sample 1 and molybdenite in sample 6. Chalcopyrite is slightly more common in the ore sample (sample 1, 2%) than in the waste rock samples where its abundance is typically less than 1%.

Pyrite and chalcopyrite are typically 5-600 µm in size; in sample 8, clusters of pyrite reach 1400 µm in size. Both pyrite and chalcopyrite occur in lithic fragments or as liberated subangular grains. Chalcopyrite inclusions are common in pyrite (samples 1, 2, 3 and 8) and a few inclusions of pyrite also occur in chalcopyrite (sample 6). Intergrowths of pyrite and chalcopyrite are observed in samples 1, 7 and 8.

In sample 1, bornite and covellite occur as rare minute inclusions in chalcopyrite. The molybdenite in sample 6 occurs as elongated sheaves (25-50 µm long) and clusters of sheaves set in lithic fragments.

Sulphide grain boundaries are typically straight and unaltered, although a few partial hematite rims are observed around enclosed pyrite and chalcopyrite in sample 6.

Magnetite, hematite and rutile occur in all samples. Magnetite (up to 10% in samples 4 and 5) occurs as anhedral grains set in lithic fragments and as liberated grains that are variably coated or replaced by hematite. Hematite occurs as rims around magnetite and locally around pyrite or chalcopyrite (sample 6). Rutile occurs as microcrystalline clusters that are enclosed in fragments, typically associated with non-sulphide gangue minerals as replacement of mafic phases.

3.4 Sulphates

Sulphates are rarely observed in the samples. Alunite occurs in several samples (2, 3, 4, 5, 7 and 8) as small clusters of acicular grains typically replacing feldspars. Gypsum occurs in samples 1, 3 and 7 in thin veinlets in lithic fragments. Possible jarosite occurs in sample 3 as a thin yellowish rim around carbonate, but its identity has to be confirmed.

4. SUMMARY AND CONCLUSION

The results of petrographic analyses of eight samples are presented in this report. The purpose of the study was to characterize the mineralogy of the samples with particular emphasis on the carbonates, sulphides and sulphates present. The main conclusions are summarized below.

- All samples consist of mineral and lithic fragments derived from mafic to ultramafic rock. The fragments range in size from approximately 2 µm to 9 mm. Non-sulphide gangue minerals consist essentially of feldspars (plagioclase and lesser K-feldspar), amphibole (actinolite), biotite, clinopyroxene and their alteration products (sericite, chlorite, rutile, epidote, titanite and clay). Accessory quartz occurs in all samples and serpentine (samples 6 and 8), apatite (samples 1, 2 and 7) and possible talc (sample 6) are locally observed.
- Carbonate is observed in six of the samples (samples 1-6) in abundances ranging from approximately 2 to 5%. Carbonate is colourless to cloudy, commonly with varying relief suggesting calcite is present.
- Carbonate occurs as liberated grains and clusters and as patches in lithic fragments associated with chlorite and other alteration minerals as replacement of mafic phases (amphibole essentially). Carbonate veinlets occur in a few lithic fragments in most samples.
- The sulphide abundance of the samples is low (<3%). Sulphides present consist of pyrite (all samples except samples 4 and 5) and chalcopyrite (all samples) with additional bornite and covellite in sample 1 and molybdenite in sample 6.
- Chalcopyrite is slightly more common in the ore sample (sample 1, 2%) than in the waste rock samples where its abundance is typically below 1%.

- Pyrite and chalcopyrite grains generally range in size from 5 to 600 µm. They occur in lithic fragments or as liberated subangular grains. Inclusions of chalcopyrite in pyrite and of pyrite in chalcopyrite occur locally. Intergrowths of pyrite and chalcopyrite are also observed in samples 3, 7 and 8.
- Bornite and covellite in sample 1 occur as rare minute inclusions in chalcopyrite.
- The molybdenite in sample 6 occurs as elongated sheaves and clusters of sheaves set in lithic fragments.
- Sulphide grain boundaries are typically unaltered although a few partial hematite rims are observed around enclosed pyrite in sample 2 and around enclosed chalcopyrite in sample 6.
- Magnetite, hematite and rutile occur in all samples. Magnetite (up to 10% in samples 4 and 5) occurs as anhedral grains set in lithic fragments and as liberated grains that are variably coated or replaced by hematite. Hematite occurs as rims around magnetite and locally around pyrite and chalcopyrite (sample 6).
- Sulphates are rare and consist of patches of alunite (samples 2, 3, 4, 5, 7 and 8), gypsum (samples 1, 3 and 7) and possible jarosite (sample 3). The presence of jarosite requires confirmation by a technique such as scanning electron microscopy.

5. PROFESSIONAL SEAL

Geology reported by:
Alexandra Mauler-Steinmann,
Ph. D., P. Geo.

Report reviewed by:
Tom Nowicki, Ph. D., P. Geo.

APPENDIX A-1: INDIVIDUAL SAMPLE DESCRIPTIONS

Sample #	Sample Name	Sample Description	Carbonate	Pyrite	Chalcopyrite	Magnetite/hematite	Bornite	Covellite	Molybdenite
1	Col1-Ore	Fine-grained porphyritic diorite fragments, made up of a groundmass of anhedral feldspar (plagioclase dominant) that is variably pitted by sericite or locally replaced by carbonate or brown clay; some quartz and biotite (variably replaced by clay) interstitial to feldspars; amphibole phenocrysts, up to 3 mm in size, scattered in the groundmass and variably replaced by carbonate ± chlorite ± epidote ± titanite ± rutile; magnetite disseminated throughout, variably replaced by hematite; possible gypsum veins and carbonate in fragments; minor amounts of apatite, pyrite, chalcopyrite, bornite and covellite present; no alunite/jarosite observed	Colourless grains and clusters of grains scattered in lithic fragments or liberated; thin veinlets throughout fragments	Anhedral grains (10-600 µm in size), locally with chalcopyrite inclusions set in lithic fragments or liberated; unaltered	Unaltered anhedral grains (5-400 µm in size) in lithic fragments or liberated; on one occasion with inclusions of bornite and covellite; inclusions in pyrite	Anhedral magnetite grains, variably rimmed or intergrown with hematite; set in fragments or on rare occasions liberated; red hematite stain throughout one fragment	Few inclusions (2-10 µm in size) in chalcopyrite	Few inclusions (2-10 µm in size) in chalcopyrite	N/A
2	Col2-WR	Fine-grained diorite fragments, made up of interlocking anhedral feldspar (plagioclase dominant), amphibole and/or clinopyroxene; quartz, biotite locally interstitial to feldspar and amphibole or pyroxene; feldspars variably pitted by sericite or replaced by epidote or alunite; amphibole preserved or variably replaced by chlorite ± carbonate ± titanite ± rutile; pyroxene fractured, locally replaced by titanite; magnetite disseminated throughout, variably replaced by hematite; carbonate in few veins in fragments and in monomineralic fine-grained granular fragments; minor amounts of apatite, pyrite and chalcopyrite present	Colourless grains and clusters of grains scattered in lithic fragments or liberated; also as monomineralic granular fragments and veinlets in fragments	Anhedral grains (10-150 µm in size), locally with chalcopyrite inclusions set in lithic fragments or liberated; unaltered	Unaltered anhedral grains (5-200 µm in size)in lithic fragments or liberated; inclusions in pyrite	Anhedral magnetite grains, variably rimmed or intergrown with hematite; set in fragments or liberated	N/A	N/A	N/A
3	Col3-WR	Fine-grained porphyritic to equigranular fragments of variably altered diorite, made up of feldspar (plagioclase dominant) that is variably pitted by sericite or locally replced by clusters of epidote or alunite; pyroxene and amphibole throughout fragments, preserved or variably replaced by shreddy biotite ± chlorite ± actinolite ± titanite ± rutile ± magnetite ± hematite; some interstitial quartz; minor amounts of pyrite and chalcopyrite present; carbonate locally rimmed by possible jarosite (?coloured carbonate) and some patches of gypsum and clay throughout	Colourless, anhedral grains and clusters of grains scattered in lithic fragments or rarely liberated; also in veinlets in fragments; in one fragment carbonate grains rimmed by possible jarosite or coloured carbonate?	Anhedral to subhedral grains and clusters (10-500 µm in size) with few chalcopyrite inclusions occurring in fragments or liberated; unaltered except for one fragment that is partially rimmed by hematite	Unaltered anhedral grains and masses (5-750 µm in size) set in fragments or liberated; also as inclusions in pyrite; one cluster of pyrite/chalcopyrite rimmed by magnetite	Anhedral magnetite grains, locally rimmed by or partially replaced by hematite; hematite as rare rims on magnetite or around sulphides	N/A	N/A	N/A
4	Col4-WR	Made up of 1) ~50% fragments of fine- to very fine-grained equigranular feldspars, biotite, amphibole and lesser pyroxene, magnetite and interstitial quartz and 2) ~50% fragments of fine- to medium-grained equigranular clinopyroxene, magnetite with lesser feldspars and interstitial biotite; feldspars extensively altered to sericite; pyroxene locally altered to actinolite ± chlorite ± epidote ± titanite ± carbonate ± rutile; biotite sporadically replaced by clay (vermiculite); magnetite variably replaced by hematite; carbonate also occurring as veinlets in fragments or as liberated granular (likely vein) fragments; granular clusters of epidote present throughout the sample; few patches of clay and gypsum, grains of chalcopyrite and clusters of alunite throughout fragments	Colourless, anhedral grains and clusters of grains scattered in lithic fragments or liberated; also as veinlets in fragments or liberated	N/A	Few unaltered grains (5-400 µm in size) in lithic fragments	Anhedral magnetite grains, locally rimmed by or partially replaced by hematite; occur as grains set in fragments or as liberated grains	N/A	N/A	N/A
5	Col5-WR	Fine-grained equigranular rock fragments made up of various amounts of pyroxene ± feldspars ± biotite ± magnetite with interstitial quartz and amphibole; one liberated amphibole grain fragment (4 mm in size) present; feldspars extensively altered to sericite or carbonate; pyroxene locally altered to actinolite ± chlorite ± epidote ± titanite ± biotite ± rutile; biotite sporadically replaced by clay (vermiculite); magnetite locally replaced by hematite; carbonate also occurring as veinlets in fragments or as liberated granular (likely vein) fragments; granular clusters of epidote present throughout the sample; disseminated chalcopyrite; one cluster of alunite in a fragment	Colourless, anhedral grains and clusters of grains scattered in lithic fragments or liberated; also as veinlets in fragments or liberated	N/A	Few unaltered grains (5-100 µm in size) set in lithic fragments or liberated	Anhedral magnetite grains, locally rimmed by or partially replaced by hematite; occur as grains set in fragments or as liberated grains	N/A	N/A	N/A
6	Col6-WR	Essentially two types of rock fragments: 1) ~60% extensively altered, vaguely porphyritic fragments made up of a microcrystalline groundmass of sheaves of biotite/clay (vermiculite) ± amphibole ± chlorite ± serpentine ± possible talc containing minor amounts of amphibole phenocrysts and microphenocryts; some serpentine pseudomorphs after olivine recognized; fragments locally cut by quartz microveinlets or containing disseminated magnetite and sulphides; 2) ~40% fragments of fine-grained porphyritic rock made up of feldspar ± amphibole ± biotite ± pyroxene with interstitial quartz; feldspars variably replaced by sericite; amphibole locally replaced by chlorite ± carbonate ± epidote ± titanite ± rutile; magnetite and sulphides disseminated throughout fragments; carbonate also liberated; few quartz vein fragments	Colourless, anhedral grains and clusters of grains scattered in lithic fragments or liberated; also as veinlets in fragments or liberated	Anhedral grains (10-300 µm in size), locally intergrown with magnetite; set in lithic fragments or liberated; commonly with rims of hematite; also as inclusions in chalcopyrite	Anhedral grains (10-100 µm in size), rarely with pyrite inclusions, set in lithic fragments or liberated; sporadically partially rimmed by hematite	Anhedral magnetite grains set in fragments or liberated and commonly associated with pyrite or chalcopyrite; few rims of hematite around pyrite and magnetite grains	N/A	N/A	Few sheaves (25-50 µm in size) and clusters of sheaves in a fragment
7	Col2-WR-NP-removed	Fine- to very fine-grained diorite fragments, equigranular or rarely porphyritic, typically made up of interlocking anhedral feldspar (plagioclase dominant) and amphibole or clinopyroxene; quartz, biotite locally interstitial to feldspar and pyroxene; feldspars variably pitted by sericite or replaced by epidote or alunite; amphibole preserved or variably replaced by chlorite ± titanite ± rutile ± carbonate; pyroxene fractured, locally replaced by titanite; magnetite disseminated throughout, variably replaced by hematite; rare apatite, pyrite and chalcopyrite set in lithc fragments; few small cryptocrystalline clay fragments present; one cryptocrystalline possible gypsum veinlet in a clast	N/A	Anhedral grains (5-200 µm in size); set in lithic fragments or liberated, unaltered; rarely as intergrowths with chalcopyrite	Anhedral grains (2-100 µm in size), rarely intergrown with pyrite, typically set in lithic fragments; rarely liberated; unaltered	Anhedral magnetite or hematite grains set in fragments or liberated; Magnetite and pyrite grains commonly rimmed by hematite	N/A	N/A	N/A
8	Col3-WR-NP-removed	Fine-grained porphyritic diorite fragments, made up of a groundmass of anhedral feldspar (plagioclase dominant) that is variably pitted by sericite or replaced by epidote or alunite; some quartz and biotite (variably replaced by clay) interstitial to feldspars; amphibole phenocrysts, up to 1.6 mm in size, scattered in the groundmass and variably replaced by chlorite ± titanite ± rutile; magnetite disseminated throughout, variably replaced by hematite; one liberated serpentine pseudomorph and few fine-grained clinopyroxene-feldspar-biotite-magnetite fragments throughout the sample ; minor amounts of pyrite and chalcopyrite present; no carbonate observed	N/A	Anhedral grains (5-600 µm in size) and masses up to 1400 µm in size, locally with minute chalcopyrite inclusions or poikilitic; set in lithic fragments or liberated, unaltered; rarely as intergrowths with chalcopyrite	Anhedral to elongated grains (5-600 µm in size), rarely intergrown with pyrite or as inclusions in pyrite; typically set in lithic fragments or rarely liberated; unaltered	Anhedral magnetite grains, sporadically rimmed or intergrown with hematite or commonly associated with epidote and/or titanite; set in fragments or liberated	N/A	N/A	N/A

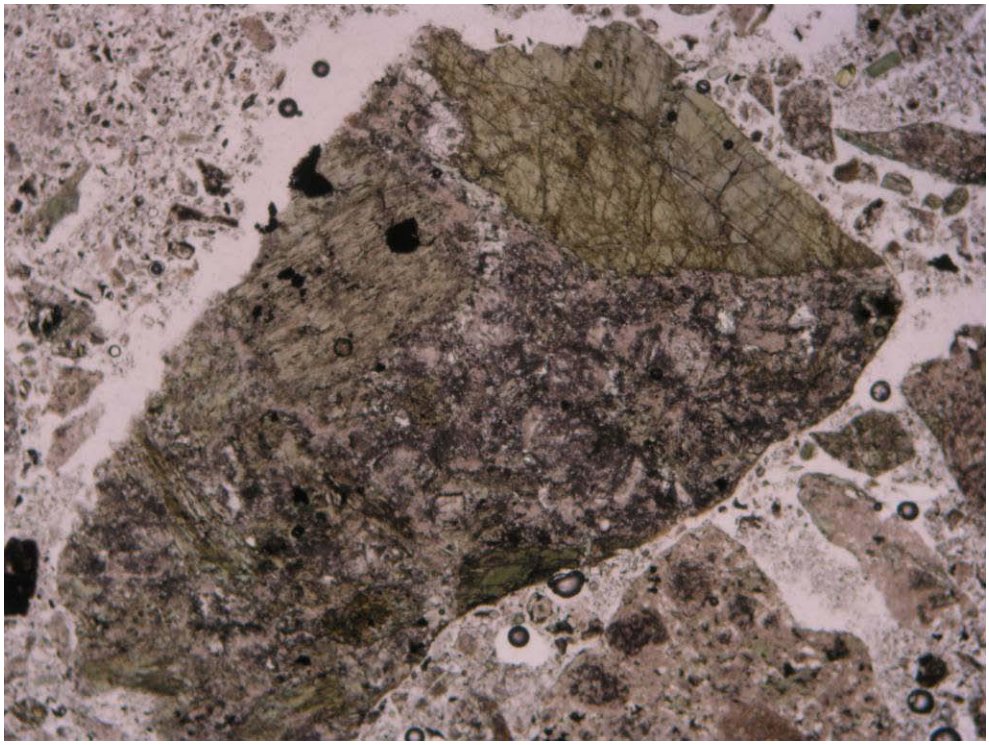
APPENDIX A-2: MINERAL MODAL ABUNDANCE ESTIMATES

Sample	Sample	Quartz (%)	Feldspars (%)	Sericite (%)	Chlorite (%)	Biotite (%)	Pyroxene (%)	Amphibole (%)	Carbonate (%)	Serpentine (%)	Talc (%)	Rutile (%)	Apatite (%)	Titanite (%)	Epidote (%)	Clay (%)	Gypsum (%)	Jarosite (%)	Alunite (%)	Pyrite (%)	Chalco-pyrite (%)	Bornite (%)	Covellite (%)	Molyb-denite (%)	Magnetite/hematite (%)
1	Col1-Ore	2	45	10	5	2	0	15	5	0	0	tr-1	tr	1	7	2	tr	0	0	tr-1	2	tr	tr	0	2
2	Col2-WR	3	50	10	7	1	2	10	3	0	0	tr	tr	tr	5	1	0	0	tr	tr-1	tr-1	0	0	0	4
3	Col3-WR	5	40	5	7	2	2	20	5	0	0	tr	0	tr	7	1	tr	?tr	tr	1-2	tr	0	0	0	3
4	Col4-WR	1	25	10	5	5	30	7	2	0	0	tr	0	tr	2	tr	0	0	tr	0	tr	0	0	0	10
5	Col5-WR	2	15	5	7	5	40	7	5	0	0	tr	0	0	2	tr	0	0	tr	0	tr	0	0	0	10
6	Col6-WR	1	15	5	5	10	5	45	2	2	?tr	tr	0	tr-1	2	2	0	0	0	1	tr	0	0	tr	2
7	Col2-WR-NP-removed	3	50	10	7	1	5	10	0	0	0	tr-1	tr	tr-1	7	1	tr	0	tr	tr	tr	0	0	0	4
8	Col3-WR-NP-removed	3	40	5	7	2	3	25	0	tr	0	tr	0	tr	5	3	0	0	tr	2	1	0	0	0	3

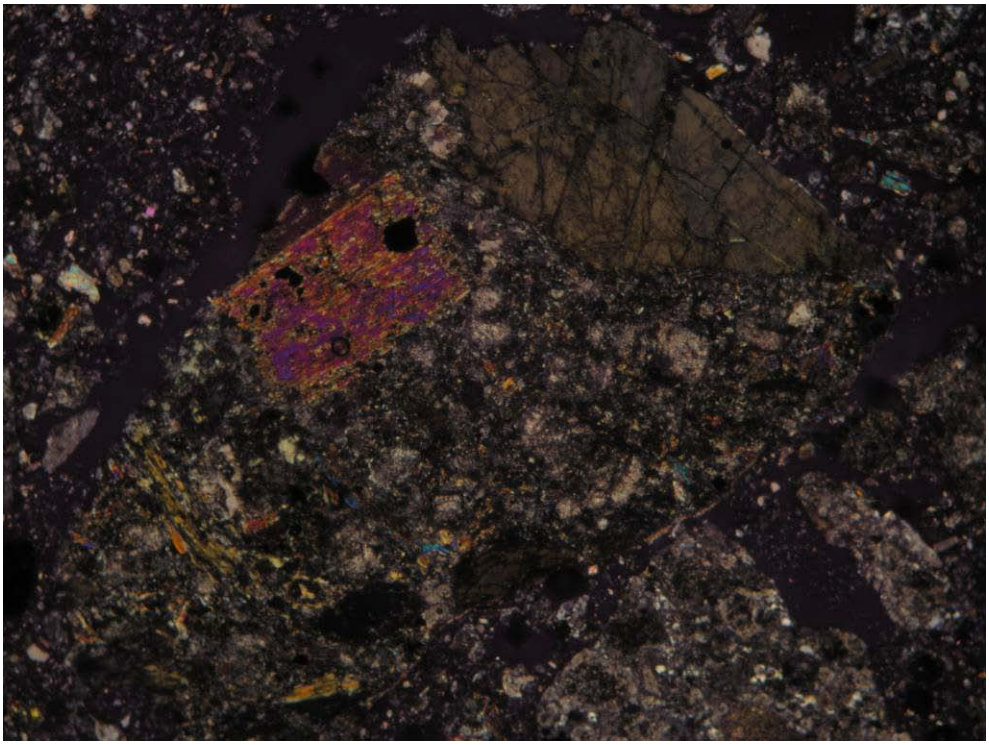
APPENDIX B: PHOTOMICROGRAPHS

List of abbreviations used in the description of photomicrographs:

FOV: Field of view – defined for the long dimension of photomicrographs
PPL: Plane polarized light
XPL: Crossed polars
RL: Reflected light

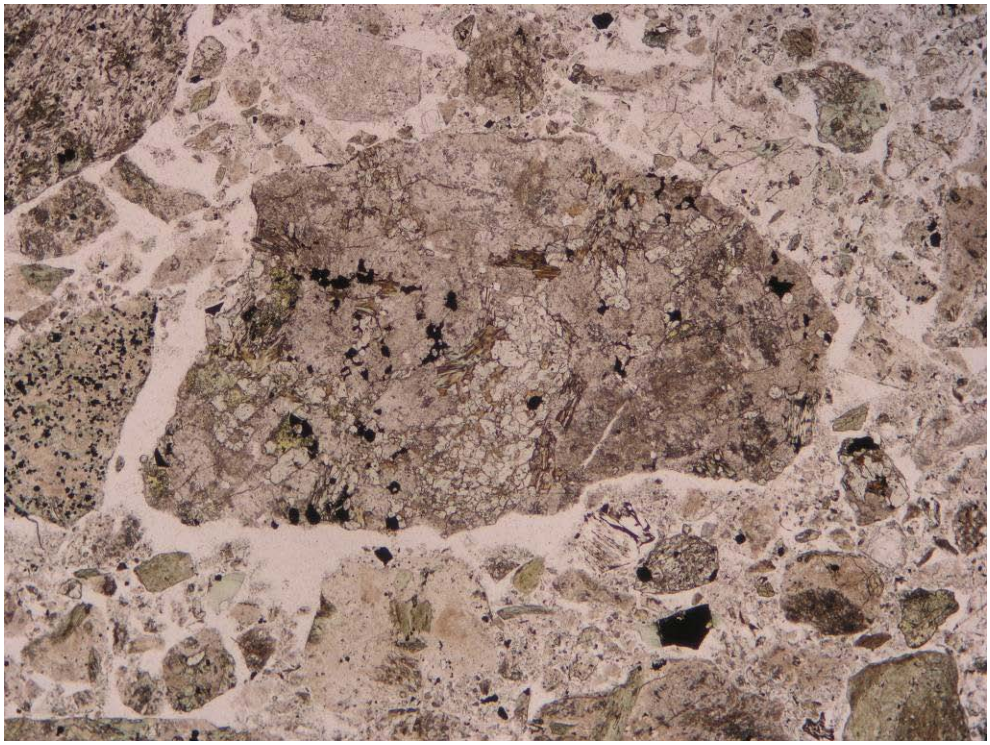


A)

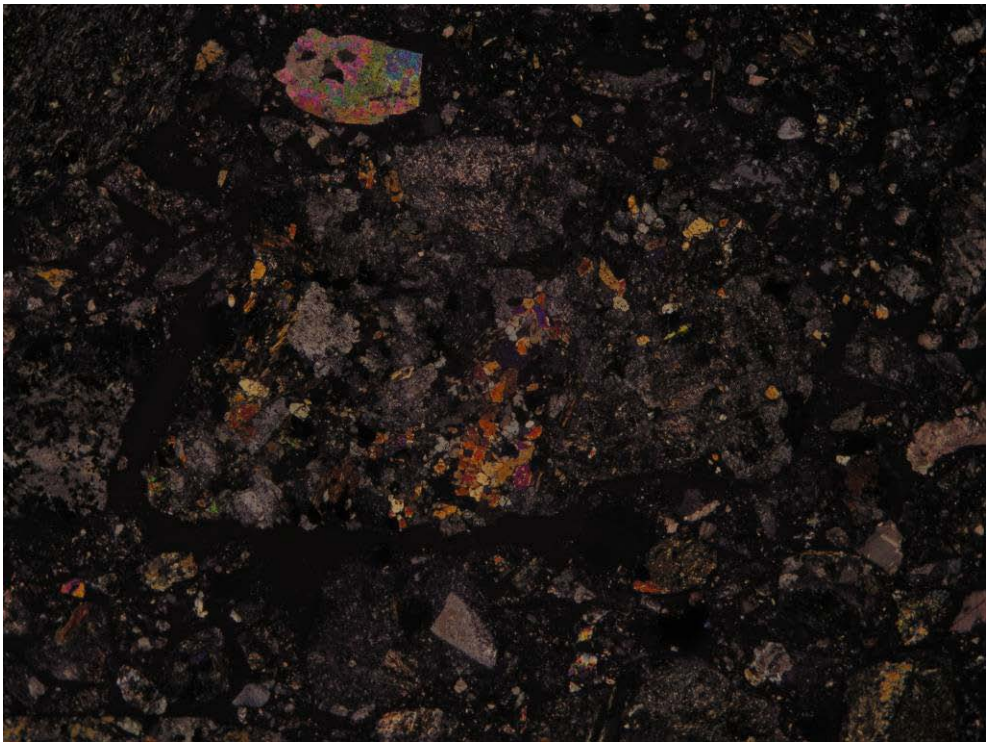


B)

Figure 1: *Photomicrographs of sample 1 showing a representative actinolite porphyry fragment. A) PPL, B) XPL, FOV = ~ 7 mm.*

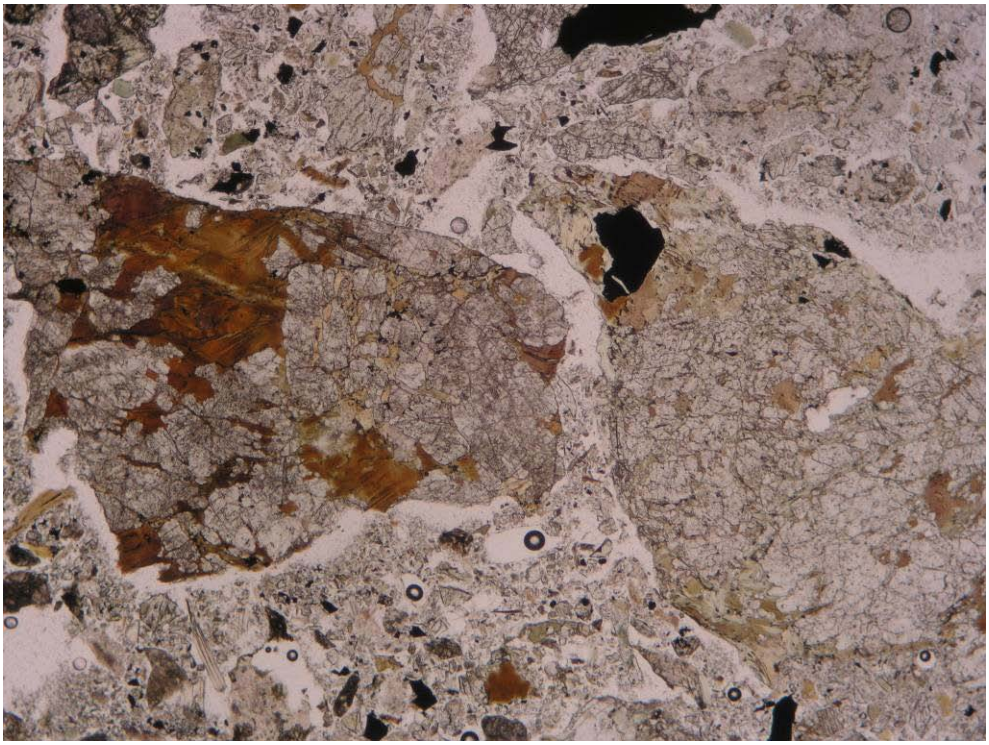


A)

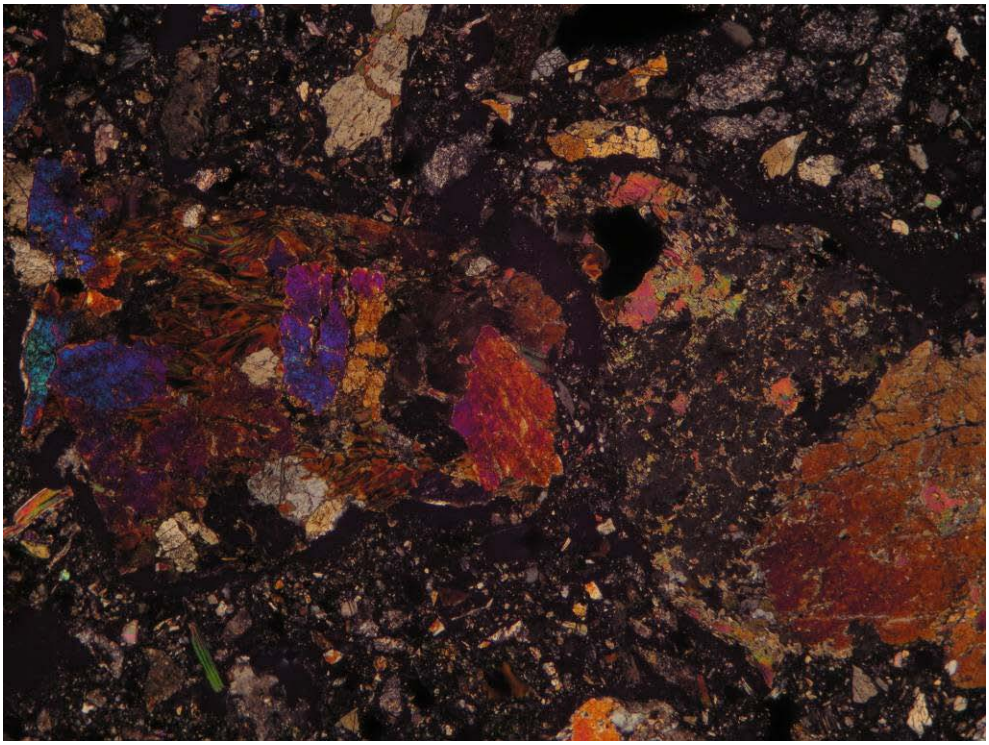


B)

Figure 2: *Photomicrographs of a representative lithic fragment in sample 2, showing the fine-grained equigranular texture and typical feldspar, clinopyroxene and biotite assemblage. A) PPL, B) XPL, FOV = ~ 7 mm.*

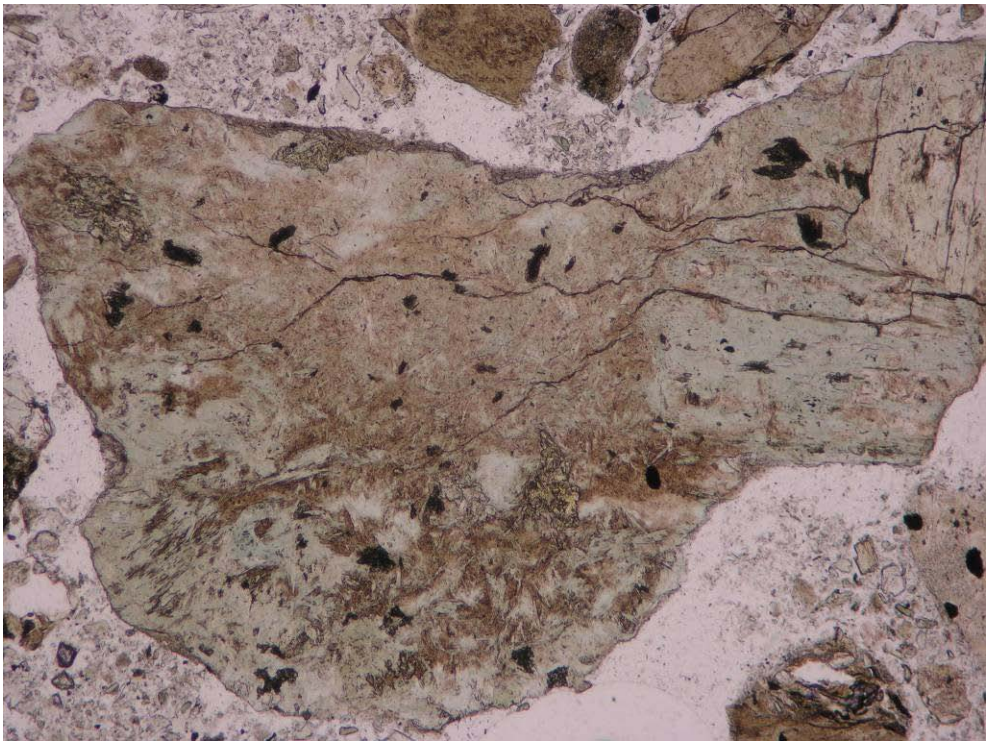


A)

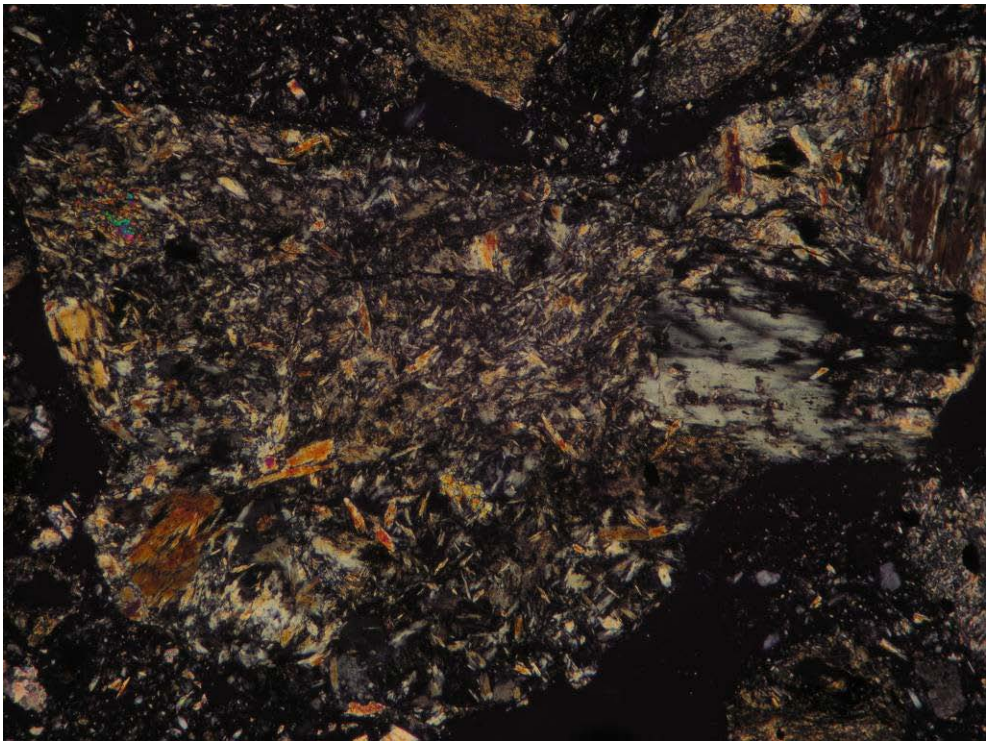


B)

Figure 3: *Photomicrographs of sample 5 showing the typically more mafic lithic fragments essentially made up of clinopyroxene and biotite with lesser feldspars and actinolite. A) PPL, B) XPL, FOV = ~ 7 mm.*



A)



B)

Figure 4: *Photomicrographs of sample 6 showing a representative altered volcanic fragment that is essentially made up of preserved actinolite phenocrysts and very fine-grained sheaves of biotite, actinolite and chlorite. A) PPL, B) XPL, FOV = ~ 1.4 mm.*

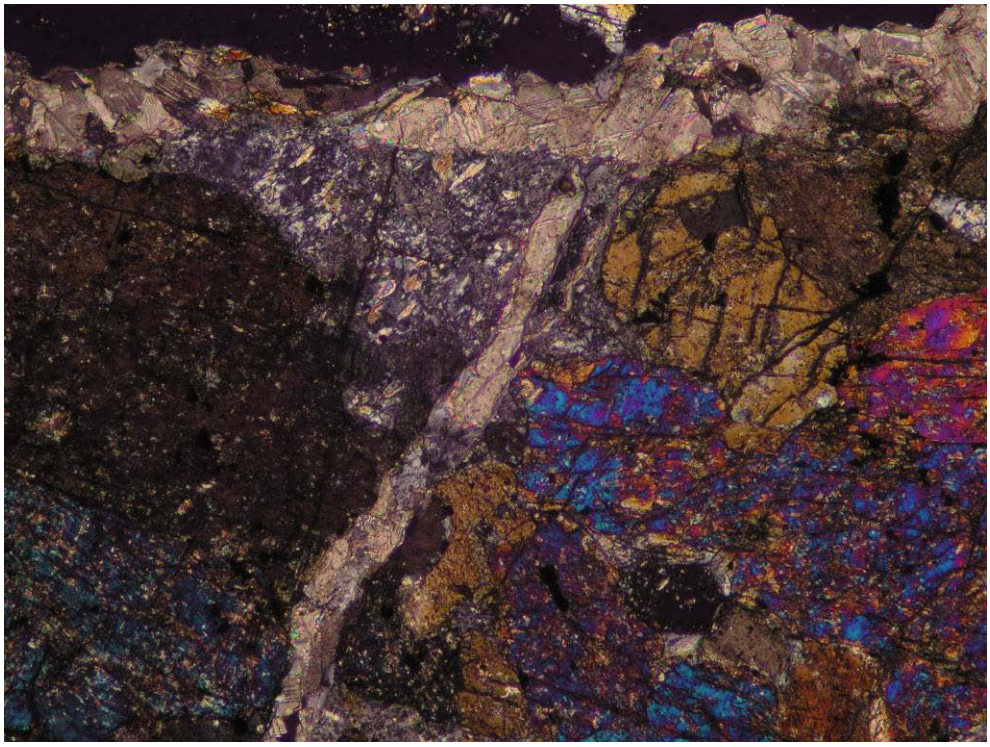


Figure 5: *Photomicrograph of sample 5 showing the occurrence of fine-grained granular carbonate in veins in a lithic fragment. XPL, FOV = ~ 1.4 mm.*

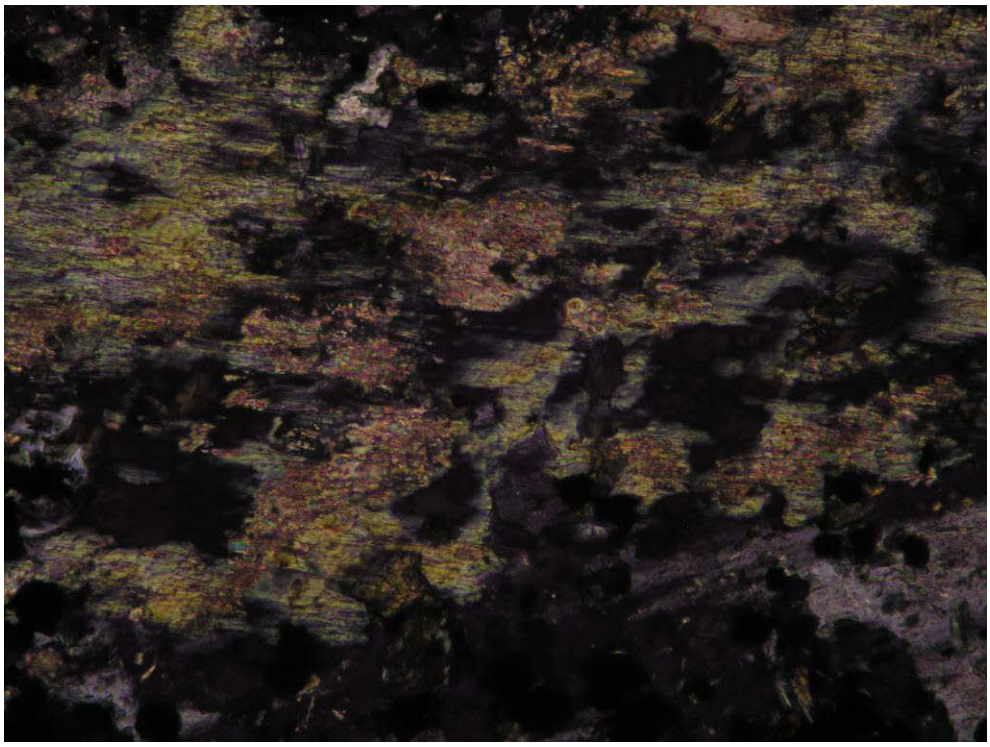


Figure 6: *Photomicrograph of sample 2 showing carbonate occurring with chlorite as replacement of actinolite. XPL, FOV = ~ 0.7 mm.*

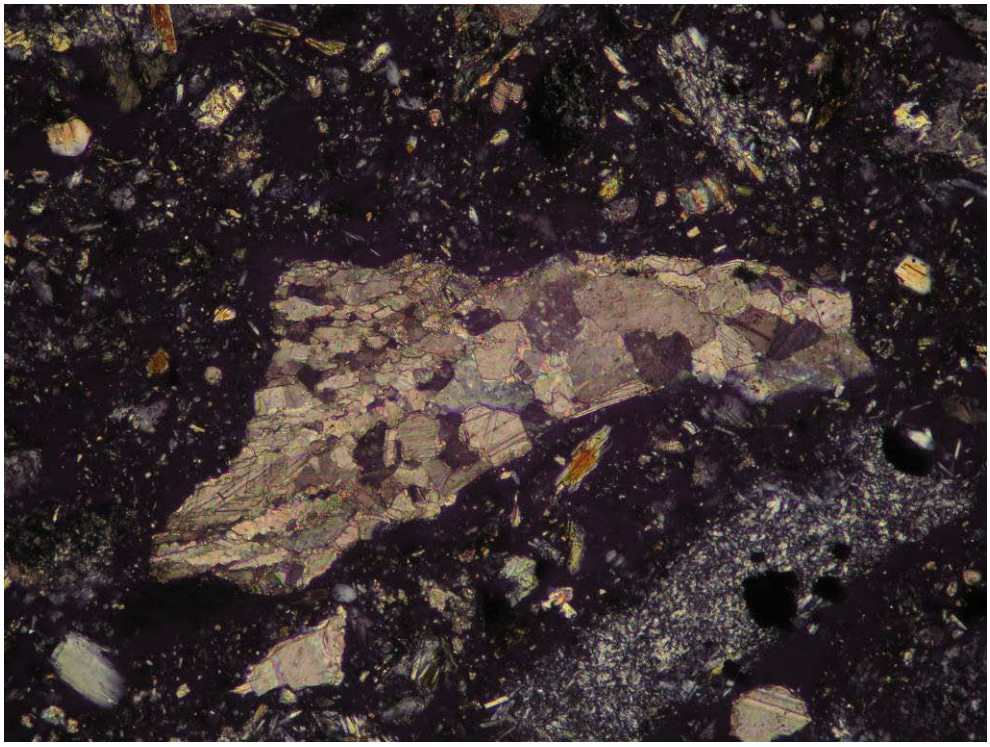


Figure 7: *Photomicrograph of sample 3 showing the occurrence of carbonate as liberated grains and granular clusters. XPL, FOV = ~ 1.4 mm.*

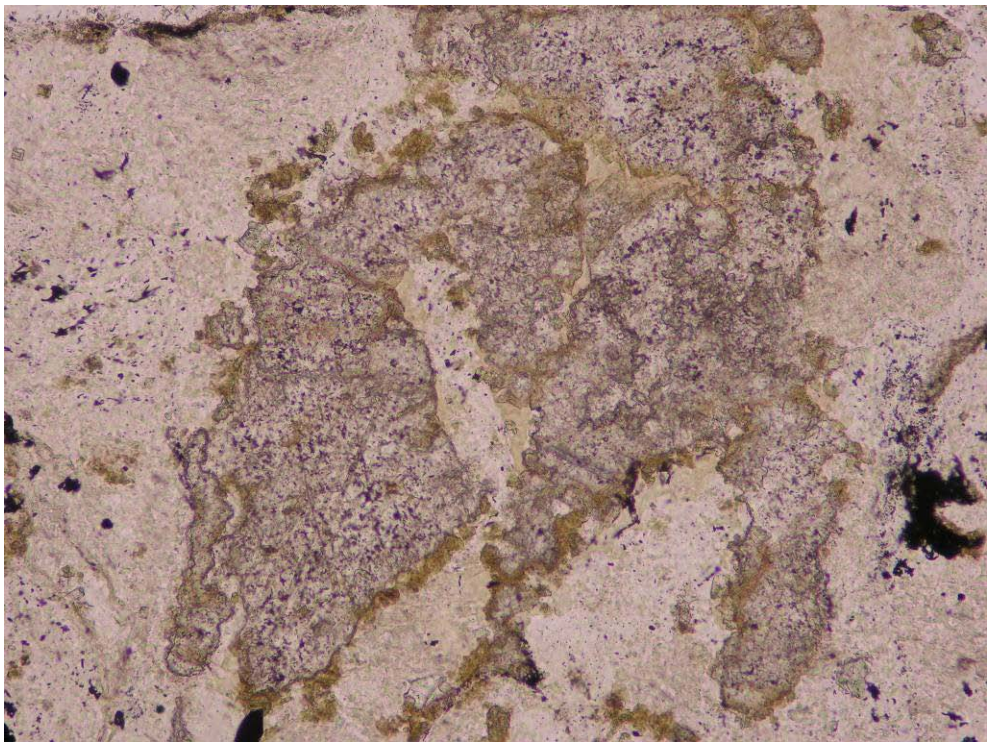


Figure 8: *Photomicrograph of sample 3 showing carbonate (likely dolomite-ankerite) partially coated by a very thin rim of an undetermined phase (possible jarosite or a coloured carbonate). PPL, FOV = ~ 1.4 mm.*

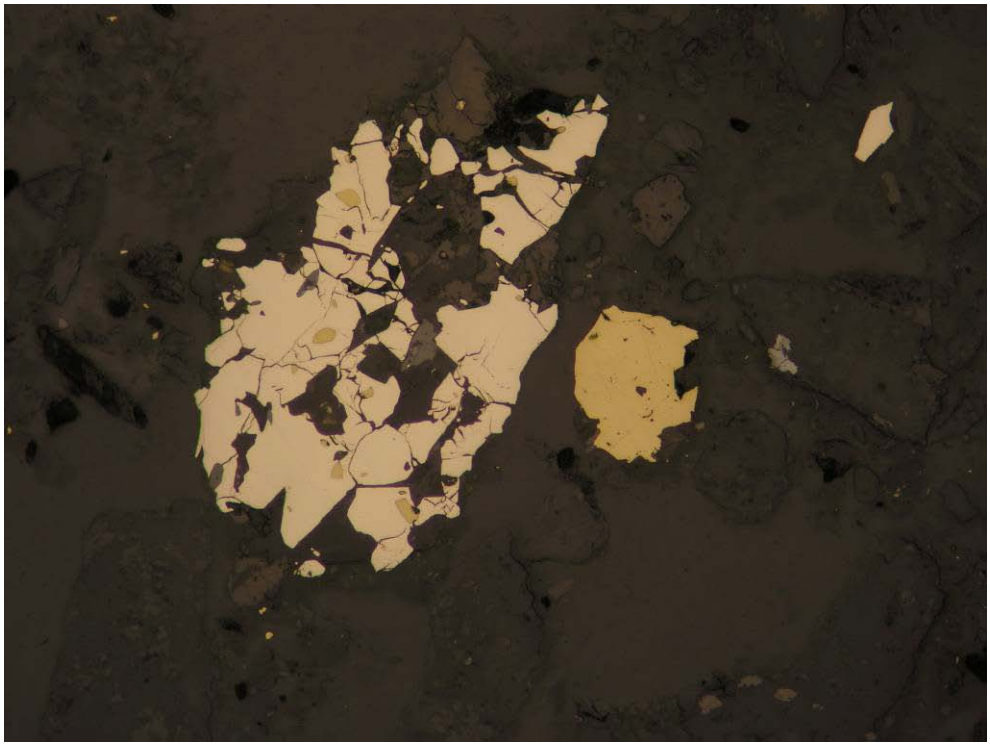


Figure 9: *Photomicrograph of sample 1 showing the occurrence of chalcopyrite (yellow) as liberated grains and as inclusions in pyrite. RL, FOV = ~ 1.4 mm.*

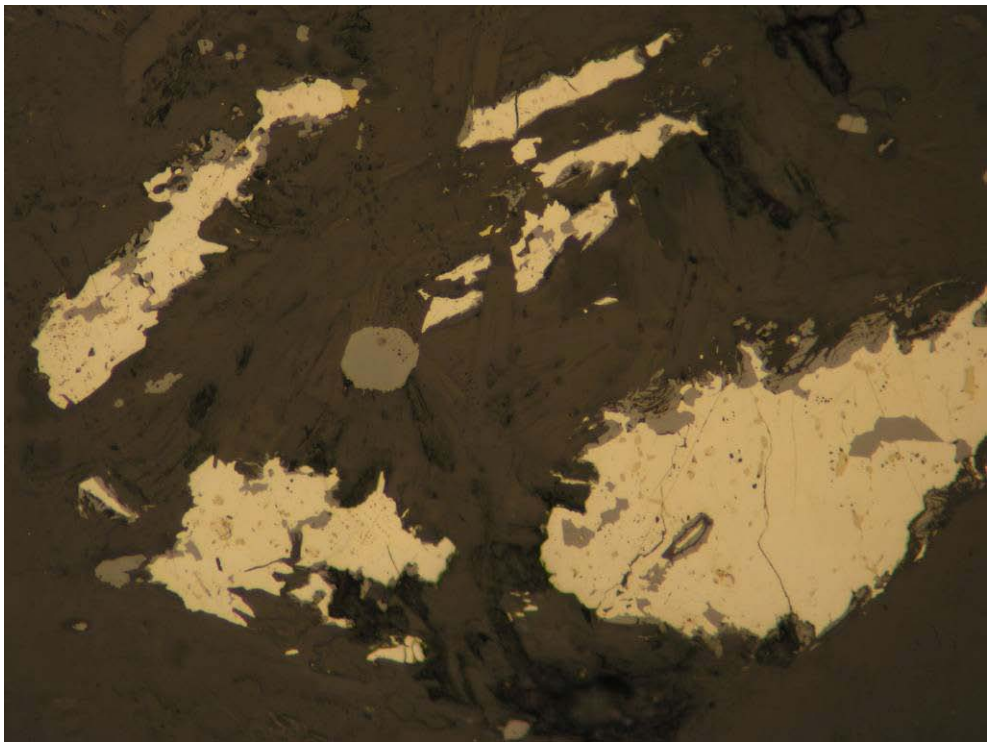


Figure 10: *Photomicrograph of sample 6 showing variably developed hematite rims (grey) around pyrite (pale yellow) in which common chalcopyrite (yellow) inclusions occur. RL, FOV = ~ 0.7 mm.*

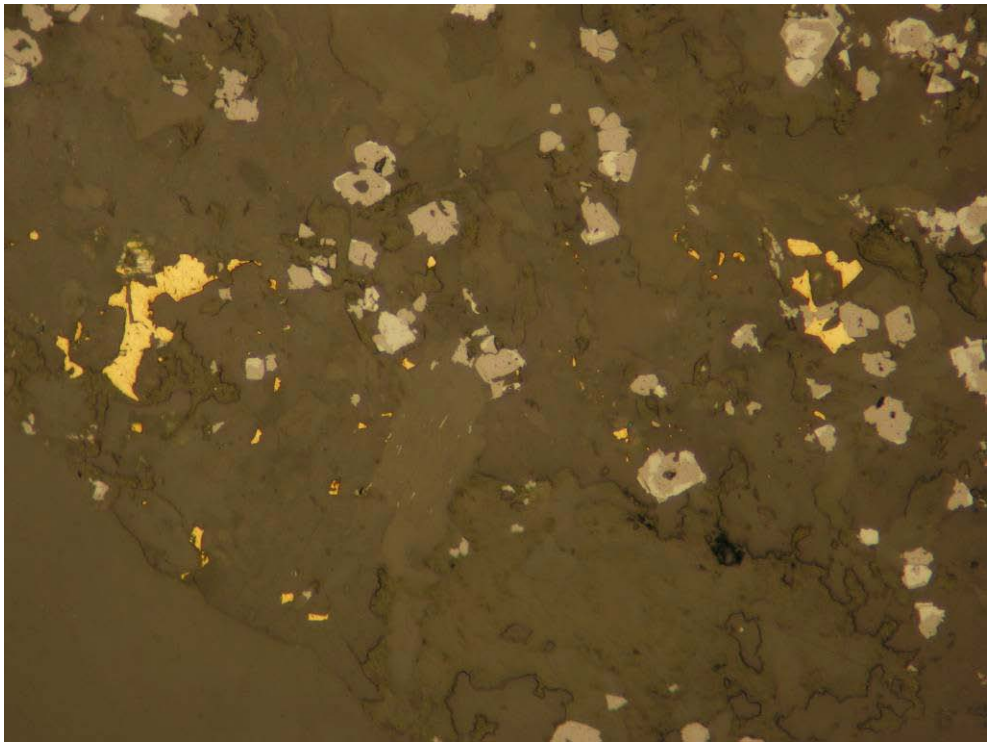


Figure 11: *Photomicrograph of sample 2 showing the occurrence of minute grains of chalcopyrite (yellow) and variably hematite-coated magnetite grains in lithic fragments. RL, FOV = ~ 0.7 mm.*

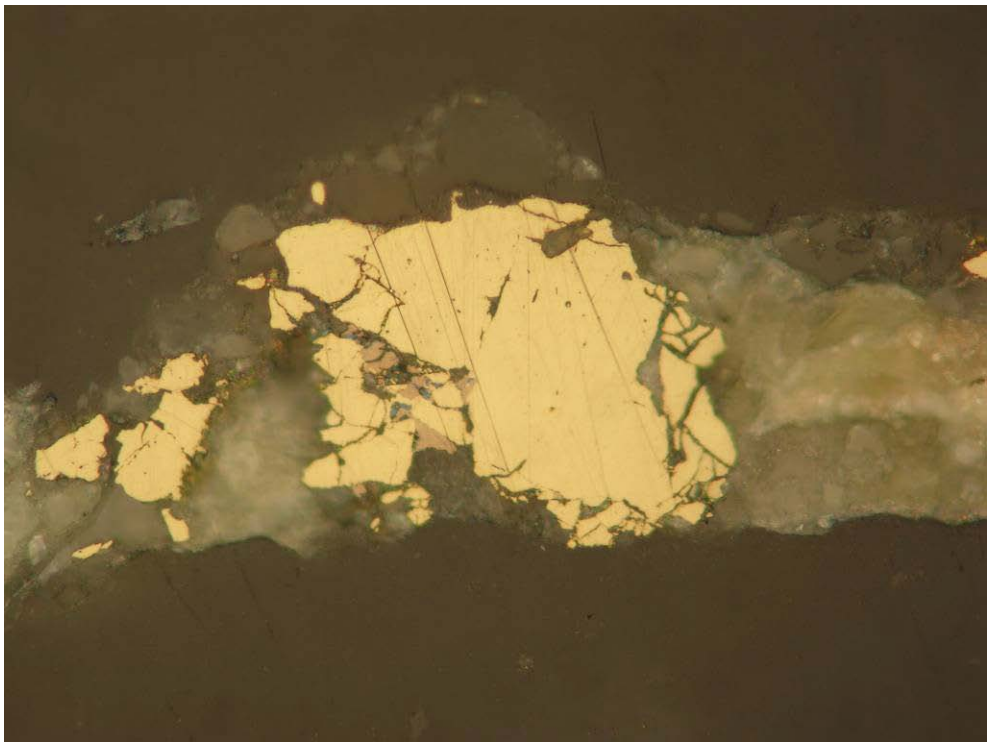


Figure 12: *Photomicrograph of sample 1 showing the occurrence of brownish bornite and blue covellite associated with chalcopyrite. RL, FOV = ~ 0.28 mm.*

APPENDIX B-1.5 AJAX CARB CORRECTION FACTOR

INTERNAL MEMORANDUM

To: **Bruce Mattson (Lorax Environmental)** **Date: Aug 18, 2012**

Cc:

From: **Diana Loomer** **Project No. 933-1**

Subject: **Ajax Carbonate Correction Factor Calculations**

Calcite, dolomite/ankerite and siderite have all been detected in mineralogical samples from the Ajax deposit. Ankerite and siderite contain Fe^{2+} which does not contribute to the neutralizing potential of the carbonate minerals. The static ABA testing results for carbonate neutralizing potential (CaNP) does not account for the presence of Fe^{2+} in carbonates – it assumes all carbonates are calcite equivalents. Therefore, if a significant amount of Fe^{2+} is present in the carbonates, the standard ABA CaNP analysis will over predict the actual CaNP of the samples. Because quantitative XRD and standard petrographic analysis cannot discriminate between dolomite and ankerite, electron microprobe analysis of selected petrographic thin sections was carried out. The microprobe analysis can determine the molar proportions of Ca, Mg, Fe and Mn in carbonate grains, and thus, dolomite can be distinguished from ankerite and the amount of Fe in ankerite can be used to develop an Fe-correction factor for the static ABA CaNP results. This memorandum describes the logic and methodology used to calculate carbonate correction factors applicable to the Ajax static database ABA test results.

The stoichiometric formulas for the carbonates are:

- Calcite: $CaCO_3$ or $Ca_2(CO3)_2$
- Ankerite: $Ca(Fe^{2+},Mg,Mn)(CO_3)_2$
- Dolomite: $CaMg(CO_3)_2$
- Siderite $Fe^{2+}CO_3$

1 Samples

Five samples were selected for electron microprobe analysis. The samples were selected based on sample lithology and with the requirement that previous quantitative XRD and petrographic analysis had been carried out. The same petrographic thin sections used in the previous petrographic analysis were used for the microprobe analyses. The sample descriptions are provided in Table 1. The mineralogical analyses of Volcanics samples did not indicate the presence of dolomite/ankerite or siderite, and therefore, Volcanics samples were not selected for microprobe analysis.

Table 1:
Ajax Samples Selected for Microprobe Analysis

Lithology	Sample ID	Description
Sugarloaf	Col2/HC1	median S
Sugarloaf	Col3/HC2	high S
Sugarloaf	FB2	median-high S
Sugarloaf	FB7	median-high S
Iron Mask	FB3	low S, high NP

2 Electron Microprobe Analysis

Electron microprobe (EM) analysis was carried out at the University of New Brunswick Microscopy and Microanalysis Facility using a JEOL-733 Electron Probe Microanalyser equipped with 4 WDS spectrometers for elemental analysis. It is also equipped with a PGT EDS system, which was used to identify carbonate mineral grains, but was not otherwise used in the analyses. The microprobe was operated at 20 nA probe current, and 15 kV accelerating voltage. The Mg, Ca, Mn, and Fe contents were analyzed, and the results were expressed as wt% oxides. Oxygen was not analyzed directly, but was "added-in" on a stoichiometric basis. Peak counting times were 60 s, and background was determined by counting on high offset for 30 s, and low offset for 30 s. Background intensity at the peak was calculated by linear interpolation. The microprobe was calibrated using calcite, dolomite and siderite NBS standards and the bustamite standard (Mn) was from SPI. Detection limits (DL) are listed in Table 2, expressed as wt% oxide. Twenty-five carbonate grains were analyzed per sample and the raw data is provided in the Appendix in Table A.1. The relative proportions of Fe+Mn, Mg and Ca based on the microprobe analyses are summarized in Figure 1 and the complete dataset is provided in Table A.2 of the Appendix to this memorandum.

Table 2:
Microprobe Detection Limits

Oxide	**DL (wt% oxide)**
FeO	0.041
MnO	0.019
MgO	0.014
CaO	0.019

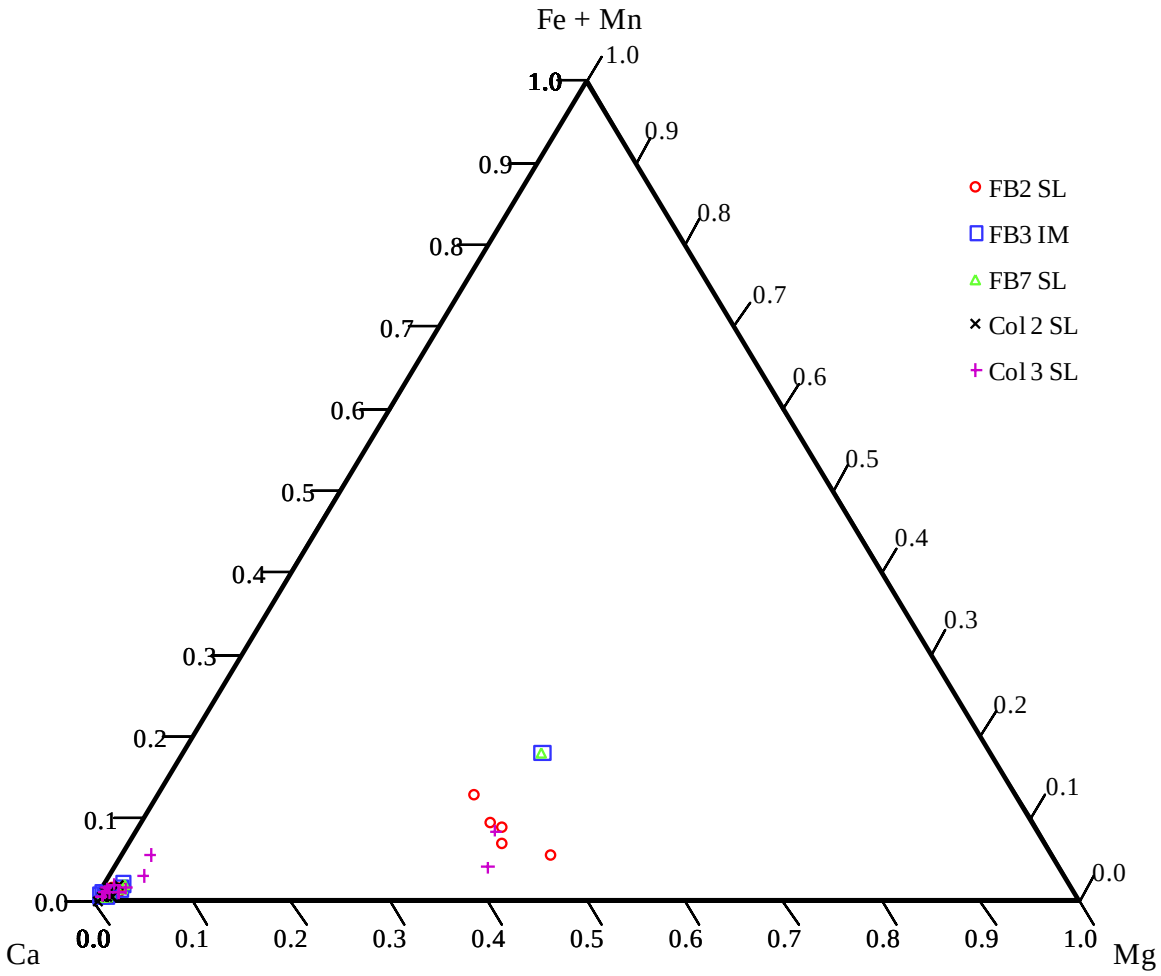


Figure 1: Ternary diagram showing the relative molar proportions of Fe+Mn, Mg and Ca in carbonate minerals measured by electron microprobe. Twenty-five mineral grains were analyzed per sample.

3 Carbonate Correction Factor Calculations

This section summarizes the logic and calculations used to determine the Ajax carbonate correction factor. Table 3 summarizes the results of the carbonate correction factor calculations.

1) Assume calcite contains 100% Ca; i.e., neglect minor amounts of Fe^{2+}, Mn^{2+} and Mg.

2) Average the molar fractions of Fe, Mg and Ca for ankerite and dolomite and multiply the average values by the wt% ankerite/dolomite as determined by XRD.

3) For Sugarloaf samples the Fe molar content is set to the average fraction Fe in each sample/2 cations.

4) For Iron Mask samples the Fe molar content is set to 0.35 Fe/2 cations = 0.175.

5) The detection of 0.4 wt% siderite (at the XRD detection limit) in one Sugarloaf does not warrant a siderite correction applied across the Ajax static test sample set; it will be neglected.

6) No ankerite was detected in Volcanics sample, so no correction factor will be applied.

7) The molar fraction of Fe in the carbonates is weighted to the fractional wt% ankerite/dolomite versus the total carbonate content based on the quantitative XRD results.

8) The CaNP (kg $CaCO_3$/t) values is multiplied by the carbonate correction factor (1-the weighted fraction of Fe) to determine the corrected CaNP.

9) The corrected CaNP is divided by the AP (kg $CaCO_3$/t) to determine the corrected CaNPR.

Table 3:
Carbonate Correction Factors for the Ajax Deposit and Effect on NPR Values

Lith.	ID	Molar Corr. Factor	AP	CaNP	Corrected CaNP	NPR	Corrected NPR
			kg$CaCO_3$/t	kg$CaCO_3$/t	kg$CaCO_3$/t	CaNP/AP	cCaNP/AP
SL	Col2	N/A	5.31	30.83	N/A	5.80	N/A
SL	Col3	0.999	18.13	33.33	33.31	1.84	1.84
SL	FB2	0.993	14.30	91.80	91.12	6.42	6.37
SL	FB7	0.997	10.20	79.80	79.53	7.82	7.80
SL	**Avg**	**0.996**					
IM	**FB3**	**0.993**	2.20	17.80	17.68	8.09	8.04

4 Comparison of uncorrected and Fe-corrected Ca

Figures 2 and 3 provide a simple comparison between the uncorrected and the Fe-corrected CaNPR values for Sugarloaf and Iron Mask static test samples, respectively. The figures indicate that the Fe-corrected values do not differ greatly from the uncorrected values and do not result in a significant increase in the number of potentially acid-generating (PAG) samples. From Figure 3, no change in the PAG/NAG classification for the Iron Mask samples is

warranted. For the entire set of Sugarloaf data – all grades, all sub-lithologies – the percentage of PAG samples increases from 27% (uncorrected) to 28% (Fe-corrected). Because there will be less than a 2% change to the CaNP values, the CaNP calculated from TIC/TC is considered an accurate representation of the neutralization potential available from carbonates. Therefore, no Fe-correction factor will be applied to the Ajax static database ABA test results.

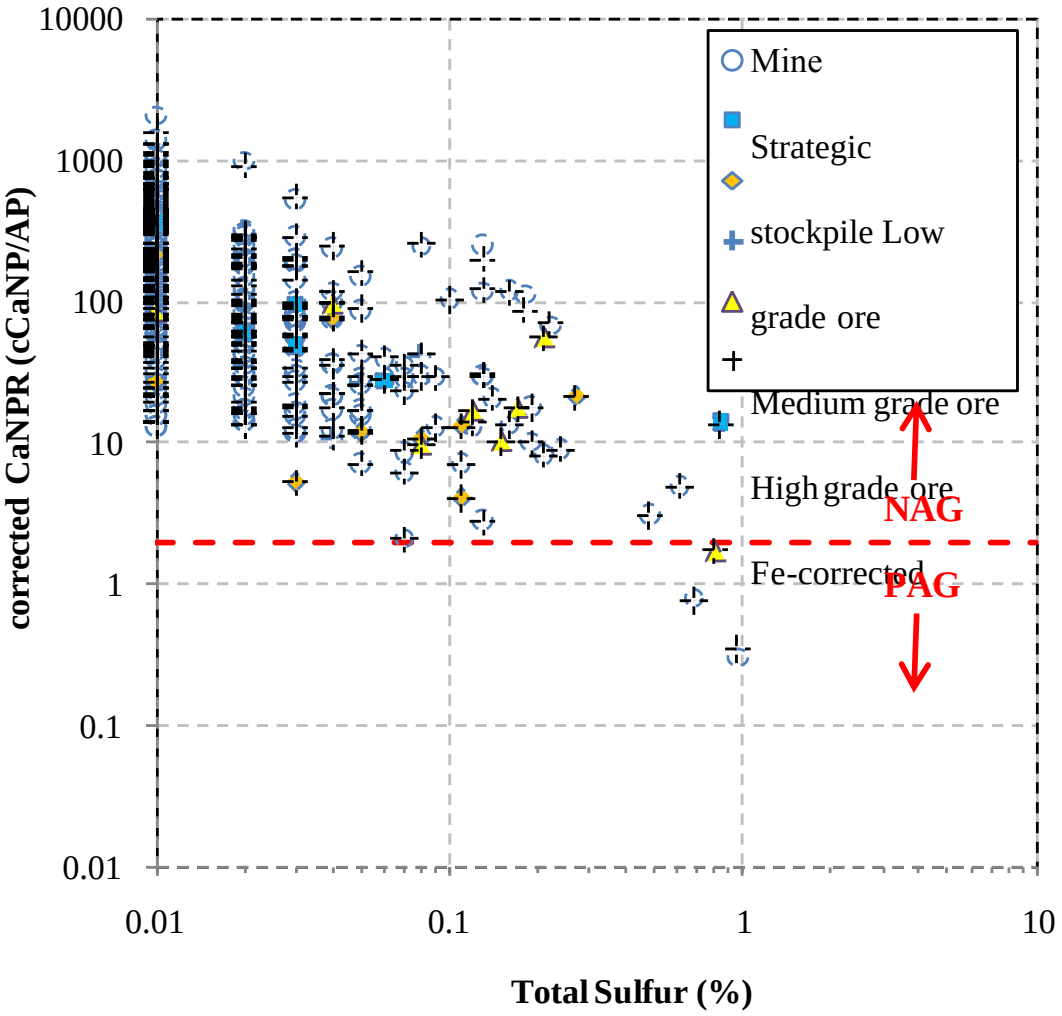


Figure 2: Fe-corrected CaNPR values for Sugarloaf samples overlain on uncorrected data points.

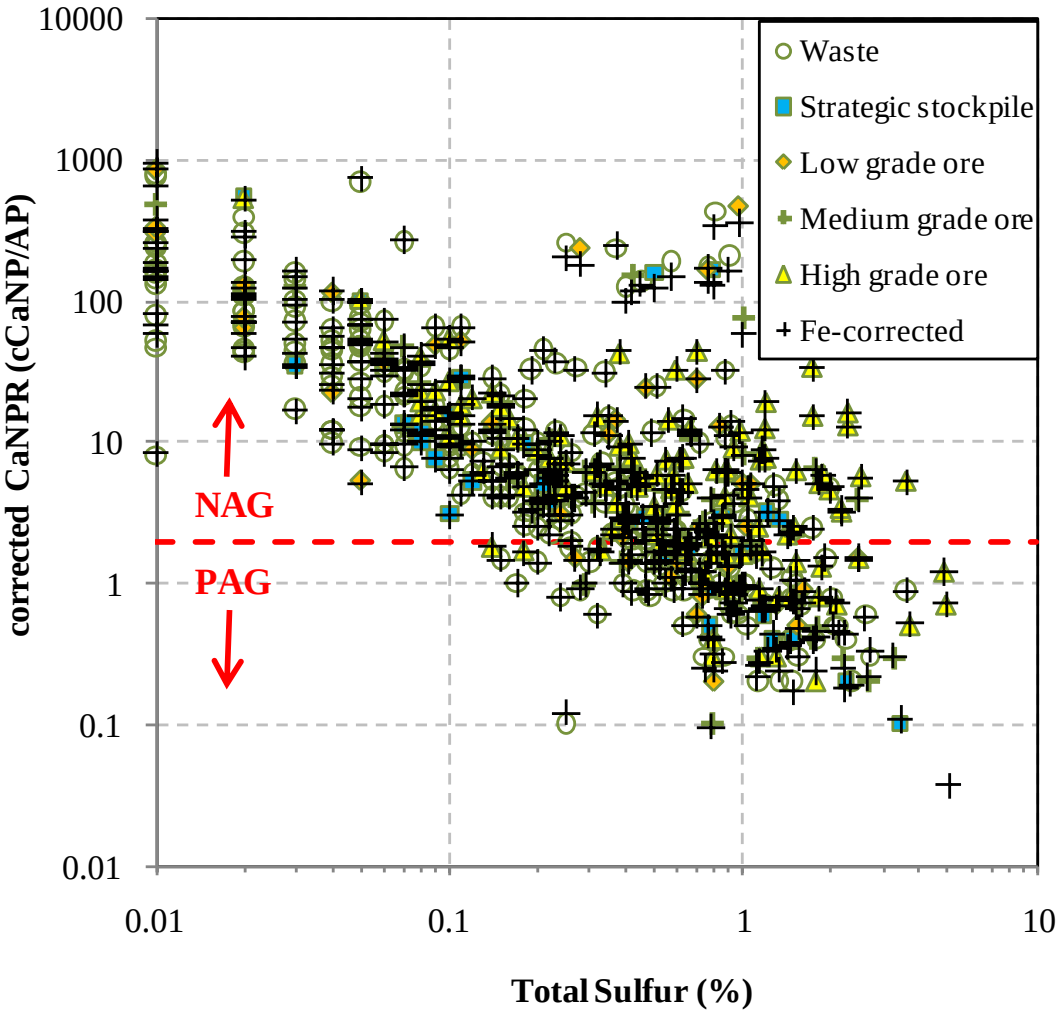


Figure 3: Fe-corrected CaNPR values for Iron Mask samples overlain on uncorrected data points.

Appendix

Table A.1:
Microprobe Raw Data

Sample ID	Pt#	Oxide Weight Percent					Position		
		MgO	CaO	MnO	FeO	Total	X(mm)	Y(mm)	Z(mm)
FB2	**1**	14.94	32.29	0.1312	5.86	53.23	29.1414	2.8415	11.1724
FB2	**2**	0.4924	54.61	0.4465	0.2651	55.81	19.8507	2.1480	11.1041
FB2	**3**	13.21	31.59	0.2855	9.11	54.19	19.3029	2.3683	11.1038
FB2	**4**	1.0246	52.93	0.5591	0.3502	54.86	19.8764	3.4095	11.1038
FB2	**5**	0.5454	54.03	0.2678	0.6745	55.52	20.5597	3.7643	11.1127
FB2	**6**	0.8599	53.96	0.264	0.4702	55.56	26.2147	4.3038	11.1508
FB2	**7**	0.1816	54.57	0.2592	0.0841	55.09	27.5044	4.8418	11.1577
FB2	**8**	0.0756	55.6	0.2231	0.0321	55.93	31.3644	6.4098	11.1794
FB2	**9**	0.1607	55.2	0.8658	0.0929	56.32	30.1699	7.4435	11.1675
FB2	**10**	0.1875	53.93	0.1017	0.2278	54.45	20.4764	7.8058	11.0950
FB2	**11**	0	56.63	0.0389	0.0165	56.69	18.2927	8.3168	11.0796
FB2	**12**	0.0047	56.59	0.0777	0.0239	56.70	12.3352	6.9810	11.0440
FB2	**13**	0.3142	54.07	0.1915	0.2735	54.85	9.0747	7.0145	11.0203
FB2	**14**	0.3434	54.65	0.1441	0.6875	55.83	13.7204	9.5313	11.0446
FB2	**15**	0.2778	55.85	0.2284	0.2389	56.60	15.9094	11.2043	11.0601
FB2	**16**	0.0084	56.51	0.0778	0.0413	56.63	21.0562	9.1253	11.1005
FB2	**17**	0.13	55.6	0.8588	0.1083	56.69	30.1874	7.4258	11.1683
FB2	**18**	0.0737	56.43	0.1854	0.0265	56.71	31.3577	6.4095	11.1742
FB2	**19**	15.7	31.41	0.198	6.48	53.78	31.5524	8.8875	11.1662
FB2	**20**	0.4195	54.39	0.3833	0.5574	55.75	27.6997	9.6798	11.1386
FB2	**21**	18.69	30	0.1207	4.31	53.12	25.3817	10.8518	11.1256
FB2	**22**	16.05	32.85	0.1293	5.1	54.13	23.2902	10.3888	11.1103
FB2	**23**	0.0765	56.32	0.3498	0.0919	56.84	19.8934	10.4725	11.0880
FB2	**24**	0.27	54.77	0.2692	0.4205	55.73	18.4517	9.8905	11.0753
FB2	**25**	0.0129	56.82	0	0	56.84	24.2592	13.6000	11.1094
FB3	**26**	0.1253	55.8	1.253	0.0347	57.22	25.6049	28.1000	11.1920
FB3	**27**	0.014	55.86	0.0328	0	55.90	23.3959	27.2913	11.1907
FB3	**28**	0.0702	55.8	0.3763	0.024	56.27	16.9077	27.1755	11.1649
FB3	**29**	0.1518	56.41	0.5955	0.0116	57.17	13.9542	27.3203	11.1596
FB3	**30**	0.0019	56.55	0.0038	0	56.56	12.5669	27.9060	11.1514
FB3	**31**	0.2005	56.04	0.4956	0.1265	56.86	11.5287	28.7553	11.1533
FB3	**32**	0.146	55.55	0.4166	0.142	56.25	20.0274	28.1883	11.1788
FB3	**33**	0.718	54.52	0.2902	1.383	56.92	20.9589	28.2815	11.1771
FB3	**34**	0.301	55.25	0.7707	0.038	56.36	23.0509	28.2945	11.1854
FB3	**35**	0.2244	55.72	1.4861	0	57.43	25.6154	28.0890	11.1899
FB3	**36**	0.1244	55.82	0.3728	0.0388	56.35	21.9494	29.7953	11.1755
FB3	**37**	0.0255	56.58	0.1419	0.0174	56.76	20.4134	29.9358	11.1690
FB3	**38**	0.3574	55.59	1.1197	0.1246	57.19	16.5412	29.2240	11.1612
FB3	**39**	0.0179	55.85	0.1638	0.0124	56.04	12.7077	29.7053	11.1447
FB3	**40**	0.869	54.57	0.2488	0.8922	56.58	11.7092	29.0505	11.1447
FB3	**41**	0.8958	54.08	0.1937	0.9747	56.14	13.5537	31.5240	11.1447
FB3	**42**	0.0234	56.3	0.0402	0.0215	56.39	22.7037	31.0398	11.1764
FB3	**43**	0.4897	54.9	0.4243	0.4479	56.26	29.0909	32.5060	11.1879
FB3	**44**	0.5842	55.66	0.426	0.2857	56.96	21.1567	33.4245	11.1629
FB3	**45**	14.69	25.09	0.1862	12.41	52.38	15.0329	34.2425	11.1413
FB3	**46**	0.5969	55.28	0.5979	0.3926	56.86	21.2324	34.2485	11.1588
FB3	**47**	0.3289	55.2	0.4789	0.2015	56.21	23.6817	34.0080	11.1697
FB3	**48**	0.027	56.61	0.0502	0.0265	56.72	24.8857	35.8260	11.1674
FB3	**49**	0.0161	55.86	0.0562	0.0777	56.01	23.6352	35.1483	11.1623
FB3	**50**	0.4031	55.7	0.4082	0.3054	56.82	21.3904	34.4993	11.1608
FB7	**51**	0.4347	56.09	0.1999	0.0939	56.82	22.8962	58.3553	11.1169

Sample ID	Pt#	Oxide Weight Percent					Position		
		MgO	CaO	MnO	FeO	Total	X(mm)	Y(mm)	Z(mm)
FB7	**52**	0.5376	53.55	0.215	0.099	54.41	22.1712	58.3048	11.1187
FB7	**53**	17.84	33.84	0.1335	1.4432	53.26	21.2812	58.2680	11.1223
FB7	**54**	0.0678	55.5	0.3592	0.0801	56.01	19.8912	57.6320	11.1226
FB7	**55**	0.0533	56.88	0.1179	0.0918	57.14	16.4192	57.5368	11.1202
FB7	**56**	15.38	29.28	0.4286	9.29	54.38	12.6677	57.3513	11.1138
FB7	**57**	0.7246	55.23	0.2091	0.0776	56.24	11.5227	57.6240	11.1038
FB7	**58**	0.1449	54.13	0.1663	1.0825	55.53	19.2974	60.1930	11.1185
FB7	**59**	19	33.13	0.3892	1.0513	53.58	15.5004	60.2720	11.1109
FB7	**60**	0.0575	56.54	0.1673	0	56.76	11.5902	60.5035	11.1093
FB7	**61**	17.67	32.4	0.2579	3.12	53.45	8.0994	60.3890	11.0997
FB7	**62**	0.2157	55.71	0.1835	0.1281	56.23	9.7779	62.0403	11.1078
FB7	**63**	1.0597	55.08	0.0949	0.352	56.59	14.8582	61.8465	11.1148
FB7	**64**	0.4824	56.05	0.116	0.1254	56.78	22.8777	60.9505	11.1192
FB7	**65**	16.57	33.19	0.1005	4.22	54.08	25.8287	60.5945	11.1243
FB7	**66**	15.97	33.32	0.1737	4.69	54.14	21.8399	61.8493	11.1174
FB7	**67**	0.0484	56.85	0.0483	0	56.95	20.4942	62.1230	11.1153
FB7	**68**	0.0226	56.18	0.1148	0.0009	56.32	15.4144	62.3568	11.1140
FB7	**69**	18.35	34.46	0.1874	1.0589	54.05	14.8289	62.0393	11.1111
FB7	**70**	0.2891	56.12	0.2133	0.0756	56.69	14.6319	61.8843	11.1120
FB7	**71**	0.0086	56.49	0.0298	0.0264	56.56	7.1877	63.4530	11.1009
FB7	**72**	0.3152	56.45	0.1462	0.0265	56.94	20.2402	63.9618	11.1146
FB7	**73**	0.1142	56.09	0.3306	0.1016	56.64	20.6552	64.1200	11.1153
FB7	**74**	18.1	33.44	0.1573	1.8277	53.53	22.5004	63.9138	11.1146
FB7	**75**	0.3742	54.89	0.3415	0.6232	56.23	25.3947	64.4713	11.1155
Col3	**76**	0.297	55.74	0.3335	0.2269	56.60	69.3617	59.9608	11.1825
Col3	**77**	0.1389	55.91	0.4405	0.1472	56.64	66.3364	60.0555	11.1782
Col3	**78**	0.2172	54.67	0.4961	0.2601	55.64	66.4569	60.1450	11.1819
Col3	**79**	0.3808	55.37	0.0231	0.5425	56.31	61.5957	60.0973	11.1773
Col3	**80**	0.1331	55.51	0.4504	0.0338	56.13	60.4539	59.3508	11.1779
Col3	**81**	0.0077	55.8	0.0171	0.0042	55.83	53.7029	61.3875	11.1759
Col3	**82**	0.006	57.38	0.023	0	57.41	53.6834	60.9928	11.1815
Col3	**83**	0.2221	55.56	0.5407	0.1922	56.52	66.3239	60.0500	11.1831
Col3	**84**	16.13	35.16	0.4679	2.7078	54.46	57.2767	62.0940	11.1776
Col3	**85**	0.12	55.64	0.2271	0.1132	56.10	54.9374	62.1908	11.1784
Col3	**86**	0.437	53.06	0.3698	1.0452	54.91	52.2857	63.1523	11.1784
Col3	**87**	0.1148	56.56	0.1629	0.081	56.92	55.9574	63.4095	11.1784
Col3	**88**	0.1086	56.21	0.2154	0.1734	56.71	67.3237	65.5758	11.1844
Col3	**89**	0.0166	56	0.0029	0.0782	56.10	64.5782	65.1828	11.1844
Col3	**90**	15.5	32.03	0.2118	5.95	53.70	64.1524	65.1678	11.1828
Col3	**91**	0.1576	56.01	0.2363	0.0848	56.49	64.1479	66.0058	11.1915
Col3	**92**	0.0981	55.3	0.2567	0.1553	55.81	53.0757	65.7530	11.1839
Col3	**93**	1.0185	53.94	0.2634	0.69	55.91	49.6732	66.8733	11.1799
Col3	**94**	1.1096	49.6	0.2125	3.7	54.62	75.7927	66.2013	11.1851
Col3	**95**	0	56.92	0.0086	0.0042	56.94	70.1597	68.3075	11.1849
Col3	**96**	0.0464	56.65	0.1273	0.0379	56.86	68.9197	68.2915	11.1917
Col3	**97**	0.0764	55.86	0.2538	0.3136	56.50	60.1519	68.2098	11.1898
Col3	**98**	0.7869	54.81	0.3099	0.6742	56.58	49.5542	66.4840	11.1740
Col3	**99**	1.4533	52.46	0.2563	1.6366	55.81	75.9714	70.3918	11.1879
Col3	**100**	0.7466	54.94	0.2407	0.4856	56.42	64.2312	69.5723	11.1891
Col2	**101**	0.042	55.85	0.0252	0.0699	55.99	70.2007	27.8820	11.4355
Col2	**102**	0.5546	55.64	0.419	0.1082	56.72	62.7489	28.1820	11.3857
Col2	**103**	0.3976	55.09	0.4389	0.3053	56.23	62.7262	28.2668	11.3754
Col2	**104**	0.3179	55.83	0.3992	0.1303	56.68	63.4794	28.3928	11.3871
Col2	**105**	0.3	55.5	0.426	0.1383	56.36	61.4487	28.3870	11.3717
Col2	**106**	0.0604	56.11	0.1531	0.0867	56.41	60.6912	28.6340	11.3654

Sample ID	Pt#	Oxide Weight Percent					Position		
		MgO	CaO	MnO	FeO	Total	X(mm)	Y(mm)	Z(mm)
Col2	**107**	0.7015	54.19	0.2109	0.9604	56.07	66.9002	29.3915	11.4113
Col2	**108**	0.0759	56.35	0.3824	0.0473	56.86	68.8932	28.8773	11.4281
Col2	**109**	0.134	55.09	0.1671	0.6592	56.05	69.3059	29.0113	11.4281
Col2	**110**	0.4184	55.98	0.3236	0.1183	56.84	70.2897	28.9570	11.4416
Col2	**111**	0.388	54.67	0.053	0.8252	55.94	71.8412	29.2503	11.4476
Col2	**112**	0.255	55.61	0.3197	0.107	56.29	74.2569	30.9895	11.4624
Col2	**113**	0.4741	55.63	0.194	0.5031	56.80	70.5807	31.2805	11.4352
Col2	**114**	0.0714	56.39	0.1035	0.1364	56.70	55.5199	32.2585	11.3182
Col2	**115**	0.0235	56.56	0.1557	0.0424	56.78	61.0102	32.8780	11.3652
Col2	**116**	0.0527	56.32	0.2047	0.0376	56.61	61.5529	32.8913	11.3701
Col2	**117**	0.0744	56.3	0.1874	0.0277	56.59	75.3014	34.1508	11.4704
Col2	**118**	0.012	57.05	0.0235	0.0751	57.16	77.0499	34.5948	11.4781
Col2	**119**	0.068	56.83	0.1818	0.0458	57.13	74.9674	37.0700	11.4651
Col2	**120**	0.0701	56.45	0.2445	0.0588	56.82	65.8142	36.3693	11.3940
Col2	**121**	0.0689	56.45	0.0942	0.2296	56.84	63.4309	36.2705	11.3780
Col2	**122**	0.0074	56.55	0.0045	0.0074	56.56	65.4852	39.8055	11.3981
Col2	**123**	0.1397	55.15	0.0481	1.2035	56.55	76.0132	42.8290	11.4621
Col2	**124**	0.5136	55.76	0.2185	0.3686	56.86	74.2089	44.7725	11.4466
Col2	**125**	0.0682	56.38	0.1024	0.0554	56.61	63.5047	49.0660	11.3577
Cc Std - USNM 136321	**999**	0.0086	56.27	0.2194	0	56.50	51.3885	17.4062	11.4075
Cc Std - USNM 136321	**999**	0.0249	55.79	0.1778	0	55.99	51.3885	17.4215	11.4075
Cc Std - USNM 136321	**999**	0.0166	55.57	0.1968	0	55.79	51.3885	17.4388	11.4075
Cc Std - USNM 136321	**999**	0.0117	55.2	0.1833	0.0266	55.42	51.3615	17.4230	11.4075
Cc Std - USNM 136321	**999**	0.0116	55.64	0.1826	0.0094	55.84	51.6697	17.2765	11.4093
Cc Std - USNM 136321	**999**	0.0177	56.67	0.1948	0	56.88	51.6812	17.6103	11.4151
Cc Std - USNM 136321	**999**	0.0161	56.03	0.1881	0.0123	56.24	51.6812	17.6233	11.4151
Cc Std - USNM 136321	**Avg. Meas.**	**0.02**	**55.88**	**0.19**	**0.01**				
Cc Std - USNM 136321	**Actual**		**56.10**						
Dol Std - USNM10057	**999**	22.1	30.41	0.0153	0.0544	52.58	51.1522	14.8538	11.4544
Dol Std - USNM10057	**999**	21.99	30.12	0.0088	0.0848	52.20	51.1522	14.8648	11.4544
Dol Std - USNM10057	**999**	21.96	30.26	0	0.0788	52.30	51.1330	14.8920	11.4547
Dol Std - USNM10057	**999**	22.01	30.21	0.0404	0.1294	52.39	51.1505	14.7678	11.4547
Dol Std - USNM10057	**999**	21.99	30.66	0.002	0.0499	52.71	51.1195	14.7678	11.4547
Dol Std - USNM10057	**999**	21.95	30.36	0.0206	0.0706	52.39	51.0952	14.8025	11.4547
Dol Std - USNM10057	**999**	22.26	30.66	0.0249	0.0915	53.04	51.2152	15.0368	11.4544
Dol Std - USNM10057	**999**	22.61	31.01	0	0.0688	53.69	51.2152	15.0625	11.4544
Dol Std - USNM10057	**Avg. Meas.**	**22.11**	**30.46**	**0.01**	**0.08**				
Dol Std - USNM10057	**Actual**	**22.04**	**30.56**						

Note: The total for carbonates is not expected to equal 100% because carbon (C) cannot be analyzed by electron microprobe.

Table A.2:
Summary of Microprobe Results

Lithology	Sample ID	Simplified Formula					Mineral ID
		Fe^{+2}	Mn^{+2}	Mg	Ca	Sum	
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB2	0.00	0.01	0.00	1.99	2.00	Calcite
Sugarloaf	FB2	0.00	0.02	0.01	1.97	2.00	Calcite
Sugarloaf	FB2	0.00	0.02	0.01	1.97	2.00	Calcite
Sugarloaf	FB2	0.01	0.01	0.01	1.97	2.00	Calcite
Sugarloaf	FB2	0.02	0.00	0.02	1.96	2.00	Calcite
Sugarloaf	FB2	0.00	0.01	0.01	1.98	2.00	Calcite
Sugarloaf	FB2	0.02	0.01	0.02	1.95	2.00	Calcite
Sugarloaf	FB2	0.01	0.01	0.02	1.96	2.00	Calcite
Sugarloaf	FB2	0.01	0.01	0.02	1.96	2.00	Calcite
Sugarloaf	FB2	0.02	0.01	0.03	1.94	2.00	Calcite
Sugarloaf	FB2	0.01	0.01	0.04	1.94	2.00	Calcite
Sugarloaf	FB2	0.01	0.00	0.01	1.98	2.00	Calcite
Sugarloaf	FB2	0.01	0.02	0.05	1.92	2.00	Calcite
Sugarloaf	FB2	0.14	0.00	0.76	1.10	2.00	Ankerite
Sugarloaf	FB2	0.19	0.00	0.71	1.10	2.00	Ankerite
Sugarloaf	FB2	0.25	0.01	0.64	1.10	2.00	Ankerite
Sugarloaf	FB2	0.17	0.01	0.74	1.08	2.00	Ankerite
Sugarloaf	FB2	0.11	0.00	0.87	1.02	2.00	Ankerite
Average Composition		**0.01**	**0.01**	**0.01**	**1.97**	**2.00**	**Calcite**
		0.17	**0.00**	**0.74**	**1.08**	**2.00**	**Ankerite**
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.00	1.99	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.00	1.99	2.00	Calcite
Iron Mask	FB3	0.00	0.00	0.00	2.00	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.01	1.98	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.01	1.98	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.01	1.98	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.01	1.98	2.00	Calcite
Iron Mask	FB3	0.00	0.01	0.01	1.98	2.00	Calcite

Lithology	Sample ID	Simplified Formula					Mineral ID
Iron Mask	FB3	0.00	0.02	0.01	1.97	2.00	Calcite
Iron Mask	FB3	0.01	0.00	0.02	1.97	2.00	Calcite
Iron Mask	FB3	0.01	0.01	0.02	1.96	2.00	Calcite
Iron Mask	FB3	0.04	0.00	0.04	1.92	2.00	Calcite
Iron Mask	FB3	0.02	0.01	0.04	1.93	2.00	Calcite
Iron Mask	FB3	0.03	0.00	0.04	1.93	2.00	Calcite
Iron Mask	FB3	0.35	0.01	0.73	0.91	2.00	Ankerite
Average Composition		**0.00**	**0.00**	**0.01**	**1.98**	**2.00**	**Calcite**
		0.35	**0.01**	**0.73**	**0.91**	**2.00**	**Ankerite**
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.01	1.99	2.00	Calcite
Sugarloaf	FB7	0.00	0.01	0.00	1.99	2.00	Calcite
Sugarloaf	FB7	0.00	0.00	0.03	1.97	2.00	Calcite
Sugarloaf	FB7	0.01	0.00	0.04	1.95	2.00	Calcite
Sugarloaf	FB7	0.02	0.00	0.02	1.96	2.00	Calcite
Sugarloaf	FB7	0.03	0.00	0.01	1.96	2.00	Calcite
Sugarloaf	FB7	0.00	0.01	0.03	1.96	2.00	Calcite
Sugarloaf	FB7	0.03	0.00	0.85	1.12	2.00	Dolomite
Sugarloaf	FB7	0.04	0.00	0.83	1.13	2.00	Dolomite
Sugarloaf	FB7	0.05	0.00	0.84	1.11	2.00	Dolomite
Sugarloaf	FB7	0.03	0.00	0.88	1.09	2.00	Dolomite
Sugarloaf	FB7	0.08	0.00	0.83	1.09	2.00	Dolomite
Sugarloaf	FB7	0.12	0.00	0.75	1.13	2.00	Ankerite
Sugarloaf	FB7	0.11	0.00	0.78	1.11	2.00	Ankerite
Sugarloaf	FB7	0.25	0.00	0.74	1.01	2.00	Ankerite
Average Composition		**0.00**	**0.00**	**0.01**	**1.99**	**2.00**	**Calcite**
		0.05	**0.00**	**0.85**	**1.11**	**2.00**	**Dolomite**
		0.16	**0.00**	**0.76**	**1.08**	**2.00**	**Ankerite**
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite

Lithology	Sample ID	Simplified Formula					Mineral ID
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col2	0.00	0.00	0.01	1.99	2.00	Calcite
Sugarloaf	Col2	0.01	0.00	0.03	1.96	2.00	Calcite
Sugarloaf	Col2	0.01	0.00	0.03	1.96	2.00	Calcite
Sugarloaf	Col2	0.00	0.01	0.03	1.96	2.00	Calcite
Sugarloaf	Col2	0.00	0.01	0.01	1.98	2.00	Calcite
Sugarloaf	Col2	0.00	0.01	0.01	1.98	2.00	Calcite
Sugarloaf	Col2	0.03	0.00	0.01	1.96	2.00	Calcite
Sugarloaf	Col2	0.02	0.00	0.01	1.97	2.00	Calcite
Sugarloaf	Col2	0.01	0.00	0.02	1.97	2.00	Calcite
Sugarloaf	Col2	0.02	0.00	0.02	1.96	2.00	Calcite
Sugarloaf	Col2	0.03	0.01	0.03	1.93	2.00	Calcite
Average Composition		**0.01**	**0.00**	**0.01**	**1.98**	**2.00**	**Calcite**
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.00	0.00	0.00	2.00	2.00	Calcite
Sugarloaf	Col3	0.01	0.00	0.00	1.99	2.00	Calcite
Sugarloaf	Col3	0.01	0.02	0.01	1.96	2.00	Calcite
Sugarloaf	Col3	0.00	0.01	0.01	1.98	2.00	Calcite
Sugarloaf	Col3	0.00	0.01	0.00	1.99	2.00	Calcite
Sugarloaf	Col3	0.00	0.01	0.01	1.98	2.00	Calcite
Sugarloaf	Col3	0.02	0.00	0.02	1.96	2.00	Calcite
Sugarloaf	Col3	0.01	0.01	0.04	1.94	2.00	Calcite
Sugarloaf	Col3	0.01	0.01	0.01	1.97	2.00	Calcite
Sugarloaf	Col3	0.01	0.01	0.04	1.94	2.00	Calcite
Sugarloaf	Col3	0.02	0.01	0.05	1.92	2.00	Calcite
Sugarloaf	Col3	0.03	0.01	0.02	1.94	2.00	Calcite
Sugarloaf	Col3	0.05	0.01	0.07	1.87	2.00	Calcite
Sugarloaf	Col3	0.10	0.01	0.06	1.83	2.00	Calcite
Sugarloaf	Col3	0.16	0.01	0.73	1.10	2.00	Ankerite
Sugarloaf	Col3	0.07	0.01	0.76	1.16	2.00	Dolomite
Average Composition		**0.01**	**0.01**	**0.01**	**1.97**	**2.00**	**Calcite**
		0.16	**0.01**	**0.73**	**1.10**	**2.00**	**Ankerite**
		0.07	**0.01**	**0.76**	**1.16**	**2.00**	**Dolomite**

Appendix B-2 Tailings

APPENDIX B-2.1 TAILINGS XRD REPORT

QUANTITATIVE PHASE ANALYSIS OF TWO POWDER SAMPLES USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA.

(Project: 1018 Abacus Ajax Mine – PO# 42140)

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June 8, 2010

EXPERIMENTAL METHOD

The two samples of **Project 1018 Abacus Ajax Mine** were reduced to the optimum grain-size range for quantitative X-ray analysis (<10 μm) by grinding under ethanol in a vibratory McCrone Micronising Mill for 7 minutes. Step-scan X-ray powder-diffraction data were collected over a range 3-80°2θ with CoKa radiation on a Bruker D8 Focus Bragg-Brentano diffractometer equipped with an Fe monochromator foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6°.

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 and Search-Match software by Siemens (Bruker). X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1 – 2.

Note that for sample **"Composite Cleaner Tails"** we used an empirical model of a montmorillonite crystal structure to approximately fit probable smectite for which there is no published structure. Thus this amount should be considered semi-quantitative.

Table 1. Results of quantitative phase analysis (wt.%)

Mineral	**Ideal Formula**	**Composite Cleaner Tails**	**Composite Sample**
Quartz	SiO_2	4.2	4.2
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$	8.8	9.9
Montmorillonite Model	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot nH_2O$	12.3	
Muscovite	$KAl_2AlSi_3O_{10}(OH)_2$	6.4	6.6
K-feldspar	$KAlSi_3O_8$	3.1	4.6
Plagioclase	$NaAlSi_3O_8 – CaAl_2Si_2O_8$	36.6	50.0
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	11.5	14.1
Calcite	$CaCO_3$	7.2	6.4
Ankerite – Dolomite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2 – CaMg(CO_3)_2$	4.3	3.8
Siderite	$Fe^{2+}CO_3$		0.4
Pyrite	FeS_2	5.6	
Total		100.0	100.0

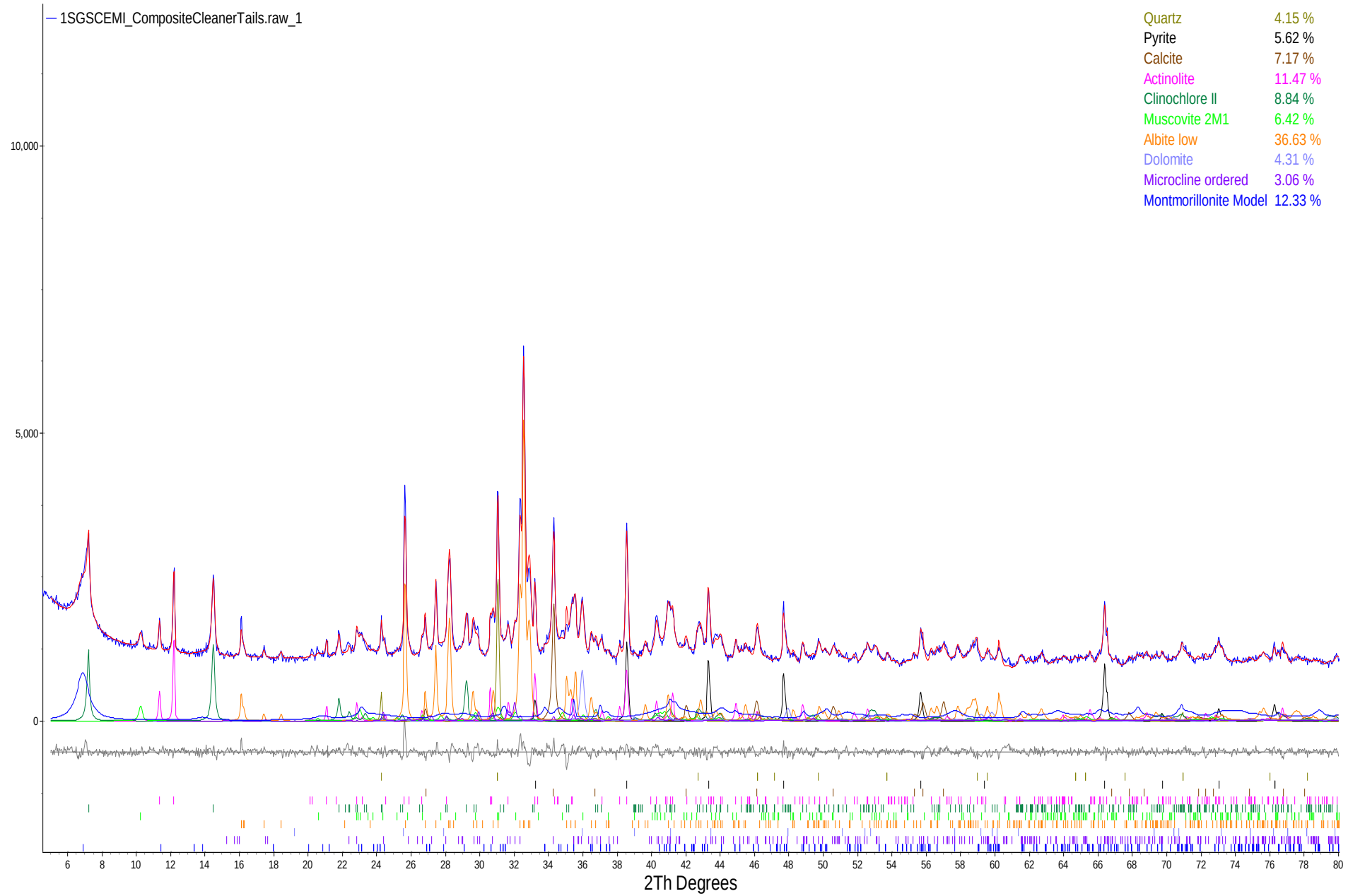

Figure 1. Rietveld refinement plot of sample **SGS CEMI "Composite Cleaner Tails"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

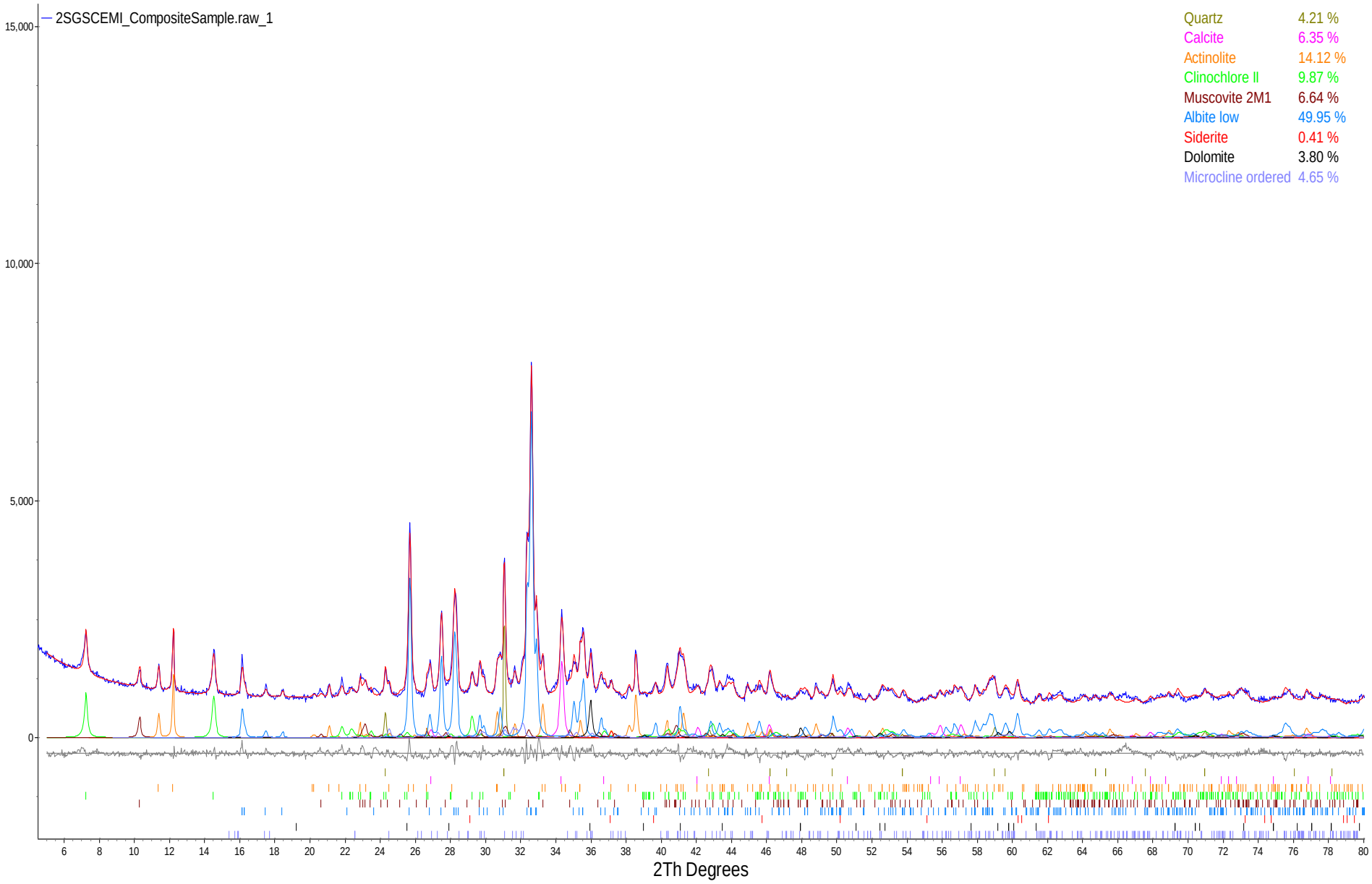

Figure 2. Rietveld refinement plot of sample **SGS CEMI "Composite Sample"** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below – difference between observed and calculated intensities; vertical bars, positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*SGS Canada Inc*
Project Number/ LIMS No.	*14094-101A/MI4507-JUN14*
Batch No.	*1018 Abacus Ajax*
Reporting Date:	*June 18, 2014*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 40 kV, 35 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

1) Method Summary
2) Summary of Mineral Asemblages
3) Semi-Quantitative XRD Results
4) XRD Pattern(s)

Bernie C. Yeung, B.Sc.
Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

Report Prepared by: Kim Gibbs

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Tel: (705) 652-2000 Fax: (705) 652-6365 www.sgs.com www.sgs.com/met
Member of the SGS Group (SGS SA)

Method Summary

Mineral Identification and Interpretation:

Mineral identification and interpretation involves matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD) database and released on software as Powder Diffraction Files (PDF).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

Quantitative Rietveld Analysis:

Quantitative Rietveld Analysis is performed by using Topas 4.2 (Bruker AXS), a graphics based profile analysis program built around a non-linear least squares fitting system, to determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile until it matches the obtained experimental patterns.

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.05wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

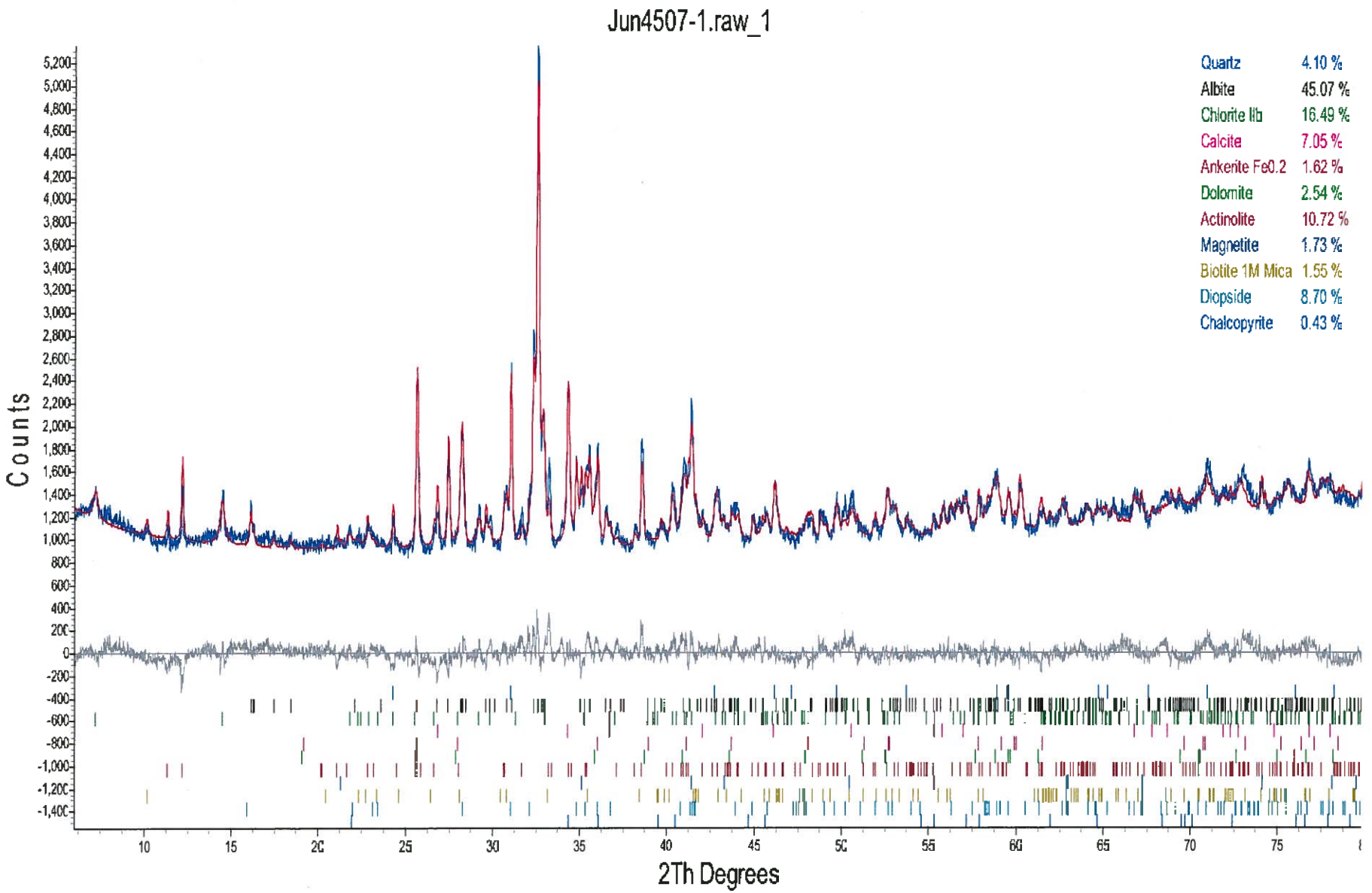
Summary of Rietveld Quantitative Analysis X-ray Diffraction Results

Quantitative X-ray Diffraction Results

Mineral/Compound	Nov 2013 Comp. Tailings JUN4507-01 (wt %)
Quartz	4.1
Albite	45.1
Chlorite	16.5
Calcite	7.1
Ankerite	1.6
Dolomite	2.5
Actinolite	10.7
Magnetite	1.7
Biotite	1.6
Diopside	8.7
Chalcopyrite	0.4
TOTAL	100

Mineral/Compound	Formula
Quartz	SiO_2
Albite	$NaAlSi_3O_8$
Chlorite	$(Fe,(Mg,Mn)_5,Al)(Si_3Al)O_{10}(OH)_8$
Calcite	$CaCO_3$
Ankerite	$CaFe(CO_3)_2$
Dolomite	$CaMg(CO_3)_2$
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Magnetite	Fe_3O_4
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$
Diopside	$CaMgSi_2O_6$
Chalcopyrite	$CuFeS_2$

SGS Canada Inc
14094-101A/MI4507-JUN14
18-Jun-14



The Qualitative XRD method (METH # 8-8-1) used by SGS Minerals Services, P.O. Box 4300, 185 Concession Street, Lakefield, Ontario, Canada K0L 2H0.
Tel: (705) 652-2000 Fax: (705) 652-6365 Mini-method available upon request.

Appendix C: Static Test Results

APPENDIX C-1 MINE ROCK & ORE

APPENDIX C-1.1 ABA RESULTS - MINE ROCK BY LITHOLOGY

APPENDIX C-1.2 ABA RESULTS - ORE BY GRADE

APPENDIX C-1.3 METALS RESULTS - MINE ROCK BY LITHOLOGY

APPENDIX C-1.4 METAL RESULTS - ORE BY GRADE

APPENDIX C-1.5 NAG TEST RESULTS COMPARISON

APPENDIX C-1.6 KINETIC TEST SAMPLE ABA RESULTS

APPENDIX C-1.7 KINETIC TEST SAMPLE METAL RESULTS

APPENDIX C-1.8 KINETIC TEST SAMPLE PSD

APPENDIX C-1.9 FIELD BIN ABA RESULTS

APPENDIX C-1.10 FIELD BIN METALS RESULTS

APPENDIX C-1.11 SUMMARY FIELD BIN PSD

APPENDIX C-2 TAILINGS

APPENDIX C-2.1 ABA RESULTS

APPENDIX C-2.2 METALS RESULTS

APPENDIX C-2.3 SUPERNATANT

APPENDIX C-2.4 PSD

APPENDIX C-3 OVERBURDEN

APPENDIX C-2.1 ABA RESULTS

APPENDIX C-2.2 METALS RESULTS

APPENDIX C-2.3 SUPERNATANT

APPENDIX C-2.4 PSD

APPENDIX C-4 MODIFIED NP MEMORANDUM

Appendix C-1 Mine Rock & Ore

APPENDIX C-1.1 ABA RESULTS - MINE ROCK BY LITHOLOGY

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
113642	IMH	AX06-09	173	175	IMH	0.060	0.030		0.03	17	8.2	0.21	0.010	0.030	0.94	59	19	63
113925	IMH	AX06-07	16	18	IMH	0.11	0.010		0.11	22	8.5	0.26	0.090	0.022	3.5	51	6.2	14
113977	IMH	AX06-07	106	108	IMH	0.017	0.010		0.02	9.2	8.7	0.11	0.010	0.017	0.53	43	17	81
113577	IMH	AX06-09	63	65	IMH	0.30	0.010		0.30	22	8.9	0.26	0.24	0.056	9.3	49	2.3	5.3
113613	IMH	AX06-09	121	123	IMH	0.021	0.010		0.02	87	9.0	1.1	0.010	0.021	0.66	157	133	239
L11-470	IMH	AW-07-046	224	227	IMH	0.27	0.21	0.48	0.06	40					1.9		21	
L10-004	IMH	AW-07-046	251	254	IMH	0.22	0.20		0.02	42	7.9	0.51	0.020	0.010	0.63	139	68	223
L11-471	IMH	AW-07-046	305	308	West SVHYB	0.090	0.010	0.88	0.09	73					2.8		26	
L11-554	IMH	AW-10-105	143	146	IMH	0.16	0.10	2.7	0.06	224					1.9		120	
L11-553	IMH	AW-10-105	81	84	West SVHYB	0.13	0.010	0.13	0.13	11					4.1		2.7	
L11-464	IMH	AW-07-043	182	185	IMH	0.020	0.010	1.3	0.02	104					0.63		167	
L11-465	IMH	AW-07-043	221	224	IMH	0.080	0.070	0.93	0.01	77					0.31		248	
L11-467	IMH	AW-07-045	250	253	IMH	0.040	0.020	0.28	0.02	23					0.63		37	
L10-003	IMH	AW-07-043	266	269	IMH	0.010	0.010		0.01	7.5	8.2	0.090	0.010	0.010	0.31	38	24	122
L11-462	IMH	AW-06-040	184	187	West SVHYB	0.13	0.11	0.88	0.02	73					0.63		117	
L10-006	IMH	AW-06-040	217	220	IMH	0.12	0.10		0.02	8.3	8.0	0.10	0.020	0.010	0.63	42	13	68
L10-008	IMH	AW-06-040	349	352	IMH	0.020	0.010		0.02	16	8.3	0.19	0.010	0.020	0.63	51	25	82
L10-013	IMH	AW-08-078	304	307	IMH	0.010	0.010		0.01	352	8.8	4.2	0.010	0.010	0.31	334	1128	1068
L11-506	IMH	AW-08-078	249	252	IMH	0.010	0.010	0.060	0.01	5.0					0.31		16	
L10-011	IMH	AW-08-078	189	192	IMH	0.030	0.030		0.01	168	8.4	2.0	0.010	0.010	0.31	256	539	818
L11-444	IMH	AW-06-025	231	234	IMH	0.070	0.010	0.57	0.07	47					2.2		22	
L11-505	IMH	AW-08-078	123	126	IMH	0.13	0.15	0.48	0.01	40					0.31		128	
L-AW-025-2	IMH	AW-06-025	183	186	IMH	0.030	0.010		0.03	16	8.7	0.19	0.010	0.030	0.94	69	17	73
L10-010	IMH	AW-08-078	60	63	IMH	0.010	0.010		0.01	19	8.3	0.23	0.010	0.010	0.31	53	61	171
L11-557	IMH	AW-10-106	324	327	IMH	0.040	0.020	0.13	0.02	11					0.63		17	
L11-443	IMH	AW-06-025	132	135	IMH	0.010	0.010	0.050	0.01	4.2					0.31		13	
L11-578	IMH	AW-10-113	143	146	IMH	0.030	0.010	1.2	0.03	101					0.94		108	
L10-196	IMH	AW-10-106	272	275	IMH	0.020	0.010		0.02	32	8.5	0.38	0.010	0.020	0.63	94	51	150
L11-504	IMH	AW-08-078	12	15	IMH	0.010	0.010	0.79	0.01	66					0.31		211	
L11-503	IMH	AW-08-078	6	9	IMH	0.010	0.010	0.11	0.01	9.2					0.31		29	
L10-197	IMH	AW-10-106	246	249	IMH	0.020	0.010		0.02	39	8.3	0.47	0.010	0.010	0.63	144	63	231
L-AW-025-1	IMH	AW-06-025	66	69	IMH	0.080	0.010		0.08	74	8.9	0.89	0.020	0.060	2.5	96	30	39
L11-450	IMH	AW-06-027	237	240	IMH	0.030	0.010	1.8	0.03	147					0.94		156	
L10-198	IMH	AW-10-106	195	198	IMH	0.020	0.010		0.02	5.0	8.6	0.060	0.010	0.020	0.63	53	8.0	85
L10-023	IMH	AW-07-072	171	174	IMH	0.010	0.010		0.01	30	8.1	0.36	0.010	0.010	0.31	164	96	526
L11-448	IMH	AW-06-027	60	63	IMH	0.020	0.010	0.18	0.02	15					0.63		24	
L11-556	IMH	AW-10-106	144	147	IMH	0.010	0.010	0.090	0.01	7.5					0.31		24	
L11-447	IMH	AW-06-027	6	9	IMH	0.010	0.010	0.19	0.01	16					0.31		51	
L10-199	IMH	AW-10-106	95	98	IMH	0.010	0.010		0.01	32	8.7	0.39	0.020	0.010	0.31	65	104	207
L11-495	IMH	AW-07-072	99	102	IMH	0.010	0.010	0.050	0.01	4.2					0.31		13	
L10-200	IMH	AW-10-106	45	48	IMH	0.040	0.010		0.04	20	8.7	0.24	0.010	0.040	1.3	59	16	48
L10-021	IMH	AW-07-073	230	233	IMH	0.010	0.010		0.01	9.2	8.4	0.11	0.010	0.010	0.31	41	29	132
L11-499	IMH	AW-07-073	263	266	IMH	0.050	0.030	0.12	0.02	10.0					0.63		16	
L11-498	IMH	AW-07-073	187	190	IMH	0.050	0.030	0.65	0.02	54					0.63		87	
L11-496	IMH	AW-07-073	6	9	IMH	0.040	0.010	2.7	0.04	225					1.3		180	
L11-497	IMH	AW-07-073	58	61	IMH	0.040	0.010	0.47	0.04	39					1.3		31	
L10-020	IMH	AW-07-073	137	140	IMH	0.030	0.010		0.03	36	8.7	0.43	0.010	0.030	0.94	120	38	128
L11-502	IMH	AW-08-074	144	147	IMH	0.020	0.010	0.22	0.02	18					0.63		29	
L10-030	IMH	AW-06-030	189	192	IMH	0.020	0.010		0.02	10.0	8.5	0.12	0.010	0.010	0.63	53	16	85
L11-453	IMH	AW-06-030	108	111	IMH	0.050	0.010	0.44	0.05	37					1.6		23	
L10-029	IMH	AW-06-030	69	72	IMH	0.030	0.010		0.03	47	8.4	0.57	0.030	0.010	0.94	145	51	155
L11-452	IMH	AW-06-030	6	9	IMH	0.040	0.010	1.0	0.04	84					1.3		67	
L11-566	IMH	AW-10-108	80	83	IMH	0.020	0.010	0.43	0.02	36					0.63		57	
AX003726	IMH	KAX-13-101	12	14	OVBN	0.056	0.010		0.06	17	8.7	0.20	0.010	0.056	1.8	50	9.5	29
L11-571	IMH	AW-10-112	24	27	IMH	0.070	0.010	0.70	0.07	58					2.2		27	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
AX003793	IMH	KAX-13-101	132	134	IMH	0.030	0.010		0.03	42	8.4	0.51	0.010	0.020	0.94	134	45	143
AX003761	IMH	KAX-13-101	78	80	IMH	0.014	0.010		0.01	6.7	8.5	0.080	0.010	0.014	0.44	41	15	95
AX022630	IMH	KAX-13-104	12	14	IMH	0.023	0.010		0.02	82	8.6	0.98	0.010	0.023	0.72	160	114	222
AX003981	IMH	KAX-13-105	58	60	IMH	0.019	0.010		0.02	6.7	8.7	0.080	0.010	0.019	0.59	37	11	63
AX022643	IMH	KAX-13-104	33.5	35.5	IMH	0.019	0.010		0.02	390	8.7	4.7	0.010	0.019	0.59	353	657	595
AX004015	IMH	KAX-13-105	124	126	IMH	0.022	0.010		0.02	172	8.7	2.1	0.010	0.022	0.69	247	251	359
AX003952	IMH	KAX-13-105	8	10	IMH	0.014	0.010		0.01	5.0	8.8	0.060	0.010	0.014	0.44	36	11	83
L11-574	IMH	AW-10-112	198	201	IMH	0.030	0.010	0.85	0.03	71					0.94		76	
L11-570	IMH	AW-10-110	6	9	IMH	0.050	0.010	0.72	0.05	60					1.6		38	
L11-575	IMH	AW-10-112	249	252	IMH	0.020	0.010	0.34	0.02	28					0.63		45	
L11-576	IMH	AW-10-112	297	300	IMH	0.060	0.010	0.57	0.06	47					1.9		25	
L11-510	IMH	AW-08-079	219	222	IMH	0.040	0.030	0.28	0.01	23					0.31		75	
L11-569	IMH	AW-10-109	72	75	IMH	0.050	0.010	0.49	0.05	41					1.6		26	
L11-577	IMH	AW-10-112	351	354	IMH	0.080	0.010	1.2	0.08	97					2.5		39	
L11-509	IMH	AW-08-079	147	150	IMH	0.030	0.010	0.44	0.03	37					0.94		39	
L11-513	IMH	AW-08-080	225	228	IMH	0.030	0.010	0.46	0.03	38					0.94		41	
L11-508	IMH	AW-08-079	72	75	IMH	0.020	0.010	1.7	0.02	144					0.63		231	
L11-507	IMH	AW-08-079	9	12	IMH	0.010	0.010	0.15	0.01	12					0.31		40	
L11-512	IMH	AW-08-080	77	80	IMH	0.020	0.010	0.35	0.02	29					0.63		47	
L11-561	IMH	AW-10-107	246	248	IMH	0.050	0.010	0.20	0.05	17					1.6		11	
L11-560	IMH	AW-10-107	147	150	IMH	0.030	0.010	0.26	0.03	22					0.94		23	
L11-559	IMH	AW-10-107	99	102	IMH	0.010	0.010	0.57	0.01	47					0.31		152	
L11-511	IMH	AW-08-080	8	11	AIR	0.040	0.010	1.3	0.04	110					1.3		88	
L10-052	IMH	AW-07-070	228	231	IMH	0.010	0.010		0.01	19	8.0	0.23	0.010	0.010	0.31	106	61	338
L10-053	IMH	AW-07-070	291	294	West SLD	0.13	0.13		0.01	9.2	7.8	0.11	0.010	0.010	0.31	47	29	151
L10-058	IMH	AW-08-092	154	157	IMH	0.010	0.010		0.01	39	8.4	0.47	0.010	0.010	0.31	122	125	390
L11-536	IMH	AW-08-097	140	143	IMH	0.050	0.010	0.29	0.05	24					1.6		15	
L10-057	IMH	AW-08-092	44	47	IMH	0.010	0.010		0.01	17	8.9	0.20	0.010	0.010	0.31	54	53	173
L11-531	IMH	AW-08-092	6.1	8.23	AIR	0.010	0.010	0.17	0.01	14					0.31		45	
L10-064	IMH	AW-08-098	105	108	IMH	0.010	0.010		0.01	4.2	8.8	0.050	0.010	0.010	0.31	37	13	120
L11-583	IMH	AW-10-118	3.05	6	IMH	0.010	0.010	0.40	0.01	33					0.31		107	
L10-201	IMH	AW-10-118	35	38	IMH	0.020	0.010		0.02	49	8.9	0.59	0.010	0.020	0.63	149	79	239
L11-541	IMH	AW-08-099	120	123	IMH	0.010	0.010	0.23	0.01	19					0.31		61	
L10-202	IMH	AW-10-118	78	81	IMH	0.010	0.010		0.01	4.2	9.1	0.050	0.010	0.010	0.31	38	13	120
L10-204	IMH	AW-10-118	152	155	IMH	0.020	0.010		0.02	11	8.9	0.13	0.010	0.020	0.63	47	17	76
L11-584	IMH	AW-10-118	175.05	178	IMH	0.020	0.010	1.4	0.02	118					0.63		189	
L10-205	IMH	AW-10-118	207	210	IMH	0.010	0.010		0.01	5.0	9.0	0.060	0.010	0.010	0.31	39	16	126
L10-063	IMH	AW-08-099	54	57	IMH	0.010	0.010		0.01	27	9.1	0.32	0.010	0.010	0.31	78	85	249
L11-586	IMH	AW-10-118	272	275	IMH	0.020	0.010	0.080	0.02	6.7					0.63		11	
10E28886	IMH	AW-11-126	248	251	IMH	0.010	0.010	0.16	0.01	13					0.31		43	
10E28885	IMH	AW-11-126	242	245	IMH	0.010	0.010	1.2	0.01	102					0.31		325	
L11-587	IMH	AW-10-118	323	326	IMH	0.020	0.010	0.16	0.02	13					0.63		21	
10E28884	IMH	AW-11-126	236	239	IMH	0.010	0.010	0.67	0.01	56					0.31		179	
10E28883	IMH	AW-11-126	230	233	IMH	0.010	0.010	0.81	0.01	67					0.31		216	
10E28882	IMH	AW-11-126	224	227	IMH	0.010	0.010	0.24	0.01	20					0.31		64	
10E28881	IMH	AW-11-126	218	221	IMH	0.010	0.010	0.17	0.01	14					0.31		45	
L10-071	IMH	AN-07-003	127	130	IMH	0.010	0.010		0.01	122	8.2	1.5	0.010	0.010	0.31	200	389	641
10E28880	IMH	AW-11-126	212	215	IMH	0.010	0.010	0.27	0.01	22					0.31		72	
L11-589	IMH	AW-10-122	24	27	IMH	0.020	0.010	0.10	0.02	8.3					0.63		13	
10E28879	IMH	AW-11-126	206	209	IMH	0.010	0.010	0.44	0.01	37					0.31		117	
10E28878	IMH	AW-11-126	200	203	IMH	0.010	0.010	0.50	0.01	42					0.31		133	
L11-590	IMH	AW-10-122	99	102	IMH	0.010	0.010	0.48	0.01	40					0.31		128	
10E28877	IMH	AW-11-126	194	197	IMH	0.010	0.010	0.80	0.01	67					0.31		213	
L11-591	IMH	AW-10-122	150	153	IMH	0.010	0.010	0.48	0.01	40					0.31		128	
10E28876	IMH	AW-11-126	188	191	IMH	0.010	0.010	0.73	0.01	61					0.31		195	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-592	IMH	AW-10-122	198	201	IMH	0.030	0.010	0.76	0.03	63					0.94		68	
10E28875	IMH	AW-11-126	182	185	IMH	0.010	0.010	0.40	0.01	33					0.31		107	
10E28874	IMH	AW-11-126	176	179	IMH	0.010	0.010	0.36	0.01	30					0.31		96	
10E28873	IMH	AW-11-126	170	173	IMH	0.010	0.010	0.82	0.01	68					0.31		219	
10E28872	IMH	AW-11-126	164	167	IMH	0.010	0.010	0.15	0.01	12					0.31		40	
10E28871	IMH	AW-11-126	158	161	IMH	0.010	0.010	0.24	0.01	20					0.31		64	
10E28869	IMH	AW-11-126	146	149	IMH	0.010	0.010	1.1	0.01	93					0.31		299	
L10-069	IMH	AN-07-002	91	94	IMH	0.010	0.010		0.01	22	8.1	0.27	0.010	0.010	0.31	106	72	340
10E28868	IMH	AW-11-126	140	143	IMH	0.040	0.010	1.3	0.04	107	8.9	1.3	0.040	0.00	1.3	191	86	153
10E28867	IMH	AW-11-126	134	137	IMH	0.010	0.010	1.6	0.01	130					0.31		416	
10E28865	IMH	AW-11-126	122	125	IMH	0.010	0.010	0.14	0.01	12					0.31		37	
10E28864	IMH	AW-11-126	116	119	IMH	0.010	0.010	0.26	0.01	22					0.31		69	
10E28863	IMH	AW-11-126	110	113	IMH	0.010	0.010	0.20	0.01	17					0.31		53	
10E28862	IMH	AW-11-126	104	107	IMH	0.010	0.010	1.1	0.01	94					0.31		301	
10E28861	IMH	AW-11-126	98	101	IMH	0.010	0.010	0.10	0.01	8.3					0.31		27	
10E28860	IMH	AW-11-126	92	95	IMH	0.010	0.010	0.20	0.01	17					0.31		53	
10E28859	IMH	AW-11-126	86	89	IMH	0.010	0.010	0.46	0.01	38					0.31		123	
L10-077	IMH	AN-08-026	75	78	IMH	0.040	0.010		0.04	12	8.4	0.14	0.010	0.040	1.3	107	9.3	86
10E28858	IMH	AW-11-126	80	83	IMH	0.010	0.010	0.37	0.01	31					0.31		99	
10E28857	IMH	AW-11-126	74	77	IMH	0.010	0.010	0.51	0.01	42					0.31		136	
L11-351	IMH	AN-08-022	50	53	IMH	0.020	0.010	0.17	0.02	14					0.63		23	
10E28856	IMH	AW-11-126	68	71	IMH	0.010	0.010	0.45	0.01	37					0.31		120	
10E28855	IMH	AW-11-126	62	65	IMH	0.010	0.010	0.94	0.01	78					0.31		251	
10E28854	IMH	AW-11-126	56	59	IMH	0.010	0.010	0.42	0.01	35					0.31		112	
10E28853	IMH	AW-11-126	50	53	IMH	0.010	0.010	0.75	0.01	62					0.31		200	
10E28852	IMH	AW-11-126	44	47	IMH	0.020	0.010	0.58	0.02	48	9.0	0.58	0.010	0.0050	0.63	83	77	134
10E28851	IMH	AW-11-126	38	41	IMH	0.010	0.010	0.27	0.01	22					0.31		72	
10E28850	IMH	AW-11-126	32	35	IMH	0.020	0.010	1.0	0.02	86					0.63		137	
L11-352	IMH	AN-08-022	93	95	IMH	0.010	0.010	0.12	0.01	10.0					0.31		32	
10E28849	IMH	AW-11-126	25.73	29	IMH	0.010	0.010	0.32	0.01	27					0.31		85	
10E28847	IMH	AW-11-126	14	15.9	IMH	0.010	0.010	0.12	0.01	10.0					0.31		32	
10E28846	IMH	AW-11-126	8	11	IMH	0.010	0.010	0.13	0.01	11					0.31		35	
L10-085	IMH	AN-07-005	214	217	East SLD	0.080	0.010		0.08	23	8.8	0.28	0.020	0.060	2.5	86	9.3	35
L11-076	IMH	AE-08-050	197	200	IMH	0.020	0.010	0.24	0.02	20					0.63		32	
L11-075	IMH	AE-08-050	149	152	IMH	0.010	0.010	0.41	0.01	34					0.31		109	
L11-128	IMH	AE-10-087	197.05	200	IMH	0.030	0.010	2.8	0.03	230					0.94		245	
L11-074	IMH	AE-08-050	98	101	IMH	0.010	0.010	0.79	0.01	66					0.31		211	
L11-120	IMH	AE-10-083	123	126	IMH	0.020	0.010	0.29	0.02	24					0.63		39	
L11-126	IMH	AE-10-087	99	102	IMH	0.010	0.010	0.15	0.01	12					0.31		40	
L11-125	IMH	AE-10-087	48.23	51	IMH	0.010	0.010	0.22	0.01	18					0.31		59	
L11-136	IMH	AE-10-091	3.05	6	IMH	0.070	0.010	0.15	0.07	12					2.2		5.7	
L11-137	IMH	AE-10-091	48	51	IMH	0.030	0.010	0.18	0.03	15					0.94		16	
L11-138	IMH	AE-10-091	99	102	IMH	0.010	0.010	0.060	0.01	5.0					0.31		16	
L11-139	IMH	AE-10-091	150	153	IMH	0.010	0.010	0.21	0.01	17					0.31		56	
L11-081	IMH	AE-08-053	48	51	IMH	0.010	0.010	0.24	0.01	20					0.31		64	
L10-100	IMH	AN-08-046	71	74	East SLD	0.010	0.010		0.01	4.2	8.3	0.050	0.010	0.010	0.31	34	13	110
L11-412	IMH	AN-08-073	48	51	East SLD	0.070	0.010	0.21	0.07	17					2.2		8.0	
L11-069	IMH	AE-08-048	135	138	IMH	0.010	0.010	0.39	0.01	32					0.31		104	
L11-068	IMH	AE-08-048	99	102	IMH	0.010	0.010	0.20	0.01	17					0.31		53	
L11-387	IMH	AN-08-053	33	36	IMH	0.010	0.010	0.16	0.01	13					0.31		43	
L11-151	IMH	AE-10-096	99	102	East SVHYB	0.010	0.010	0.92	0.01	77					0.31		245	
L11-147	IMH	AE-10-093	49	52	IMH	0.010	0.010	0.27	0.01	22					0.31		72	
L11-067	IMH	AE-08-048	48	51	IMH	0.010	0.010	0.68	0.01	57					0.31		181	
L11-150	IMH	AE-10-096	24	27	IMH	0.010	0.010	0.51	0.01	42					0.31		136	
L11-066	IMH	AE-08-048	3.05	6	IMH	0.010	0.010	0.080	0.01	6.7					0.31		21	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-153	IMH	AE-10-098	48	51	IMH	0.010	0.010	0.11	0.01	9.2					0.31		29	
L10-099	IMH	AE-08-045	38	41	IMH	0.010	0.010		0.01	12	8.4	0.15	0.010	0.010	0.31	55	40	177
L11-134	IMH	AE-10-090	97	100	East SVHYB	0.010	0.010	0.10	0.01	8.3					0.31		27	
L-AE-003-1	IMH	AE-06-003	78	81	IMH	0.020	0.010		0.02	16	8.8	0.19	0.010	0.020	0.63	37	25	59
L11-146	IMH	AE-10-092	217	220	East SLD	0.020	0.010	0.68	0.02	57					0.63		91	
L11-064	IMH	AE-08-047	3.05	9.14	IMH	0.010	0.010	0.21	0.01	17					0.31		56	
L11-143A duplicate	IMH	AE-10-092	178	181	IMH	0.010	0.010	0.38	0.01	32					0.31		101	
L10-098	IMH	AE-06-005	71	74	IMH	0.010	0.010		0.01	8.3	7.8	0.10	0.010	0.010	0.31	56	27	180
L10-091	IMH	AE-08-047	99	102	IMH	0.010	0.010		0.01	31	8.5	0.37	0.010	0.010	0.31	118	99	376
L11-144	IMH	AE-10-092	99	101	IMH	0.010	0.010	0.28	0.01	23					0.31		75	
L10-092	IMH	AE-08-047	168	171	IMH	0.010	0.010		0.01	95	8.5	1.1	0.010	0.010	0.31	193	304	618
L11-143	IMH	AE-10-092	27	30	IMH	0.010	0.010	0.12	0.01	10.0					0.31		32	
L-AE-001-1	IMH	AE-06-001	76	79	IMH	0.030	0.010		0.03	12	8.3	0.14	0.010	0.030	0.94	31	12	33
L11-001	IMH	AE-06-002	119	122	IMH	0.020	0.010	0.34	0.02	28					0.63		45	
L-AE-007-1	IMH	AE-06-007	71	74	IMH	0.020	0.010		0.02	16	8.4	0.19	0.010	0.020	0.63	35	25	56
L10-107	IMH	AE-06-007	101	104	IMH	0.010	0.010		0.01	16	8.1	0.19	0.010	0.010	0.31	50	51	158
L11-123	IMH	AE-10-086	8	11	IMH	0.010	0.010	0.26	0.01	22					0.31		69	
L11-117	IMH	AE-10-082	99	102	IMH	0.010	0.010	0.26	0.01	22					0.31		69	
L-AE-001-2	IMH	AE-06-001	146	149	East SVHYB	0.080	0.010		0.08	24	8.8	0.29	0.020	0.060	2.5	41	9.7	16
L11-124	IMH	AE-10-086	149	152	IMH	0.11	0.010	0.28	0.11	23					3.4		6.8	
L-AE-006-1	IMH	AE-06-006	126	129	East SVHYB	0.050	0.010		0.05	41	8.7	0.49	0.010	0.040	1.6	70	26	45
L10-106	IMH	AE-06-009	82	85	IMH	0.010	0.010		0.01	5.0	8.2	0.060	0.010	0.010	0.31	40	16	129
L11-012	IMH	AE-06-011	165	168	IMH	0.010	0.010	0.24	0.01	20					0.31		64	
L11-051	IMH	AE-07-036	499	502	IMH	0.010	0.010	0.26	0.01	22					0.31		69	
L11-050	IMH	AE-07-036	400	403	IMH	0.010	0.010	0.77	0.01	64					0.31		205	
L11-007	IMH	AE-06-010	112	115	IMH	0.010	0.010	0.46	0.01	38					0.31		123	
L10-119	IMH	AE-06-010	139	142	IMH	0.070	0.010		0.07	67	8.4	0.80	0.010	0.070	2.2	205	30	94
L10-118	IMH	AE-07-036	361	364	IMH	0.010	0.010		0.01	5.0	8.8	0.060	0.020	0.010	0.31	42	16	133
L11-032	IMH	AE-07-025	423	426	East SLD	0.010	0.010	0.54	0.01	45					0.31		144	
L11-008	IMH	AE-06-010	199	202	IMH	0.010	0.010	0.62	0.01	52					0.31		165	
L11-046	IMH	AE-07-034	448	451	IMH	0.010	0.010	0.11	0.01	9.2					0.31		29	
L11-097	IMH	AE-10-064	224.12	227	IMH	0.020	0.010	0.43	0.02	36					0.63		57	
L11-098	IMH	AE-10-064	300	303	IMH	0.010	0.010	0.25	0.01	21					0.31		67	
L11-099	IMH	AE-10-064	348	351	IMH	0.010	0.010	0.15	0.01	12					0.31		40	
L11-100	IMH	AE-10-064	403	406	IMH	0.010	0.010	0.22	0.01	18					0.31		59	
L11-045	IMH	AE-07-034	397	400	IMH	0.010	0.010	0.090	0.01	7.5					0.31		24	
L11-009	IMH	AE-06-010	271	274	IMH	0.010	0.010	0.76	0.01	63					0.31		203	
L10-127	IMH	AE-07-036	220	223	IMH	0.010	0.010		0.01	27	8.5	0.32	0.010	0.010	0.31	147	85	470
L11-044	IMH	AE-07-034	307	310	IMH	0.10	0.030	2.7	0.07	228					2.2		104	
L10-134	IMH	AE-07-038	295	298	IMH	0.010	0.010		0.01	135	8.4	1.6	0.010	0.010	0.31	221	432	706
L11-043	IMH	AE-07-034	223	226	IMH	0.010	0.010	1.0	0.01	87					0.31		277	
L10-133	IMH	AE-07-038	193	196	IMH	0.010	0.010		0.01	14	8.5	0.17	0.010	0.010	0.31	44	45	141
L11-037	IMH	AE-07-030	396	399	IMH	0.18	0.18	0.21	0.01	17					0.31		55.9999776	
L11-042	IMH	AE-07-034	148	151	IMH	0.020	0.010	1.1	0.02	89					0.63		143	
L10-136	IMH	AE-07-030	330	333	IMH	0.010	0.010		0.01	4.2	8.9	0.050	0.010	0.010	0.31	41	13	132
L11-053	IMH	AE-07-038	111	114	IMH	0.010	0.010	0.22	0.01	18					0.31		59	
L10-143	IMH	AE-07-035	216	219	IMH	0.040	0.010		0.04	91	8.2	1.1	0.010	0.040	1.3	171	73	137
L11-036	IMH	AE-07-030	198	201	IMH	0.020	0.010	0.22	0.02	18					0.63		29	
L10-132	IMH	AE-07-038	48	51	IMH	0.010	0.010		0.01	10.0	8.6	0.12	0.010	0.010	0.31	41	32	131
L11-048	IMH	AE-07-035	138	141	IMH	0.010	0.010	0.37	0.01	31					0.31		99	
L10-142	IMH	AE-07-030	141	144	IMH	0.010	0.010		0.01	49	8.3	0.59	0.010	0.010	0.31	171	157	548
L11-052	IMH	AE-07-038	3.66	6	IMH	0.010	0.010	0.25	0.01	21					0.31		67	
L10-141	IMH	AE-07-030	54	57	IMH	0.010	0.010		0.01	71	8.9	0.85	0.010	0.010	0.31	163	227	523
L11-035	IMH	AE-07-030	27	30	IMH	0.010	0.010	1.6	0.01	130					0.31		416	
L10-148	IMH	AE-08-055	250	253	IMH	0.040	0.010		0.04	10.0	8.5	0.12	0.010	0.040	1.3	42	8.0	34

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-071	IMH	AE-08-049	113.25	116	East SLD	0.13	0.010	1.4	0.13	117					4.1		29	
L10-155	IMH	AE-08-049	128	131	East SLD	0.010	0.010		0.01	6.7	8.7	0.080	0.010	0.010	0.31	40	21	128
L11-103	IMH	AE-10-067	198	201	IMH	0.030	0.010	0.11	0.03	9.2					0.94		9.8	
L10-156	IMH	AE-08-049	230	233	IMH	0.010	0.010		0.01	27	8.4	0.32	0.010	0.010	0.31	132	85	421
L11-084	IMH	AE-08-055	403	406	IMH	0.090	0.010	0.42	0.09	35					2.8		12	
L11-225	IMH	AM-09-024	82	85	PICR	0.030	0.010	0.15	0.03	12					0.94		13	
L11-226	IMH	AM-09-024	132.5	135.5	PICR	0.020	0.010	0.10	0.02	8.3					0.63		13	
L11-311	IMH	AM-10-075	240.04	243	IMH	0.030	0.010	0.050	0.03	4.2					0.94		4.4	
10E28977	IMH	AM-11-087	247	249.02	IMH	0.010	0.010	0.18	0.01	15					0.31		48	
10E28975	IMH	AM-11-087	241	244	IMH	0.020	0.010	0.12	0.02	10.0	8.8	0.12	0.010	0.0050	0.63	47	16	75
10E28973	IMH	AM-11-087	235	238	IMH	0.030	0.010	0.55	0.03	46					0.94		49	
10E28971	IMH	AM-11-087	229	232	IMH	0.020	0.010	1.2	0.02	97					0.63		155	
10E28968	IMH	AM-11-087	223	226	IMH	0.020	0.010	0.22	0.02	18					0.63		29	
10E28966	IMH	AM-11-087	217	220	IMH	0.020	0.010	1.7	0.02	137					0.63		220	
L11-310	IMH	AM-10-075	175	178	IMH	0.030	0.010	0.89	0.03	74					0.94		79	
10E28964	IMH	AM-11-087	211	214	IMH	0.020	0.010	0.45	0.02	37					0.63		60	
L11-318	IMH	AM-10-077	140	142	IMH	0.050	0.010	0.12	0.05	10.0					1.6		6.4	
10E28962	IMH	AM-11-087	205	208	IMH	0.040	0.010	1.5	0.04	128					1.3		103	
10E28959	IMH	AM-11-087	199	202	IMH	0.020	0.010	1.7	0.02	142					0.63		227	
10E28957	IMH	AM-11-087	193	196	IMH	0.020	0.010	0.48	0.02	40					0.63		64	
10E28955	IMH	AM-11-087	187	190	IMH	0.010	0.010	1.1	0.01	87					0.31		280	
10E28953	IMH	AM-11-087	181	184	IMH	0.010	0.010	0.43	0.01	36					0.31		115	
L11-309	IMH	AM-10-075	142	145	IMH	0.050	0.010	0.21	0.05	17					1.6		11	
10E28951	IMH	AM-11-087	175	178	IMH	0.020	0.010	1.8	0.02	152					0.63		244	
10E28948	IMH	AM-11-087	169	172	IMH	0.020	0.010	1.1	0.02	90					0.63		144	
10E28946	IMH	AM-11-087	163	166	IMH	0.010	0.010	0.91	0.01	76					0.31		243	
10E28944	IMH	AM-11-087	157	160	IMH	0.010	0.010	2.6	0.01	218					0.31		699	
10E28942	IMH	AM-11-087	151	154	IMH	0.010	0.010	0.44	0.01	37					0.31		117	
10E28939	IMH	AM-11-087	145	148	IMH	0.010	0.010	0.80	0.01	67					0.31		213	
10E28937	IMH	AM-11-087	139	142	IMH	0.030	0.010	0.32	0.03	27	8.8	0.32	0.020	0.0050	0.94	49	28	52
10E28935	IMH	AM-11-087	133	136	IMH	0.010	0.010	0.22	0.01	18					0.31		59	
L11-320	IMH	AM-10-078	122	125	PICR	0.020	0.010	0.080	0.02	6.7					0.63		11	
10E28933	IMH	AM-11-087	127	130	IMH	0.010	0.010	0.29	0.01	24					0.31		77	
10E28931	IMH	AM-11-087	121	124	IMH	0.010	0.010	0.40	0.01	33					0.31		107	
10E28928	IMH	AM-11-087	115	118	IMH	0.010	0.010	0.61	0.01	51					0.31		163	
10E28926	IMH	AM-11-087	109	112	IMH	0.020	0.010	1.8	0.02	147					0.63		235	
10E28924	IMH	AM-11-087	103	106	IMH	0.010	0.010	3.9	0.01	324					0.31		1037	
10E28922	IMH	AM-11-087	97	100	IMH	0.010	0.010	2.0	0.01	165					0.31		528	
L11-315	IMH	AM-10-076	138	141	East MAFV	0.020	0.010	0.20	0.02	17					0.63		27	
10E28919	IMH	AM-11-087	91	94	IMH	0.010	0.010	0.95	0.01	79					0.31		253	
L11-308	IMH	AM-10-075	73	76	IMH	0.010	0.010	0.050	0.01	4.2					0.31		13	
10E28917	IMH	AM-11-087	86	88.66	IMH	0.010	0.010	0.56	0.01	47					0.31		149	
10E28915	IMH	AM-11-087	79	82	IMH	0.010	0.010	0.63	0.01	52					0.31		168	
L11-317	IMH	AM-10-077	60	63	IMH	0.030	0.010	1.8	0.03	146					0.94		156	
10E28913	IMH	AM-11-087	74	76.53	IMH	0.020	0.010	0.60	0.02	50					0.63		80	
10E28911	IMH	AM-11-087	68	71	IMH	0.010	0.010	1.2	0.01	97					0.31		312	
10E28908	IMH	AM-11-087	62	65	IMH	0.020	0.010	1.3	0.02	108					0.63		173	
10E28906	IMH	AM-11-087	56	59	IMH	0.030	0.010	1.9	0.03	156					0.94		166	
AX023688	IMH	KAX-13-103	50.29	52.29	IMH	0.016	0.010		0.02	22	8.5	0.26	0.010	0.016	0.50	40	43	80
AX023708	IMH	KAX-13-103	88.5	90.5	IMH	0.039	0.010		0.04	199	8.6	2.4	0.010	0.039	1.2	205	163	168
AX023664	IMH	KAX-13-103	9.14	11.17	IMH	0.014	0.010		0.01	37	8.6	0.45	0.010	0.014	0.44	67	86	152
10E28904	IMH	AM-11-087	50	53	IMH	0.010	0.010	0.31	0.01	26					0.31		83	
L11-324	IMH	AM-10-086	102	105	IMH	0.020	0.010	0.42	0.02	35					0.63		56	
10E28902	IMH	AM-11-087	44	47	IMH	0.020	0.010	0.86	0.02	72					0.63		115	
L11-314	IMH	AM-10-076	69	72	IMH	0.060	0.010	0.82	0.06	68					1.9		36	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
10E28899	IMH	AM-11-087	38	41	IMH	0.010	0.010	1.7	0.01	137					0.31		440	
10E28897	IMH	AM-11-087	32	35	IMH	0.050	0.020	1.7	0.03	145	8.1	1.7	0.010	0.020	0.94	204	155	217
10E28895	IMH	AM-11-087	26	29	IMH	0.020	0.010	5.6	0.02	466					0.63		745	
10E28893	IMH	AM-11-087	20	23	IMH	0.030	0.010	0.74	0.03	62					0.94		66	
10E28891	IMH	AM-11-087	14	17	IMH	0.040	0.010	0.29	0.04	24					1.3		19	
10E28888	IMH	AM-11-087	8	11	OVBN	0.010	0.010	0.11	0.01	9.2					0.31		29	
L11-307	IMH	AM-10-075	4	7	IMH	0.010	0.010	0.060	0.01	5.0					0.31		16	
L11-322	IMH	AM-10-085	105	108	IMH	0.010	0.010	0.48	0.01	40					0.31		128	
L11-321	IMH	AM-10-085	39	42	IMH	0.010	0.010	0.31	0.01	26					0.31		83	
L10-188	IMH	AM-09-023	36	39	PICR	0.030	0.010		0.03	2.5	8.7	0.030	0.010	0.030	0.94	86	2.7	92
IMH																		
n						285	285	210	285	285	80	80	80	80	285	80	285	80
Min						0.010	0.010	0.050	0.010	2.500	7.800	0.030	0.010	0.000	0.313	30.700	2.342	5.286
10^{th} PCTL						0.010	0.010	0.119	0.010	8.333	8.118	0.060	0.010	0.010	0.313	37.960	13.333	44.114
Median						0.010	0.010	0.420	0.010	30.000	8.520	0.260	0.010	0.010	0.313	62.000	60.000	132.640
90^{th} PCTL						0.058	0.010	1.432	0.050	118.000	8.900	1.307	0.020	0.040	1.563	200.562	229.067	522.912
Max						0.296	0.210	5.590	0.296	465.833	9.120	4.680	0.240	0.070	9.250	353.234	1128.000	1067.840

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L10-022	MAFV	AW-08-096	131	134	West MAFV	0.41	0.010		0.41	3.3	8.8	0.040	0.40	0.010	13	35	0.26	2.7
L11-535	MAFV	AW-08-096	95.5	98	West MAFV	0.010	0.010	0.14	0.01	12					0.31		37	
L14-006	MAFV	KAX-13-004	40	42	PICR	0.018	0.010		0.02	4.2	9.9	0.050	0.010	0.018	0.56	82	7.4	146
L11-518	MAFV	AW-08-083	125	128	West MAFV	0.030	0.010	0.060	0.03	5.0					0.94		5.3	
L11-487	MAFV	AW-07-060	98	101	West SLD	0.030	0.010	0.030	0.03	2.5					0.94		2.7	
L11-427	MAFV	AW-06-007	130	133	West SLD	0.18	0.010	0.11	0.18	9.2					5.6		1.6	
L11-425	MAFV	AW-06-006	93	96	PICR	0.090	0.010	0.020	0.09	1.7					2.8		0.59	
L-AW-004-2	MAFV	AW-05-004	108	111	West SLD	0.58	0.010		0.58	8.3	8.9	0.10	0.51	0.070	18	36	0.46	2.0
L11-421	MAFV	AW-05-001	73	76	West MAFV	0.040	0.020	0.050	0.02	4.2					0.63		6.7	
L11-456	MAFV	AW-06-033	108	111	West SLD	0.69	0.010	0.54	0.69	45					22		2.1	
L11-429	MAFV	AW-06-010	49	52	West SLD	0.25	0.040	0.010	0.21	0.83					6.6		0.13	
L10-036	MAFV	AW-08-101	188	191	West MAFV	0.090	0.010		0.09	1.7	8.2	0.020	0.080	0.010	2.8	36	0.59	13
L11-434	MAFV	AW-06-014	313	316	PXPP	0.53	0.36	0.13	0.17	11					5.3		2.0	
L-AW-009-1	MAFV	AW-06-009	27	30	West SLD	0.35	0.030		0.32	124	8.3	1.5	0.080	0.24	10.0	173	12	17
L-AW-009-2	MAFV	AW-06-009	57	60	West SLD	0.48	0.020		0.46	82	8.3	0.99	0.39	0.070	14	95	5.7	6.6
L11-483	MAFV	AW-07-058	86	89	PICR	0.63	0.010	0.12	0.63	10.0					20		0.51	
L10-042	MAFV	AW-06-009	426	429	PXPP	3.6	0.20		3.40	95	7.7	1.1	3.4	0.010	106	168	0.89	1.6
L10-037	MAFV	AW-06-012	481	484	PXPP	0.82	0.060		0.76	41	8.7	0.49	0.64	0.12	24	142	1.7	6.0
L11-545	MAFV	AW-08-102	17.37	20	PICR	0.010	0.010	0.030	0.01	2.5					0.31		8.0	
L10-054	MAFV	AW-08-102	78	81	PICR	0.48	0.010		0.48	3.3	9.0	0.040	0.47	0.010	15	50	0.22	3.3
L11-437	MAFV	AW-06-018	448	451	PXPP	0.37	0.31	0.12	0.06	10.0					1.9		5.3	
L10-066	MAFV	AW-06-029	45	48	West SLD	0.020	0.010		0.02	41	8.7	0.49	0.010	0.010	0.63	353	65	565
L11-539	MAFV	AW-08-097	499	502	PXPP	0.10	0.030	0.17	0.07	14					2.2		6.5	
L-AW-023-4	MAFV	AW-06-023	452	455	West MAFV	0.58	0.39		0.19	41	8.7	0.49	0.13	0.060	5.9	56	6.9	9.5
L11-343	MAFV	AN-07-015	333	336	West MAFV	0.66	0.020	0.52	0.64	43					20		2.2	
L11-451	MAFV	AW-06-028	472	475	West MAFV	0.14	0.010	0.090	0.14	7.5					4.4		1.7	
L11-472	MAFV	AW-07-048	297	300	West MAFV	0.54	0.010	0.10	0.54	8.3					17		0.49	
L11-377	MAFV	AN-08-042	300	303	West MAFV	0.37	0.010	0.090	0.37	7.5					12		0.65	
L11-473	MAFV	AW-07-048	360	363	West MAFV	0.25	0.040	0.15	0.21	12					6.6		1.9	
L11-374	MAFV	AN-08-039	297	299	East MAFV	0.72	0.010	0.15	0.72	12					23		0.56	
L11-376	MAFV	AN-08-042	12.19	17.37	OVBN	0.030	0.010	0.34	0.03	28					0.94		30	
L11-338	MAFV	AN-07-012	433	436	East MAFV	0.45	0.44	0.14	0.01	12					0.31		37	
L10-108	MAFV	AN-08-051	73	75	East SLD	3.1	0.030		3.11	51	8.5	0.61	3.0	0.11	97	121	0.52	1.2
146683	MAFV	AX06-10	83	85	PICR	0.23	0.010		0.23	0.83	9.2	0.010	0.21	0.023	7.3	33	0.11	4.6
L11-393	MAFV	AN-08-057	22.3	25	East SLD	0.67	0.010	1.1	0.67	95					21		4.5	
L11-397	MAFV	AN-08-057	400	403	East SLD	0.95	0.66	0.41	0.29	34					9.1		3.8	
7R97771	MAFV	AE-08-053	298	301	East SLD	0.060	0.010		0.06	54	8.8	0.65	0.010	0.050	1.9	109	29	58
L10-125	MAFV	AN-08-038	279	282	East SLD	0.050	0.010		0.05	130	8.3	1.6	0.010	0.040	1.6	203	83	130
L11-022	MAFV	AE-07-016	547	550	East SLD	0.010	0.010	0.89	0.01	74					0.31		237	
7R93062	MAFV	AN-08-033	173	176	East MAFV	0.83	0.010		0.83	57	8.6	0.69	0.74	0.093	26	78	2.2	3.0
L-AE-002-4	MAFV	AE-06-002	416	419	East SLD	0.40	0.12		0.28	50	8.3	0.60	0.20	0.080	8.8	77	5.7	8.8
L11-340	MAFV	AN-07-013	239	242	East MAFV	0.050	0.010	0.28	0.05	23					1.6		15	
L11-355	MAFV	AN-08-023	149	152	East SLD	0.61	0.010	0.34	0.61	28					19		1.5	
L10-149	MAFV	AN-07-006	99	102	East MAFV	4.0	0.010		4.01	62	8.5	0.74	3.9	0.11	125	187	0.49	1.5
L11-010	MAFV	AE-06-010	400	403	East MAFV	0.030	0.010	1.4	0.03	112					0.94		120	
L10-147	MAFV	AE-08-055	85	88	East SLD	0.12	0.010		0.12	9.2	8.5	0.11	0.11	0.010	3.8	53	2.4	14
L11-058	MAFV	AE-07-039	273	276	East MAFV	1.4	0.35	3.5	1.02	292					32		9.2	
L11-057	MAFV	AE-07-039	198	201	East SLD	0.39	0.010	0.19	0.39	16					12		1.3	
L10-158	MAFV	AE-08-062	304	307	East SVHYB	1.2	1.2		0.01	27	8.1	0.33	0.010	0.010	0.31	125	88	401
L11-259	MAFV	AM-10-046	16	18	East SLD	0.020	0.010	0.19	0.02	16					0.63		25	
10E15144	MAFV	AE-10-067	325	328	East MAFV	0.12	0.010		0.12	19	8.5	0.23	0.020	0.095	3.6	70	5.3	19
L11-313	MAFV	AM-10-075	447	450	East SLD	0.33	0.090	0.15	0.24	12					7.5		1.7	
L11-312	MAFV	AM-10-075	373	376	East MAFV	0.13	0.020	0.44	0.11	37					3.4		11	
L10-182	MAFV	AM-09-033	255	258	East SLD	0.35	0.010		0.35	5.0	8.7	0.060	0.30	0.050	11	48	0.46	4.4
L11-325	MAFV	AM-10-086	302	305	East MAFV	0.24	0.030	0.090	0.21	7.5					6.6		1.1	
L11-173	MAFV	AM-07-004	300.76	303	East SLD	0.16	0.010	0.32	0.16	27					5.0		5.3	
L11-306	MAFV	AM-10-074	99	102	PICR	0.070	0.010	0.050	0.07	4.2					2.2		1.9	
L11-299	MAFV	AM-10-068	294.7	297.79	East SLD	0.75	0.010	0.15	0.75	12					23		0.53	
MAFV																		
n						58	58	36	58	58	22	22	22	22	58	22	58	22
Min						0.010	0.010	0.010	0.010	0.833	7.700	0.010	0.010	0.010	0.313	33.496	0.114	1.241
10^{th} PCTL						0.027	0.010	0.040	0.019	3.083	8.210	0.040	0.010	0.010	0.606	35.680	0.482	1.623
Median						0.340	0.010	0.150	0.200	13.333	8.555	0.490	0.205	0.050	6.250	80.196	2.327	7.701
90^{th} PCTL						0.868	0.322	0.715	0.753	86.250	8.990	1.125	2.774	0.110	23.531	185.600	37.333	144.207
Max						4.010	1.170	3.510	4.010	292.500	9.890	1.560	3.890	0.240	125.313	353.200	237.333	565.120

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L10-001	PICR	AW-08-096	51	54	PICR	0.020	0.010		0.02	3.3	8.9	0.040	0.020	0.010	0.63	310	5.3	496
L10-005	PICR	AW-08-084	141	144	PICR	0.010	0.010		0.01	1.7	9.5	0.020	0.010	0.010	0.31	90	5.3	288
L10-002	PICR	AW-08-091	100	103	West MAFV	0.12	0.010		0.12	1.7	9.1	0.020	0.090	0.030	3.8	90	0.44	24
L11-530	PICR	AW-08-091	22	25	PICR	0.050	0.010	0.030	0.05	2.5					1.6		1.6	
L14-007	PICR	KAX-13-004	67	69	PICR	0.059	0.010		0.06	2.5	10	0.030	0.020	0.039	1.8	86	1.4	47
L11-520	PICR	AW-08-084	90	92.56	West MAFV	0.33	0.010	0.040	0.33	3.3					10		0.32	
L11-519	PICR	AW-08-084	49	52	PICR	0.020	0.010	0.060	0.02	5.0					0.63		8.0	
L11-517	PICR	AW-08-083	74	77	PICR	0.030	0.010	0.030	0.03	2.5					0.94		2.7	
L11-469	PICR	AW-07-046	110	113	PICR	0.030	0.010	0.040	0.03	3.3					0.94		3.6	
L11-516	PICR	AW-08-083	23	26	PICR	0.030	0.010	0.050	0.03	4.2					0.94		4.4	
L10-017	PICR	AW-08-086	124	127	PICR	0.010	0.010		0.01	2.5	9.3	0.030	0.010	0.010	0.31	90	8.0	289
L10-009	PICR	AW-06-041	84	87	PICR	0.030	0.010		0.03	5.0	9.0	0.060	0.020	0.010	0.94	89	5.3	95
L11-522	PICR	AW-08-086	73	76	PICR	0.020	0.010	0.030	0.02	2.5					0.63		4.0	
L11-463	PICR	AW-06-041	120	123	IMH	0.14	0.010	0.17	0.14	14					4.4		3.2	
L11-526	PICR	AW-08-087	146	149	PICR	0.73	0.020	0.030	0.71	2.5					22		0.11	
L11-521	PICR	AW-08-086	25	28	PICR	0.030	0.010	0.030	0.03	2.5					0.94		2.7	
L11-525	PICR	AW-08-087	79	82	PICR	0.030	0.010	0.030	0.03	2.5					0.94		2.7	
L11-524	PICR	AW-08-087	19.81	22	PICR	0.080	0.010	0.040	0.08	3.3					2.5		1.3	
L11-460	PICR	AW-06-039	75	78	PICR	0.040	0.010	0.020	0.04	1.7					1.3		1.3	
L-AW-020-1	PICR	AW-06-020	60	63	West SLD	0.040	0.010		0.04	5.8	9.2	0.070	0.050	-0.010	1.3	33	4.7	26
L-AW-020-2	PICR	AW-06-020	139	142	West SLD	0.12	0.020		0.10	5.0	9.5	0.060	0.040	0.060	3.1	80	1.6	26
L10-026	PICR	AW-08-088	102	105	PICR	0.010	0.010		0.01	4.2	9.6	0.050	0.010	0.010	0.31	377	13	1207
L-AW-004-1	PICR	AW-05-004	72	75	West SLD	0.20	0.010		0.20	39	9.1	0.47	0.11	0.080	6.3	93	6.3	15
L10-033	PICR	AW-08-089	69	72	PICR	0.020	0.010		0.02	3.3	8.5	0.040	0.020	0.010	0.63	333	5.3	532
L11-528	PICR	AW-08-089	198	201	PICR	0.030	0.010	0.040	0.03	3.3					0.94		3.6	
L11-455	PICR	AW-06-033	9	12	West SLD	0.010	0.010	0.060	0.01	5.0					0.31		16	
L14-005	PICR	AW-09-103	135	137	PICR	0.15	0.010		0.15	5.0	9.2	0.060	0.020	0.13	4.7	349	1.1	74
L14-004	PICR	AW-09-103	23	25	PICR	0.037	0.010		0.04	4.2	9.5	0.050	0.010	0.037	1.2	81	3.6	70
AX000395	PICR	KAX-13-036	72	74	PICR	0.054	0.010		0.05	2.5	9.8	0.030	0.020	0.034	1.7	92	1.5	55
L11-422	PICR	AW-05-001	124	127	PICR	0.060	0.010	0.050	0.06	4.2					1.9		2.2	
L11-428	PICR	AW-06-010	19.4	22.4	West SLD	0.080	0.020	0.65	0.06	54					1.9		29	
L-AW-003-2	PICR	AW-05-003	120.15	123.15	West MAFV	0.14	0.10		0.04	4.2	9.0	0.050	0.020	0.020	1.3	90	3.3	72
L11-544	PICR	AW-08-101	247.05	249.02	PICR	0.34	0.070	0.16	0.27	13					8.4		1.6	
L11-543	PICR	AW-08-101	134	137	PICR	0.050	0.010	0.080	0.05	6.7					1.6		4.3	
L11-542	PICR	AW-08-101	74	77	PICR	0.010	0.010	0.040	0.01	3.3					0.31		11	
L11-431	PICR	AW-06-014	86	89	PICR	0.010	0.010	0.030	0.01	2.5					0.31		8.0	
L14-003	PICR	AW-07-065	188	190	PICR	0.064	0.010		0.06	5.0	9.6	0.060	0.020	0.044	2.0	363	2.5	181
L14-002	PICR	AW-07-065	115	117	PICR	0.021	0.010		0.02	3.3	9.9	0.040	0.010	0.021	0.66	78	5.1	119
L14-001	PICR	AW-07-065	52	54	PICR	0.023	0.010		0.02	5.0	10	0.060	0.010	0.023	0.72	84	7.0	118
L-AW-012-1	PICR	AW-06-012	28	31	PICR	0.030	0.010		0.03	15	9.5	0.18	0.020	0.010	0.94	44	16	47
L11-432	PICR	AW-06-014	229	232	PICR	0.050	0.020	0.040	0.03	3.3					0.94		3.6	
L11-433	PICR	AW-06-014	268	271	West SLD	0.14	0.030	0.47	0.11	39					3.4		11	
L-AW-012-2	PICR	AW-06-012	55	58	PICR	0.22	0.020		0.20	1.7	9.6	0.020	0.090	0.11	6.3	91	0.27	15
L10-041	PICR	AW-08-090	173	176	PICR	0.18	0.010		0.18	1.7	8.9	0.020	0.18	0.010	5.6	72	0.30	13
L11-486	PICR	AW-07-059	248	251	PICR	0.030	0.010	0.11	0.03	9.2					0.94		9.8	
AX033593	PICR	KAX-13-099	176	178	PICR	0.055	0.010		0.06	1.7	9.5	0.020	0.010	0.045	1.7	92	0.97	53
AX033547	PICR	KAX-13-099	97	99	West MAFV	0.061	0.010		0.06	2.5	9.3	0.030	0.050	0.011	1.9	32	1.3	17
L-AW-015-1	PICR	AW-06-015	54	57	PICR	0.25	0.010		0.25	22	8.1	0.27	0.19	0.060	7.8	68	2.9	8.7
AX033505	PICR	KAX-13-099	29	31	PICR	0.057	0.010		0.06	4.2	9.1	0.050	0.010	0.057	1.8	79	2.3	44
L10-045	PICR	AW-07-058	209	212	West SLD	0.070	0.010		0.07	1.7	8.5	0.020	0.070	0.010	2.2	63	0.76	29
L-AW-015-2	PICR	AW-06-015	84	87	West SLD	0.090	0.010		0.09	43	9.3	0.52	0.050	0.040	2.8	80	15	29
L10-046	PICR	AW-06-017	75	78	West SLD	0.030	0.010		0.03	6.7	8.4	0.080	0.020	0.010	0.94	83	7.1	89
L11-547	PICR	AW-08-102	227	230.85	PICR	0.16	0.010	0.70	0.16	58					5.0		12	
L10-056	PICR	AW-08-102	179	182	PICR	0.11	0.010		0.11	1.7	9.0	0.020	0.030	0.080	3.4	81	0.48	24
L11-546	PICR	AW-08-102	129.5	132	PICR	0.29	0.030	0.040	0.26	3.3					8.1		0.41	
L-AW-023-1	PICR	AW-06-023	49	52	PICR	0.020	0.020		0.01	3.3	9.3	0.040	0.010	0.010	0.31	46	11	147
L11-480	PICR	AW-07-057	49	52	PICR	0.010	0.010	0.19	0.01	16					0.31		51	
L11-481	PICR	AW-07-057	190	193	PICR	1.1	0.040	0.12	1.05	10.0					33		0.30	
L11-540	PICR	AW-08-098	539.05	542	PICR	0.25	0.10	1.5	0.15	124					4.7		26	
L10-068	PICR	AW-06-031	150	153	PICR	0.25	0.010		0.25	28	8.6	0.34	0.17	0.080	7.8	188	3.6	24
L11-474	PICR	AW-07-049	41	44	PICR	0.030	0.010	0.18	0.03	15					0.94		16	
L11-475	PICR	AW-07-049	137	140	PICR	0.17	0.020	0.12	0.15	10.0					4.7		2.1	
L11-476	PICR	AW-07-049	188	191	PICR	0.040	0.010	0.15	0.04	12					1.3		10.0	
L11-344	PICR	AN-07-015	374.59	377	West MAFV	0.56	0.22	0.040	0.34	3.3					11		0.31	
L11-459	PICR	AW-06-038	182	185	PICR	0.020	0.010	0.030	0.02	2.5					0.63		4.0	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L10-083	PICR	AW-06-038	104	107	PICR	0.050	0.010		0.05	0.83	8.9	0.010	0.020	0.030	1.6	380	0.53	243
L10-082	PICR	AW-06-038	83	86	PICR	0.13	0.010		0.13	5.8	8.7	0.070	0.040	0.090	4.1	328	1.4	81
L11-477	PICR	AW-07-052	274	277	PICR	0.10	0.010	0.19	0.10	16					3.1		5.1	
L11-479	PICR	AW-07-056	189	192	PICR	0.080	0.010	0.040	0.08	3.3					2.5		1.3	
L10-089	PICR	AW-07-050	191	194	East SLD	0.17	0.010		0.17	5.0	8.8	0.060	0.15	0.020	5.3	57	0.94	11
L11-409	PICR	AN-08-067	324	327	PICR	0.12	0.010	0.47	0.12	39					3.8		10	
L11-407	PICR	AN-08-065	225	228	East SLD	0.80	0.030	0.14	0.77	12					24		0.48	
146691	PICR	AX06-10	99	101	PICR	0.36	0.010		0.36	47	8.5	0.57	0.29	0.066	11	189	4.3	17
146674	PICR	AX06-10	69	71	PICR	0.53	0.010		0.53	28	8.8	0.34	0.44	0.092	17	325	1.7	20
L11-414	PICR	AN-10-077	124	127	East SLD	0.050	0.010	0.35	0.05	29					1.6		19	
L11-413	PICR	AN-10-077	48	51	PICR	0.41	0.010	0.53	0.41	44					13		3.4	
L11-419	PICR	AN-10-080	140	142.34	East SLD	0.26	0.020	0.050	0.24	4.2					7.5		0.56	
L10-138	PICR	AN-07-014	173	176	PICR	0.90	0.030		0.87	5.8	8.8	0.070	0.86	0.010	27	91	0.21	3.3
L11-418	PICR	AN-10-080	92	95	East SLD	0.91	0.020	0.20	0.89	17					28		0.60	
L11-417	PICR	AN-10-080	48	51	PICR	0.21	0.030	0.060	0.18	5.0					5.6		0.89	
L11-416	PICR	AN-10-079	99	102	East SLD	0.060	0.010	0.21	0.06	17					1.9		9.3	
L10-206	PICR	AN-10-075	19	22	PICR	0.28	0.020		0.26	7.5	9.3	0.090	0.10	0.16	8.1	276	0.92	34
L11-420	PICR	AN-10-081	48	51	PICR	0.28	0.030	0.12	0.25	10.0					7.8		1.3	
L11-415	PICR	AN-10-079	45	48	PICR	0.25	0.030	0.16	0.22	13					6.9		1.9	
L10-146	PICR	AN-08-027	261	264	East MAFV	0.19	0.12		0.07	72	7.9	0.86	0.010	0.060	2.2	125	33	57
L11-094	PICR	AE-08-063	447	450	PICR	0.040	0.010	0.080	0.04	6.7					1.3		5.3	
L11-177	PICR	AM-07-006	122.84	125	PICR	0.10	0.010	0.28	0.10	23					3.1		7.5	
10E15502	PICR	AM-10-079	347	350	PICR	0.43	0.070		0.36	1.7	8.4	0.020	0.21	0.15	11	42	0.15	3.7
L10-164	PICR	AM-09-026	112	115	PICR	0.10	0.010		0.10	3.3	8.0	0.040	0.060	0.040	3.1	88	1.1	28
L10-170	PICR	AM-10-038	49	52	East SLD	0.080	0.010		0.08	3.3	8.8	0.040	0.040	0.040	2.5	326	1.3	130
L10-180	PICR	AM-09-033	175	178	PICR	0.25	0.010		0.25	1.7	9.1	0.020	0.20	0.050	7.8	90	0.21	12
L11-241	PICR	AM-09-033	94.31	97	PICR	0.59	0.040	0.090	0.55	7.5					17		0.44	
Z116008	PICR	AM-10-041	103	106	PICR	0.32	0.010		0.32	3.3	8.6	0.040	0.25	0.32	9.9	91	0.34	9.2
L11-244	PICR	AM-09-036	44.5	47.5	PICR	0.19	0.020	0.11	0.17	9.2					5.3		1.7	
L10-178	PICR	AM-09-036	109.5	112.5	PICR	0.21	0.010		0.21	5.0	9.0	0.060	0.10	0.11	6.6	300	0.76	46
L11-196	PICR	AM-07-007	222	225	PICR	0.12	0.010	0.16	0.12	13					3.8		3.6	
L11-197	PICR	AM-07-007	234	237	PICR	0.13	0.010	0.040	0.13	3.3					4.1		0.82	
L11-198	PICR	AM-07-007	246	249	PICR	0.20	0.010	0.38	0.20	32					6.3		5.1	
L11-199	PICR	AM-07-007	252	255	PICR	0.27	0.020	0.040	0.25	3.3					7.8		0.43	
L11-200	PICR	AM-07-007	258	261	PICR	0.11	0.010	0.060	0.11	5					3.4		1	
L11-246	PICR	AM-09-036	391.35	393.3	East SLD	0.21	0.12	0.82	0.09	68					2.8		24	
L11-323	PICR	AM-10-085	151	154	PICR	0.14	0.020	0.070	0.12	5.8					3.8		1.6	
Z113928	PICR	AM-09-022	163.5	165.6	East SLD	0.030	0.010		0.03	15	8.8	0.18	0.020	0.010	0.94	48	16	51
L11-297	PICR	AM-10-068	168	171	East SLD	1.2	0.010	0.21	1.23	17					38		0.46	
Z115143	PICR	AM-09-021	24	27	PICR	0.18	0.010		0.18	19	8.9	0.23	0.060	0.12	5.6	381	3.4	69
AX023476	PICR	KAX-13-100	136	138	PICR	0.55	0.010		0.55	1.7	8.3	0.020	0.43	0.12	17	92	0.097	5.3
AX023454	PICR	KAX-13-100	98.3	100.3	PICR	0.063	0.010		0.06	1.7	8.4	0.020	0.030	0.033	2.0	85	0.85	43
AX023453	PICR	KAX-13-100	96.3	98.3	PICR	0.032	0.010		0.03	2.5	8.6	0.030	0.030	0.010	1.0	83	2.5	83
L11-296	PICR	AM-10-068	112	115	East SLD	1.6	0.16	0.21	1.44	17					45		0.39	
L10-191	PICR	AM-08-015	146	149	PICR	0.26	0.020		0.24	6.7	9.1	0.080	0.19	0.050	7.5	313	0.89	42
L11-288	PICR	AM-10-066	132.8	135	East SLD	0.81	0.020	0.33	0.79	27					25		1.1	
L11-290	PICR	AM-10-066	248	251	PICR	0.42	0.040	0.15	0.38	12					12		1.1	
L11-219	PICR	AM-08-015	180	183	PICR	0.10	0.020	0.040	0.08	3.3					2.5		1.3	
L10-193	PICR	AM-09-035	82.2	85.2	East SLD	0.050	0.010		0.05	7.5	8.9	0.090	0.010	0.040	1.6	382	4.8	245
L11-303	PICR	AM-10-070	104	107	PICR	0.040	0.010	0.090	0.04	7.5					1.3		6.0	
L11-224	PICR	AM-09-021	147	150	PICR	0.070	0.020	0.090	0.05	7.5					1.6		4.8	
L11-227	PICR	AM-09-025	32	35	PICR	0.090	0.020	0.16	0.07	13					2.2		6.1	
L11-284	PICR	AM-10-065	12.19	15	PICR	0.13	0.010	0.060	0.13	5.0					4.1		1.2	
L11-304	PICR	AM-10-071	147.55	150	PICR	0.15	0.020	0.060	0.13	5.0					4.1		1.2	
L11-285	PICR	AM-10-065	54	57	PICR	0.060	0.020	0.22	0.04	18					1.3		15	
L10-192	PICR	AM-09-032	23.47	26.52	PICR	0.22	0.010		0.22	8.3	9.0	0.10	0.050	0.17	6.9	419	1.2	61
L11-305	PICR	AM-10-073	228	231	PICR	0.020	0.010	0.64	0.02	53					0.63		85	
L11-228	PICR	AM-09-025	197	200	PICR	0.44	0.040	0.090	0.40	7.5					13		0.60	
L11-287	PICR	AM-10-065	156	159	PICR	0.24	0.030	0.090	0.21	7.5					6.6		1.1	
L11-239	PICR	AM-09-032	99.6	102.6	PICR	0.16	0.040	0.10	0.12	8.3					3.8		2.2	
PICR																		
n						125	125	72	125	125	53	53	53	53	125	53	125	53
Min						0.010	0.010	0.020	0.010	0.833	7.900	0.010	0.010	-0.010	0.313	32.396	0.097	3.329
10th PCTL						0.020	0.010	0.030	0.020	2.000	8.420	0.020	0.010	0.010	0.625	49.980	0.417	10.883
Median						0.100	0.010	0.090	0.090	5.000	9.000	0.050	0.040	0.040	2.813	90.300	2.500	46.679
90th PCTL						0.437	0.036	0.461	0.392	30.667	9.594	0.326	0.208	0.119	12.250	359.826	14.133	244.288
Max						1.600	0.220	1.490	1.440	124.167	10.170	0.860	0.860	0.317	45.000	419.000	85.333	1207.040

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-582	SLD - mod	AW-10-116	51	54	West SLD	0.010	0.010	0.39	0.01	32					0.31		104	
L10-007	SLD - mod	AW-06-040	280	283	IMH	0.060	0.010		0.06	46	8.8	0.55	0.030	0.020	1.9	130	24	69
L10-024	SLD - mod	AW-06-033	42	45	West SLD	0.010	0.010		0.01	2.5	9.2	0.030	0.010	0.010	0.31	21	8.0	68
L-AW-004-3	SLD - mod	AW-05-004	183	186	West SLD	0.25	0.070		0.18	27	8.6	0.33	0.090	0.090	5.6	52	4.9	9.3
L10-034	SLD - mod	AW-06-010	115	118	West SLD	1.4	0.030		1.40	16	8.5	0.19	1.3	0.11	44	43	0.36	0.98
L11-435	SLD - mod	AW-06-016	109	112	West SLD	0.63	0.010	0.080	0.63	6.7					20		0.34	
L10-049	SLD - mod	AW-06-019	147	150	West SLD	0.010	0.010		0.01	25	8.8	0.30	0.010	0.010	0.31	60	80	193
L11-438	SLD - mod	AW-06-019	222	225	West SLD	0.050	0.010	0.30	0.05	25					1.6		16	
L11-439	SLD - mod	AW-06-019	372	375	West SLD	1.0	1.0	0.14	0.01	12					0.31		37.3333184	
L10-050	SLD - mod	AW-06-024	195	198	PICR	0.78	0.22		0.56	1.7	8.0	0.020	0.55	0.010	18	82	0.095	4.7
L11-436	SLD - mod	AW-06-016	457	460	PXPP	0.63	0.32	1.7	0.31	142					9.7		15	
L11-442	SLD - mod	AW-06-024	372	375	PICR	1.7	1.7	0.48	0.01	40					0.3		128	
L-AW-023-2	SLD - mod	AW-06-023	207	210	West SLD	0.22	0.080		0.14	33	8.8	0.40	0.11	0.030	4.4	91	7.6	21
L11-441	SLD - mod	AW-06-023	251	254	West SLD	0.050	0.010	1.7	0.05	142					1.6		91	
L11-552	SLD - mod	AW-09-104	247.73	249.72	PICR	3.5	0.020	0.14	3.43	12					107		0.11	
L10-051	SLD - mod	AW-07-070	201	204	West SLD	0.010	0.010		0.01	255	8.5	3.1	0.010	0.010	0.31	252	816	806
L11-534	SLD - mod	AW-08-092	296	298.35	West SLD	0.070	0.010	0.33	0.07	27					2.2		13	
L11-533	SLD - mod	AW-08-092	230	233	IMH	0.46	0.020	0.49	0.44	41					14		3.0	
L10-059	SLD - mod	AW-08-097	89	92	IMH	0.010	0.010		0.01	5.8	8.5	0.070	0.010	0.010	0.31	39	19	124
L11-342	SLD - mod	AN-07-015	99	102	East SLD	0.080	0.010	0.97	0.08	81					2.5		32	
L10-073	SLD - mod	AN-07-003	343	346	East SLD	0.87	0.82		0.05	51	8.1	0.61	0.040	0.010	1.6	121	33	77
7R96097	SLD - mod	AN-07-003	190	193	East SLD	0.010	0.010		0.01	52	8.7	0.63	0.010	0.010	0.31	108	168	346
L11-594	SLD - mod	AW-10-122	300	303	East SLD	0.040	0.020	0.40	0.02	33					0.63		53	
L10-088	SLD - mod	AN-07-017	143	146	East SLD	1.5	0.030		1.51	14	8.3	0.17	1.5	0.010	47	41	0.30	0.88
L10-079	SLD - mod	AN-08-029	165	168	East MAFV	0.010	0.010		0.01	46	8.9	0.55	0.010	0.010	0.31	111	147	356
L10-078	SLD - mod	AN-08-026	154	157	East SLD	0.010	0.010		0.01	50	9.3	0.60	0.010	0.010	0.31	105	160	334
AME1363	SLD - mod	AW-10-125	227.8	230	East SLD	0.14	0.010		0.14	69	8.6	0.83	0.040	0.10	4.4	156	16	36
L11-337	SLD - mod	AN-07-012	280	283	East SLD	1.2	0.95	0.31	0.26	26					8.1		3.2	
L11-331	SLD - mod	AN-07-005	150	153	East SLD	0.14	0.010	0.62	0.14	52					4.4		12	
L10-096	SLD - mod	AN-08-036	335	338	East SLD	2.3	1.1		1.24	7.5	7.8	0.090	1.3	0.010	39	54	0.19	1.4
L10-105	SLD - mod	AN-08-069	235	238	East SLD	0.71	0.070		0.64	196	8.4	2.4	0.57	0.070	20	229	9.8	11
L11-366	SLD - mod	AN-08-031	48	51	East SLD	0.020	0.010	3.2	0.02	265					0.63		424	
L11-410	SLD - mod	AN-08-070	399	402	East SLD	1.6	1.2	0.10	0.37	8.3					12		0.72	
L11-402	SLD - mod	AN-08-062	222	225	East SLD	0.71	0.030	0.31	0.68	26					21		1.2	
L11-359	SLD - mod	AN-08-024	149	152	East SLD	0.020	0.010	0.69	0.02	57					0.63		92	
7R97645	SLD - mod	AE-10-079	314	317	East SLD	0.78	0.77		0.01	22	8.2	0.27	0.010	0.010	0.16	81	144	518
L11-367	SLD - mod	AN-08-031	312.55	315	East SLD	0.070	0.060	0.99	0.01	82					0.31		264	
L10-111	SLD - mod	AN-08-058	292	295	East SLD	0.94	0.73		0.21	24	8.1	0.29	0.20	0.010	6.6	56	3.7	8.6
L11-148	SLD - mod	AE-10-093	398	401	East SLD	0.080	0.010	1.1	0.08	94					2.5		38	
L11-142	SLD - mod	AE-10-091	301	304	East SLD	0.90	0.94	0.40	0.01	33					0.3		107	
L10-103	SLD - mod	AN-08-054	299	302	East SLD	0.34	0.29		0.05	49	7.9	0.59	0.010	0.040	1.6	122	31	78
L10-116	SLD - mod	AN-08-068	130	133	East SLD	0.010	0.010		0.01	93	9.0	1.1	0.010	0.010	0.31	151	299	482
L10-102	SLD - mod	AN-08-046	216	219	East SLD	0.050	0.010		0.05	6.7	8.8	0.080	0.030	0.010	1.6	41	4.3	26
L11-379	SLD - mod	AN-08-044	174	177	East SLD	0.41	0.020	0.21	0.39	17					12		1.4	
L11-396	SLD - mod	AN-08-057	283	286	East SLD	0.80	0.89	0.81	0.01	67					0.3		216	
SL-02	SLD - mod	AN-08-034	14	17	East SLD	0.78	0.020	0.45	0.76	37	8.2	0.45	0.79	0.020	24	55	1.6	2.3
L11-135	SLD - mod	AE-10-090	398	401	East SLD	0.30	0.060	0.13	0.24	11					7.5		1.4	
SL-04	SLD - mod	AN-08-034	26	29	East SLD	0.65	0.030	0.38	0.62	32	8.3	0.38	0.65	0.020	19	54	1.6	2.8
10E28275	SLD - mod	AE-10-090	60	61.7	IMH	0.090	0.010		0.09	29	8.8	0.35	0.030	0.060	2.8	76	10	27
SL-05	SLD - mod	AN-08-034	32	35	East SLD	0.15	0.020	0.87	0.13	72	8.3	0.87	0.070	0.060	4.1	101	18	25
L11-390	SLD - mod	AN-08-055	192.65	195	East SLD	0.060	0.010	0.87	0.06	72					1.9		39	
SL-09	SLD - mod	AN-08-034	56	59	East SLD	0.060	0.010	1.0	0.06	82	8.5	0.99	0.010	0.040	1.9	101	44	54
SL-10	SLD - mod	AN-08-034	62	65	East SLD	0.020	0.010	2.0	0.02	162	8.5	1.9	0.010	0.020	0.63	187	259	299
SL-12	SLD - mod	AN-08-034	74	77	East SLD	0.11	0.010	0.69	0.11	57	8.6	0.69	0.010	0.11	3.4	73	17	21
SL-13	SLD - mod	AN-08-034	80	83	East SLD	0.10	0.010	0.92	0.10	76	8.7	0.91	0.010	0.090	3.1	111	24	35

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
SL-14	SLD - mod	AN-08-034	86	89	East SLD	0.18	0.020	0.31	0.16	24	8.6	0.29	0.12	0.040	5.0	43	4.8	8.6
SL-19	SLD - mod	AN-08-034	116	119	East SLD	0.080	0.010	0.62	0.08	51	8.6	0.61	0.010	0.080	2.5	106	20	42
L-AE-003-2	SLD - mod	AE-06-003	126	129	East SLD	0.080	0.010		0.08	39	8.9	0.47	0.010	0.070	2.5	61	16	24
L11-391	SLD - mod	AN-08-055	312	315	East SLD	2.5	2.7	0.69	0.01	57					0.3		184.0	
L11-020	SLD - mod	AE-07-015	534	537	East SLD	0.76	0.73	1.9	0.03	154					0.94		164	
SL-23	SLD - mod	AN-08-034	149	152	East SLD	0.050	0.010	1.1	0.05	95	8.6	1.1	0.040	0.010	1.6	159	61	102
SL-24	SLD - mod	AN-08-034	152	155	East SLD	0.030	0.010	1.1	0.03	89	8.8	1.1	0.020	0.010	0.94	162	95	172
SL-25	SLD - mod	AN-08-034	155	158	East SLD	0.11	0.010	0.49	0.11	41	8.7	0.49	0.020	0.090	3.4	67	12	19
SL-26	SLD - mod	AN-08-034	158	161	East SLD	0.050	0.010	0.57	0.05	47	8.7	0.57	0.030	0.020	1.6	73	30	47
SL-27	SLD - mod	AN-08-034	161	164	East SLD	0.10	0.010	0.51	0.10	42	8.7	0.50	0.020	0.080	3.1	73	13	23
SL-28	SLD - mod	AN-08-034	164	167	East SLD	0.22	0.010	0.42	0.22	34	8.8	0.41	0.21	0.010	6.9	67	5.0	9.7
SL-29	SLD - mod	AN-08-034	167	170	East SLD	0.040	0.010	1.1	0.04	92	8.9	1.1	0.020	0.020	1.3	173	73	138
7R97787	SLD - mod	AE-08-053	346	348	East SLD	0.17	0.030		0.14	195	8.3	2.3	0.010	0.14	4.4	215	45	49
L11-368	SLD - mod	AN-08-032	159	162	East SLD	0.17	0.010	0.35	0.17	29					5.3		5.5	
L11-371	SLD - mod	AN-08-038	72	75	East SLD	0.020	0.010	0.65	0.02	54					0.63		87	
SL-30	SLD - mod	AN-08-034	205.6	208	East SLD	0.020	0.010	0.32	0.02	26	9.0	0.31	0.010	0.020	0.63	50	41	80
SL-31	SLD - mod	AN-08-034	208	211	East SLD	0.020	0.010	0.25	0.02	20	9.0	0.24	0.010	0.020	0.63	45	32	72
SL-32	SLD - mod	AN-08-034	211	214	East SLD	0.020	0.010	0.27	0.02	22	8.9	0.26	0.010	0.020	0.63	49	35	78
SL-33	SLD - mod	AN-08-034	214	217	East SLD	0.020	0.010	0.17	0.02	13	9.1	0.16	0.010	0.020	0.63	39	21	62
SL-34	SLD - mod	AN-08-034	217	220	East SLD	0.040	0.010	0.28	0.04	23	9.0	0.28	0.010	0.030	1.3	46	19	37
SL-35	SLD - mod	AN-08-034	220	223	East SLD	0.020	0.010	0.20	0.02	14	9.0	0.17	0.010	0.020	0.63	37	23	59
L11-372	SLD - mod	AN-08-038	123	126	East SLD	0.030	0.010	0.33	0.03	27					0.94		29	
SL-36	SLD - mod	AN-08-034	255.3	258	East SLD	0.080	0.010	0.99	0.08	81	8.6	0.97	0.020	0.050	2.5	144	32	58
SL-37	SLD - mod	AN-08-034	261	264	East SLD	0.090	0.010	0.54	0.09	42	8.6	0.50	0.020	0.060	2.8	63	15	22
SL-39	SLD - mod	AN-08-034	273	276	East SLD	0.080	0.010	0.53	0.08	42	8.8	0.51	0.020	0.050	2.5	111	17	44
SL-40	SLD - mod	AN-08-034	279	282	East SLD	0.39	0.030	0.20	0.36	16	8.4	0.19	0.30	0.060	11	44	1.4	3.9
L11-373	SLD - mod	AN-08-038	174	177	East SLD	0.11	0.020	2.2	0.09	184					2.8		65	
SL-42	SLD - mod	AN-08-034	291	294	East SLD	0.11	0.020	1.8	0.09	145	8.4	1.7	0.010	0.080	2.8	191	52	68
SL-43	SLD - mod	AN-08-034	297	300	East SLD	0.090	0.010	1.5	0.09	121	8.2	1.5	0.010	0.070	2.8	189	43	67
SL-44	SLD - mod	AN-08-034	303	306	East SLD	0.090	0.020	0.63	0.07	51	8.3	0.61	0.020	0.050	2.2	126	23	57
L11-149	SLD - mod	AE-10-095	394	397	East SLD	0.79	0.80	0.31	0.01	26					0.31		83	
SL-45	SLD - mod	AN-08-034	309	312	East SLD	0.17	0.020	0.66	0.15	49	8.5	0.59	0.10	0.050	4.7	113	10	24
SL-48	SLD - mod	AN-08-034	327	330	East SLD	0.47	0.43	0.090	0.04	6.7	8.1	0.080	0.050	0.020	1.3	45	5.3	36
SL-49	SLD - mod	AN-08-034	333	336	East SLD	0.38	0.37	0.17	0.01	13	8.1	0.16	0.020	0.020	0.31	57	43	182
L11-111	SLD - mod	AE-10-078	98	101	East SLD	0.020	0.010	0.36	0.02	30					0.63		48	
L11-349	SLD - mod	AN-07-018	199.15	202	East SLD	0.030	0.010	0.68	0.03	57					0.94		60	
L11-002	SLD - mod	AE-06-002	227	230	East SLD	0.11	0.010	1.1	0.11	88					3.4		26	
L11-026	SLD - mod	AE-07-024	457	460	East SLD	0.28	0.29	0.44	0.01	37					0.31		117	
L11-353	SLD - mod	AN-08-023	24	27	East SLD	0.12	0.010	0.23	0.12	19					3.8		5.1	
L11-005	SLD - mod	AE-06-009	472	475	East SLD	0.050	0.060	0.090	0.01	7.5					0.31		24	
L11-006	SLD - mod	AE-06-009	547	550	East SLD	0.050	0.040	2.7	0.01	222					0.31		712	
L11-014	SLD - mod	AE-06-011	399	402	East SLD	0.050	0.010	1.6	0.05	135					1.6		86	
L11-031	SLD - mod	AE-07-025	216	219	East SLD	0.73	0.020	0.27	0.71	22					22		1.0	
L11-023	SLD - mod	AE-07-018	154	157	East SLD	0.53	0.010	0.55	0.53	46					17		2.8	
L11-021	SLD - mod	AE-07-016	99	102	East SLD	0.040	0.010	0.61	0.04	51					1.3		41	
L11-025	SLD - mod	AE-07-021	279	282	East SLD	0.93	0.55	0.12	0.38	10.0					12		0.84	
L11-030	SLD - mod	AE-07-025	153	156	East SLD	0.42	0.010	0.25	0.42	21					13		1.6	
L11-016	SLD - mod	AE-06-012	87	90	IMH	0.010	0.010	0.20	0.01	17					0.31		53	
L11-329	SLD - mod	AN-07-001	291	294	East SLD	0.060	0.010	0.75	0.06	62					1.9		33	
L11-029	SLD - mod	AE-07-025	102	105	East SLD	2.2	0.030	0.37	2.20	31					69		0.45	
L11-049	SLD - mod	AE-07-036	100	103	East SLD	0.89	0.040	0.21	0.85	17					27		0.66	
L11-077	SLD - mod	AE-08-052	146	149	East SLD	1.5	0.020	0.28	1.52	23					48		0.49	
L11-264	SLD - mod	AM-10-047	49	52	East SLD	0.21	0.010	0.39	0.21	32					6.6		5.0	
L11-028	SLD - mod	AE-07-025	33	36	East SLD	2.0	0.020	3.6	1.96	296					61		4.8	
L11-107	SLD - mod	AE-10-076	214	217	East SLD	0.52	0.010	0.25	0.52	21					16		1.3	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-092	SLD - mod	AE-08-063	161	164	East SLD	0.39	0.020	0.29	0.37	24					12		2.1	
L11-056	SLD - mod	AE-07-039	147	150	East SLD	0.45	0.010	2.3	0.45	192					14		14	
L11-112	SLD - mod	AE-10-080	115	118	East SLD	0.55	0.010	0.33	0.55	27					17		1.6	
L11-055	SLD - mod	AE-07-039	54	57	East SLD	0.51	0.010	4.7	0.51	392					16		25	
L11-113	SLD - mod	AE-10-080	166	168.85	East SLD	0.51	0.010	0.42	0.51	35					16		2.2	
L10-161	SLD - mod	AM-08-012	157	160	East SLD	0.15	0.020		0.13	17	8.9	0.20	0.080	0.050	4.1	78	4.1	19
L11-091	SLD - mod	AE-08-063	80	83	East SLD	0.77	0.020	0.12	0.75	10.0					23		0.43	
L11-158	SLD - mod	AM-07-002	27	30	East SLD	0.070	0.010	0.23	0.07	19					2.2		8.8	
L11-101	SLD - mod	AE-10-066	77	79.55	IMH	0.35	0.010	1.9	0.35	161					11		15	
L11-159	SLD - mod	AM-07-002	78	81	East SLD	0.080	0.010	0.28	0.08	23					2.5		9.3	
L11-214	SLD - mod	AM-08-012	204.45	207	East SLD	0.23	0.010	0.31	0.23	26					7.2		3.6	
L10-167	SLD - mod	AM-07-002	131	134	East SLD	2.2	0.030		2.20	12	8.4	0.15	2.1	0.070	69	44	0.18	0.64
L11-160	SLD - mod	AM-07-002	182	185.45	East SLD	0.20	0.010	0.28	0.20	23					6.3		3.7	
L11-114	SLD - mod	AE-10-080	351	354	East SLD	0.79	0.020	0.77	0.77	64					24		2.7	
L11-161	SLD - mod	AM-07-002	229	232	East SLD	0.16	0.010	0.24	0.16	20					5.0		4.0	
L11-040	SLD - mod	AE-07-032	265	268	East SLD	1.1	0.010	0.33	1.14	27					36		0.77	
L10-168	SLD - mod	AM-07-002	315	318	East SLD	0.72	0.22		0.50	16	7.9	0.19	0.49	0.010	16	86	1.0	5.5
L11-163	SLD - mod	AM-07-003	48	51	East SLD	0.26	0.010	0.19	0.26	16					8.1		1.9	
L11-041	SLD - mod	AE-07-032	348	351	East SLD	0.22	0.010	0.31	0.22	26					6.9		3.8	
L11-260	SLD - mod	AM-10-046	58	61	East SLD	0.42	0.040	0.88	0.38	73					12		6.2	
L11-261	SLD - mod	AM-10-046	100	103	East SLD	1.3	0.010	0.60	1.25	50					39		1.3	
L11-262	SLD - mod	AM-10-046	145	148	East SLD	0.51	0.020	0.48	0.49	40					15		2.6	
L11-263	SLD - mod	AM-10-046	174	175.87	East SLD	1.0	0.020	0.36	1.00	30					31		0.96	
L11-164	SLD - mod	AM-07-003	99	102	East SLD	1.8	0.020	0.27	1.76	22					55		0.41	
L10-165	SLD - mod	AM-10-037	61	64	East SLD	0.030	0.010		0.03	99	8.2	1.2	0.020	0.010	0.94	167	106	178
L11-243	SLD - mod	AM-09-034	594	597	East SLD	0.42	0.48	0.28	0.01	23					0.3		75	
L10-175	SLD - mod	AM-07-003	150	153	East SLD	0.040	0.010		0.04	27	8.9	0.33	0.030	0.010	1.3	54	22	43
E211563	SLD - mod	AM-09-034	573	576	East SLD	0.18	0.18		0.01	57	8.0	0.69	0.010	0.010	0.31	243	184	776
L11-229	SLD - mod	AM-09-026	50.9	54	PICR	0.010	0.010	0.28	0.01	23					0.31		75	
L11-291	SLD - mod	AM-10-067	12.19	15	East SLD	1.5	0.020	0.21	1.45	17					45		0.39	
L11-165	SLD - mod	AM-07-003	198	201	East SLD	0.070	0.010	0.80	0.07	67					2.2		30	
L11-292	SLD - mod	AM-10-067	50.35	53	East SLD	1.2	0.020	0.28	1.16	23					36		0.64	
L11-293	SLD - mod	AM-10-067	98	101	East SLD	1.2	0.030	0.28	1.13	23					35		0.66	
L11-294	SLD - mod	AM-10-067	150	153	East SLD	0.38	0.020	0.64	0.36	53					11		4.7	
L11-166	SLD - mod	AM-07-003	249	252	East SLD	0.18	0.010	0.64	0.18	53					5.6		9.5	
L11-268	SLD - mod	AM-10-048	148	151	East SLD	0.070	0.010	0.16	0.07	13					2.2		6.1	
L11-267	SLD - mod	AM-10-048	100	103	East SLD	0.18	0.010	0.79	0.18	66					5.6		12	
L11-266	SLD - mod	AM-10-048	49	52	East SLD	0.29	0.020	0.44	0.27	37					8.4		4.3	
L11-231	SLD - mod	AM-09-028	100	103	East SLD	0.040	0.010	0.47	0.04	39					1.3		31	
L11-230	SLD - mod	AM-09-028	49.5	52.5	East SLD	0.060	0.010	0.80	0.06	67					1.9		36	
L11-232	SLD - mod	AM-09-028	139	142	East SLD	0.40	0.020	0.52	0.38	43					12		3.6	
L11-265	SLD - mod	AM-10-048	7.4	10	East SLD	0.21	0.010	0.31	0.21	26					6.6		3.9	
L11-167	SLD - mod	AM-07-003	300	303	East SLD	0.97	0.010	0.33	0.97	27					30		0.91	
L10-174	SLD - mod	AM-09-031	89	92	East SLD	0.18	0.020		0.16	8.3	8.9	0.10	0.11	0.050	5.0	39	1.7	7.8
L11-251	SLD - mod	AM-10-042	24	27	East SLD	0.42	0.010	0.30	0.42	25					13		1.9	
L11-245	SLD - mod	AM-09-036	162	165	East SLD	0.060	0.010	0.20	0.06	17					1.9		8.9	
L11-279	SLD - mod	AM-10-061	425	428	East SLD	1.3	0.79	0.90	0.49	75					15		4.9	
L10-179	SLD - mod	AM-09-036	219	222	East SLD	0.42	0.020		0.40	11	8.8	0.13	0.37	0.030	13	42	0.87	3.4
L11-235	SLD - mod	AM-09-030	62.8	64	East SLD	1.5	0.020	0.59	1.50	49					47		1.0	
L11-236	SLD - mod	AM-09-030	113.5	117.96	East SLD	0.31	0.010	1.3	0.31	110					9.7		11	
L10-183	SLD - mod	AM-10-043	114	117	East SLD	0.11	0.010		0.11	30	8.7	0.36	0.020	0.090	3.4	188	8.7	55
L10-190	SLD - mod	AM-10-040	130	133	East SLD	5.0	0.020		5.00	5.8	8.3	0.070	4.9	0.060	156	46	0.037	0.30
L11-247	SLD - mod	AM-10-040	81	84	PICR	0.86	0.010	0.090	0.86	7.5					27		0.28	
L10-189	SLD - mod	AM-10-040	33	36	East SLD	0.59	0.010		0.59	43	8.5	0.52	0.51	0.070	18	144	2.4	7.8
L11-217	SLD - mod	AM-08-014	197	200	East SLD	0.24	0.010	0.070	0.24	5.8					7.5		0.78	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-298	SLD - mod	AM-10-068	216	219	East SLD	1.1	0.010	0.22	1.11	18					35		0.53	
L10-194	SLD - mod	AM-10-049	115	118	East SLD	0.080	0.010		0.08	57	8.9	0.68	0.020	0.060	2.5	109	23	44
L11-273	SLD - mod	AM-10-052	9	12	East SLD	0.040	0.010	0.13	0.04	11					1.3		8.7	
L11-289	SLD - mod	AM-10-066	188	190.25	PICR	2.7	0.020	0.34	2.69	28					84		0.34	
L11-223	SLD - mod	AM-09-019	260	263	East SLD	0.65	0.050	0.090	0.60	7.5					19		0.40	
L11-301	SLD - mod	AM-10-070	15	18	East SLD	2.5	0.020	1.4	2.46	118					77		1.5	
L11-220	SLD - mod	AM-08-015	228	231	East SLD	0.12	0.010	0.38	0.12	32					3.8		8.4	
L11-221	SLD - mod	AM-08-015	278	281	East SLD	0.17	0.010	0.36	0.17	30					5.3		5.6	
L11-280	SLD - mod	AM-10-063	6.71	9	East SLD	0.64	0.020	0.28	0.62	23					19		1.2	
L11-281	SLD - mod	AM-10-063	48	51	East SLD	0.020	0.010	1.7	0.02	144					0.63		231	
L11-282	SLD - mod	AM-10-063	99	102	East SLD	1.2	0.020	0.15	1.20	12					38		0.33	
SLD - mod																		
n						176	176	139	176	176	69	69	69	69	176	69	176	69
Min						0.010	0.010	0.070	0.005	1.667	7.800	0.020	0.010	0.010	0.156	21.300	0.037	0.296
10^{th} PCTL						0.020	0.010	0.158	0.010	10.833	8.100	0.098	0.010	0.010	0.313	41.940	0.586	3.254
Median						0.190	0.010	0.390	0.120	32.083	8.600	0.470	0.020	0.020	3.750	77.900	10.430	43.040
90^{th} PCTL						1.265	0.345	1.500	1.135	119.583	9.000	1.150	0.586	0.090	35.469	186.940	106.222	305.728
Max						5.020	2.740	4.700	5.000	391.667	9.300	3.060	4.940	0.140	156.250	251.900	816.000	806.080

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-445	SLD - strong	AW-06-026	228	231	West SLD	0.090	0.010	0.23	0.09	19					2.8		6.8	
L10-060	SLD - strong	AW-07-069	102.8	105.8	West SVHYB	0.070	0.010		0.07	90	8.4	1.1	0.020	0.050	2.2	187	41	85
L10-067	SLD - strong	AW-06-029	186	189	West SLD	0.040	0.010		0.04	21	8.7	0.25	0.040	0.010	1.3	55	17	44
Z112558	SLD - strong	AW-08-098	276	277.65	West SLD	0.050	0.010		0.05	95	8.7	1.1	0.020	0.030	1.6	135	61	86
L10-072	SLD - strong	AN-07-003	199	202	East SLD	0.070	0.010		0.07	42	9.0	0.51	0.020	0.050	2.2	106	19	49
L11-408	SLD - strong	AN-08-067	170	173	East SLD	0.34	0.030	0.43	0.31	36					9.7		3.7	
L10-095	SLD - strong	AN-08-036	121	124	East SLD	0.050	0.020		0.03	60	8.1	0.72	0.020	0.010	0.94	174	64	185
L11-401	SLD - strong	AN-08-062	78	81	East SLD	0.14	0.020	1.3	0.12	107					3.8		28	
L10-094	SLD - strong	AN-08-073	285	288	East SLD	0.66	0.61		0.05	18	7.9	0.22	0.020	0.030	1.6	46	12	30
7R97303	SLD - strong	AN-08-073	53.45	56	East SLD	0.020	0.010		0.02	12	9.1	0.15	0.010	0.020	0.63	31	20	49
L11-152	SLD - strong	AE-10-096	298	301	East SLD	0.040	0.010	0.84	0.04	70					1.3		56	
L10-110	SLD - strong	AN-08-051	262	265	East SLD	0.030	0.020		0.01	28	9.0	0.34	0.020	0.010	0.31	101	91	322
L11-395	SLD - strong	AN-08-057	197	200	East SLD	0.020	0.010	0.61	0.02	51					0.63		81	
L11-385	SLD - strong	AN-08-051	322	325	East SLD	0.45	0.41	2.1	0.04	172					1.3		138	
L11-411	SLD - strong	AN-08-072	49	52	East SLD	0.040	0.010	0.16	0.04	13					1.3		11	
L10-114	SLD - strong	AN-08-055	240	243	East SLD	0.020	0.010		0.02	59	8.8	0.71	0.010	0.010	0.63	103	95	164
10E27285	SLD - strong	AE-10-092	299	302	East SLD	0.060	0.010		0.06	86	8.4	1.0	0.030	0.030	1.9	174	46	93
L10-093	SLD - strong	AE-08-047	267	270	IMH	0.010	0.010		0.01	52	8.8	0.62	0.010	0.010	0.31	130	165	416
L11-132	SLD - strong	AE-10-089	350	353	East SLD	0.070	0.010	0.78	0.07	65					2.2		30	
L11-131	SLD - strong	AE-10-089	299	302	East SLD	0.010	0.010	1.6	0.01	131					0.31		419	
10E27113	SLD - strong	AE-10-089	236	239	East SLD	0.030	0.010		0.03	22	9.0	0.26	0.010	0.020	0.94	63	23	67
10E13142	SLD - strong	AE-10-078	74	77	East SLD	0.060	0.010		0.06	57	8.3	0.68	0.020	0.040	1.9	146	30	78
L11-118	SLD - strong	AE-10-082	225	228	East SLD	0.020	0.010	0.43	0.02	36					0.63		57	
L11-119	SLD - strong	AE-10-082	282	285	East SLD	0.010	0.010	1.2	0.01	96					0.31		307	
L11-155	SLD - strong	AE-10-099	98	101	East SLD	0.13	0.010	0.29	0.13	24					4.1		5.9	
10E15888	SLD - strong	AE-10-086	389	392	East SLD	0.060	0.040		0.02	324	8.4	3.9	0.010	0.010	0.63	315	519	505
L-AE-006-3	SLD - strong	AE-06-006	207	210	East SLD	0.10	0.010		0.10	49	8.9	0.59	0.050	0.050	3.1	71	16	23
L11-013	SLD - strong	AE-06-011	300	303	East SLD	0.77	0.010	0.14	0.77	12					24		0.48	
7R48537	SLD - strong	AE-07-035	534	537	East SLD	0.41	0.40		0.01	52	8.0	0.63	0.010	0.010	0.31	147	168	470
L10-163	SLD - strong	AE-08-054	438	441	East SLD	1.7	0.59		1.14	14	7.8	0.17	1.1	0.090	36	83	0.40	2.3
SLD - strong																		
n						30	30	13	30	30	17	17	17	17	30	17	30	17
Min						0.010	0.010	0.140	0.010	11.667	7.800	0.150	0.010	0.010	0.312	30.800	0.398	2.327
10^{th} PCTL						0.019	0.010	0.174	0.010	14.083	7.972	0.200	0.010	0.010	0.313	51.520	5.724	26.854
Median						0.060	0.010	0.610	0.040	51.250	8.700	0.620	0.020	0.020	1.250	106.300	35.683	85.303
90^{th} PCTL						0.471	0.401	1.512	0.148	109.083	9.004	1.102	0.044	0.050	4.625	179.100	181.867	437.632
Max						1.730	0.610	2.070	1.140	324.167	9.090	3.890	1.050	0.090	35.625	315.400	518.666	504.640

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-466	SLD - weak	AW-07-045	118	121	West MAFV	0.040	0.010	0.13	0.04	11					1.3		8.7	
L10-015	SLD - weak	AW-08-085	90	93	PICR	0.060	0.010		0.06	13	9.6	0.16	0.050	0.010	1.9	40	7.1	21
L10-014	SLD - weak	AW-08-078	496	499	West SLD	0.85	0.30		0.55	49	8.1	0.59	0.52	0.030	17	116	2.9	6.8
G9512	SLD - weak	AW-07-045	289	292	IMH	0.47	0.47		0.01	53	8.0	0.64	0.020	0.010	0.31	116	171	371
L11-468	SLD - weak	AW-07-045	298	301	IMH	0.25	0.27	0.49	0.01	41					0.31		131	
L11-527	SLD - weak	AW-08-088	21.34	24	PICR	0.010	0.010	0.080	0.01	6.7					0.31		21	
L10-019	SLD - weak	AW-06-027	294	297	IMH	0.020	0.010		0.02	18	8.6	0.22	0.010	0.020	0.63	52	29	83
L11-529	SLD - weak	AW-08-090	16.76	19	PICR	0.010	0.010	0.070	0.01	5.8					0.31		19	
L11-501	SLD - weak	AW-07-073	380	383	West SLD	0.11	0.010	0.60	0.11	50					3.4		15	
L10-044	SLD - weak	AW-07-058	161	164	West SLD	2.7	0.020		2.66	18	8.2	0.22	2.5	0.21	83	67	0.22	0.81
L10-031	SLD - weak	AW-06-030	258	261	West SVHYB	0.88	0.85		0.03	10.0	8.1	0.12	0.030	0.010	0.94	44	11	47
L11-454	SLD - weak	AW-06-030	243	246	IMH	0.57	0.61	0.36	0.01	30					0.3		96	
L11-484	SLD - weak	AW-07-058	323	326	West SLD	1.5	0.35	0.30	1.18	25					37		0.68	
L11-548	SLD - weak	AW-08-102	278.75	281.85	PICR	0.28	0.010	0.14	0.28	12					8.8		1.3	
7R12496	SLD - weak	AW-07-057	76	79	PICR	0.18	0.010		0.18	18	9.1	0.22	0.010	0.18	5.6	76	3.3	13
L10-062	SLD - weak	AW-07-057	115	118	West MAFV	0.090	0.010		0.09	64	8.5	0.77	0.090	0.010	2.8	163	23	58
L11-482	SLD - weak	AW-07-057	291	294	PICR	0.050	0.010	0.15	0.05	12					1.6		8.0	
L11-446	SLD - weak	AW-06-026	393	396	West SLD	1.3	1.1	0.29	0.28	24					8.8		2.8	
L10-090	SLD - weak	AW-07-052	100	103	East MAFV	0.060	0.010		0.06	41	8.8	0.49	0.060	0.010	1.9	181	22	97
L11-585	SLD - weak	AW-10-118	241	242.68	IMH	0.060	0.010	0.20	0.06	17					1.9		8.9	
L11-458	SLD - weak	AW-06-036	323	326	East SLD	0.79	0.060	0.11	0.73	9.2					23		0.40	
L10-081	SLD - weak	AN-08-042	118	121	East SLD	0.050	0.010		0.05	88	8.9	1.1	0.030	0.020	1.6	124	57	79
10E28870	SLD - weak	AW-11-126	152	155	IMH	0.010	0.010	0.74	0.01	62					0.31		197	
L10-097	SLD - weak	AW-07-056	105	108	East MAFV	0.16	0.010		0.16	9.2	8.9	0.11	0.16	0.010	5.0	54	1.8	11
L11-350	SLD - weak	AN-08-021	208	211	East SLD	1.1	0.030	0.71	1.03	59					32		1.8	
L11-478	SLD - weak	AW-07-055	99	102	East MAFV	0.12	0.020	0.22	0.10	18					3.1		5.9	
L10-123	SLD - weak	AN-08-047	170	173	East SLD	0.15	0.020		0.13	44	8.7	0.53	0.10	0.030	4.1	102	11	25
L11-383	SLD - weak	AN-08-050	199	202	East SLD	0.20	0.040	0.15	0.16	12					5.0		2.5	
L11-082	SLD - weak	AE-08-053	149.52	152	East SLD	0.010	0.010	0.38	0.01	32					0.31		101	
L11-388	SLD - weak	AN-08-053	74	77	East SLD	0.030	0.010	0.42	0.03	35					0.94		37	
L11-392	SLD - weak	AN-08-056	430	433	East SLD	0.77	0.060	0.24	0.71	20					22		0.90	
L11-382	SLD - weak	AN-08-049	148	151	East SLD	0.41	0.010	0.40	0.41	33					13		2.6	
L11-060	SLD - weak	AE-07-043	446	449	East SLD	0.40	0.41	0.24	0.01	20					0.31		64	
L11-364	SLD - weak	AN-08-028	272	275	East SLD	0.58	0.14	0.15	0.44	12					14		0.91	
L11-375	SLD - weak	AN-08-041	364	367	East SLD	0.76	0.81	0.33	0.01	27					0.3		88	
SL-56	SLD - weak	AN-08-034	396	399	East SLD	0.80	0.14	0.060	0.66	5.0	8.1	0.060	0.64	0.020	21	73	0.24	3.6
L11-365	SLD - weak	AN-08-030	201.5	204	East SLD	0.22	0.010	0.18	0.22	15					6.9		2.2	
SL-57	SLD - weak	AN-08-034	402	405	East SLD	0.74	0.21	0.050	0.53	4.2	8.1	0.050	0.60	0.020	17	24	0.25	1.4
SL-60	SLD - weak	AN-08-034	420	423	East SLD	0.37	0.36	0.93	0.01	74	8.0	0.89	0.020	0.020	0.31	149	237	477
L11-335	SLD - weak	AN-07-011	214	217	East SLD	0.060	0.010	0.74	0.06	62					1.9		33	
L11-027	SLD - weak	AE-07-024	529	532	East SLD	1.3	1.4	0.54	0.01	45					0.3		144	
SL-70	SLD - weak	AN-08-034	480	483	East SLD	0.75	0.46	0.26	0.29	21	7.8	0.25	0.020	0.27	9.1	47	2.3	5.2
L11-061	SLD - weak	AE-07-044	18	20.42	East SLD	0.090	0.010	0.46	0.09	38					2.8		14	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
SL-71	SLD - weak	AN-08-034	486	489	East SLD	0.74	0.45	0.30	0.29	24	7.8	0.29	0.030	0.26	9.1	51	2.7	5.6
SL-72	SLD - weak	AN-08-034	492	494	East SLD	0.81	0.46	0.31	0.35	24	7.8	0.29	0.010	0.34	11	52	2.2	4.7
L10-154	SLD - weak	AN-08-074	74	77	East SLD	0.79	0.030		0.76	7.5	8.9	0.090	0.72	0.040	24	83	0.32	3.5
L10-140	SLD - weak	AN-07-007	229	232	East SLD	1.5	0.070		1.41	7.5	8.0	0.090	0.48	0.93	44	48	0.17	1.1
L11-363	SLD - weak	AN-08-027	220	223	East SLD	0.66	0.11	0.38	0.55	32					17		1.8	
L11-362	SLD - weak	AN-08-027	183	186	East MAFV	0.46	0.010	0.40	0.46	33					14		2.3	
L10-145	SLD - weak	AN-08-027	133	136	East SLD	0.22	0.010		0.22	40	8.7	0.48	0.22	0.010	6.9	115	5.8	17
L11-212	SLD - weak	AM-08-011	253	256	East SLD	1.1	0.030	0.090	1.09	7.5					34		0.22	
L11-080	SLD - weak	AE-08-052	464	465.43	East MAFV	0.77	0.45	0.17	0.32	14					10		1.4	
L10-153	SLD - weak	AN-07-013	190	193	East SLD	0.10	0.020		0.08	27	8.7	0.33	0.080	0.010	2.5	105	11	42
L11-348	SLD - weak	AN-07-016	273	276	East SLD	0.90	0.040	0.43	0.86	36					27		1.3	
L11-024	SLD - weak	AE-07-019	472	475	East SLD	0.27	0.22	0.63	0.05	52					1.6		34	
L11-347	SLD - weak	AN-07-016	226.5	229	East SLD	0.46	0.030	0.39	0.43	32					13		2.4	
L11-209	SLD - weak	AM-08-010	298	301	East SLD	0.32	0.010	0.070	0.32	5.8					10		0.58	
L11-357	SLD - weak	AN-08-023	264	267	East SLD	0.27	0.060	0.32	0.21	27					6.6		4.1	
L11-346	SLD - weak	AN-07-016	175	178	East SLD	0.22	0.010	0.44	0.22	37					6.9		5.3	
L11-079	SLD - weak	AE-08-052	402	405	East SLD	2.1	0.99	0.19	1.12	16					35		0.45	
L11-345	SLD - weak	AN-07-016	124	127	East SLD	1.0	0.010	0.36	1.00	30					31		0.96	
L11-358	SLD - weak	AN-08-023	350	353	East SLD	0.22	0.10	0.14	0.12	12					3.8		3.1	
L11-211	SLD - weak	AM-08-011	122	125	East SLD	0.20	0.010	0.10	0.20	8.3					6.3		1.3	
L11-339	SLD - weak	AN-07-013	52	55	East SLD	0.73	0.020	0.22	0.71	18					22		0.83	
L11-334	SLD - weak	AN-07-010	213	216	East SLD	0.23	0.20	0.41	0.03	34					0.94		36	
L11-210	SLD - weak	AM-08-011	54	57	East SLD	1.3	0.020	0.12	1.31	10.0					41		0.24	
L11-019	SLD - weak	AE-07-014	7	10	East SLD	0.060	0.010	0.38	0.06	32					1.9		17	
L11-208	SLD - weak	AM-08-010	202	205	East SLD	0.19	0.010	0.23	0.19	19					5.9		3.2	
L11-330	SLD - weak	AN-07-004	449	452	East SLD	0.47	0.45	0.18	0.02	15					0.62		24	
L11-078	SLD - weak	AE-08-052	318	321	East SLD	0.48	0.010	0.15	0.48	12					15		0.83	
L11-033	SLD - weak	AE-07-026	392	395	East SLD	0.50	0.57	0.30	0.01	25					0.3		80	
L11-326	SLD - weak	AN-07-001	81	84	East SLD	0.51	0.010	0.55	0.51	46					16		2.9	
L10-210	SLD - weak	AM-10-054	68	71	East SLD	0.23	0.010		0.23	43	8.8	0.52	0.17	0.060	7.2	152	6.0	21
L10-209	SLD - weak	AM-10-054	35	38	East SLD	1.2	0.020		1.17	25	8.7	0.30	1.1	0.050	37	58	0.68	1.6
L11-206	SLD - weak	AM-08-009	297.15	300	PICR	0.11	0.010	0.17	0.11	14					3.4		4.1	
L-AE-013-1	SLD - weak	AE-06-013	114	117	East SLD	0.27	0.010		0.27	12	9.3	0.15	0.20	0.070	8.4	25	1.5	3.0
L10-144	SLD - weak	AE-07-026	230	233	East SLD	2.0	0.010		2.00	47	8.4	0.57	2.0	0.010	63	125	0.76	2.0
L11-085	SLD - weak	AE-08-057	76	79	East SLD	0.070	0.010	0.32	0.07	27					2.2		12	
L11-018	SLD - weak	AE-06-013	60	63	East SLD	0.030	0.010	0.16	0.03	13					0.94		14	
L11-205	SLD - weak	AM-08-009	213	216	East SLD	0.89	0.030	2.0	0.86	164					27		6.1	
L11-207	SLD - weak	AM-08-010	49	52	East SLD	0.14	0.010	0.27	0.14	22					4.4		5.1	
L11-327	SLD - weak	AN-07-001	201	204	East SLD	1.0	0.020	0.19	1.01	16					32		0.50	
L10-159	SLD - weak	AE-08-052	220	223	East SLD	0.90	0.050		0.85	35	9.0	0.42	0.84	0.010	27	99	1.3	3.7
L11-328	SLD - weak	AN-07-001	246	249	East SLD	0.55	0.020	0.33	0.53	27					17		1.7	
L11-093	SLD - weak	AE-08-063	299	302	East SLD	0.24	0.010	0.27	0.24	22					7.5		3.0	
L10-173	SLD - weak	AM-08-009	93	96	East SLD	0.10	0.020		0.08	23	9.0	0.28	0.080	0.010	2.5	95	9.3	38
L11-213	SLD - weak	AM-08-012	24	27	East SLD	0.26	0.010	0.40	0.26	33					8.1		4.1	
L11-087	SLD - weak	AE-08-060	189	192	East SLD	0.47	0.020	0.23	0.45	19					14		1.4	
L11-203	SLD - weak	AM-08-009	57	60	East SLD	0.26	0.010	0.81	0.26	67					8.1		8.3	
L11-202	SLD - weak	AM-08-009	24.38	27	OVBN	0.050	0.010	0.14	0.05	12					1.6		7.5	
L11-088	SLD - weak	AE-08-060	249	252	East SLD	0.15	0.010	0.080	0.15	6.7					4.7		1.4	
L11-108	SLD - weak	AE-10-076	274	277	East SLD	0.52	0.010	0.28	0.52	23					16		1.4	
L11-089	SLD - weak	AE-08-060	312	315	East SLD	0.70	0.020	0.15	0.68	12					21		0.59	

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-090	SLD - weak	AE-08-060	369	372	East SLD	0.10	0.010	0.11	0.10	9.2					3.1		2.9	
L11-162	SLD - weak	AM-07-003	15.84	18	East SLD	0.12	0.040	0.30	0.08	25					2.5		10.0	
L11-175	SLD - weak	AM-07-005	153	156	PICR	0.29	0.020	0.58	0.27	48					8.4		5.7	
L10-187	SLD - weak	AM-07-005	98	101	PICR	0.33	0.010		0.33	51	8.7	0.61	0.19	0.13	10	138	4.9	13
L11-176	SLD - weak	AM-07-006	74.45	76.45	PICR	0.050	0.010	0.89	0.05	74					1.6		47	
L11-174	SLD - weak	AM-07-005	47	50	East SLD	0.15	0.010	1.0	0.15	84					4.7		18	
L11-169	SLD - weak	AM-07-004	8	11	East SLD	0.58	0.010	0.51	0.58	42					18		2.3	
L11-170	SLD - weak	AM-07-004	50	53	East SLD	0.18	0.010	0.21	0.18	17					5.6		3.1	
L11-201	SLD - weak	AM-07-008	51	54	East SLD	0.21	0.010	0.28	0.21	23					6.6		3.6	
L10-186	SLD - weak	AM-07-004	148	151	East SLD	0.14	0.010		0.14	22	9.0	0.26	0.14	0.010	4.4	100	5.0	23
L11-295	SLD - weak	AM-10-067	393	396	East SLD	1.1	0.010	0.11	1.12	9.2					35		0.26	
L11-168	SLD - weak	AM-07-003	339	342	East SLD	1.6	0.020	0.53	1.59	44					50		0.89	
L11-171	SLD - weak	AM-07-004	199	202	East SLD	1.0	0.020	0.96	1.01	80					32		2.5	
L11-178	SLD - weak	AM-07-007	6	9	East SLD	0.47	0.010	0.35	0.47	29					15		2.0	
L11-179	SLD - weak	AM-07-007	18	21	East SLD	0.32	0.010	0.21	0.32	17					10		1.7	
L11-180	SLD - weak	AM-07-007	30	33	East SLD	0.18	0.010	0.17	0.18	14					5.6		2.5	
L10-176	SLD - weak	AM-07-003	378	381	East MAFV	0.84	0.020		0.82	25	8.5	0.30	0.76	0.060	26	99	0.98	3.8
L11-181	SLD - weak	AM-07-007	42	45	East SLD	0.10	0.010	0.38	0.10	32					3.1		10	
L11-182	SLD - weak	AM-07-007	54	57	East SLD	0.020	0.010	0.24	0.02	20					0.63		32	
L11-242	SLD - weak	AM-09-033	217	220	East SLD	2.2	0.010	0.21	2.20	17					69		0.25	
L11-172	SLD - weak	AM-07-004	250	253	East SLD	0.26	0.010	0.17	0.26	14					8.1		1.7	
L11-183	SLD - weak	AM-07-007	66	69	East SLD	0.10	0.010	0.35	0.10	29					3.1		9.3	
L11-184	SLD - weak	AM-07-007	78	81	East SLD	0.090	0.010	0.57	0.09	47					2.8		17	
L11-185	SLD - weak	AM-07-007	90	93	East SLD	0.66	0.020	0.30	0.64	25					20		1.2	
L11-186	SLD - weak	AM-07-007	102	105	East SLD	0.23	0.010	0.45	0.23	37					7.2		5.2	
L11-187	SLD - weak	AM-07-007	114	117	East SLD	0.080	0.010	0.31	0.08	26					2.5		10	
L11-188	SLD - weak	AM-07-007	126	129	East SLD	0.23	0.010	0.97	0.23	81					7.2		11	
L11-190	SLD - weak	AM-07-007	150	153	East SLD	0.080	0.010	0.33	0.08	27					2.5		11	
L11-192	SLD - weak	AM-07-007	174	177	East SLD	0.26	0.010	0.30	0.26	25					8.1		3.1	
L11-193	SLD - weak	AM-07-007	186	189	East SLD	0.14	0.010	0.21	0.14	17					4.4		4.0	
L11-194	SLD - weak	AM-07-007	198	201	East SLD	0.070	0.010	0.52	0.07	43					2.2		20	
L11-195	SLD - weak	AM-07-007	210	213	East SLD	0.47	0.010	0.35	0.47	29					15		2.0	
L11-234	SLD - weak	AM-09-030	12.5	15.5	East SLD	0.090	0.010	0.40	0.09	33					2.8		12	
L11-237	SLD - weak	AM-09-030	173	176	East SLD	0.62	0.010	1.0	0.62	87					19		4.5	
L11-258	SLD - weak	AM-10-045	76.65	78.33	East SLD	0.070	0.010	0.29	0.07	24					2.2		11	
L11-257	SLD - weak	AM-10-045	48	51	East SLD	0.24	0.010	0.25	0.24	21					7.5		2.8	
L11-269	SLD - weak	AM-10-049	10	13	East SLD	0.13	0.010	0.34	0.13	28					4.1		7.0	
L11-271	SLD - weak	AM-10-051	72	75	East SLD	0.31	0.010	0.42	0.31	35					9.7		3.6	
L10-195	SLD - weak	AM-10-051	24	27	East SLD	0.030	0.010		0.03	32	8.9	0.38	0.010	0.030	0.94	109	34	116
L11-218	SLD - weak	AM-08-014	341	344	East SLD	0.16	0.010	0.40	0.16	33					5.0		6.7	
L11-302	SLD - weak	AM-10-070	57	60	PICR	1.5	0.010	0.21	1.46	17					46		0.38	
L11-286	SLD - weak	AM-10-065	97	99.56	PICR	0.36	0.010	0.30	0.36	25					11		2.2	
L11-283	SLD - weak	AM-10-064	48	51	PICR	1.3	0.050	2.0	1.29	168					40		4.2	
SLD - weak																		
n						136	136	110	136	136	32	32	32	32	136	32	136	32
Min						0.010	0.010	0.050	0.010	4.167	7.800	0.050	0.010	0.010	0.313	23.500	0.170	0.808
10^{th} PCTL						0.055	0.010	0.119	0.020	9.583	8.000	0.092	0.011	0.010	0.625	44.670	0.586	1.620
Median						0.265	0.010	0.300	0.220	25.000	8.700	0.295	0.120	0.020	6.875	96.650	3.806	13.457
90^{th} PCTL						1.120	0.385	0.713	1.020	56.250	9.000	0.637	0.832	0.255	31.875	148.030	35.111	95.280
Max						2.680	1.390	2.020	2.660	168.333	9.600	1.060	2.450	0.930	83.125	181.300	237.333	477.120

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-400	SLPH	AN-08-061	297	300	East SLD	2.5	1.5	1.5	1.00	124					31		4.0	
L11-380	SLPH	AN-08-047	220	223	PICR	2.1	0.020	0.38	2.03	32					63		0.50	
L10-126	SLPH	AN-08-049	201	204	East SLD	1.5	0.030		1.42	36	8.7	0.43	1.5	0.010	44	192	0.81	4.3
L11-238	SLPH	AM-09-031	18.5	20.55	OVBN	0.090	0.010	0.66	0.09	55					2.8		20	
SLPH																		
n						4	4	3	4	4	1	1	1	1	4	1	4	1
Min						0.090	0.010	0.380	0.090	31.667	8.700	0.430	1.500	0.010	2.813	191.900	0.499	4.325
10th PCTL						0.498	0.013	0.436	0.363	32.917	8.700	0.430	1.500	0.010	11.344	191.900	0.592	4.325
Median						1.750	0.025	0.660	1.210	45.417	8.700	0.430	1.500	0.010	37.813	191.900	2.390	4.325
90th PCTL						2.351	1.045	1.324	1.847	103.417	8.700	0.430	1.500	0.010	57.719	191.900	14.881	4.325
Max						2.480	1.480	1.490	2.030	124.167	8.700	0.430	1.500	0.010	63.438	191.900	19.556	4.325
L11-573	SVHYB	AW-10-112	147	150	IMH	0.030	0.010	0.29	0.03	24					0.94		26	
L11-493	SVHYB	AW-07-069	151	154	West SVHYB	0.010	0.010	0.46	0.01	38					0.31		123	
L10-061	SVHYB	AW-07-069	272	275	West SLD	0.91	0.88		0.03	12	8.1	0.15	0.030	0.010	0.94	44	13	47
L11-121	SVHYB	AE-10-083	250	253	East SVHYB	0.050	0.010	0.83	0.05	69					1.6		44	
L-AE-007-2	SVHYB	AE-06-007	227	230	East SLD	0.12	0.010		0.12	63	9.3	0.76	0.040	0.080	3.8	75	17	20
L11-356	SVHYB	AN-08-023	199	201	East SLD	0.47	0.010	0.16	0.47	13					15		0.91	
7R48465	SVHYB	AE-07-035	330	333	East SVHYB	0.031	0.010		0.03	100	8.5	1.2	0.010	0.031	0.97	193	103	200
L10-157	SVHYB	AE-08-062	117	120	East SLD	0.090	0.010		0.09	164	8.7	2.0	0.080	0.010	2.8	241	58	86
L11-276	SVHYB	AM-10-053	9	12	East SLD	0.33	0.010	0.85	0.33	71					10		6.9	
SVHYB																		
n						9	9	5	9	9	4	4	4	4	9	4	9	4
Min						0.010	0.010	0.160	0.010	12.500	8.100	0.150	0.010	0.010	0.313	43.900	0.908	19.947
10th PCTL						0.026	0.010	0.212	0.026	13.167	8.211	0.333	0.016	0.010	0.813	53.170	5.677	28.011
Median						0.090	0.010	0.460	0.050	63.333	8.585	0.980	0.035	0.021	1.563	134.104	25.778	66.311
90th PCTL						0.558	0.184	0.842	0.358	112.833	9.120	1.739	0.068	0.065	11.188	226.932	107.114	165.492
Max						0.910	0.880	0.850	0.470	164.167	9.300	1.970	0.080	0.080	14.688	241.300	122.667	199.647

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
			m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L10-203	Unmin. Dyke	AW-10-118	112	115	IMH	0.030	0.010		0.03	67	8.7	0.81	0.010	0.030	0.94	147	72	157
L11-593	Unmin. Dyke	AW-10-122	249	252	East SLD	0.030	0.010	0.95	0.03	79					0.94		84	
10E28866	Unmin. Dyke	AW-11-126	128	131	IMH	0.010	0.010	0.31	0.01	26					0.31		83	
L10-080	Unmin. Dyke	AN-08-029	370	373	East SLD	0.020	0.020		0.01	40	8.8	0.48	0.010	0.010	0.31	105	128	334
L11-378	Unmin. Dyke	AN-08-043	323	325.95	PICR	0.53	0.16	0.44	0.37	37					12		3.2	
10E28848	Unmin. Dyke	AW-11-126	19	22	IMH	0.010	0.010	0.39	0.01	32					0.31		104	
L10-104	Unmin. Dyke	AN-08-069	117	120	East SLD	0.040	0.020		0.02	71	8.7	0.85	0.010	0.020	0.63	149	113	238
L11-398	Unmin. Dyke	AN-08-060	179	182	East SLD	0.040	0.010	0.50	0.04	42					1.3		33	
L11-403	Unmin. Dyke	AN-08-062	269	271.14	East SLD	0.020	0.010	0.73	0.02	61					0.63		97	
L11-127	Unmin. Dyke	AE-10-087	147	150	IMH	0.020	0.010	0.37	0.02	31					0.63		49	
L11-406	Unmin. Dyke	AN-08-064	99	102	East SLD	0.050	0.030	0.20	0.02	17					0.63		27	
L11-070	Unmin. Dyke	AE-08-048	286	289	East SLD	0.060	0.020	0.47	0.04	39					1.3		31	
L11-394	Unmin. Dyke	AN-08-057	97	100	East SLD	0.17	0.010	0.68	0.17	57					5.3		11	
L11-065	Unmin. Dyke	AE-08-047	51	54	IMH	0.010	0.010	0.24	0.01	20					0.31		64	
L11-129	Unmin. Dyke	AE-10-089	133	136	IMH	0.010	0.010	0.41	0.01	34					0.31		109	
L11-360	Unmin. Dyke	AN-08-025	272.83	275.83	East SLD	0.20	0.070	0.31	0.13	26					4.1		6.4	
L11-059	Unmin. Dyke	AE-07-043	101	104	East SLD	0.030	0.010	0.97	0.03	81					0.94		86	
L-AE-002-3	Unmin. Dyke	AE-06-002	362	365	East SLD	0.32	0.29		0.03	14	8.5	0.17	0.010	0.030	0.94	28	15	30
L11-062	Unmin. Dyke	AE-07-044	89	92	East SLD	0.020	0.010	0.48	0.02	40					0.63		64	
L11-106	Unmin. Dyke	AE-10-074	116	117.96	East SLD	0.050	0.020	0.55	0.03	46					0.94		49	
L11-104	Unmin. Dyke	AE-10-070	98	100	East SLD	0.020	0.020	0.74	0.01	62					0.31		197.3332544	
L11-333	Unmin. Dyke	AN-07-010	150	153	East SLD	0.63	0.010	0.22	0.63	18					20		0.93	
L11-332	Unmin. Dyke	AN-07-010	81	84	East SLD	0.060	0.010	1.5	0.06	124					1.9		66	
L10-124	Unmin. Dyke	AE-07-036	286	289	IMH	0.010	0.010		0.01	27	9.0	0.32	0.010	0.010	0.31	108	85	346
L10-150	Unmin. Dyke	AN-07-006	249	252	East SLD	0.060	0.010		0.06	52	8.9	0.63	0.020	0.040	1.9	97	28	52
L11-204	Unmin. Dyke	AM-08-009	126	129	East SLD	0.040	0.010	0.16	0.04	13					1.3		11	
L11-039	Unmin. Dyke	AE-07-032	47.85	50.9	East SLD	0.020	0.010	0.42	0.02	35					0.63		56	
L10-152	Unmin. Dyke	AN-07-006	516	519	PICR	0.98	0.69		0.29	108	8.1	1.3	0.28	0.010	9.1	150	12	17
L11-109	Unmin. Dyke	AE-10-076	328	331	East SLD	0.10	0.070	0.50	0.03	42					0.94		44	
L11-102	Unmin. Dyke	AE-10-067	126	129.1	East SLD	0.010	0.010	0.62	0.01	52					0.31		165	
L10-185	Unmin. Dyke	AM-07-004	94	97	East SLD	1.9	0.030		1.89	91	8.7	1.1	1.6	0.28	59	132	1.5	2.2
L11-250	Unmin. Dyke	AM-10-041	185	188	East SLD	0.010	0.010	0.34	0.01	28					0.31		91	
L11-248	Unmin. Dyke	AM-10-041	9.3	14	East SLD	0.010	0.010	0.91	0.01	76					0.31		243	
Unmin. Dyke																		
n						33	33	25	33	33	8	8	8	8	33	8	33	8
Min						0.010	0.010	0.160	0.010	13.333	8.100	0.170	0.010	0.010	0.313	28.200	0.931	2.238
10th PCTL						0.010	0.010	0.228	0.010	18.667	8.380	0.275	0.010	0.010	0.313	76.570	7.221	12.227
Median						0.030	0.010	0.470	0.030	40.000	8.700	0.720	0.010	0.025	0.938	120.150	64.000	104.240
90th PCTL						0.488	0.070	0.934	0.266	80.500	8.930	1.153	0.679	0.112	8.313	148.900	125.067	337.856
Max						1.920	0.690	1.490	1.890	124.167	9.000	1.300	1.610	0.280	59.063	149.600	242.667	345.920
All Mine																		2
n						856	856	613	856	856	286	286	286	286	856	286	856	286
Min						0.010	0.010	0.010	0.005	0.833	7.700	0.010	0.010	-0.010	0.156	21.300	0.037	0.296
10th PCTL						0.010	0.010	0.090	0.010	5.000	8.100	0.040	0.010	0.010	0.313	40.500	0.814	3.855
Median						0.060	0.010	0.320	0.050	25.833	8.685	0.285	0.020	0.020	1.563	87.100	15.700	57.920
90th PCTL						0.790	0.070	1.138	0.625	92.500	9.100	1.090	0.500	0.090	19.531	204.509	145.333	351.040
Max						5.020	2.740	5.590	5.000	465.833	10.170	4.680	4.940	0.930	156.250	419.000	1128.000	1207.040

APPENDIX C-1.2 ABA RESULTS - ORE BY GRADE

Lorax Sample	Drill Hole	From	To	Ore Grade	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
		m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-555	AW-10-105	243	246	low	0.14	0.010	1.1	0.14	87					4.4		20	
L-AW-025-3	AW-06-025	618	621	low	0.45	0.090		0.36	62	8.5	0.75	0.20	0.16	11	82	5.6	7.2
L11-488	AW-07-060	240	243	low	0.42	0.14	1.3	0.28	104					8.8		12	
L11-461	AW-06-039	342	345	low	0.16	0.010	0.86	0.16	72					5.0		14	
L10-027	AW-06-006	281	284	low	1.2	1.1		0.14	84	8.0	1.0	0.040	0.10	4.4	145	19	33
L-AW-004-4	AW-05-004	234	237	low	1.0	0.020		0.98	50	8.5	0.60	0.75	0.23	31	72	1.6	2.3
L-AW-004-5	AW-05-004	270	273	low	0.23	0.050		0.18	24	8.2	0.29	0.050	0.13	5.6	60	4.3	11
L-AW-003-3	AW-05-003	159	162	low	0.50	0.010		0.50	55	9.0	0.66	0.30	0.20	16	61	3.5	3.9
L10-025	AW-06-033	219	222	low	0.36	0.050		0.31	23	8.4	0.28	0.16	0.15	9.7	48	2.4	5.0
L10-040	AW-08-090	89.26	92	low	0.23	0.010		0.23	31	8.4	0.37	0.12	0.11	7.2	250	4.3	35
L11-500	AW-07-073	311	314	low	0.48	0.22	0.30	0.26	25					8.1		3.1	
L-AW-012-3	AW-06-012	256	259	low	0.10	0.010		0.10	170	9.0	2.0	0.030	0.070	3.1	224	54	72
L11-430	AW-06-013	498	501	low	0.49	0.10	1.7	0.39	143					12		12	
L11-485	AW-07-058	398	401	low	1.8	1.4	0.93	0.39	77					12		6.4	
L11-514	AW-08-080	514	517	low	1.2	0.87	0.79	0.28	66					8.8		7.5	
L10-039	AW-07-068	150	153	low	0.15	0.010		0.15	45	8.7	0.54	0.020	0.13	4.7	77	9.6	16
L11-572	AW-10-112	99	102	low	0.21	0.010	0.62	0.21	52					6.6		7.9	
L11-564	AW-10-107	398	401	low	1.9	1.8	0.090	0.04	7.5					1.3		6.0	
L11-494	AW-07-070	138	141	low	0.16	0.010	1.2	0.16	101					5.0		20	
L11-558	AW-10-107	48	51	low	0.16	0.010	0.78	0.16	65					5.0		13	
L10-076	AW-07-049	89	92	low	0.44	0.010		0.44	11	8.8	0.13	0.33	0.11	14	65	0.79	4.7
L11-538	AW-08-097	277	280	low	0.84	0.80	0.21	0.04	17					1.3		14	
L11-537	AW-08-097	198	201	low	0.11	0.010	0.16	0.11	13					3.4		3.9	
L11-532	AW-08-092	95	98	low	0.11	0.010	0.52	0.11	43					3.4		13	
L11-370	AN-08-037	373.99	377	low	1.7	0.82	0.83	0.90	69					28		2.5	
L10-075	AW-07-047	245	248	low	0.77	0.020		0.75	50	8.5	0.60	0.61	0.14	23	134	2.1	5.7
L10-070	AN-07-003	59	62	low	0.28	0.010		0.28	74	8.3	0.89	0.16	0.11	8.8	321	8.5	37
L11-399	AN-08-060	250	253	low	0.21	0.090	2.0	0.12	170					3.8		45	
L11-116	AE-10-081	453	456	low	1.0	0.88	0.26	0.15	22					4.7		4.6	
L10-112	AN-08-060	126	129	low	0.39	0.020		0.37	12	9.0	0.14	0.28	0.090	12	106	1.0	9.1
L11-141	AE-10-091	250	253	low	1.0	0.020	1.1	1.02	91					32		2.8	
L10-117	AN-08-068	209	212	low	0.49	0.010		0.49	41	8.5	0.49	0.38	0.10	15	126	2.7	8.2
L11-405	AN-08-063	300	303	low	0.84	0.54	1.4	0.30	120					9.4		13	
L11-384	AN-08-051	178	181	low	0.98	0.010	0.57	0.98	47					31		1.6	
L11-404	AN-08-063	250	252.3	low	1.0	0.73	0.51	0.27	42					8.4		5.0	
L11-381	AN-08-048	299.17	301.2	low	0.11	0.010	1.2	0.11	96					3.4		28	
L10-122	AN-08-044	287.95	291	low	2.1	0.90		1.19	27	7.9	0.33	1.1	0.050	37	155	0.74	4.2
SL-01	AN-08-034	8	11	low	0.58	0.020	0.39	0.56	32	8.2	0.38	0.40	0.16	18	58	1.8	3.3
L11-386	AN-08-052	222	225	low	0.34	0.010	0.61	0.34	51					11		4.8	
SL-08	AN-08-034	50	53	low	0.38	0.020	0.90	0.36	74	8.2	0.89	0.16	0.20	11	76	6.6	6.8
L-AE-004-2	AE-06-004	139	142	low	1.2	0.010		1.15	10.0	8.8	0.12	0.60	0.55	36	31	0.28	0.87
AME1274	AE-10-092	278	281	low	0.030	0.010		0.03	115	8.5	1.4	0.020	0.010	0.94	176	123	188
SL-16	AN-08-034	98	101	low	0.20	0.010	0.62	0.20	52	8.4	0.62	0.060	0.14	6.3	101	8.3	16
SL-17	AN-08-034	104	107	low	0.23	0.010	0.51	0.23	41	8.5	0.49	0.040	0.19	7.2	97	5.7	13
SL-18	AN-08-034	110	113	low	0.24	0.010	0.95	0.24	79	8.4	0.95	0.030	0.21	7.5	156	11	21
SL-20	AN-08-034	122	125	low	0.14	0.010	1.1	0.14	91	8.5	1.1	0.010	0.13	4.4	153	21	35
SL-22	AN-08-034	146.6	149	low	0.18	0.010	1.3	0.18	107	8.7	1.3	0.060	0.12	5.6	166	19	30
L10-115	AN-08-055	351	354	low	1.1	0.76		0.38	11	8.1	0.13	0.37	0.010	12	44	0.91	3.7
L10-109	AN-08-053	303	306	low	0.25	0.030		0.22	49	8.5	0.59	0.090	0.13	6.9	142	7.2	21
L10-113	AE-08-045	201	204	low	0.14	0.010		0.14	56	8.4	0.67	0.020	0.12	4.4	135	13	31
SL-38	AN-08-034	267	270	low	0.24	0.020	0.59	0.22	49	8.6	0.59	0.10	0.12	6.9	127	7.2	19
SL-47	AN-08-034	321	324	low	0.66	0.12	2.5	0.54	202	8.0	2.4	0.36	0.18	17	212	12	13
L-AE-002-1	AE-06-002	176	179	low	0.60	0.010		0.60	27	8.6	0.32	0.40	0.20	19	42	1.4	2.2

Lorax Sample	Drill Hole	From	To	Ore Grade	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
		m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L10-120	AE-07-042	122	125	low	0.12	0.010		0.12	70	8.9	0.84	0.020	0.10	3.8	146	19	39
L11-154	AE-10-099	24	27	low	0.29	0.010	0.67	0.29	56					9.1		6.2	
SL-51	AN-08-034	366	369	low	0.65	0.44	0.41	0.21	33	8.1	0.40	0.030	0.18	6.6	54	5.1	8.2
L10-207	AN-10-075	65	68	low	0.15	0.010		0.15	30	8.8	0.36	0.040	0.11	4.7	110	6.4	23
SL-55	AN-08-034	390	393	low	0.70	0.61	0.95	0.09	77	7.9	0.93	0.17	0.020	2.8	145	28	52
SL-58	AN-08-034	408	411	low	0.96	0.19	0.19	0.77	15	8.1	0.18	0.60	0.17	24	43	0.62	1.8
L-AE-002-2	AE-06-002	311	314	low	1.3	0.60		0.70	7.5	8.4	0.090	0.35	0.35	22	23	0.34	1.1
L10-131	AN-08-025	353.5	356.5	low	4.6	4.3		0.33	21	8.0	0.25	0.11	0.010	10	37	2.0	3.6
L-AE-007-3	AE-06-007	290	293	low	0.15	0.020		0.13	89	8.7	1.1	0.040	0.090	4.1	88	22	22
SL-65	AN-08-034	450	453	low	0.59	0.50	1.1	0.09	92	7.6	1.1	0.030	0.060	2.8	141	33	50
SL-67	AN-08-034	462	465	low	0.63	0.54	0.27	0.09	22	7.7	0.26	0.050	0.040	2.8	84	7.7	30
SL-68	AN-08-034	468	471	low	0.93	0.79	0.48	0.14	40	7.7	0.48	0.10	0.040	4.4	104	9.1	24
L11-063	AE-07-044	372	375	low	1.3	0.29	0.16	0.97	13					30		0.44	
L11-003	AE-06-007	485	488	low	0.97	1.0	0.87	0.01	72					0.3		232	
L11-354	AN-08-023	99	102	low	1.3	0.020	0.33	1.29	27					40		0.68	
L10-128	AE-07-024	280	283	low	0.88	0.68		0.20	40	8.1	0.48	0.090	0.11	6.3	100	6.4	16
7R92488	AN-07-013	91.5	94	low	2.8	0.030		2.73	39	8.3	0.47	2.3	0.44	85	118	0.46	1.4
L-AE-013-2	AE-06-013	210	213	low	0.20	0.010		0.20	51	8.8	0.61	0.050	0.15	6.3	69	8.1	11
L10-169	AM-08-010	115	118	low	0.22	0.030		0.19	61	8.5	0.73	0.070	0.12	5.9	136	10	23
L11-017	AE-06-012	138	141	low	0.030	0.010	1.5	0.03	125					0.94		133	
L11-015	AE-06-011	471	474	low	0.37	0.29	0.43	0.08	36					2.5		14	
L11-038	AE-07-030	483	486	low	1.5	0.57	0.51	0.95	42					30		1.4	
10E15293	AE-10-068	304	307	low	1.2	0.54		0.65	0.83	8.3	0.010	0.47	0.18	20	30	0.041	1.5
L11-083	AE-08-055	349	352	low	0.21	0.030	3.8	0.18	314					5.6		56	
L11-115	AE-10-080	499	502	low	0.87	0.76	0.17	0.11	14					3.4		4.1	
10E15121	AE-10-067	266.75	269.75	low	0.18	0.010		0.18	3.3	8.7	0.040	0.090	0.091	5.7	37	0.59	6.5
10E15461	AM-10-079	241	244	low	0.14	0.010		0.14	7.5	8.8	0.090	0.060	0.080	4.4	282	1.7	64
Z114086	AM-09-024	267.5	270.5	low	0.33	0.010		0.33	5.0	8.9	0.060	0.20	0.13	10	34	0.49	3.3
Z113697	AM-09-018	204.5	207.5	low	0.54	0.010		0.54	3.3	9.0	0.040	0.39	0.15	17	333	0.20	20
L11-255	AM-10-044	162	166.72	low	0.72	0.010	0.66	0.72	55					23		2.4	
L11-240	AM-09-033	42	45	low	0.65	0.010	0.47	0.65	39					20		1.9	
L11-319	AM-10-077	175	178	low	0.17	0.010	0.32	0.17	27					5.3		5.0	
L10-184	AM-10-041	125	128	low	0.54	0.010		0.54	17	8.8	0.20	0.47	0.060	17	52	0.99	3.1
L11-249	AM-10-041	74	77	low	1.8	0.020	0.53	1.79	44					56		0.79	
L11-189	AM-07-007	138	141	low	1.5	0.030	1.2	1.44	102					45		2.3	
L11-253	AM-10-043	7	10	low	0.22	0.010	0.62	0.22	52					6.9		7.5	
L11-256	AM-10-045	21	24	low	1.5	0.010	0.58	1.46	48					46		1.1	
Z115161	AM-09-021	72	75	low	1.8	0.010		1.81	25	8.5	0.30	1.2	1.8	57	404	0.44	7.1
Z113530	AM-08-016	212	215	low	0.27	0.010		0.27	12	8.7	0.15	0.090	0.18	8.6	91	1.5	11
L11-274	AM-10-052	99	102	low	0.50	0.030	0.25	0.47	21					15		1.4	
L11-277	AM-10-053	48	51	low	0.20	0.010	0.72	0.20	60					6.3		9.6	
Low-grade ore																	
n					94	94	56	94	94	53	53	53	53	94	53	94	53
Min					0.030	0.010	0.090	0.010	0.833	7.600	0.010	0.010	0.010	0.313	23.200	0.041	0.865
10^{th} PCTL					0.140	0.010	0.230	0.103	11.083	8.000	0.096	0.030	0.042	3.219	37.920	0.641	2.244
Median					0.485	0.020	0.620	0.250	47.917	8.500	0.480	0.110	0.128	7.813	101.100	5.618	11.008
90^{th} PCTL					1.467	0.797	1.375	0.980	103.667	8.888	1.086	0.600	0.208	30.625	221.740	21.593	38.375
Max					4.630	4.300	3.770	2.730	314.167	9.020	2.420	2.290	1.810	85.313	403.607	232.000	188.000

Lorax Sample	Drill Hole	From	To	Ore Grade	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
		m	*m*		%	%	%	%	*kg* $CaCO_3/t$		%	%	%	*kg* $CaCO_3/t$	*kg* $CaCO_3/t$		
L10-016	AW-07-066	176	179	medium	0.37	0.050		0.32	37	8.5	0.44	0.080	0.24	10	103	3.7	10
L11-489	AW-07-062	198	201	medium	0.57	0.020	0.97	0.55	81					17		4.7	
L-AW-020-4	AW-06-020	352	355	medium	1.1	0.18		0.93	12	8.7	0.15	0.58	0.35	29	49	0.43	1.7
L10-028	AW-06-006	446	449	medium	0.87	0.080		0.79	22	8.1	0.26	0.57	0.22	25	52	0.88	2.1
L11-568	AW-10-109	24	27	medium	0.19	0.010	1.3	0.19	104					5.9		18	
L11-565	AW-10-107	445	448	medium	0.90	0.17	0.27	0.73	22					23		0.99	
L11-563	AW-10-107	344	347	medium	1.2	1.0	0.52	0.18	43					5.6		7.7	
L11-562	AW-10-107	294	297	medium	0.70	0.46	4.0	0.24	332					7.5		44	
L10-065	AW-08-098	180	183	medium	0.17	0.010		0.17	88	8.1	1.1	0.010	0.17	5.3	140	17	26
L10-121	AN-08-044	100	103	medium	0.64	0.020		0.62	33	8.4	0.40	0.41	0.21	19	79	1.7	4.1
SL-06	AN-08-034	38	41	medium	0.60	0.020	0.67	0.58	56	8.2	0.67	0.34	0.24	18	96	3.1	5.3
SL-15	AN-08-034	92	95	medium	0.39	0.010	0.43	0.39	35	8.3	0.42	0.080	0.30	12	55	2.9	4.5
L10-137	AN-07-014	101	104	medium	1.1	0.010		1.13	89	8.4	1.1	1.1	0.070	35	171	2.5	4.9
SL-59	AN-08-034	414	417	medium	2.6	1.0	0.35	1.59	28	7.9	0.34	1.5	0.13	50	56	0.57	1.1
SL-61	AN-08-034	426	429	medium	0.51	0.28	0.52	0.23	42	8.0	0.51	0.050	0.18	7.2	65	5.9	9.0
SL-63	AN-08-034	438	441	medium	2.3	2.1	1.1	0.17	86	7.6	1.0	0.080	0.090	5.3	151	16	28
SL-64	AN-08-034	444	447	medium	0.87	0.60	0.64	0.27	52	7.6	0.62	0.090	0.18	8.4	123	6.1	15
L11-086	AE-08-059	324	327	medium	1.1	0.73	0.64	0.34	53					11		5.0	
7R10389	AE-07-025	570	573	medium	0.25	0.030		0.22	20	8.4	0.24	0.010	0.22	6.9	52	2.9	7.5
L11-278	AM-10-054	178	181	medium	0.85	0.010	0.58	0.85	48					27		1.8	
L11-110	AE-10-076	424	427	medium	1.7	1.7	0.64	0.05	53					1.6		34	
10E15171	AE-10-067	395	398	medium	0.35	0.010		0.35	5.0	8.6	0.060	0.20	0.15	11	43	0.45	3.8
L11-233	AM-09-028	280.5	283.5	medium	0.43	0.010	0.97	0.43	81					13		6.0	
L10-171	AM-10-038	101	104	medium	0.29	0.020		0.27	8.3	8.8	0.10	0.060	0.21	8.4	38	0.99	4.5
7R146631	AM-10-061	198	201	medium	0.19	0.010		0.19	40	8.8	0.48	0.060	0.13	5.9	90	6.7	15
L11-254	AM-10-044	48	51	medium	0.38	0.010	1.3	0.38	108					12		9.1	
L10-177	AM-07-003	480	483	medium	1.9	0.15		1.70	69	7.9	0.83	1.4	0.30	53	122	1.3	2.3
L11-270	AM-10-049	73	76	medium	0.31	0.010	0.71	0.31	59					9.7		6.1	
Medium-grade ore																	
n					28	28	17	28	28	17	17	17	17	28	17	28	17
Min					0.170	0.010	0.270	0.050	5.000	7.600	0.060	0.010	0.070	1.563	38.100	0.430	1.125
10^{th} PCTL					0.232	0.010	0.398	0.177	17.750	7.780	0.130	0.034	0.114	5.531	46.297	0.785	1.935
Median					0.620	0.025	0.640	0.347	50.000	8.300	0.440	0.090	0.210	10.844	79.400	4.185	4.851
90^{th} PCTL					1.759	1.023	1.270	0.990	93.667	8.740	1.042	1.190	0.300	30.938	144.420	16.902	19.663
Max					2.620	2.110	3.990	1.700	332.500	8.820	1.070	1.460	0.350	53.125	171.300	44.333	28.461

Lorax Sample	Drill Hole	From	To	Ore Grade	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
		m	*m*		*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*		*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-515	AW-08-082	180	182.34	high	0.88	0.040	0.51	0.84	42					26		1.6	
L11-523	AW-08-086	166	169	high	1.4	0.020	1.2	1.40	97					44		2.2	
L11-492	AW-07-066	232	235	high	3.6	2.9	1.4	0.68	112					21		5.3	
L11-426	AW-06-007	51	54	high	0.48	0.010	0.31	0.48	26					15		1.7	
L11-457	AW-06-034	292	295	high	2.0	1.3	1.1	0.64	92					20		4.6	
L11-440	AW-06-020	403	406	high	0.60	0.13	2.3	0.47	195					15		13	
L11-581	AW-10-115	63.09	66	high	1.5	0.10	0.39	1.38	32					43		0.75	
L11-423	AW-05-002	446	449	high	1.5	0.32	2.8	1.20	237					38		6.3	
L11-449	AW-06-027	174	177	high	0.24	0.010	0.79	0.24	66					7.5		8.8	
L10-018	AW-06-027	114	117	high	0.19	0.010		0.19	57	8.4	0.68	0.010	0.19	5.9	170	9.5	29
L-AW-003-4	AW-05-003	345	348	high	4.8	3.9		0.99	37	8.5	0.45	0.36	0.63	31	57	1.2	1.8
L10-043	AW-06-009	150	153	high	0.74	0.030		0.71	27	8.3	0.32	0.32	0.39	22	91	1.2	4.1
L10-032	AW-06-030	429	432	high	1.3	0.51		0.81	20	9.6	0.24	0.23	0.58	25	50	0.79	2.0
L10-038	AW-07-068	108	111	high	0.32	0.010		0.32	67	8.7	0.80	0.080	0.24	10	153	6.7	15
L-AW-005-1	AW-05-005	296	299	high	2.2	0.97		1.18	124	8.3	1.5	0.42	0.76	37	165	3.4	4.5
L11-567	AW-10-108	412	415	high	1.5	0.070	0.40	1.38	33					43		0.77	
L-AW-015-3	AW-06-015	295	298	high	2.5	1.5		0.94	43	8.4	0.52	0.36	0.58	29	67	1.5	2.3
L10-047	AW-06-017	174	177	high	0.56	0.020		0.54	242	8.2	2.9	0.21	0.33	17	286	14	17
L10-048	AW-06-017	366	369	high	0.61	0.28		0.33	78	7.8	0.94	0.090	0.24	10	181	7.6	18
L10-084	AN-07-005	90	93	high	0.80	0.020		0.78	42	8.2	0.51	0.27	0.51	24	166	1.7	6.8
L11-122	AE-10-083	477	478.65	high	1.8	0.21	3.1	1.61	258					50		5.1	
L11-369	AN-08-036	238.51	241	high	0.61	0.23	0.28	0.38	23					12		2.0	
L10-087	AN-07-005	324	327	high	0.66	0.19		0.47	182	7.9	2.2	0.14	0.33	15	191	12	13
L11-140	AE-10-091	201	204	high	0.96	0.040	0.12	0.92	10.0					29		0.35	
L11-389	AN-08-054	245.97	249	high	0.42	0.020	0.76	0.40	63					13		5.1	
SL-03	AN-08-034	20	23	high	0.91	0.020	0.74	0.89	60	8.1	0.72	0.42	0.47	28	67	2.2	2.4
SL-07	AN-08-034	44	47	high	0.78	0.030	1.1	0.75	92	8.1	1.1	0.13	0.62	23	146	3.9	6.2
L-AE-004-1	AE-06-004	109	112	high	0.53	0.010		0.53	17	8.6	0.20	0.25	0.28	17	41	1.0	2.4
SL-11	AN-08-034	68	71	high	0.58	0.020	1.2	0.56	102	8.2	1.2	0.12	0.44	18	177	5.9	10
L11-145B duplicate	AE-10-092	181	184	high	0.68	0.020	0.19	0.66	16					21		0.77	
L-AE-004-3	AE-06-004	199	202	high	0.15	0.020		0.13	37	8.9	0.44	0.070	0.060	4.1	62	9.0	15
L11-133	AE-10-089	399	401.42	high	1.1	0.67	0.26	0.44	22					14		1.6	
L11-130	AE-10-089	248	251	high	0.57	0.030	0.22	0.54	18					17		1.1	
L-AE-003-4	AE-06-003	198	201	high	1.8	0.010		1.77	13	8.4	0.16	1.1	0.70	55	34	0.24	0.61
SL-41	AN-08-034	285	288	high	0.54	0.020	0.91	0.52	75	8.3	0.90	0.15	0.37	16	134	4.6	8.2
SL-46	AN-08-034	315	318	high	0.41	0.020	1.5	0.39	120	8.2	1.4	0.080	0.31	12	170	9.8	14
L10-129	AN-08-025	168.3	171.3	high	0.81	0.020		0.79	156	8.3	1.9	0.21	0.58	25	233	6.3	9.4
SL-50	AN-08-034	339	342	high	2.2	2.0	0.25	0.20	20	8.0	0.24	0.13	0.070	6.3	47	3.2	7.5
SL-52	AN-08-034	372	375	high	1.7	1.6	0.71	0.12	57	8.0	0.69	0.080	0.040	3.8	136	15	36
L10-208	AN-10-075	107	110	high	0.59	0.010		0.59	66	8.8	0.79	0.19	0.39	18	149	3.6	8.1
SL-53	AN-08-034	378	381	high	1.2	0.78	1.3	0.39	108	8.0	1.3	0.13	0.26	12	192	8.9	16
SL-54	AN-08-034	384	387	high	1.5	0.58	0.90	0.92	72	7.9	0.86	0.30	0.62	29	141	2.5	4.9
SL-62	AN-08-034	432	435	high	2.3	1.8	2.3	0.46	188	7.6	2.3	0.12	0.34	14	213	13	15
L11-336	AN-07-011	322	325	high	0.61	0.30	0.52	0.31	43					9.7		4.5	
SL-66	AN-08-034	456	459	high	1.1	0.63	0.64	0.42	53	7.6	0.64	0.20	0.22	13	114	4.1	8.7
SL-69	AN-08-034	474	477	high	1.8	0.53	0.26	1.25	18	7.7	0.22	0.40	0.85	39	48	0.47	1.2

Lorax Sample	Drill Hole	From	To	Ore Grade	Total S	Sulphate S	Total C	Non-SO_4 S	CaNP	Paste pH	TIC	Sulphide S	Insol. S	Non-SO_4 AP	Bulk NP	CaNPR	Bulk NPR
		m	*m*		%	%	%	%	*kg $CaCO_3$/t*		%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
L11-034	AE-07-027	549	552	high	0.41	0.14	0.31	0.27	26					8.4		3.1	
L11-341	AN-07-013	272	275	high	1.2	0.010	0.57	1.17	47					37		1.3	
L11-361	AN-08-027	80	82.68	high	1.3	0.020	1.9	1.30	159					41		3.9	
L10-139	AE-08-058	96	99	high	3.7	0.92		2.78	45	7.8	0.54	1.4	1.4	87	62	0.52	0.71
L11-105	AE-10-074	22.86	25	high	0.52	0.020	0.32	0.50	27					16		1.7	
L-AE-013-3	AE-06-013	255	258	high	0.55	0.010		0.55	128	8.6	1.5	0.25	0.30	17	162	7.5	9.4
L11-004	AE-06-008	298	301	high	0.35	0.010	1.5	0.35	122					11		11	
L10-135	AE-07-038	571	574	high	0.86	0.41		0.45	42	7.9	0.51	0.11	0.34	14	65	3.0	4.6
L11-047	AE-07-034	499	502	high	0.61	0.060	1.0	0.55	86					17		5.0	
L11-011	AE-06-010	463	466	high	0.93	0.19	0.20	0.74	17					23		0.72	
L11-054	AE-07-039	9	12	high	1.7	0.030	2.9	1.64	240					51		4.7	
7R104653	AE-08-054	190	193	high	1.0	0.010		1.01	9.2	8.5	0.11	0.28	0.73	32	56	0.29	1.8
L10-162	AM-08-012	299	302	high	0.40	0.040		0.36	32	8.1	0.38	0.12	0.24	11	97	2.8	8.6
L10-160	AE-08-054	267	270	high	1.1	0.010		1.13	52	8.4	0.63	0.50	0.62	35	242	1.5	6.9
10E15352	AE-10-068	458	461	high	1.2	0.63		0.56	112	7.9	1.4	0.090	0.47	18	236	6.4	14
L10-172	AM-09-026	267	270	high	0.44	0.020		0.42	63	8.4	0.76	0.030	0.39	13	147	4.8	11
L11-252	AM-10-042	97	100	high	4.9	0.12	1.3	4.79	107					150		0.71	
L11-215	AM-08-012	567	570	high	1.2	0.22	4.5	0.97	377					30		12	
L11-216	AM-08-012	606	609	high	2.5	2.2	0.77	0.36	64					11		5.7	
L11-316	AM-10-076	429	432	high	3.3	2.7	0.060	0.52	5.0					16		0.31	
L11-191	AM-07-007	162	165	high	1.1	0.030	0.77	1.04	64					33		2.0	
L11-272	AM-10-051	102	103.6	high	1.2	0.020	0.72	1.15	60					36		1.7	
L11-275	AM-10-052	159	162	high	0.42	0.030	1.2	0.39	96					12		7.9	
L11-300	AM-10-069	222	225	high	1.0	0.010	3.1	1.00	254					31		8.1	
High-grade ore																	
n					70	70	46	70	70	36	36	36	36	70	36	70	36
Min					0.150	0.010	0.060	0.120	5.000	7.600	0.110	0.010	0.040	3.750	33.800	0.241	0.611
10^{th} PCTL					0.410	0.010	0.235	0.319	18.167	7.800	0.230	0.080	0.205	9.969	49.200	0.720	1.803
Median					0.945	0.040	0.770	0.575	61.667	8.200	0.705	0.195	0.390	17.969	143.100	3.469	8.172
90^{th} PCTL					2.300	1.547	2.590	1.380	189.000	8.650	1.705	0.420	0.715	43.125	223.050	9.974	16.346
Max					4.910	3.850	4.530	4.790	377.500	9.600	2.910	1.380	1.400	149.688	286.100	15.333	36.133

APPENDIX C-1.3 METALS RESULTS - MINE ROCK BY LITHOLOGY

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
113642	IMH	AX06-09	173	175	IMH	0.030	2.3	4.0		70	119	0.10	0.020	2.8	3.8	0.030	30	89	0.51	58	7.8	8.7	0.20	0.21	0.010	0.24	0.020	1.5
113925	IMH	AX06-07	16	18	IMH	0.10	1.2	4.0		70	50	0.10	0.070	1.7	1.2	0.040	36	171	0.14	157	10	8.6	0.20	0.12	0.11	0.050	0.020	0.40
113977	IMH	AX06-07	106	108	IMH	0.060	2.6	4.0		60	77	0.10	0.020	2.8	2.8	0.010	28	31	0.29	76	7.2	8.3	0.20	0.22	0.030	0.13	0.030	1.1
113577	IMH	AX06-09	63	65	IMH	0.10	2.0	4.0		60	152	0.20	0.020	2.6	11	0.020	26	89	0.31	435	5.4	8.0	0.20	0.14	0.050	0.17	0.020	5.2
113613	IMH	AX06-09	121	123	IMH	0.030	1.1	3.0		40	21	0.20	0.020	4.1	11	0.010	8.4	78	0.31	111	2.2	4.1	0.10	0.17	0.010	0.11	0.020	4.5
L11-470	IMH	AW-07-046	224	227	IMH																							
L10-004	IMH	AW-07-046	251	254	IMH	0.10	3.1	4.0	5.6	20	66		0.10	3.6		0.10	25	10		167	5.2	8.0			0.050	0.12		2.0
L11-471	IMH	AW-07-046	305	308	West SVHYB																							
L11-554	IMH	AW-10-105	143	146	IMH																							
L11-553	IMH	AW-10-105	81	84	West SVHYB																							
L11-464	IMH	AW-07-043	182	185	IMH																							
L11-465	IMH	AW-07-043	221	224	IMH																							
L11-467	IMH	AW-07-045	250	253	IMH																							
L10-003	IMH	AW-07-043	266	269	IMH	0.10	1.7	2.1	0.70	20	66		0.10	1.8		0.10	32	81		32	8.3	8.0			0.010	0.13		1.0
L11-462	IMH	AW-06-040	184	187	West SVHYB																							
L10-006	IMH	AW-06-040	217	220	IMH	0.10	2.1	1.4	5.5	20	128		0.10	2.1		0.10	25	147		76	5.4	7.0			0.020	0.17		2.0
L10-008	IMH	AW-06-040	349	352	IMH	0.10	1.5	1.7	9.6	20	174		0.10	1.8		0.10	31	95		231	7.3	7.0			0.010	0.070		2.0
L10-013	IMH	AW-08-078	304	307	IMH	0.20	1.3	3.4	41	20	36		0.10	7.3		0.10	30	83		317	5.9	5.0			0.10	0.13		3.0
L11-506	IMH	AW-08-078	249	252	IMH																							
L10-011	IMH	AW-08-078	189	192	IMH	0.10	3.7	9.4	6.5	20	194		0.10	7.1		0.10	27	30		184	5.2	9.0			0.060	0.16		4.0
L11-444	IMH	AW-06-025	231	234	IMH																							
L11-505	IMH	AW-08-078	123	126	IMH																							
L-AW-025-2	IMH	AW-06-025	183	186	IMH	0.10	2.1	9.5	10	20	237		0.10	1.7		0.10	38	412		132	5.7	6.0			0.040	0.34		2.0
L10-010	IMH	AW-08-078	60	63	IMH	0.10	4.4	6.0	3.3	20	63		0.10	4.2		0.10	28	13		50	5.8	10			0.020	0.13		3.0
L11-557	IMH	AW-10-106	324	327	IMH																							
L11-443	IMH	AW-06-025	132	135	IMH																							
L11-578	IMH	AW-10-113	143	146	IMH																							
L10-196	IMH	AW-10-106	272	275	IMH	0.10	2.3	1.8	3.3	20	42		0.10	2.7		0.10	21	49		123	5.3	7.0			0.010	0.080		2.0
L11-504	IMH	AW-08-078	12	15	IMH																							
L11-503	IMH	AW-08-078	6	9	IMH																							
L10-197	IMH	AW-10-106	246	249	IMH	0.10	2.5	3.3	1.2	20	46		0.10	3.0		0.10	32	216		32	7.1	8.0			0.010	0.11		2.0
L-AW-025-1	IMH	AW-06-025	66	69	IMH	0.10	2.5	2.6	36	20	41		0.10	4.1		0.10	29	49		708	7.5	10			0.15	0.17		2.0
L11-450	IMH	AW-06-027	237	240	IMH																							
L10-198	IMH	AW-10-106	195	198	IMH	0.10	2.3	2.7	5.4	20	50		0.10	2.1		0.10	29	196		56	6.5	7.0			0.010	0.12		2.0
L10-023	IMH	AW-07-072	171	174	IMH	0.10	2.5	3.2	91	20	103		0.10	3.0		0.10	32	111		99	5.8	9.0			0.020	0.15		2.0
L11-448	IMH	AW-06-027	60	63	IMH																							
L11-556	IMH	AW-10-106	144	147	IMH																							
L11-447	IMH	AW-06-027	6	9	IMH																							
L10-199	IMH	AW-10-106	95	98	IMH	0.10	2.0	2.4	2.3	20	58		0.10	2.7		0.10	21	52		74	4.9	7.0			1.1	0.090		2.0
L11-495	IMH	AW-07-072	99	102	IMH																							
L10-200	IMH	AW-10-106	45	48	IMH	0.10	2.1	2.8	164	20	30		0.10	2.5		0.10	20	43		280	5.7	7.0			0.020	0.11		2.0
L10-021	IMH	AW-07-073	230	233	IMH	0.10	2.6	1.2	1.6	20	245		0.10	1.3		0.10	44	111		7.7	13	14			0.010	1.1		1.0
L11-499	IMH	AW-07-073	263	266	IMH																							
L11-498	IMH	AW-07-073	187	190	IMH																							
L11-496	IMH	AW-07-073	6	9	IMH																							
L11-497	IMH	AW-07-073	58	61	IMH																							
L10-020	IMH	AW-07-073	137	140	IMH	0.10	1.8	1.4	26	20	35		0.10	2.5		0.10	24	44		363	5.7	7.0			0.010	0.12		1.0
L11-502	IMH	AW-08-074	144	147	IMH																							
L10-030	IMH	AW-06-030	189	192	IMH	0.10	1.4	1.6	6.6	20	315		0.10	1.6		0.10	20	73		158	4.2	6.0			0.040	0.15		1.0
L11-453	IMH	AW-06-030	108	111	IMH																							
L10-029	IMH	AW-06-030	69	72	IMH	0.10	2.5	3.0	33	20	72		0.10	3.4		0.10	32	27		329	6.3	9.0			0.030	0.070		1.0
L11-452	IMH	AW-06-030	6	9	IMH																							
L11-566	IMH	AW-10-108	80	83	IMH																							
AX003726	IMH	KAX-13-101	12	14	OVBN	0.070	4.0	2.0		60	83	0.10	0.020	3.7	7.1	0.020	25	38	0.53	352	8.4	11	0.20	0.17	0.010	0.10	0.030	3.3
L11-571	IMH	AW-10-112	24	27	IMH																							
AX003793	IMH	KAX-13-101	132	134	IMH	0.010	2.1	1.0		60	43	0.10	0.020	3.0	2.6	0.020	22	95	0.31	17	5.7	7.2	0.10	0.14	0.010	0.090	0.020	1.1
AX003761	IMH	KAX-13-101	78	80	IMH	0.020	1.8	2.0		60	61	0.10	0.020	1.8	3.8	0.020	22	120	0.19	8.3	7.3	7.4	0.20	0.17	0.020	0.10	0.020	1.6
AX022630	IMH	KAX-13-104	12	14	IMH	0.050	2.5	2.0		60	88	0.10	0.020	4.6	3.7	0.020	30	24	0.29	144	7.9	9.1	0.10	0.15	1.1	0.18	0.030	1.6
AX003981	IMH	KAX-13-105	58	60	IMH	0.030	1.9	3.0		60	114	0.20	0.020	2.2	5.5	0.040	18	92	0.21	13	6.0	8.1	0.10	0.20	0.020	0.12	0.020	2.6
AX022643	IMH	KAX-13-104	33.5	35.5	IMH	0.010	0.54	5.0		50	67	0.10	0.020	8.3	4.6	0.030	24	49	0.53	27	5.6	2.3	0.10	0.060	0.17	0.19	0.040	2.0
AX004015	IMH	KAX-13-105	124	126	IMH	0.010	2.5	7.0		70	152	0.10	0.020	7.6	7.6	0.020	29	36	2.1	2.6	7.4	9.9	0.20	0.12	0.10	0.19	0.030	3.7
AX003952	IMH	KAX-13-105	8	10	IMH	0.020	2.0	1.0		60	120	0.10	0.020	2.0	5.2	0.030	25	103	0.33	12	8.2	8.8	0.20	0.13	0.040	0.090	0.020	2.4
L11-574	IMH	AW-10-112	198	201	IMH																							
L11-570	IMH	AW-10-110	6	9	IMH																							
L11-575	IMH	AW-10-112	249	252	IMH																							
L11-576	IMH	AW-10-112	297	300	IMH																							
L11-510	IMH	AW-08-079	219	222	IMH																							
L11-569	IMH	AW-10-109	72	75	IMH																							
L11-577	IMH	AW-10-112	351	354	IMH																							
L11-509	IMH	AW-08-079	147	150	IMH																							
L11-513	IMH	AW-08-080	225	228	IMH																							
L11-508	IMH	AW-08-079	72	75	IMH																							
L11-507	IMH	AW-08-079	9	12	IMH																							
L11-512	IMH	AW-08-080	77	80	IMH																							
L11-561	IMH	AW-10-107	246	248	IMH																							
L11-560	IMH	AW-10-107	147	150	IMH																							
L11-559	IMH	AW-10-107	99	102	IMH																							

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-511	IMH	AW-08-080	8	11	AIR																							
L10-052	IMH	AW-07-070	228	231	IMH	0.20	1.2	1.6	318	20	46		0.10	1.6		0.10	31	17		93	7.6	7.0			0.030	0.080		1.0
L10-053	IMH	AW-07-070	291	294	West SLD	0.10	1.3	4.0	14	20	28		0.10	1.5		0.10	33	24		149	7.3	7.0			0.010	0.070		1.0
L10-058	IMH	AW-08-092	154	157	IMH	0.10	1.4	2.0	1.2	20	74		0.10	2.4		0.10	38	38		58	9.1	10			0.030	0.15		1.0
L11-536	IMH	AW-08-097	140	143	IMH																							
L10-057	IMH	AW-08-092	44	47	IMH	0.10	2.5	3.1	1.3	20	410		0.10	2.4		0.10	30	20		21	6.2	10			0.010	0.61		4.0
L11-531	IMH	AW-08-092	6.1	8.23	AIR																							
L10-064	IMH	AW-08-098	105	108	IMH	0.10	1.7	1.6	0.50	20	243		0.10	1.4		0.10	29	33		27	5.7	8.0			0.010	0.58		1.0
L11-583	IMH	AW-10-118	3.05	6	IMH																							
L10-201	IMH	AW-10-118	35	38	IMH	0.10	1.6	4.9	3.7	20	210		0.10	3.0		0.10	32	265		111	6.0	7.0			0.030	0.19		2.0
L11-541	IMH	AW-08-099	120	123	IMH																							
L10-202	IMH	AW-10-118	78	81	IMH	0.10	1.8	1.3	1.1	20	229		0.10	1.7		0.10	18	37		19	4.0	7.0			0.020	0.27		3.0
L10-204	IMH	AW-10-118	152	155	IMH	0.10	1.2	2.0	4.0	20	85		0.10	1.5		0.10	42	51		111	11	9.0			0.010	0.10		1.0
L11-584	IMH	AW-10-118	175.05	178	IMH																							
L10-205	IMH	AW-10-118	207	210	IMH	0.10	1.4	1.3	1.3	20	37		0.10	1.3		0.10	19	80		25	3.6	6.0			0.010	0.11		1.0
L10-063	IMH	AW-08-099	54	57	IMH	0.10	0.84	3.6	3.3	20	64		0.10	1.8		0.10	12	37		135	3.2	6.0			0.020	0.14		4.0
L11-586	IMH	AW-10-118	272	275	IMH																							
10E28886	IMH	AW-11-126	248	251	IMH																							
10E28885	IMH	AW-11-126	242	245	IMH																							
L11-587	IMH	AW-10-118	323	326	IMH																							
10E28884	IMH	AW-11-126	236	239	IMH																							
10E28883	IMH	AW-11-126	230	233	IMH																							
10E28882	IMH	AW-11-126	224	227	IMH																							
10E28881	IMH	AW-11-126	218	221	IMH																							
L10-071	IMH	AN-07-003	127	130	IMH	0.10	1.3	2.9	13	20	123		0.10	5.3		0.10	27	85		35	5.2	6.0			0.43	0.41		1.0
10E28880	IMH	AW-11-126	212	215	IMH																							
L11-589	IMH	AW-10-122	24	27	IMH																							
10E28879	IMH	AW-11-126	206	209	IMH																							
10E28878	IMH	AW-11-126	200	203	IMH																							
L11-590	IMH	AW-10-122	99	102	IMH																							
10E28877	IMH	AW-11-126	194	197	IMH																							
L11-591	IMH	AW-10-122	150	153	IMH																							
10E28876	IMH	AW-11-126	188	191	IMH																							
L11-592	IMH	AW-10-122	198	201	IMH																							
10E28875	IMH	AW-11-126	182	185	IMH																							
10E28874	IMH	AW-11-126	176	179	IMH																							
10E28873	IMH	AW-11-126	170	173	IMH																							
10E28872	IMH	AW-11-126	164	167	IMH																							
10E28871	IMH	AW-11-126	158	161	IMH																							
10E28869	IMH	AW-11-126	146	149	IMH																							
L10-069	IMH	AN-07-002	91	94	IMH	0.10	1.2	1.4	5.1	20	121		0.10	1.7		0.10	40	99		70	10	8.0			0.010	0.42		1.0
10E28868	IMH	AW-11-126	140	143	IMH	0.040	2.8	3.0		40	18	0.30	0.020	6.0	9.1	0.010	12	23	0.53	13	2.0	7.4	0.10	0.22	0.030	0.17	0.020	4.4
10E28867	IMH	AW-11-126	134	137	IMH																							
10E28865	IMH	AW-11-126	122	125	IMH																							
10E28864	IMH	AW-11-126	116	119	IMH																							
10E28863	IMH	AW-11-126	110	113	IMH																							
10E28862	IMH	AW-11-126	104	107	IMH																							
10E28861	IMH	AW-11-126	98	101	IMH																							
10E28860	IMH	AW-11-126	92	95	IMH																							
10E28859	IMH	AW-11-126	86	89	IMH																							
L10-077	IMH	AN-08-026	75	78	IMH	0.10	1.2	3.0	54	20	182		0.10	1.2		0.10	37	133		447	8.1	7.0			0.020	0.52		1.0
10E28858	IMH	AW-11-126	80	83	IMH																							
10E28857	IMH	AW-11-126	74	77	IMH																							
L11-351	IMH	AN-08-022	50	53	IMH																							
10E28856	IMH	AW-11-126	68	71	IMH																							
10E28855	IMH	AW-11-126	62	65	IMH																							
10E28854	IMH	AW-11-126	56	59	IMH																							
10E28853	IMH	AW-11-126	50	53	IMH																							
10E28852	IMH	AW-11-126	44	47	IMH	0.020	4.3	8.0		60	267	0.10	0.020	4.2	4.3	0.010	38	456	1.4	16	6.6	9.9	0.10	0.12	0.010	0.50	0.020	2.0
10E28851	IMH	AW-11-126	38	41	IMH																							
10E28850	IMH	AW-11-126	32	35	IMH																							
L11-352	IMH	AN-08-022	93	95	IMH																							
10E28849	IMH	AW-11-126	25.73	29	IMH																							
10E28847	IMH	AW-11-126	14	15.9	IMH																							
10E28846	IMH	AW-11-126	8	11	IMH																							
L10-085	IMH	AN-07-005	214	217	East SLD	0.10	1.4	3.2	62	20	32		0.10	2.1		0.10	14	31		655	3.7	6.0			0.010	0.10		4.0
L11-076	IMH	AE-08-050	197	200	IMH																							
L11-075	IMH	AE-08-050	149	152	IMH																							
L11-128	IMH	AE-10-087	197.05	200	IMH																							
L11-074	IMH	AE-08-050	98	101	IMH																							
L11-120	IMH	AE-10-083	123	126	IMH																							
L11-126	IMH	AE-10-087	99	102	IMH																							
L11-125	IMH	AE-10-087	48.23	51	IMH																							
L11-136	IMH	AE-10-091	3.05	6	IMH																							
L11-137	IMH	AE-10-091	48	51	IMH																							
L11-138	IMH	AE-10-091	99	102	IMH																							
L11-139	IMH	AE-10-091	150	153	IMH																							

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-081	IMH	AE-08-053	48	51	IMH																							
L10-100	IMH	AN-08-046	71	74	East SLD	0.10	1.1	1.4	0.50	20	49		0.10	1.3		0.10	25	27		42	5.3	6.0			0.010	0.12		1.0
L11-412	IMH	AN-08-073	48	51	East SLD																							
L11-069	IMH	AE-08-048	135	138	IMH																							
L11-068	IMH	AE-08-048	99	102	IMH																							
L11-387	IMH	AN-08-053	33	36	IMH																							
L11-151	IMH	AE-10-096	99	102	East SVHYB																							
L11-147	IMH	AE-10-093	49	52	IMH																							
L11-067	IMH	AE-08-048	48	51	IMH																							
L11-150	IMH	AE-10-096	24	27	IMH																							
L11-066	IMH	AE-08-048	3.05	6	IMH																							
L11-153	IMH	AE-10-098	48	51	IMH																							
L10-099	IMH	AE-08-045	38	41	IMH	0.10	2.7	1.9	3.1	20	329		0.10	2.0		0.10	43	106		119	8.1	11			0.010	1.4		3.0
L11-134	IMH	AE-10-090	97	100	East SVHYB																							
L-AE-003-1	IMH	AE-06-003	78	81	IMH	0.10	2.8	1.5	6.2	20	308		0.10	2.0		0.10	35	364		75	5.0	9.0			0.010	1.7		3.0
L11-146	IMH	AE-10-092	217	220	East SLD																							
L11-064	IMH	AE-08-047	3.05	9.14	IMH																							
L11-145A duplicate	IMH	AE-10-092	178	181	IMH																							
L10-098	IMH	AE-06-005	71	74	IMH	0.10	1.7	2.1	0.60	20	172		0.10	1.2		0.10	38	298		46	9.5	10			0.010	0.77		1.0
L10-091	IMH	AE-08-047	99	102	IMH	0.10	1.6	2.8	0.50	20	72		0.10	2.3		0.10	25	94		13	5.5	7.0			0.010	0.090		1.0
L11-144	IMH	AE-10-092	99	101	IMH																							
L10-092	IMH	AE-08-047	168	171	IMH	0.10	2.2	3.7	1.6	20	178		0.10	4.3		0.10	29	67		16	5.0	10			0.020	0.37		2.0
L11-143	IMH	AE-10-092	27	30	IMH																							
L-AE-001-1	IMH	AE-06-001	76	79	IMH	0.10	1.2	2.7	1.1	20	29		0.10	1.5		0.10	20	93		60	5.2	6.0			0.010	0.10		3.0
L11-001	IMH	AE-06-002	119	122	IMH																							
L-AE-007-1	IMH	AE-06-007	71	74	IMH	0.10	1.5	2.5	2.8	20	97		0.10	2.1		0.10	25	36		56	6.1	9.0			0.010	0.31		7.0
L10-107	IMH	AE-06-007	101	104	IMH	0.10	1.3	1.2	0.50	20	73		0.10	1.7		0.10	17	76		42	2.2	5.0			0.010	0.24		1.0
L11-123	IMH	AE-10-086	8	11	IMH																							
L11-117	IMH	AE-10-082	99	102	IMH																							
L-AE-001-2	IMH	AE-06-001	146	149	East SVHYB	0.10	2.4	1.4	23	20	264		0.10	1.8		0.10	33	272		590	4.3	8.0			0.030	1.3		2.0
L11-124	IMH	AE-10-086	149	152	IMH																							
L-AE-006-1	IMH	AE-06-006	126	129	East SVHYB	0.10	2.3	1.4	26	20	100		0.10	2.4		0.10	45	222		522	5.0	9.0			0.060	0.28		2.0
L10-106	IMH	AE-06-009	82	85	IMH	0.10	1.3	1.8	0.50	20	26		0.10	1.4		0.10	12	33		26	1.7	4.0			0.010	0.11		1.0
L11-012	IMH	AE-06-011	165	168	IMH																							
L11-051	IMH	AE-07-036	499	502	IMH																							
L11-050	IMH	AE-07-036	400	403	IMH																							
L11-007	IMH	AE-06-010	112	115	IMH																							
L10-119	IMH	AE-06-010	139	142	IMH	0.10	2.8	5.0	14	20	97		0.10	3.7		0.10	28	273		730	4.7	10			0.22	0.10		1.0
L10-118	IMH	AE-07-036	361	364	IMH	0.10	3.1	2.8	0.50	20	121		0.10	3.1		0.10	24	78		11	5.8	8.0			0.090	0.14		2.0
L11-032	IMH	AE-07-025	423	426	East SLD																							
L11-008	IMH	AE-06-010	199	202	IMH																							
L11-046	IMH	AE-07-034	448	451	IMH																							
L11-097	IMH	AE-10-064	224.12	227	IMH																							
L11-098	IMH	AE-10-064	300	303	IMH																							
L11-099	IMH	AE-10-064	348	351	IMH																							
L11-100	IMH	AE-10-064	403	406	IMH																							
L11-045	IMH	AE-07-034	397	400	IMH																							
L11-009	IMH	AE-06-010	271	274	IMH																							
L10-127	IMH	AE-07-036	220	223	IMH	0.10	2.8	7.2	0.80	20	29		0.10	3.0		0.10	30	11		11	7.6	9.0			0.12	0.15		2.0
L11-044	IMH	AE-07-034	307	310	IMH																							
L10-134	IMH	AE-07-038	295	298	IMH	0.10	2.1	4.3	1.5	20	74		0.10	6.2		0.10	25	20		46	6.9	8.0			0.14	0.15		2.0
L11-043	IMH	AE-07-034	223	226	IMH																							
L10-133	IMH	AE-07-038	193	196	IMH	0.10	3.1	4.1	4.3	20	92		0.10	3.4		0.10	31	93		11	7.5	10			0.030	0.28		1.0
L11-037	IMH	AE-07-030	396	399	IMH																							
L11-042	IMH	AE-07-034	148	151	IMH																							
L10-136	IMH	AE-07-030	330	333	IMH	0.10	3.0	1.8	0.50	20	344		0.10	2.1		0.10	21	408		31	2.3	7.0			0.040	1.1		1.0
L11-053	IMH	AE-07-038	111	114	IMH																							
L10-143	IMH	AE-07-035	216	219	IMH	0.10	2.8	6.0	18	20	68		0.10	4.3		0.10	41	13		609	9.4	12			1.1	0.16		1.0
L11-036	IMH	AE-07-030	198	201	IMH																							
L10-132	IMH	AE-07-038	48	51	IMH	0.10	2.7	3.6	4.9	20	58		0.10	2.8		0.10	25	38		33	6.4	8.0			0.030	0.10		2.0
L11-048	IMH	AE-07-035	138	141	IMH																							
L10-142	IMH	AE-07-030	141	144	IMH	0.10	2.8	5.3	6.3	20	381		0.10	4.1		0.10	20	20		31	3.9	7.0			0.090	0.13		1.0
L11-052	IMH	AE-07-038	3.66	6	IMH																							
L10-141	IMH	AE-07-030	54	57	IMH	0.10	3.1	9.0	20	20	42		0.10	4.4		0.10	34	15		289	8.3	12			0.020	0.13		1.0
L11-035	IMH	AE-07-030	27	30	IMH																							
L10-148	IMH	AE-08-055	250	253	IMH	0.10	3.4	2.7	6.0	20	202		0.10	3.2		0.10	33	21		448	10.0	11			0.080	0.24		2.0
L11-071	IMH	AE-08-049	113.25	116	East SLD																							
L10-155	IMH	AE-08-049	128	131	East SLD	0.10	3.2	3.3	0.50	20	144		0.10	3.0		0.10	34	29		127	9.0	10			0.060	0.16		1.0
L11-103	IMH	AE-10-067	198	201	IMH																							
L10-156	IMH	AE-08-049	230	233	IMH	0.10	3.0	3.9	3.0	20	134		0.10	3.7		0.10	29	7.0		173	8.4	10			0.050	0.29		1.0
L11-084	IMH	AE-08-055	403	406	IMH																							
L11-225	IMH	AM-09-024	82	85	PICR																							
L11-226	IMH	AM-09-024	132.5	135.5	PICR																							
L11-311	IMH	AM-10-075	240.04	243	IMH																							
10E28977	IMH	AM-11-087	247	249.02	IMH																							
10E28975	IMH	AM-11-087	241	244	IMH	0.050	2.8	1.0		10	42	0.10	0.020	2.7	1.4	0.030	48	43	0.27	147	12	12	0.10	0.11	0.010	0.18	0.030	0.60

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
10E28973	IMH	AM-11-087	235	238	IMH																							
10E28971	IMH	AM-11-087	229	232	IMH																							
10E28968	IMH	AM-11-087	223	226	IMH																							
10E28966	IMH	AM-11-087	217	220	IMH																							
L11-310	IMH	AM-10-075	175	178	IMH																							
10E28964	IMH	AM-11-087	211	214	IMH																							
L11-318	IMH	AM-10-077	140	142	IMH																							
10E28962	IMH	AM-11-087	205	208	IMH																							
10E28959	IMH	AM-11-087	199	202	IMH																							
10E28957	IMH	AM-11-087	193	196	IMH																							
10E28955	IMH	AM-11-087	187	190	IMH																							
10E28953	IMH	AM-11-087	181	184	IMH																							
L11-309	IMH	AM-10-075	142	145	IMH																							
10E28951	IMH	AM-11-087	175	178	IMH																							
10E28948	IMH	AM-11-087	169	172	IMH																							
10E28946	IMH	AM-11-087	163	166	IMH																							
10E28944	IMH	AM-11-087	157	160	IMH																							
10E28942	IMH	AM-11-087	151	154	IMH																							
10E28939	IMH	AM-11-087	145	148	IMH																							
10E28937	IMH	AM-11-087	139	142	IMH	0.070	2.1	7.0		10	74	0.10	0.070	2.4	3.3	0.72	41	5.0	0.28	58	9.8	10	0.10	0.16	0.010	0.18	0.050	1.4
10E28935	IMH	AM-11-087	133	136	IMH																							
L11-320	IMH	AM-10-078	122	125	PICR																							
10E28933	IMH	AM-11-087	127	130	IMH																							
10E28931	IMH	AM-11-087	121	124	IMH																							
10E28928	IMH	AM-11-087	115	118	IMH																							
10E28926	IMH	AM-11-087	109	112	IMH																							
10E28924	IMH	AM-11-087	103	106	IMH																							
10E28922	IMH	AM-11-087	97	100	IMH																							
L11-315	IMH	AM-10-076	138	141	East MAFV																							
10E28919	IMH	AM-11-087	91	94	IMH																							
L11-308	IMH	AM-10-075	73	76	IMH																							
10E28917	IMH	AM-11-087	86	88.66	IMH																							
10E28915	IMH	AM-11-087	79	82	IMH																							
L11-317	IMH	AM-10-077	60	63	IMH																							
10E28913	IMH	AM-11-087	74	76.53	IMH																							
10E28911	IMH	AM-11-087	68	71	IMH																							
10E28908	IMH	AM-11-087	62	65	IMH																							
10E28906	IMH	AM-11-087	56	59	IMH																							
AX023688	IMH	KAX-13-103	50.29	52.29	IMH	0.050	1.3	3.0		70	92	0.10	0.020	1.5	1.1	0.050	40	82	0.22	125	11	9.2	0.20	0.11	0.010	0.080	0.030	0.40
AX023708	IMH	KAX-13-103	88.5	90.5	IMH	0.13	1.1	8.0		70	394	0.10	0.020	4.4	4.3	0.040	39	64	0.42	394	11	7.7	0.20	0.14	0.30	0.090	0.070	1.5
AX023664	IMH	KAX-13-103	9.14	11.17	IMH	0.030	2.1	3.0		70	64	0.10	0.020	3.1	2.3	0.030	38	32	0.14	25	12	11	0.20	0.22	0.050	0.090	0.040	0.90
10E28904	IMH	AM-11-087	50	53	IMH																							
L11-324	IMH	AM-10-086	102	105	IMH																							
10E28902	IMH	AM-11-087	44	47	IMH																							
L11-314	IMH	AM-10-076	69	72	IMH																							
10E28899	IMH	AM-11-087	38	41	IMH																							
10E28897	IMH	AM-11-087	32	35	IMH	0.060	3.7	4.0		20	51	0.10	0.020	6.7	3.5	0.030	34	6.0	0.54	356	7.9	9.7	0.10	0.13	0.020	0.16	0.030	1.5
10E28895	IMH	AM-11-087	26	29	IMH																							
10E28893	IMH	AM-11-087	20	23	IMH																							
10E28891	IMH	AM-11-087	14	17	IMH																							
10E28888	IMH	AM-11-087	8	11	OVBN																							
L11-307	IMH	AM-10-075	4	7	IMH																							
L11-322	IMH	AM-10-085	105	108	IMH																							
L11-321	IMH	AM-10-085	39	42	IMH																							
L10-188	IMH	AM-09-023	36	39	PICR	0.10	2.8	3.5	13	20	394		0.10	0.38		0.10	45	1120		180	3.7	6.0			0.010	2.8		1.0
IMH																												
n						80	80	80	59	80	80	21	80	80	21	80	80	80	21	80	80	80	21	21	80	80	21	80
Min						0.010	0.540	1.000	0.500	10.000	18.000	0.100	0.020	0.380	1.100	0.010	8.400	5.000	0.140	2.600	1.680	2.300	0.100	0.060	0.010	0.050	0.020	0.400
10th PCTL						0.030	1.229	1.400	0.500	20.000	34.700	0.100	0.020	1.452	1.410	0.020	18.580	16.800	0.190	13.050	3.719	6.000	0.100	0.110	0.010	0.090	0.020	1.000
Median						0.100	2.125	3.000	4.300	20.000	84.000	0.100	0.100	2.535	3.830	0.100	29.150	58.000	0.310	75.450	6.105	8.000	0.200	0.140	0.020	0.150	0.030	1.800
90th PCTL						0.100	3.086	6.100	36.580	60.000	271.100	0.200	0.100	4.631	9.110	0.100	40.220	265.700	0.540	436.180	9.995	10.360	0.200	0.220	0.141	0.583	0.040	3.730
Max						0.200	4.430	9.500	317.700	70.000	410.000	0.300	0.100	8.320	11.200	0.720	47.700	1120.000	2.140	729.800	12.680	14.000	0.200	0.220	1.110	2.780	0.070	7.000

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L10-022	MAFV	AW-08-096	131	134	West MAFV	0.10	2.8	2.7	2.8	20	566		0.10	0.70		0.10	48	344		76	3.2	6.0			0.010	1.5		2.0
L11-535	MAFV	AW-08-096	95.5	98	West MAFV																							
L14-006	MAFV	KAX-13-004	40	42	PICR	0.060	4.0	2.0		50	1230	0.10	0.020	2.2	6.4	0.010	39	284	6.4	84	3.8	7.1	0.20	0.20	0.010	3.1	0.020	3.2
L11-518	MAFV	AW-08-083	125	128	West MAFV																							
L11-487	MAFV	AW-07-060	98	101	West SLD																							
L11-427	MAFV	AW-06-007	130	133	West SLD																							
L11-425	MAFV	AW-06-006	93	96	PICR																							
L-AW-004-2	MAFV	AW-05-004	108	111	West SLD	0.10	2.2	2.0	2.9	20	133		0.10	0.95		0.10	33	276		116	2.7	5.0			0.10	0.51		2.0
L11-421	MAFV	AW-05-001	73	76	West MAFV																							
L11-456	MAFV	AW-06-033	108	111	West SLD																							
L11-429	MAFV	AW-06-010	49	52	West SLD																							
L10-036	MAFV	AW-08-101	188	191	West MAFV	0.10	2.9	2.7	0.50	20	437		0.10	0.62		0.10	38	341		74	2.9	6.0			0.010	1.3		2.0
L11-434	MAFV	AW-06-014	313	316	PXPP																							
L-AW-009-1	MAFV	AW-06-009	27	30	West SLD	0.30	1.5	4.5	77	20	34		0.10	3.8		0.10	28	126		2282	2.7	6.0			12	0.15		4.0
L-AW-009-2	MAFV	AW-06-009	57	60	West SLD	0.10	2.4	2.2	2.9	20	214		0.10	3.1		0.10	33	307		101	4.0	7.0			0.21	0.34		3.0
L11-483	MAFV	AW-07-058	86	89	PICR																							
L10-042	MAFV	AW-06-009	426	429	PXPP	0.10	1.7	33	14	20	69		0.10	4.4		0.10	78	14		850	4.9	5.0			1.0	0.10		4.0
L10-037	MAFV	AW-06-012	481	484	PXPP	0.10	1.4	3.1	12	20	117		0.10	2.4		0.10	23	104		187	3.1	5.0			0.050	0.10		3.0
L11-545	MAFV	AW-08-102	17.37	20	PICR																							
L10-054	MAFV	AW-08-102	78	81	PICR	0.10	2.6	2.8	1.7	20	297		0.10	1.1		0.10	39	233		100	2.5	6.0			0.020	1.3		2.0
L11-437	MAFV	AW-06-018	448	451	PXPP																							
L10-066	MAFV	AW-06-029	45	48	West SLD	0.10	2.1	11	11	42	200		0.10	2.0		0.10	64	443		37	4.5	4.0			0.010	0.38		1.0
L11-539	MAFV	AW-08-097	499	502	PXPP																							
L-AW-023-4	MAFV	AW-06-023	452	455	West MAFV	0.10	1.6	1.8	4.6	20	124		0.10	2.6		0.10	25	182		212	3.1	5.0			0.030	0.24		2.0
L11-343	MAFV	AN-07-015	333	336	West MAFV																							
L11-451	MAFV	AW-06-028	472	475	West MAFV																							
L11-472	MAFV	AW-07-048	297	300	West MAFV																							
L11-377	MAFV	AN-08-042	300	303	West MAFV																							
L11-473	MAFV	AW-07-048	360	363	West MAFV																							
L11-374	MAFV	AN-08-039	297	299	East MAFV																							
L11-376	MAFV	AN-08-042	12.19	17.37	OVBN																							
L11-338	MAFV	AN-07-012	433	436	East MAFV																							
L10-108	MAFV	AN-08-051	73	75	East SLD	0.10	1.4	2.1	11	20	37		0.10	2.2		0.10	25	41		223	4.3	6.0			0.35	0.11		5.0
146683	MAFV	AX06-10	83	85	PICR	0.020	3.1	1.0		60	375	0.20	0.020	1.2	7.1	0.010	8.6	51	1.6	48	6.2	11	0.20	0.11	0.010	2.1	0.020	3.3
L11-393	MAFV	AN-08-057	22.3	25	East SLD																							
L11-397	MAFV	AN-08-057	400	403	East SLD																							
7R97771	MAFV	AE-08-053	298	301	East SLD	0.080	1.5	2.0		50	90	0.40	0.020	3.2	9.5	0.030	3.4	35	0.13	373	0.57	6.6	0.10	0.18	0.010	0.050	0.020	4.0
L10-125	MAFV	AN-08-038	279	282	East SLD	0.10	2.0	3.0	76	20	104		0.10	5.4		0.10	24	166		480	3.3	8.0			0.020	0.23		3.0
L11-022	MAFV	AE-07-016	547	550	East SLD																							
7R93062	MAFV	AN-08-033	173	176	East MAFV	0.14	2.6	1.0		40	313	0.20	0.060	2.2	4.7	0.010	32	247	1.9	383	3.4	7.0	0.20	0.090	0.060	1.2	0.020	2.0
L-AE-002-4	MAFV	AE-06-002	416	419	East SLD	0.10	2.6	5.4	55	20	137		0.10	2.4		0.10	41	370		619	3.1	7.0			0.12	1.2		1.0
L11-340	MAFV	AN-07-013	239	242	East MAFV																							
L11-355	MAFV	AN-08-023	149	152	East SLD																							
L10-149	MAFV	AN-07-006	99	102	East MAFV	0.10	3.5	3.5	13	20	47		0.20	2.9		0.10	70	503		412	6.6	7.0			0.12	0.97		2.0
L11-010	MAFV	AE-06-010	400	403	East MAFV																							
L10-147	MAFV	AE-08-055	85	88	East SLD	0.10	3.3	2.3	1.3	20	167		0.10	1.1		0.10	34	574		76	3.3	8.0			0.040	0.98		1.0
L11-058	MAFV	AE-07-039	273	276	East MAFV																							
L11-057	MAFV	AE-07-039	198	201	East SLD																							
L10-158	MAFV	AE-08-062	304	307	East SVHYB	0.10	2.0	4.5	12	20	43		0.10	4.5		0.10	6.6	54		114	0.89	7.0			0.48	0.070		3.0
L11-259	MAFV	AM-10-046	16	18	East SLD																							
10E15144	MAFV	AE-10-067	325	328	East MAFV	0.25	2.4	2.0		50	307	0.10	0.020	2.7	3.1	0.020	29	459	0.94	970	4.0	7.8	0.20	0.14	0.030	0.68	0.030	1.4
L11-313	MAFV	AM-10-075	447	450	East SLD																							
L11-312	MAFV	AM-10-075	373	376	East MAFV																							
L10-182	MAFV	AM-09-033	255	258	East SLD	0.10	2.9	2.2	2.3	20	147		0.10	1.2		0.10	38	318		132	3.3	6.0			0.070	1.0		1.0
L11-325	MAFV	AM-10-086	302	305	East MAFV																							
L11-173	MAFV	AM-07-004	300.76	303	East SLD																							
L11-306	MAFV	AM-10-074	99	102	PICR																							
L11-299	MAFV	AM-10-068	294.7	297.79	East SLD																							
MAFV																												
n						22	22	22	17	22	22	5	22	22	5	22	22	22	5	22	22	22	5	5	22	22	5	22
Min						0.020	1.350	1.000	0.500	20.000	34.000	0.100	0.020	0.620	3.110	0.010	3.400	14.000	0.130	37.400	0.570	4.000	0.100	0.090	0.010	0.050	0.020	1.000
10^{th} PCTL						0.082	1.530	1.820	1.540	20.000	43.400	0.100	0.020	0.961	3.758	0.011	10.050	42.000	0.454	74.160	2.543	5.000	0.140	0.098	0.010	0.100	0.020	1.000
Median						0.100	2.430	2.500	10.900	20.000	142.000	0.200	0.100	2.275	6.420	0.100	33.100	261.500	1.550	159.550	3.285	6.300	0.200	0.140	0.045	0.595	0.020	2.000
90^{th} PCTL						0.136	3.275	5.310	63.060	50.000	430.800	0.320	0.100	4.326	8.542	0.100	61.990	457.400	4.582	826.940	4.833	7.980	0.200	0.192	0.467	1.510	0.026	4.000
Max						0.300	4.010	32.800	76.600	60.000	1230.000	0.400	0.200	5.350	9.530	0.100	78.000	574.000	6.370	2281.800	6.560	10.800	0.200	0.200	12.090	3.130	0.030	5.000

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L10-001	PICR	AW-08-096	51	54	PICR	0.10	1.8	4.5	1.1	20	168		0.10	0.30		0.10	62	759		80	4.6	4.0			0.010	1.2		1.0
L10-005	PICR	AW-08-084	141	144	PICR	0.10	2.2	1.9	0.70	20	301		0.10	0.33		0.10	60	597		45	4.5	5.0			0.010	1.2		1.0
L10-002	PICR	AW-08-091	100	103	West MAFV	0.10	2.6	3.0	7.5	20	318		0.10	0.27		0.10	50	637		491	5.5	6.0			0.010	2.1		1.0
L11-530	PICR	AW-08-091	22	25	PICR																							
L14-007	PICR	KAX-13-004	67	69	PICR	0.020	3.1	1.0		60	2010	0.10	0.020	0.63	4.2	0.010	62	460	1.6	36	4.8	6.0	0.20	0.11	0.010	1.2	0.020	2.0
L11-520	PICR	AW-08-084	90	92.56	West MAFV																							
L11-519	PICR	AW-08-084	49	52	PICR																							
L11-517	PICR	AW-08-083	74	77	PICR																							
L11-469	PICR	AW-07-046	110	113	PICR																							
L11-516	PICR	AW-08-083	23	26	PICR																							
L10-017	PICR	AW-08-086	124	127	PICR	0.10	2.3	9.5	4.5	20	358		0.10	0.35		0.10	66	452		52	4.6	5.0			0.010	1.2		1.0
L10-009	PICR	AW-06-041	84	87	PICR	0.10	2.5	31	63	23	282		0.10	0.44		0.10	48	682		214	5.0	5.0			0.030	1.9		1.0
L11-522	PICR	AW-08-086	73	76	PICR																							
L11-463	PICR	AW-06-041	120	123	IMH																							
L11-526	PICR	AW-08-087	146	149	PICR																							
L11-521	PICR	AW-08-086	25	28	PICR																							
L11-525	PICR	AW-08-087	79	82	PICR																							
L11-524	PICR	AW-08-087	19.81	22	PICR																							
L11-460	PICR	AW-06-039	75	78	PICR																							
L-AW-020-1	PICR	AW-06-020	60	63	West SLD	0.10	2.3	0.80	4.5	20	406		0.10	1.1		0.10	28	246		84	3.4	5.0			0.010	1.0		3.0
L-AW-020-2	PICR	AW-06-020	139	142	West SLD	0.10	2.2	8.1	11	32	483		0.10	0.55		0.10	51	544		305	6.8	5.0			0.010	0.98		1.0
L10-026	PICR	AW-08-088	102	105	PICR	0.10	2.0	0.70	2.6	20	566		0.10	0.39		0.10	70	482		41	4.9	4.0			0.010	0.97		1.0
L-AW-004-1	PICR	AW-05-004	72	75	West SLD	0.10	2.2	7.0	8.5	20	30		0.10	1.3		0.10	39	804		692	7.4	9.0			0.10	1.6		1.0
L10-033	PICR	AW-08-089	69	72	PICR	0.10	1.8	1.2	0.70	20	244		0.10	0.29		0.10	75	559		54	4.9	4.0			0.010	0.60		1.0
L11-528	PICR	AW-08-089	198	201	PICR																							
L11-455	PICR	AW-06-033	9	12	West SLD																							
L14-005	PICR	AW-09-103	135	137	PICR	0.010	2.0	3.0		100	80	0.10	0.020	0.24	2.1	0.010	70	691	0.97	47	5.5	4.1	0.20	0.070	0.020	0.55	0.020	1.1
L14-004	PICR	AW-09-103	23	25	PICR	0.030	2.8	3.0		60	392	0.10	0.020	0.32	2.6	0.030	54	372	1.6	57	5.0	5.8	0.20	0.080	0.010	1.3	0.020	1.3
AX000395	PICR	KAX-13-036	72	74	PICR	0.020	2.4	2.0		50	618	0.10	0.020	0.41	2.1	0.030	64	778	1.9	56	4.8	5.0	0.20	0.060	0.010	1.2	0.020	1.2
L11-422	PICR	AW-05-001	124	127	PICR																							
L11-428	PICR	AW-06-010	19.4	22.4	West SLD																							
L-AW-003-2	PICR	AW-05-003	120.15	123.15	West MAFV	0.10	1.8	1.1	6.0	43	567		0.10	0.51		0.10	53	430		286	4.5	4.0			0.010	1.0		1.0
L11-544	PICR	AW-08-101	247.05	249.02	PICR																							
L11-543	PICR	AW-08-101	134	137	PICR																							
L11-542	PICR	AW-08-101	74	77	PICR																							
L11-431	PICR	AW-06-014	86	89	PICR																							
L14-003	PICR	AW-07-065	188	190	PICR	0.030	2.0	2.0		60	140	0.10	0.020	0.37	1.9	0.030	68	893	0.72	119	5.7	4.1	0.10	0.050	0.010	0.25	0.020	1.0
L14-002	PICR	AW-07-065	115	117	PICR	0.030	2.9	2.0		50	512	0.10	0.020	0.33	2.5	0.020	50	334	1.6	57	4.4	6.0	0.10	0.050	0.010	1.2	0.020	1.3
L14-001	PICR	AW-07-065	52	54	PICR	0.030	3.0	1.0		60	469	0.10	0.020	0.27	2.9	0.020	56	204	1.8	73	4.6	5.8	0.20	0.090	0.010	1.1	0.020	1.2
L-AW-012-1	PICR	AW-06-012	28	31	PICR	0.10	2.1	1.5	1.3	20	219		0.10	0.82		0.10	36	691		75	3.9	4.0			0.010	0.84		2.0
L11-432	PICR	AW-06-014	229	232	PICR																							
L11-433	PICR	AW-06-014	268	271	West SLD																							
L-AW-012-2	PICR	AW-06-012	55	58	PICR	0.10	1.9	2.8	1.5	38	525		0.10	0.26		0.10	61	696		71	4.6	3.0			0.010	0.88		1.0
L10-041	PICR	AW-08-090	173	176	PICR	0.10	2.2	23	6.7	20	109		0.10	0.32		0.10	59	844		72	4.4	5.0			0.020	0.68		1.0
L11-486	PICR	AW-07-059	248	251	PICR																							
AX033593	PICR	KAX-13-099	176	178	PICR	0.030	2.5	2.0		70	485	0.10	0.020	0.28	2.2	0.020	63	731	2.1	134	5.3	4.9	0.20	0.070	0.010	1.3	0.020	1.2
AX033547	PICR	KAX-13-099	97	99	West MAFV	0.010	3.3	4.0		50	384	0.20	0.020	1.3	4.2	0.010	31	287	2.4	61	2.8	7.0	0.20	0.060	0.010	1.6	0.020	2.3
L-AW-015-1	PICR	AW-06-015	54	57	PICR	0.10	2.3	4.0	6.6	20	118		0.10	0.96		0.10	54	717		82	4.4	5.0			0.030	1.1		1.0
AX033505	PICR	KAX-13-099	29	31	PICR	0.030	2.7	6.0		60	149	0.10	0.020	0.53	2.1	0.010	45	517	2.9	236	5.5	5.9	0.30	0.090	0.010	1.4	0.020	1.1
L10-045	PICR	AW-07-058	209	212	West SLD	0.10	2.0	54	0.50	20	22		0.10	0.40		0.10	52	694		64	4.1	5.0			0.040	0.58		1.0
L-AW-015-2	PICR	AW-06-015	84	87	West SLD	0.10	1.2	3.5	17	20	35		0.10	1.5		0.10	52	562		69	4.2	3.0			0.050	0.15		1.0
L10-046	PICR	AW-06-017	75	78	West SLD	0.10	2.4	12	4.8	20	338		0.10	0.50		0.10	59	515		207	4.8	5.0			0.060	1.1		1.0
L11-547	PICR	AW-08-102	227	230.85	PICR																							
L10-056	PICR	AW-08-102	179	182	PICR	0.10	2.5	6.4	0.50	20	714		0.10	0.53		0.10	56	531		63	3.9	5.0			0.010	1.7		2.0
L11-546	PICR	AW-08-102	129.5	132	PICR																							
L-AW-023-1	PICR	AW-06-023	49	52	PICR	0.10	2.3	0.80	3.9	26	257		0.10	0.41		0.10	67	401		63	5.1	5.0			0.010	0.80		1.0
L11-480	PICR	AW-07-057	49	52	PICR																							
L11-481	PICR	AW-07-057	190	193	PICR																							
L11-540	PICR	AW-08-098	539.05	542	PICR																							
L10-068	PICR	AW-06-031	150	153	PICR	0.10	3.3	5.6	44	20	158		0.10	1.6		0.10	46	562		936	4.0	9.0			0.060	1.9		1.0
L11-474	PICR	AW-07-049	41	44	PICR																							
L11-475	PICR	AW-07-049	137	140	PICR																							
L11-476	PICR	AW-07-049	188	191	PICR																							
L11-344	PICR	AN-07-015	374.59	377	West MAFV																							
L11-459	PICR	AW-06-038	182	185	PICR																							

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L10-083	PICR	AW-06-038	104	107	PICR	0.10	1.5	2.8	6.2	20	164		0.10	0.35		0.10	77	459		23	5.4	3.0			0.010	0.63		1.0
L10-082	PICR	AW-06-038	83	86	PICR	0.10	1.7	13	160	60	56		0.10	0.43		0.10	61	515		576	7.5	5.0			0.020	1.1		1.0
L11-477	PICR	AW-07-052	274	277	PICR																							
L11-479	PICR	AW-07-056	189	192	PICR																							
L10-089	PICR	AW-07-050	191	194	East SLD	0.10	2.3	3.3	8.5	20	81		0.10	1.5		0.10	30	446		65	3.3	4.0			0.030	0.19		2.0
L11-409	PICR	AN-08-067	324	327	PICR																							
L11-407	PICR	AN-08-065	225	228	East SLD																							
146691	PICR	AX06-10	99	101	PICR	0.040	2.0	6.0		60	86	0.10	0.020	2.5	4.3	0.010	48	491	1.3	215	4.6	5.0	0.20	0.10	0.060	0.58	0.020	2.1
146674	PICR	AX06-10	69	71	PICR	0.070	1.5	4.0		60	154	0.10	0.050	1.4	2.0	0.020	63	681	0.92	168	5.1	3.5	0.20	0.050	0.010	0.33	0.020	1.0
L11-414	PICR	AN-10-077	124	127	East SLD																							
L11-413	PICR	AN-10-077	48	51	PICR																							
L11-419	PICR	AN-10-080	140	142.34	East SLD																							
L10-138	PICR	AN-07-014	173	176	PICR	0.10	2.4	10	4.1	20	134		0.10	0.39		0.10	79	749		152	5.2	5.0			0.010	0.60		1.0
L11-418	PICR	AN-10-080	92	95	East SLD																							
L11-417	PICR	AN-10-080	48	51	PICR																							
L11-416	PICR	AN-10-079	99	102	East SLD																							
L10-206	PICR	AN-10-075	19	22	PICR	0.10	1.5	3.4	2.9	20	319		0.10	0.40		0.10	68	387		67	4.5	3.0			0.020	0.49		1.0
L11-420	PICR	AN-10-081	48	51	PICR																							
L11-415	PICR	AN-10-079	45	48	PICR																							
L10-146	PICR	AN-08-027	261	264	East MAFV	0.10	2.0	33	69	20	446		0.10	3.4		0.10	15	8.0		571	5.3	6.0			0.040	0.24		3.0
L11-094	PICR	AE-08-063	447	450	PICR																							
L11-177	PICR	AM-07-006	122.84	125	PICR																							
10E15502	PICR	AM-10-079	347	350	PICR	0.070	2.5	1.0		50	718	0.10	0.020	0.52	1.6	0.010	44	687	3.2	805	3.6	5.0	0.10	0.050	0.020	1.9	0.020	0.90
L10-164	PICR	AM-09-026	112	115	PICR	0.20	1.7	2.5	515	20	513		0.10	0.49		0.10	62	753		126	4.4	3.0			0.030	1.5		1.0
L10-170	PICR	AM-10-038	49	52	East SLD	0.10	1.3	1.0	11	44	382		0.10	0.33		0.10	65	523		220	4.4	3.0			0.020	1.1		1.0
L10-180	PICR	AM-09-033	175	178	PICR	0.10	2.0	4.0	1.1	34	588		0.10	0.38		0.10	60	725		112	4.3	4.0			0.020	1.1		1.0
L11-241	PICR	AM-09-033	94.31	97	PICR																							
Z116008	PICR	AM-10-041	103	106	PICR	0.030	2.5	16		110	135	0.10	0.020	0.67	1.8	0.030	55	798	3.2	234	5.0	5.1	0.20	0.050	0.020	0.83	0.020	0.80
L11-244	PICR	AM-09-036	44.5	47.5	PICR																							
L10-178	PICR	AM-09-036	109.5	112.5	PICR	0.10	1.6	4.3	69	37	220		0.10	0.53		0.10	58	589		775	4.4	4.0			0.030	0.90		1.0
L11-196	PICR	AM-07-007	222	225	PICR																							
L11-197	PICR	AM-07-007	234	237	PICR																							
L11-198	PICR	AM-07-007	246	249	PICR																							
L11-199	PICR	AM-07-007	252	255	PICR																							
L11-200	PICR	AM-07-007	258	261	PICR																							
L11-246	PICR	AM-09-036	391.35	393.3	East SLD																							
L11-323	PICR	AM-10-085	151	154	PICR																							
Z113928	PICR	AM-09-022	163.5	165.6	East SLD	0.030	2.5	1.0		60	51	0.40	0.020	2.6	6.8	0.010	12	59	0.12	146	2.4	7.4	0.10	0.19	0.010	0.13	0.020	2.9
L11-297	PICR	AM-10-068	168	171	East SLD																							
Z115143	PICR	AM-09-021	24	27	PICR	0.090	2.1	28		70	214	0.10	0.020	1.3	3.3	0.040	64	1380	2.4	720	5.5	5.4	0.20	0.11	0.040	1.8	0.040	1.5
AX023476	PICR	KAX-13-100	136	138	PICR	0.070	2.4	1.0		60	528	0.10	0.020	0.31	2.0	0.010	72	982	2.2	405	4.8	4.5	0.20	0.050	0.010	1.4	0.020	1.2
AX023454	PICR	KAX-13-100	98.3	100.3	PICR	0.030	2.5	1.0		60	494	0.20	0.020	0.69	2.1	0.020	58	1330	2.1	131	4.2	5.6	0.20	0.060	0.010	2.0	0.020	1.1
AX023453	PICR	KAX-13-100	96.3	98.3	PICR	0.030	2.6	2.0		50	462	0.10	0.020	0.53	1.7	0.030	44	1250	2.3	167	3.8	6.0	0.20	0.070	0.010	2.3	0.020	0.90
L11-296	PICR	AM-10-068	112	115	East SLD																							
L10-191	PICR	AM-08-015	146	149	PICR	0.10	2.0	3.7	2.4	28	523		0.10	0.58		0.10	69	767		118	4.8	4.0			0.010	1.2		1.0
L11-288	PICR	AM-10-066	132.8	135	East SLD																							
L11-290	PICR	AM-10-066	248	251	PICR																							
L11-219	PICR	AM-08-015	180	183	PICR																							
L10-193	PICR	AM-09-035	82.2	85.2	East SLD	0.10	1.6	29	0.70	78	550		0.10	0.66		0.10	69	723		14	5.3	3.0			0.010	0.71		1.0
L11-303	PICR	AM-10-070	104	107	PICR																							
L11-224	PICR	AM-09-021	147	150	PICR																							
L11-227	PICR	AM-09-025	32	35	PICR																							
L11-284	PICR	AM-10-065	12.19	15	PICR																							
L11-304	PICR	AM-10-071	147.55	150	PICR																							
L11-285	PICR	AM-10-065	54	57	PICR																							
L10-192	PICR	AM-09-032	23.47	26.52	PICR	0.10	1.2	8.6	35	59	65		0.10	0.78		0.10	83	659		648	5.9	3.0			0.020	0.91		1.0
L11-305	PICR	AM-10-073	228	231	PICR																							
L11-228	PICR	AM-09-025	197	200	PICR																							
L11-287	PICR	AM-10-065	156	159	PICR																							
L11-239	PICR	AM-09-032	99.6	102.6	PICR																							
PICR																												
n						53	53	53	34	53	53	19	53	53	19	53	53	53	19	53	53	53	19	19	53	53	19	53
Min						0.010	1.160	0.700	0.500	20.000	22.000	0.100	0.020	0.240	1.570	0.010	11.700	8.000	0.120	13.600	2.400	3.000	0.100	0.050	0.010	0.130	0.020	0.800
10^{th} PCTL						0.030	1.544	1.000	0.700	20.000	68.000	0.100	0.020	0.292	1.772	0.010	36.380	341.600	0.880	47.740	3.794	3.000	0.100	0.050	0.010	0.362	0.020	1.000
Median						0.100	2.170	3.400	5.400	34.000	318.000	0.100	0.100	0.500	2.110	0.100	58.500	597.000	1.860	117.900	4.620	5.000	0.200	0.070	0.010	1.080	0.020	1.000
90^{th} PCTL						0.100	2.812	21.680	67.570	60.000	566.800	0.200	0.100	1.446	4.228	0.100	70.180	836.000	2.966	633.240	5.532	6.000	0.200	0.110	0.040	1.844	0.020	2.000
Max						0.200	3.310	54.200	514.700	110.000	2010.000	0.400	0.100	3.410	6.780	0.100	83.100	1380.000	3.170	935.600	7.530	9.000	0.300	0.190	0.100	2.260	0.040	3.000

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-582	SLD - mod	AW-10-116	51	54	West SLD																							
L10-007	SLD - mod	AW-06-040	280	283	IMH	0.10	2.2	3.9	22	20	290		0.10	2.9		0.10	21	13		468	4.6	7.0			0.15	0.12		3.0
L10-024	SLD - mod	AW-06-033	42	45	West SLD	0.10	1.4	0.70	5.1	20	19		0.10	1.7		0.10	5.0	33		49	1.8	5.0			0.010	0.050		3.0
L-AW-004-3	SLD - mod	AW-05-004	183	186	West SLD	0.10	1.2	0.90	18	20	211		0.10	2.1		0.10	7.8	23		681	0.90	4.0			0.080	0.060		3.0
L10-034	SLD - mod	AW-06-010	115	118	West SLD	0.10	1.2	2.4	1.7	20	337		0.10	1.7		0.10	27	23		246	2.4	4.0			0.050	0.070		2.0
L11-435	SLD - mod	AW-06-016	109	112	West SLD																							
L10-049	SLD - mod	AW-06-019	147	150	West SLD	0.10	0.61	0.80	11	20	9.0		0.10	1.5		0.10	2.0	11		41	0.32	3.0			0.010	0.030		1.0
L11-438	SLD - mod	AW-06-019	222	225	West SLD																							
L11-439	SLD - mod	AW-06-019	372	375	West SLD																							
L10-050	SLD - mod	AW-06-024	195	198	PICR	0.10	2.4	5.0	5.0	20	94		0.10	0.72		0.10	66	565		196	4.9	5.0			0.030	1.4		1.0
L11-436	SLD - mod	AW-06-016	457	460	PXPP																							
L11-442	SLD - mod	AW-06-024	372	375	PICR																							
L-AW-023-2	SLD - mod	AW-06-023	207	210	West SLD	0.10	1.1	0.80	3.7	20	87		0.10	2.1		0.10	11	40		141	1.4	4.0			0.080	0.090		3.0
L11-441	SLD - mod	AW-06-023	251	254	West SLD																							
L11-552	SLD - mod	AW-09-104	247.73	249.72	PICR																							
L10-051	SLD - mod	AW-07-070	201	204	West SLD	0.10	0.42	40	23	20	96		0.10	6.5		0.10	7.0	38		124	1.4	1.0			0.52	0.10		3.0
L11-534	SLD - mod	AW-08-092	296	298.35	West SLD																							
L11-533	SLD - mod	AW-08-092	230	233	IMH																							
L10-059	SLD - mod	AW-08-097	89	92	IMH	0.10	1.4	1.4	0.50	20	161		0.10	1.3		0.10	31	78		45	8.3	9.0			0.010	0.19		1.0
L11-342	SLD - mod	AN-07-015	99	102	East SLD																							
L10-073	SLD - mod	AN-07-003	343	346	East SLD	0.10	1.4	4.4	9.8	20	365		0.10	3.6		0.10	13	39		208	2.3	6.0			0.040	0.10		5.0
7R96097	SLD - mod	AN-07-003	190	193	East SLD	0.020	0.93	2.0		50	40	0.30	0.020	2.8	12	0.040	3.7	32	0.22	38	0.63	4.1	0.10	0.27	0.030	0.075	0.020	4.4
L11-594	SLD - mod	AW-10-122	300	303	East SLD																							
L10-088	SLD - mod	AN-07-017	143	146	East SLD	0.10	1.8	1.8	21	20	110		0.10	1.6		0.10	31	65		483	4.1	6.0			0.050	0.16		3.0
L10-079	SLD - mod	AN-08-029	165	168	East MAFV	0.10	1.5	2.7	7.1	20	16		0.10	2.4		0.10	18	31		88	4.4	7.0			0.010	0.050		3.0
L10-078	SLD - mod	AN-08-026	154	157	East SLD	0.10	1.2	3.9	31	20	61		0.10	3.2		0.10	4.3	35		158	0.61	5.0			0.020	0.11		4.0
AME1363	SLD - mod	AW-10-125	227.8	230	East SLD	0.17	1.8	8.0		50	45	0.40	0.020	3.9	8.9	0.060	12	42	0.72	1040	1.3	7.1	0.10	0.19	0.090	0.070	0.030	3.8
L11-337	SLD - mod	AN-07-012	280	283	East SLD																							
L11-331	SLD - mod	AN-07-005	150	153	East SLD																							
L10-096	SLD - mod	AN-08-036	335	338	East SLD	0.10	2.1	1.1	16	20	123		0.10	2.3		0.10	39	258		484	3.7	7.0			0.020	0.69		2.0
L10-105	SLD - mod	AN-08-069	235	238	East SLD	0.10	1.9	41	10	20	257		0.10	7.3		0.10	20	25		391	4.5	5.0			0.040	0.33		5.0
L11-366	SLD - mod	AN-08-031	48	51	East SLD																							
L11-410	SLD - mod	AN-08-070	399	402	East SLD																							
L11-402	SLD - mod	AN-08-062	222	225	East SLD																							
L11-359	SLD - mod	AN-08-024	149	152	East SLD																							
7R97645	SLD - mod	AE-10-079	314	317	East SLD	0.050	1.7	2.0		40	28	0.30	0.020	3.3	7.5	0.010	6.5	48	0.13	309	0.67	6.1	0.10	0.23	0.010	0.060	0.020	3.5
L11-367	SLD - mod	AN-08-031	312.55	315	East SLD																							
L10-111	SLD - mod	AN-08-058	292	295	East SLD	0.10	1.8	1.9	13	20	103		0.10	2.6		0.10	30	155		643	2.6	5.0			0.010	0.16		2.0
L11-148	SLD - mod	AE-10-093	398	401	East SLD																							
L11-142	SLD - mod	AE-10-091	301	304	East SLD																							
L10-103	SLD - mod	AN-08-054	299	302	East SLD	0.10	0.98	1.7	3.8	20	26		0.10	3.3		0.10	5.2	28		310	0.63	4.0			0.040	0.030		3.0
L10-116	SLD - mod	AN-08-068	130	133	East SLD	0.10	1.4	2.3	4.7	20	75		0.10	5.3		0.10	4.6	33		78	0.83	5.0			0.020	0.060		3.0
L10-102	SLD - mod	AN-08-046	216	219	East SLD	0.10	1.3	0.80	8.6	20	67		0.10	1.6		0.10	14	93		311	3.4	6.0			0.020	0.19		4.0
L11-379	SLD - mod	AN-08-044	174	177	East SLD																							
L11-396	SLD - mod	AN-08-057	283	286	East SLD																							
SL-02	SLD - mod	AN-08-034	14	17	East SLD	0.10	1.7	2.1	23	20	265		0.10	2.2		0.10	19	51		487	3.8	8.0			0.12	0.12		4.0
L11-135	SLD - mod	AE-10-090	398	401	East SLD																							
SL-04	SLD - mod	AN-08-034	26	29	East SLD	0.10	1.6	1.6	2.6	20	363		0.10	2.1		0.10	12	47		157	3.3	6.0			0.12	0.12		3.0
10E28275	SLD - mod	AE-10-090	60	61.7	IMH	0.16	0.67	1.0		50	59	0.30	0.020	1.6	6.6	0.030	5.7	69	0.23	787	0.79	3.5	0.10	0.19	0.030	0.15	0.020	2.6
SL-05	SLD - mod	AN-08-034	32	35	East SLD	0.10	0.81	13	53	20	367		0.10	3.2		0.10	9.2	25		925	1.3	4.0			0.15	0.060		3.0
L11-390	SLD - mod	AN-08-055	192.65	195	East SLD																							
SL-09	SLD - mod	AN-08-034	56	59	East SLD	0.10	0.73	3.6	60	20	291		0.10	3.7		0.10	5.0	39		323	0.72	3.0			0.080	0.080		3.0
SL-10	SLD - mod	AN-08-034	62	65	East SLD	0.10	0.64	1.4	0.50	20	26		0.10	5.1		0.10	4.2	17		32	0.68	2.0			0.090	0.040		2.0
SL-12	SLD - mod	AN-08-034	74	77	East SLD	0.20	1.9	3.2	31	20	57		0.10	3.5		0.10	16	40		1099	2.3	7.0			0.060	0.090		7.0
SL-13	SLD - mod	AN-08-034	80	83	East SLD	0.20	1.1	2.9	35	20	90		0.10	3.7		0.10	9.2	35		953	1.2	5.0			0.36	0.080		4.0
SL-14	SLD - mod	AN-08-034	86	89	East SLD	0.10	0.93	1.3	24	20	334		0.10	1.8		0.10	10	38		494	1.5	4.0			0.22	0.090		3.0
SL-19	SLD - mod	AN-08-034	116	119	East SLD	0.20	1.8	4.2	33	20	39		0.10	3.3		0.10	15	55		697	1.6	8.0			0.050	0.080		4.0
L-AE-003-2	SLD - mod	AE-06-003	126	129	East SLD	0.10	1.5	1.2	16	20	46		0.10	2.3		0.10	14	44		359	2.6	6.0			0.020	0.14		2.0
L11-391	SLD - mod	AN-08-055	312	315	East SLD																							
L11-020	SLD - mod	AE-07-015	534	537	East SLD																							
SL-23	SLD - mod	AN-08-034	149	152	East SLD	0.10	1.3	2.6	22	20	9.0		0.10	4.3		0.10	13	61		227	1.6	6.0			0.070	0.030		3.0
SL-24	SLD - mod	AN-08-034	152	155	East SLD	0.10	1.7	5.6	15	20	15		0.10	4.4		0.10	14	63		187	2.1	6.0			0.11	0.060		3.0
SL-25	SLD - mod	AN-08-034	155	158	East SLD	0.30	1.6	2.5	55	20	95		0.10	2.6		0.10	14	68		1026	2.6	6.0			0.080	0.080		3.0
SL-26	SLD - mod	AN-08-034	158	161	East SLD	0.10	1.6	2.9	7.3	20	33		0.10	3.1		0.10	9.8	75		150	1.7	6.0			0.10	0.070		3.0
SL-27	SLD - mod	AN-08-034	161	164	East SLD	0.30	1.6	3.3	97	20	43		0.10	3.3		0.10	7.7	39		801	0.79	6.0			0.090	0.060		3.0
SL-28	SLD - mod	AN-08-034	164	167	East SLD	0.10	1.9	6.7	20	20	43		0.10	2.9		0.10	11	90		339	1.6	7.0			0.10	0.080		5.0
SL-29	SLD - mod	AN-08-034	167	170	East SLD	0.10	2.0	3.8	16	20	38		0.10	4.2		0.10	9.6	29		141	1.1	7.0			0.16	0.060		3.0
7R97787	SLD - mod	AE-08-053	346	348	East SLD	0.13	1.1	29		50	631	0.40	0.020	6.7	18	0.050	13	53	1.7	1070	1.8	3.7	0.10	0.090	0.11	0.14	0.050	9.2
L11-368	SLD - mod	AN-08-032	159	162	East SLD																							
L11-371	SLD - mod	AN-08-038	72	75	East SLD																							
SL-30	SLD - mod	AN-08-034	205.6	208	East SLD	0.10	1.5	2.0	2.9	20	13		0.10	2.1		0.10	10	36		150	2.5	4.0			0.020	0.050		3.0
SL-31	SLD - mod	AN-08-034	208	211	East SLD	0.10	1.5	2.1	6.1	20	31		0.10	1.9		0.10	12	23		109	3.4	5.0			0.010	0.080		4.0
SL-32	SLD - mod	AN-08-034	211	214	East SLD	0.10	1.6	2.5	3.4	20	46		0.10	2.2		0.10	12	44		157	3.4	5.0			0.010	0.080		4.0
SL-33	SLD - mod	AN-08-034	214	217	East SLD	0.10	1.6	2.2	14	20	36		0.10	2.0		0.10	9.9	25		158	3.5	5.0			0.010	0.090		4.0
SL-34	SLD - mod	AN-08-034	217	220	East SLD	0.10	1.6	2.3	16	20	47		0.10	2.3		0.10	13	37		246	3.4	6.0			0.020	0.080		4.0

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
SL-35	SLD - mod	AN-08-034	220	223	East SLD	0.10	1.5	1.6	4.2	20	28		0.10	1.9		0.10	9.9	25		152	3.1	5.0			0.010	0.070		4.0
L11-372	SLD - mod	AN-08-038	123	126	East SLD																							
SL-36	SLD - mod	AN-08-034	255.3	258	East SLD	0.10	1.5	2.6	24	20	68		0.10	4.5		0.10	12	75		616	2.2	6.0			0.040	0.10		5.0
SL-37	SLD - mod	AN-08-034	261	264	East SLD	0.20	1.8	2.3	123	20	120		0.10	2.9		0.10	15	78		784	2.7	7.0			0.030	0.13		4.0
SL-39	SLD - mod	AN-08-034	273	276	East SLD	0.10	1.5	2.3	20	20	109		0.10	3.1		0.10	7.7	71		295	1.7	6.0			0.030	0.11		4.0
SL-40	SLD - mod	AN-08-034	279	282	East SLD	0.10	1.4	1.5	28	20	129		0.10	1.9		0.10	15	53		701	2.5	5.0			0.040	0.13		4.0
L11-373	SLD - mod	AN-08-038	174	177	East SLD																							
SL-42	SLD - mod	AN-08-034	291	294	East SLD	0.20	1.4	10	530	20	164		0.10	6.2		0.10	20	46		787	1.8	4.0			0.050	0.11		12
SL-43	SLD - mod	AN-08-034	297	300	East SLD	0.10	1.7	2.4	88	20	163		0.10	5.4		0.10	15	81		711	2.2	6.0			0.020	0.11		5.0
SL-44	SLD - mod	AN-08-034	303	306	East SLD	0.10	1.5	2.4	24	20	134		0.10	2.9		0.10	12	75		613	1.9	5.0			0.020	0.070		3.0
L11-149	SLD - mod	AE-10-095	394	397	East SLD																							
SL-45	SLD - mod	AN-08-034	309	312	East SLD	0.10	1.1	2.3	29	20	382		0.10	2.7		0.10	13	42		672	1.6	5.0			0.020	0.080		3.0
SL-48	SLD - mod	AN-08-034	327	330	East SLD	0.10	1.6	6.5	23	20	67		0.10	1.9		0.10	23	136		761	3.2	5.0			0.030	0.12		3.0
SL-49	SLD - mod	AN-08-034	333	336	East SLD	0.10	1.4	2.8	13	20	56		0.10	2.3		0.10	7.8	59		433	2.0	6.0			0.030	0.070		3.0
L11-111	SLD - mod	AE-10-078	98	101	East SLD																							
L11-349	SLD - mod	AN-07-018	199.15	202	East SLD																							
L11-002	SLD - mod	AE-06-002	227	230	East SLD																							
L11-026	SLD - mod	AE-07-024	457	460	East SLD																							
L11-353	SLD - mod	AN-08-023	24	27	East SLD																							
L11-005	SLD - mod	AE-06-009	472	475	East SLD																							
L11-006	SLD - mod	AE-06-009	547	550	East SLD																							
L11-014	SLD - mod	AE-06-011	399	402	East SLD																							
L11-031	SLD - mod	AE-07-025	216	219	East SLD																							
L11-023	SLD - mod	AE-07-018	154	157	East SLD																							
L11-021	SLD - mod	AE-07-016	99	102	East SLD																							
L11-025	SLD - mod	AE-07-021	279	282	East SLD																							
L11-030	SLD - mod	AE-07-025	153	156	East SLD																							
L11-016	SLD - mod	AE-06-012	87	90	IMH																							
L11-329	SLD - mod	AN-07-001	291	294	East SLD																							
L11-029	SLD - mod	AE-07-025	102	105	East SLD																							
L11-049	SLD - mod	AE-07-036	100	103	East SLD																							
L11-077	SLD - mod	AE-08-052	146	149	East SLD																							
L11-264	SLD - mod	AM-10-047	49	52	East SLD																							
L11-028	SLD - mod	AE-07-025	33	36	East SLD																							
L11-107	SLD - mod	AE-10-076	214	217	East SLD																							
L11-092	SLD - mod	AE-08-063	161	164	East SLD																							
L11-056	SLD - mod	AE-07-039	147	150	East SLD																							
L11-112	SLD - mod	AE-10-080	115	118	East SLD																							
L11-055	SLD - mod	AE-07-039	54	57	East SLD																							
L11-113	SLD - mod	AE-10-080	166	168.85	East SLD																							
L10-161	SLD - mod	AM-08-012	157	160	East SLD	0.30	1.8	4.2	11	20	104		0.10	1.9		0.10	25	51		844	4.6	7.0			0.020	0.080		2.0
L11-091	SLD - mod	AE-08-063	80	83	East SLD																							
L11-158	SLD - mod	AM-07-002	27	30	East SLD																							
L11-101	SLD - mod	AE-10-066	77	79.55	IMH																							
L11-159	SLD - mod	AM-07-002	78	81	East SLD																							
L11-214	SLD - mod	AM-08-012	204.45	207	East SLD																							
L10-167	SLD - mod	AM-07-002	131	134	East SLD	0.20	1.4	4.0	12	20	58		0.10	1.2		0.10	55	40		565	5.2	7.0			0.39	0.090		2.0
L11-160	SLD - mod	AM-07-002	182	185.45	East SLD																							
L11-114	SLD - mod	AE-10-080	351	354	East SLD																							
L11-161	SLD - mod	AM-07-002	229	232	East SLD																							
L11-040	SLD - mod	AE-07-032	265	268	East SLD																							
L10-168	SLD - mod	AM-07-002	315	318	East SLD	0.10	1.1	2.5	6.3	20	105		0.10	1.5		0.10	31	25		108	3.0	5.0			0.15	0.090		2.0
L11-163	SLD - mod	AM-07-003	48	51	East SLD																							
L11-041	SLD - mod	AE-07-032	348	351	East SLD																							
L11-260	SLD - mod	AM-10-046	58	61	East SLD																							
L11-261	SLD - mod	AM-10-046	100	103	East SLD																							
L11-262	SLD - mod	AM-10-046	145	148	East SLD																							
L11-263	SLD - mod	AM-10-046	174	175.87	East SLD																							
L11-164	SLD - mod	AM-07-003	99	102	East SLD																							
L10-165	SLD - mod	AM-10-037	61	64	East SLD	0.10	1.6	3.7	1.1	20	360		0.10	4.1		0.10	15	30		76	3.4	6.0			0.010	0.11		6.0
L11-243	SLD - mod	AM-09-034	594	597	East SLD																							
L10-175	SLD - mod	AM-07-003	150	153	East SLD	0.10	1.3	2.4	0.80	20	164		0.10	2.0		0.10	15	28		71	3.5	5.0			0.040	0.11		4.0
E211563	SLD - mod	AM-09-034	573	576	East SLD	0.020	1.7	3.0		50	22	0.50	0.020	3.8	10	0.010	4.6	26	0.20	74	0.69	7.0	0.10	0.26	0.070	0.080	0.020	3.4
L11-229	SLD - mod	AM-09-026	50.9	54	PICR																							
L11-291	SLD - mod	AM-10-067	12.19	15	East SLD																							
L11-165	SLD - mod	AM-07-003	198	201	East SLD																							
L11-292	SLD - mod	AM-10-067	50.35	53	East SLD																							
L11-293	SLD - mod	AM-10-067	98	101	East SLD																							
L11-294	SLD - mod	AM-10-067	150	153	East SLD																							
L11-166	SLD - mod	AM-07-003	249	252	East SLD																							
L11-268	SLD - mod	AM-10-048	148	151	East SLD																							
L11-267	SLD - mod	AM-10-048	100	103	East SLD																							
L11-266	SLD - mod	AM-10-048	49	52	East SLD																							
L11-231	SLD - mod	AM-09-028	100	103	East SLD																							
L11-230	SLD - mod	AM-09-028	49.5	52.5	East SLD																							

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-232	SLD - mod	AM-09-028	139	142	East SLD																							
L11-265	SLD - mod	AM-10-048	7.4	10	East SLD																							
L11-167	SLD - mod	AM-07-003	300	303	East SLD																							
L10-174	SLD - mod	AM-09-031	89	92	East SLD	0.10	1.2	1.9	12	20	62		0.10	1.5		0.10	15	24		558	3.7	6.0			0.040	0.18		3.0
L11-251	SLD - mod	AM-10-042	24	27	East SLD																							
L11-245	SLD - mod	AM-09-036	162	165	East SLD																							
L11-279	SLD - mod	AM-10-061	425	428	East SLD																							
L10-179	SLD - mod	AM-09-036	219	222	East SLD	0.10	1.6	1.2	9.6	20	32		0.10	1.5		0.10	19	42		348	2.8	5.0			0.030	0.090		2.0
L11-235	SLD - mod	AM-09-030	62.8	64	East SLD																							
L11-236	SLD - mod	AM-09-030	113.5	117.96	East SLD																							
L10-183	SLD - mod	AM-10-043	114	117	East SLD	0.10	2.4	3.1	9.6	20	18		0.10	2.0		0.10	32	655		430	3.4	7.0			0.020	0.23		1.0
L10-190	SLD - mod	AM-10-040	130	133	East SLD	0.10	2.1	2.1	8.4	20	57		0.10	1.5		0.10	40	48		415	6.2	8.0			0.18	0.59		1.0
L11-247	SLD - mod	AM-10-040	81	84	PICR																							
L10-189	SLD - mod	AM-10-040	33	36	East SLD	0.40	2.5	8.1	60	20	14		0.10	3.4		0.10	62	67		790	3.4	6.0			0.080	0.090		2.0
L11-217	SLD - mod	AM-08-014	197	200	East SLD																							
L11-298	SLD - mod	AM-10-068	216	219	East SLD																							
L10-194	SLD - mod	AM-10-049	115	118	East SLD	0.20	1.0	2.2	12	20	27		0.10	2.6		0.10	12	29		621	1.6	5.0			0.040	0.070		4.0
L11-273	SLD - mod	AM-10-052	9	12	East SLD																							
L11-289	SLD - mod	AM-10-066	188	190.25	PICR																							
L11-223	SLD - mod	AM-09-019	260	263	East SLD																							
L11-301	SLD - mod	AM-10-070	15	18	East SLD																							
L11-220	SLD - mod	AM-08-015	228	231	East SLD																							
L11-221	SLD - mod	AM-08-015	278	281	East SLD																							
L11-280	SLD - mod	AM-10-063	6.71	9	East SLD																							
L11-281	SLD - mod	AM-10-063	48	51	East SLD																							
L11-282	SLD - mod	AM-10-063	99	102	East SLD																							
SLD - mod																												
n						69	69	69	63	69	69	6	69	69	6	69	69	69	6	69	69	69	6	6	69	69	6	69
Min						0.020	0.420	0.700	0.500	20.000	9.000	0.300	0.020	0.720	6.600	0.010	2.000	11.000	0.130	32.100	0.320	1.000	0.100	0.090	0.010	0.030	0.020	1.000
10^{th} PCTL						0.100	0.929	1.180	3.000	20.000	18.800	0.300	0.100	1.536	7.070	0.100	5.000	24.800	0.165	75.820	0.714	4.000	0.100	0.140	0.010	0.058	0.020	2.000
Median						0.100	1.460	2.400	13.500	20.000	67.000	0.350	0.100	2.580	9.570	0.100	12.800	42.000	0.223	347.900	2.270	6.000	0.100	0.210	0.040	0.090	0.020	3.000
90^{th} PCTL						0.200	1.924	6.960	54.520	20.000	334.600	0.450	0.100	4.594	14.950	0.100	30.780	82.800	1.215	809.660	4.380	7.000	0.100	0.265	0.150	0.182	0.040	5.000
Max						0.400	2.540	41.400	530.200	50.000	631.000	0.500	0.100	7.260	17.800	0.100	65.500	655.000	1.710	1098.900	8.260	9.000	0.100	0.270	0.520	1.350	0.050	12.000

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-445	SLD - strong	AW-06-026	228	231	West SLD																							
L10-060	SLD - strong	AW-07-069	102.8	105.8	West SVHYB	0.20	1.7	5.9	182	20	8.0		0.10	4.2		0.10	19	95		588	2.2	7.0			0.050	0.060		3.0
L10-067	SLD - strong	AW-06-029	186	189	West SLD	0.10	1.8	2.4	18	20	18		0.10	2.0		0.10	14	117		226	2.1	6.0			0.020	0.060		3.0
Z112558	SLD - strong	AW-08-098	276	277.65	West SLD	0.090	1.2	2.0		40	18	0.60	0.020	3.8	13	0.030	3.5	47	0.060	340	0.58	5.2	0.10	0.18	0.060	0.060	0.020	4.4
L10-072	SLD - strong	AN-07-003	199	202	East SLD	0.10	1.1	1.5	71	20	103		0.10	2.4		0.10	8.4	35		602	2.1	6.0			0.030	0.090		4.0
L11-408	SLD - strong	AN-08-067	170	173	East SLD																							
L10-095	SLD - strong	AN-08-036	121	124	East SLD	0.10	1.4	2.4	4.9	20	11		0.10	3.6		0.10	8.4	121		462	0.83	4.0			0.12	0.050		2.0
L11-401	SLD - strong	AN-08-062	78	81	East SLD																							
L10-094	SLD - strong	AN-08-073	285	288	East SLD	0.10	1.6	3.3	6.6	21	53		0.10	3.2		0.10	6.9	34		164	2.0	5.0			0.010	0.050		4.0
7R97303	SLD - strong	AN-08-073	53.45	56	East SLD	0.020	1.7	3.0		50	40	0.40	0.020	2.5	10.0	0.030	1.9	33	0.34	60	0.33	6.2	0.10	0.23	0.070	0.080	0.020	4.1
L11-152	SLD - strong	AE-10-096	298	301	East SLD																							
L10-110	SLD - strong	AN-08-051	262	265	East SLD	0.10	1.9	2.6	23	20	138		0.10	2.1		0.10	17	38		249	3.0	6.0			0.010	0.050		3.0
L11-395	SLD - strong	AN-08-057	197	200	East SLD																							
L11-385	SLD - strong	AN-08-051	322	325	East SLD																							
L11-411	SLD - strong	AN-08-072	49	52	East SLD																							
L10-114	SLD - strong	AN-08-055	240	243	East SLD	0.10	1.2	2.1	11	20	50		0.10	3.5		0.10	3.9	25		230	0.53	4.0			0.030	0.080		3.0
10E27285	SLD - strong	AE-10-092	299	302	East SLD	0.090	1.9	4.0		50	13	0.50	0.020	4.5	9.2	0.030	8.1	100	0.31	550	1.0	7.2	0.10	0.28	0.030	0.040	0.020	3.9
L10-093	SLD - strong	AE-08-047	267	270	IMH	0.10	1.6	2.1	0.50	20	16		0.10	3.4		0.10	8.6	45		7.0	1.2	5.0			0.030	0.070		3.0
L11-132	SLD - strong	AE-10-089	350	353	East SLD																							
L11-131	SLD - strong	AE-10-089	299	302	East SLD																							
10E27113	SLD - strong	AE-10-089	236	239	East SLD	0.020	0.97	2.0		40	88	0.30	0.020	1.7	10	0.010	2.2	39	0.34	54	0.34	4.4	0.10	0.31	0.070	0.060	0.020	3.6
10E13142	SLD - strong	AE-10-078	74	77	East SLD	0.11	2.0	3.0		60	21	0.30	0.020	2.7	11	0.13	20	88	0.31	496	3.3	9.1	0.20	0.25	0.010	0.10	0.040	4.6
L11-118	SLD - strong	AE-10-082	225	228	East SLD																							
L11-119	SLD - strong	AE-10-082	282	285	East SLD																							
L11-155	SLD - strong	AE-10-099	98	101	East SLD																							
10E15888	SLD - strong	AE-10-086	389	392	East SLD	0.010	1.6	7.0		60	251	0.30	0.020	6.2	6.1	0.030	31	364	3.5	1.3	4.6	6.3	0.10	0.20	0.10	0.20	0.060	2.8
L-AE-006-3	SLD - strong	AE-06-006	207	210	East SLD	0.10	1.5	2.8	82	20	33		0.10	2.7		0.10	19	28		515	3.7	6.0			0.020	0.070		3.0
L11-013	SLD - strong	AE-06-011	300	303	East SLD																							
7R48537	SLD - strong	AE-07-035	534	537	East SLD	0.070	2.0	5.0		50	158	0.50	0.020	4.2	5.1	0.020	7.4	52	0.27	436	0.92	6.2	0.10	0.13	0.040	0.080	0.020	2.2
L10-163	SLD - strong	AE-08-054	438	441	East SLD	0.10	1.3	2.9	6.6	20	80		0.10	2.0		0.10	44	32		304	2.7	6.0			0.31	0.080		2.0
SLD - strong																												
n						17	17	17	10	17	17	7	17	17	7	17	17	17	7	17	17	17	7	7	17	17	7	17
Min						0.010	0.970	1.500	0.500	20.000	8.000	0.300	0.020	1.690	5.120	0.010	1.900	25.000	0.060	1.300	0.330	4.000	0.100	0.130	0.010	0.040	0.020	2.000
10^{th} PCTL						0.020	1.164	2.000	4.460	20.000	12.200	0.300	0.020	2.018	5.732	0.026	2.980	30.400	0.186	35.440	0.454	4.240	0.100	0.160	0.010	0.050	0.020	2.120
Median						0.100	1.570	2.800	14.700	20.000	40.000	0.400	0.100	3.180	9.980	0.100	8.400	45.000	0.310	304.200	2.020	6.000	0.100	0.230	0.030	0.070	0.020	3.000
90^{th} PCTL						0.104	1.934	5.360	91.690	54.000	146.000	0.540	0.100	4.342	11.520	0.100	24.260	118.600	1.600	565.200	3.454	7.080	0.140	0.292	0.108	0.094	0.048	4.220
Max						0.200	2.040	7.000	181.600	60.000	251.000	0.600	0.100	6.230	12.600	0.130	43.700	364.000	3.490	602.300	4.630	9.100	0.200	0.310	0.310	0.200	0.060	4.600

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-466	SLD - weak	AW-07-045	118	121	West MAFV																							
L10-015	SLD - weak	AW-08-085	90	93	PICR	0.10	1.8	1.7	27	20	33		0.10	1.7		0.10	21	31		221	5.4	6.0			0.010	0.14		6.0
L10-014	SLD - weak	AW-08-078	496	499	West SLD	0.10	1.4	3.2	3.9	20	298		0.10	2.9		0.10	42	30		207	4.3	6.0			0.050	0.20		6.0
G9512	SLD - weak	AW-07-045	289	292	IMH	0.030	2.2	12		50	35	0.40	0.020	3.8	8.9	0.010	11	45	0.64	199	1.7	6.3	0.10	0.13	1.7	0.10	0.020	3.4
L11-468	SLD - weak	AW-07-045	298	301	IMH																							
L11-527	SLD - weak	AW-08-088	21.34	24	PICR																							
L10-019	SLD - weak	AW-06-027	294	297	IMH	0.10	1.7	2.0	5.5	20	100		0.10	2.1		0.10	26	34		186	6.9	8.0			0.010	0.11		3.0
L11-529	SLD - weak	AW-08-090	16.76	19	PICR																							
L11-501	SLD - weak	AW-07-073	380	383	West SLD																							
L10-044	SLD - weak	AW-07-058	161	164	West SLD	0.20	0.86	8.3	4.5	20	13		0.10	1.5		0.10	72	15		756	3.4	4.0			0.030	0.050		3.0
L10-031	SLD - weak	AW-06-030	258	261	West SVHYB	0.10	1.4	2.6	4.1	20	118		0.10	2.8		0.10	10	20		139	2.0	5.0			0.010	0.080		3.0
L11-454	SLD - weak	AW-06-030	243	246	IMH																							
L11-484	SLD - weak	AW-07-058	323	326	West SLD																							
L11-548	SLD - weak	AW-08-102	278.75	281.85	PICR																							
7R12496	SLD - weak	AW-07-057	76	79	PICR	0.18	1.2	2.0		50	21	0.40	0.020	2.0	6.8	0.030	10	37	0.050	1030	0.78	5.2	0.10	0.20	0.010	0.070	0.020	3.0
L10-062	SLD - weak	AW-07-057	115	118	West MAFV	0.10	2.2	9.3	0.50	20	40		0.10	2.8		0.10	17	125		103	2.6	7.0			0.28	0.22		3.0
L11-482	SLD - weak	AW-07-057	291	294	PICR																							
L11-446	SLD - weak	AW-06-026	393	396	West SLD																							
L10-090	SLD - weak	AW-07-052	100	103	East MAFV	0.10	2.9	2.8	4.9	20	208		0.10	1.9		0.10	29	303		184	2.9	6.0			0.060	1.8		2.0
L11-585	SLD - weak	AW-10-118	241	242.68	IMH																							
L11-458	SLD - weak	AW-06-036	323	326	East SLD																							
L10-081	SLD - weak	AN-08-042	118	121	East SLD	0.10	0.68	2.1	12	20	237		0.10	3.0		0.10	11	32		328	2.7	3.0			0.29	0.10		5.0
10E28870	SLD - weak	AW-11-126	152	155	IMH																							
L10-097	SLD - weak	AW-07-056	105	108	East MAFV	0.10	3.1	0.60	10	20	191		0.10	1.4		0.10	30	290		450	2.7	6.0			0.010	1.5		2.0
L11-350	SLD - weak	AN-08-021	208	211	East SLD																							
L11-478	SLD - weak	AW-07-055	99	102	East MAFV																							
L10-123	SLD - weak	AN-08-047	170	173	East SLD	0.10	1.3	1.4	16	20	122		0.10	2.7		0.10	12	24		596	3.3	6.0			0.070	0.12		4.0
L11-383	SLD - weak	AN-08-050	199	202	East SLD																							
L11-082	SLD - weak	AE-08-053	149.52	152	East SLD																							
L11-388	SLD - weak	AN-08-053	74	77	East SLD																							
L11-392	SLD - weak	AN-08-056	430	433	East SLD																							
L11-382	SLD - weak	AN-08-049	148	151	East SLD																							
L11-060	SLD - weak	AE-07-043	446	449	East SLD																							
L11-364	SLD - weak	AN-08-028	272	275	East SLD																							
L11-375	SLD - weak	AN-08-041	364	367	East SLD																							
SL-56	SLD - weak	AN-08-034	396	399	East SLD	0.10	1.4	2.7	20	20	104		0.10	1.4		0.10	22	55		664	4.2	6.0			0.11	0.13		4.0
L11-365	SLD - weak	AN-08-030	201.5	204	East SLD																							
SL-57	SLD - weak	AN-08-034	402	405	East SLD	0.10	1.2	2.2	8.0	20	96		0.10	1.4		0.10	16	62		232	3.0	5.0			0.15	0.11		3.0
SL-60	SLD - weak	AN-08-034	420	423	East SLD	0.10	1.7	4.2	17	20	60		0.10	4.1		0.10	11	40		541	2.7	7.0			0.030	0.15		4.0
L11-335	SLD - weak	AN-07-011	214	217	East SLD																							
L11-027	SLD - weak	AE-07-024	529	532	East SLD																							
SL-70	SLD - weak	AN-08-034	480	483	East SLD	0.10	1.3	3.0	26	20	8.0		0.10	3.1		0.10	7.3	55		247	0.88	5.0			0.010	0.030		3.0
L11-061	SLD - weak	AE-07-044	18	20.42	East SLD																							
SL-71	SLD - weak	AN-08-034	486	489	East SLD	0.10	1.5	5.7	7.6	20	10		0.10	3.4		0.10	4.9	61		210	0.62	5.0			0.010	0.050		6.0
SL-72	SLD - weak	AN-08-034	492	494	East SLD	0.10	2.1	9.8	48	20	10		0.10	3.1		0.10	13	113		790	1.6	7.0			0.020	0.070		4.0
L10-154	SLD - weak	AN-08-074	74	77	East SLD	0.10	2.1	3.6	4.6	20	150		0.10	0.64		0.10	75	539		101	4.7	5.0			0.010	0.28		1.0
L10-140	SLD - weak	AN-07-007	229	232	East SLD	0.10	2.3	2.7	64	20	110		0.10	2.5		0.10	43	223		780	3.0	8.0			0.060	0.57		2.0
L11-363	SLD - weak	AN-08-027	220	223	East SLD																							
L11-362	SLD - weak	AN-08-027	183	186	East MAFV																							
L10-145	SLD - weak	AN-08-027	133	136	East SLD	0.10	1.5	1.9	2.0	20	65		0.10	2.1		0.10	31	132		94	3.1	6.0			0.030	0.16		3.0
L11-212	SLD - weak	AM-08-011	253	256	East SLD																							
L11-080	SLD - weak	AE-08-052	464	465.43	East MAFV																							
L10-153	SLD - weak	AN-07-013	190	193	East SLD	0.10	2.1	1.3	20	20	132		0.10	2.3		0.10	13	39		266	3.5	6.0			0.010	0.070		2.0
L11-348	SLD - weak	AN-07-016	273	276	East SLD																							
L11-024	SLD - weak	AE-07-019	472	475	East SLD																							
L11-347	SLD - weak	AN-07-016	226.5	229	East SLD																							
L11-209	SLD - weak	AM-08-010	298	301	East SLD																							
L11-357	SLD - weak	AN-08-023	264	267	East SLD																							
L11-346	SLD - weak	AN-07-016	175	178	East SLD																							
L11-079	SLD - weak	AE-08-052	402	405	East SLD																							
L11-345	SLD - weak	AN-07-016	124	127	East SLD																							
L11-358	SLD - weak	AN-08-023	350	353	East SLD																							
L11-211	SLD - weak	AM-08-011	122	125	East SLD																							
L11-339	SLD - weak	AN-07-013	52	55	East SLD																							
L11-334	SLD - weak	AN-07-010	213	216	East SLD																							
L11-210	SLD - weak	AM-08-011	54	57	East SLD																							
L11-019	SLD - weak	AE-07-014	7	10	East SLD																							
L11-208	SLD - weak	AM-08-010	202	205	East SLD																							

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-330	SLD - weak	AN-07-004	449	452	East SLD																							
L11-078	SLD - weak	AE-08-052	318	321	East SLD																							
L11-033	SLD - weak	AE-07-026	392	395	East SLD																							
L11-326	SLD - weak	AN-07-001	81	84	East SLD																							
L10-210	SLD - weak	AM-10-054	68	71	East SLD	0.10	1.8	3.1	19	20	67		0.10	2.3		0.10	24	218		301	4.0	7.0			0.070	0.13		2.0
L10-209	SLD - weak	AM-10-054	35	38	East SLD	0.10	1.6	1.8	14	20	46		0.10	2.0		0.10	20	42		273	4.0	6.0			0.19	0.12		2.0
L11-206	SLD - weak	AM-08-009	297.15	300	PICR																							
L-AE-013-1	SLD - weak	AE-06-013	114	117	East SLD	0.10	1.1	2.3	23	20	96		0.10	1.5		0.10	19	51		485	2.8	4.0			0.030	0.070		2.0
L10-144	SLD - weak	AE-07-026	230	233	East SLD	0.10	1.9	4.3	19	20	58		0.10	2.7		0.10	66	53		479	4.3	6.0			0.27	0.070		2.0
L11-085	SLD - weak	AE-08-057	76	79	East SLD																							
L11-018	SLD - weak	AE-06-013	60	63	East SLD																							
L11-205	SLD - weak	AM-08-009	213	216	East SLD																							
L11-207	SLD - weak	AM-08-010	49	52	East SLD																							
L11-327	SLD - weak	AN-07-001	201	204	East SLD																							
L10-159	SLD - weak	AE-08-052	220	223	East SLD	0.10	1.7	3.8	0.50	20	186		0.10	2.7		0.10	18	40		134	3.4	6.0			0.080	0.13		4.0
L11-328	SLD - weak	AN-07-001	246	249	East SLD																							
L11-093	SLD - weak	AE-08-063	299	302	East SLD																							
L10-173	SLD - weak	AM-08-009	93	96	East SLD	0.10	1.2	1.0	4.0	20	272		0.10	1.7		0.10	13	33		83	1.9	4.0			0.010	0.12		2.0
L11-213	SLD - weak	AM-08-012	24	27	East SLD																							
L11-087	SLD - weak	AE-08-060	189	192	East SLD																							
L11-203	SLD - weak	AM-08-009	57	60	East SLD																							
L11-202	SLD - weak	AM-08-009	24.38	27	OVBN																							
L11-088	SLD - weak	AE-08-060	249	252	East SLD																							
L11-108	SLD - weak	AE-10-076	274	277	East SLD																							
L11-089	SLD - weak	AE-08-060	312	315	East SLD																							
L11-090	SLD - weak	AE-08-060	369	372	East SLD																							
L11-162	SLD - weak	AM-07-003	15.84	18	East SLD																							
L11-175	SLD - weak	AM-07-005	153	156	PICR																							
L10-187	SLD - weak	AM-07-005	98	101	PICR	0.20	2.3	2.2	18	20	74		0.10	2.5		0.10	76	71		1186	10	11			0.010	0.080		4.0
L11-176	SLD - weak	AM-07-006	74.45	76.45	PICR																							
L11-174	SLD - weak	AM-07-005	47	50	East SLD																							
L11-169	SLD - weak	AM-07-004	8	11	East SLD																							
L11-170	SLD - weak	AM-07-004	50	53	East SLD																							
L11-201	SLD - weak	AM-07-008	51	54	East SLD																							
L10-186	SLD - weak	AM-07-004	148	151	East SLD	0.10	1.6	3.4	3.2	20	101		0.10	1.9		0.10	20	31		151	4.0	6.0			0.040	0.10		4.0
L11-295	SLD - weak	AM-10-067	393	396	East SLD																							
L11-168	SLD - weak	AM-07-003	339	342	East SLD																							
L11-171	SLD - weak	AM-07-004	199	202	East SLD																							
L11-178	SLD - weak	AM-07-007	6	9	East SLD																							
L11-179	SLD - weak	AM-07-007	18	21	East SLD																							
L11-180	SLD - weak	AM-07-007	30	33	East SLD																							
L10-176	SLD - weak	AM-07-003	378	381	East MAFV	0.10	1.4	2.6	3.6	20	138		0.10	1.8		0.10	35	30		384	2.3	6.0			0.030	0.11		2.0
L11-181	SLD - weak	AM-07-007	42	45	East SLD																							
L11-182	SLD - weak	AM-07-007	54	57	East SLD																							
L11-242	SLD - weak	AM-09-033	217	220	East SLD																							
L11-172	SLD - weak	AM-07-004	250	253	East SLD																							
L11-183	SLD - weak	AM-07-007	66	69	East SLD																							
L11-184	SLD - weak	AM-07-007	78	81	East SLD																							
L11-185	SLD - weak	AM-07-007	90	93	East SLD																							
L11-186	SLD - weak	AM-07-007	102	105	East SLD																							
L11-187	SLD - weak	AM-07-007	114	117	East SLD																							
L11-188	SLD - weak	AM-07-007	126	129	East SLD																							
L11-190	SLD - weak	AM-07-007	150	153	East SLD																							
L11-192	SLD - weak	AM-07-007	174	177	East SLD																							
L11-193	SLD - weak	AM-07-007	186	189	East SLD																							
L11-194	SLD - weak	AM-07-007	198	201	East SLD																							
L11-195	SLD - weak	AM-07-007	210	213	East SLD																							
L11-234	SLD - weak	AM-09-030	12.5	15.5	East SLD																							
L11-237	SLD - weak	AM-09-030	173	176	East SLD																							
L11-258	SLD - weak	AM-10-045	76.65	78.33	East SLD																							
L11-257	SLD - weak	AM-10-045	48	51	East SLD																							
L11-269	SLD - weak	AM-10-049	10	13	East SLD																							
L11-271	SLD - weak	AM-10-051	72	75	East SLD																							
L10-195	SLD - weak	AM-10-051	24	27	East SLD	0.10	2.1	2.3	4.4	20	20		0.10	2.6		0.10	12	57		348	3.4	6.0			0.010	0.080		3.0
L11-218	SLD - weak	AM-08-014	341	344	East SLD																							
L11-302	SLD - weak	AM-10-070	57	60	PICR																							
L11-286	SLD - weak	AM-10-065	97	99.56	PICR																							
L11-283	SLD - weak	AM-10-064	48	51	PICR																							
SLD - weak																												
n						32	32	32	30	32	32	2	32	32	2	32	32	32	2	32	32	32	2	2	32	32	2	32
Min						0.030	0.680	0.600	0.500	20.000	8.000	0.400	0.020	0.640	6.770	0.010	4.900	15.000	0.050	82.600	0.620	3.000	0.100	0.130	0.010	0.030	0.020	1.000
10^{th} PCTL						0.100	1.203	1.430	3.080	20.000	13.700	0.400	0.100	1.445	6.979	0.100	10.170	30.000	0.109	105.910	1.583	4.100	0.100	0.137	0.010	0.070	0.020	2.000
Median						0.100	1.635	2.650	9.050	20.000	96.000	0.400	0.100	2.330	7.815	0.100	19.250	48.000	0.345	269.300	3.065	6.000	0.100	0.165	0.030	0.110	0.020	3.000
90^{th} PCTL						0.100	2.260	8.040	25.840	20.000	206.300	0.400	0.100	3.106	8.651	0.100	63.780	222.500	0.581	777.410	4.616	7.000	0.100	0.193	0.262	0.274	0.020	4.900
Max						0.200	3.060	12.000	64.000	50.000	298.000	0.400	0.100	4.130	8.860	0.100	76.400	539.000	0.640	1185.900	10.090	11.000	0.100	0.200	1.700	1.790	0.020	6.000

Lorax Sample	Lithology	Drill Hole	From	To	Model Unit	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
			m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-400	SLPH	AN-08-061	297	300	East SLD																							
L11-380	SLPH	AN-08-047	220	223	PICR																							
L10-126	SLPH	AN-08-049	201	204	East SLD	0.10	2.4	1.3	4.0	20	168		0.10	1.1		0.10	68	528		236	4.9	5.0			0.010	0.83		1.0
L11-238	SLPH	AM-09-031	18.5	20.55	OVBN																							
SLPH																												
n						1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	0	0	1	1	0	1
Min						0.100	2.410	1.300	4.000	20.000	168.000	#NUM!	0.100	1.060	#NUM!	0.100	67.800	528.000	#NUM!	235.600	4.940	5.000	#NUM!	#NUM!	0.010	0.830	#NUM!	1.000
10th PCTL						0.100	2.410	1.300	4.000	20.000	168.000	#NUM!	0.100	1.060	#NUM!	0.100	67.800	528.000	#NUM!	235.600	4.940	5.000	#NUM!	#NUM!	0.010	0.830	#NUM!	1.000
Median						0.100	2.410	1.300	4.000	20.000	168.000	#NUM!	0.100	1.060	#NUM!	0.100	67.800	528.000	#NUM!	235.600	4.940	5.000	#NUM!	#NUM!	0.010	0.830	#NUM!	1.000
90th PCTL						0.100	2.410	1.300	4.000	20.000	168.000	#NUM!	0.100	1.060	#NUM!	0.100	67.800	528.000	#NUM!	235.600	4.940	5.000	#NUM!	#NUM!	0.010	0.830	#NUM!	1.000
Max						0.100	2.410	1.300	4.000	20.000	168.000	#NUM!	0.100	1.060	#NUM!	0.100	67.800	528.000	#NUM!	235.600	4.940	5.000	#NUM!	#NUM!	0.010	0.830	#NUM!	1.000
L11-573	SVHYB	AW-10-112	147	150	IMH																							
L11-493	SVHYB	AW-07-069	151	154	West SVHYB																							
L10-061	SVHYB	AW-07-069	272	275	West SLD	0.10	1.2	2.4	21	20	72		0.10	2.4		0.10	17	178		392	2.8	4.0			0.010	0.11		4.0
L11-121	SVHYB	AE-10-083	250	253	East SVHYB																							
L-AE-007-2	SVHYB	AE-06-007	227	230	East SLD	0.10	0.83	2.5	16	20	14		0.10	2.1		0.10	19	33		367	0.96	3.0			0.060	0.060		2.0
L11-356	SVHYB	AN-08-023	199	201	East SLD																							
7R48465	SVHYB	AE-07-035	330	333	East SVHYB	0.080	2.4	2.0		50	52	0.20	0.020	4.6	4.4	0.020	25	60	0.96	240	3.1	9.5	0.10	0.11	0.12	0.15	0.020	2.3
L10-157	SVHYB	AE-08-062	117	120	East SLD	0.10	2.2	8.2	1.4	20	387		0.10	4.9		0.10	27	182		26	4.0	9.0			0.020	0.12		14
L11-276	SVHYB	AM-10-053	9	12	East SLD																							
SVHYB																												
n						4	4	4	3	4	4	1	4	4	1	4	4	4	1	4	4	4	1	1	4	4	1	4
Min						0.080	0.830	2.000	1.400	20.000	14.000	0.200	0.020	2.140	4.360	0.020	16.600	33.000	0.960	26.400	0.960	3.000	0.100	0.110	0.010	0.060	0.020	2.000
10th PCTL						0.086	0.944	2.120	4.260	20.000	25.400	0.200	0.044	2.212	4.360	0.044	17.200	41.100	0.960	90.480	1.509	3.300	0.100	0.110	0.013	0.075	0.020	2.090
Median						0.100	1.695	2.450	15.700	20.000	62.000	0.200	0.100	3.480	4.360	0.100	21.700	119.000	0.960	303.300	2.940	6.500	0.100	0.110	0.040	0.115	0.020	3.150
90th PCTL						0.100	2.348	6.490	19.940	41.000	292.500	0.200	0.100	4.804	4.360	0.100	26.340	180.800	0.960	384.100	3.699	9.350	0.100	0.110	0.102	0.141	0.020	11.000
Max						0.100	2.420	8.200	21.000	50.000	387.000	0.200	0.100	4.900	4.360	0.100	27.000	182.000	0.960	391.600	3.960	9.500	0.100	0.110	0.120	0.150	0.020	14.000
L10-203	Unmin. Dyke	AW-10-118	112	115	IMH	0.20	1.9	2.5	25	20	54		0.10	3.3		0.10	16	25		372	4.4	6.0			0.040	0.080		4.0
L11-593	Unmin. Dyke	AW-10-122	249	252	East SLD																							
10E28866	Unmin. Dyke	AW-11-126	128	131	IMH																							
L10-080	Unmin. Dyke	AN-08-029	370	373	East SLD	0.10	1.9	2.6	5.1	20	609		0.10	2.2		0.10	21	34		170	4.8	7.0			0.010	0.090		4.0
L11-378	Unmin. Dyke	AN-08-043	323	325.95	PICR																							
10E28848	Unmin. Dyke	AW-11-126	19	22	IMH																							
L10-104	Unmin. Dyke	AN-08-069	117	120	East SLD	0.10	2.1	3.4	12	20	205		0.10	3.4		0.10	23	23		420	4.6	8.0			0.050	0.13		6.0
L11-398	Unmin. Dyke	AN-08-060	179	182	East SLD																							
L11-403	Unmin. Dyke	AN-08-062	269	271.14	East SLD																							
L11-127	Unmin. Dyke	AE-10-087	147	150	IMH																							
L11-406	Unmin. Dyke	AN-08-064	99	102	East SLD																							
L11-070	Unmin. Dyke	AE-08-048	286	289	East SLD																							
L11-394	Unmin. Dyke	AN-08-057	97	100	East SLD																							
L11-065	Unmin. Dyke	AE-08-047	51	54	IMH																							
L11-129	Unmin. Dyke	AE-10-089	133	136	IMH																							
L11-360	Unmin. Dyke	AN-08-025	272.83	275.83	East SLD																							
L11-059	Unmin. Dyke	AE-07-043	101	104	East SLD																							
L-AE-002-3	Unmin. Dyke	AE-06-002	362	365	East SLD	0.10	0.73	2.6	4.4	179	255		0.10	1.7		0.10	3.9	61		165	1.4	3.0			0.010	0.090		2.0
L11-062	Unmin. Dyke	AE-07-044	89	92	East SLD																							
L11-106	Unmin. Dyke	AE-10-074	116	117.96	East SLD																							
L11-104	Unmin. Dyke	AE-10-070	98	100	East SLD																							
L11-333	Unmin. Dyke	AN-07-010	150	153	East SLD																							
L11-332	Unmin. Dyke	AN-07-010	81	84	East SLD																							
L10-124	Unmin. Dyke	AE-07-036	286	289	IMH	0.10	2.1	4.8	0.50	20	22		0.10	3.4		0.10	5.1	27		34	0.91	6.0			0.070	0.040		3.0
L10-150	Unmin. Dyke	AN-07-006	249	252	East SLD	0.10	0.94	3.1	59	20	279		0.10	2.4		0.10	11	42		662	2.9	5.0			0.020	0.11		5.0
L11-204	Unmin. Dyke	AM-08-009	126	129	East SLD																							
L11-039	Unmin. Dyke	AE-07-032	47.85	50.9	East SLD																							
L10-152	Unmin. Dyke	AN-07-006	516	519	PICR	0.10	0.98	2.8	2.9	20	79		0.10	4.8		0.10	22	29		236	1.6	4.0			0.030	0.11		4.0
L11-109	Unmin. Dyke	AE-10-076	328	331	East SLD																							
L11-102	Unmin. Dyke	AE-10-067	126	129.1	East SLD																							
L10-185	Unmin. Dyke	AM-07-004	94	97	East SLD	0.10	1.3	3.7	21	20	466		0.10	3.6		0.10	23	57		136	4.0	6.0			0.14	0.19		5.0
L11-250	Unmin. Dyke	AM-10-041	185	188	East SLD																							
L11-248	Unmin. Dyke	AM-10-041	9.3	14	East SLD																							
Unmin. Dyke																												
n						8	8	8	8	8	8	0	8	8	0	8	8	8	0	8	8	8	0	0	8	8	0	8
Min						0.100	0.730	2.500	0.500	20.000	22.000	#NUM!	0.100	1.670	#NUM!	0.100	3.900	23.000	#NUM!	33.900	0.910	3.000	#NUM!	#NUM!	0.010	0.040	#NUM!	2.000
10th PCTL						0.100	0.877	2.570	2.180	20.000	44.400	#NUM!	0.100	2.041	#NUM!	0.100	4.740	24.400	#NUM!	105.230	1.225	3.700	#NUM!	#NUM!	0.010	0.068	#NUM!	2.700
Median						0.100	1.590	2.950	8.550	20.000	230.000	#NUM!	0.100	3.330	#NUM!	0.100	18.500	31.500	#NUM!	203.100	3.440	6.000	#NUM!	#NUM!	0.035	0.100	#NUM!	4.000
90th PCTL						0.130	2.100	4.030	35.190	67.700	508.900	#NUM!	0.100	3.930	#NUM!	0.100	23.160	58.200	#NUM!	492.510	4.688	7.300	#NUM!	#NUM!	0.091	0.148	#NUM!	5.300
Max						0.200	2.100	4.800	58.500	179.000	609.000	#NUM!	0.100	4.770	#NUM!	0.100	23.300	61.000	#NUM!	662.400	4.800	8.000	#NUM!	#NUM!	0.140	0.190	#NUM!	6.000
All Mine																												
n						286	286	286	225	286	286	61	286	286	61	286	286	286	61	286	286	286	61	61	286	286	61	286
Min						0.010	0.420	0.600	0.500	10.000	8.000	0.100	0.020	0.240	1.100	0.010	1.900	5.000	0.050	1.300	0.320	1.000	0.100	0.050	0.010	0.030	0.020	0.400
10th PCTL						0.030	1.150	1.200	0.800	20.000	26.000	0.100	0.020	0.515	1.860	0.020	8.250	24.500	0.140	32.050	1.235	4.000	0.100	0.060	0.010	0.065	0.020	1.000
Median						0.100	1.805	2.750	8.000	20.000	102.000	0.100	0.100	2.210	4.280	0.100	25.250	64.500	0.530	168.950	3.975	6.000	0.200	0.130	0.030	0.130	0.020	2.000
90th PCTL						0.100	2.820	8.050	54.880	60.000	393.000	0.400	0.100	4.310	10.400	0.100	61.650	593.000	2.390	698.850	7.535	9.000	0.200	0.230	0.145	1.240	0.040	4.000
Max						0.400	4.430	54.200	530.200	179.000	2010.000	0.600	0.200	8.320	17.800	0.720	83.100	1380.000	6.370	2281.800	12.680	14.000	0.300	0.310	12.090	3.130	0.070	14.000

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
113642	IMH	6.0	0.070	2.4	465	0.90	0.12	0.060	52	0.064	0.50	5.6	0.050	0.20	14	1.0	1.2	141	0.050	0.16	0.050	0.10	0.22	0.020	0.24	428	0.10	4.4	0.50	37	5.7
113925	IMH	4.0	0.030	1.6	431	2.3	0.050	0.050	40	0.011	0.50	1.4	0.11	0.81	16	1.0	0.90	34	0.050	0.080	0.090	0.10	0.16	0.020	0.050	555	0.10	2.2	0.20	48	4.2
113977	IMH	6.0	0.060	1.7	458	1.1	0.090	0.050	14	0.037	0.40	2.9	0.010	0.050	17	1.0	1.0	63	0.050	0.16	0.050	0.10	0.21	0.020	0.080	485	0.10	4.6	0.50	38	5.6
113577	IMH	6.0	0.10	1.3	460	1.6	0.070	0.20	19	0.15	1.4	4.8	0.32	0.080	6.8	1.0	0.80	64	0.050	0.30	0.070	0.20	0.24	0.020	0.16	271	0.20	8.4	0.80	41	3.7
113613	IMH	6.0	0.17	1.1	245	6.8	0.050	0.10	8.5	0.22	0.40	4.0	0.020	0.050	4.6	1.0	1.6	42	0.050	0.40	0.050	0.80	0.080	0.020	0.81	105	0.20	12	1.3	16	2.8
L11-470	IMH																														
L10-004	IMH			2.0	442	0.20	0.11		6.6	0.071	0.70		0.20	0.30	12	0.50		143			0.20	0.20	0.17	0.10	0.10	290	0.10			23	
L11-471	IMH																														
L11-554	IMH																														
L11-553	IMH																														
L11-464	IMH																														
L11-465	IMH																														
L11-467	IMH																														
L10-003	IMH			1.2	366	0.70	0.068		30	0.071	0.70		0.050	0.10	6.8	0.50		60			0.20	0.10	0.17	0.10	0.10	398	0.10			30	
L11-462	IMH																														
L10-006	IMH			1.8	323	0.10	0.11		75	0.088	0.40		0.11	0.10	5.5	0.50		77			0.20	0.10	0.21	0.10	0.10	243	0.10			21	
L10-008	IMH			1.7	351	0.40	0.054		34	0.070	0.40		0.050	0.20	8.7	0.50		78			0.20	0.10	0.17	0.10	0.10	328	0.10			33	
L10-013	IMH			3.5	820	4.5	0.030		27	0.087	0.50		0.050	1.1	33	0.50		118			0.20	0.20	0.010	0.10	0.10	214	0.10			33	
L11-506	IMH																														
L10-011	IMH			2.4	742	1.3	0.016		20	0.13	1.4		0.050	0.30	25	0.50		157			0.20	0.30	0.029	0.10	0.10	228	0.10			26	
L11-444	IMH																														
L11-505	IMH																														
L-AW-025-2	IMH			3.9	481	1.1	0.050		202	0.092	1.3		0.050	0.10	9.8	0.50		59				0.20	0.19	0.10	0.10	211	0.10			29	
L10-010	IMH			2.0	516	0.10	0.11		7.8	0.22	0.50		0.050	0.10	8.9	0.50		186			0.20	0.10	0.15	0.10	0.10	301	0.10			32	
L11-557	IMH																														
L11-443	IMH																														
L11-578	IMH																														
L10-196	IMH			1.5	362	0.60	0.13		19	0.16	0.40		0.050	0.10	7.9	0.50		154			0.20	0.10	0.093	0.10	0.10	236	0.10			25	
L11-504	IMH																														
L11-503	IMH																														
L10-197	IMH			2.4	514	0.30	0.067		83	0.14	0.50		0.050	0.10	7.1	0.50		146			0.20	0.10	0.13	0.10	0.10	279	0.10			29	
L-AW-025-1	IMH			3.0	435	2.9	0.059		34	0.14	1.0		0.050	0.30	19	0.60		78				0.10	0.21	0.10	0.10	311	0.10			23	
L11-450	IMH																														
L10-198	IMH			2.2	359	0.20	0.078		47	0.14	0.40		0.050	0.10	5.2	0.50		92			0.20	0.10	0.11	0.10	0.10	269	0.10			25	
L10-023	IMH			2.8	417	0.10	0.038		42	0.18	0.90		0.050	0.10	7.6	0.50		64			0.20	0.30	0.27	0.10	0.10	300	0.10			22	
L11-448	IMH																														
L11-556	IMH																														
L11-447	IMH																														
L10-199	IMH			1.8	411	0.20	0.047		21	0.15	0.60		0.050	0.10	8.5	0.50		107			0.20	0.20	0.10	0.10	0.20	231	0.10			28	
L11-495	IMH																														
L10-200	IMH			1.8	304	1.5	0.038		22	0.17	0.50		0.050	0.10	6.7	0.50		67			0.20	0.10	0.11	0.10	0.10	243	0.10			21	
L10-021	IMH			2.6	371	0.10	0.37		37	0.028	0.40		0.050	0.10	7.4	0.50		83			0.20	0.10	0.39	0.10	0.10	684	0.10			21	
L11-499	IMH																														
L11-498	IMH																														
L11-496	IMH																														
L11-497	IMH																														
L10-020	IMH			1.9	280	1.2	0.033		22	0.10	0.60		0.050	0.10	7.5	0.50		48			0.20	0.10	0.18	0.10	0.10	236	0.10			17	
L11-502	IMH																														
L10-030	IMH			1.7	254	0.40	0.058		20	0.061	0.60		0.050	0.20	7.2	0.50		60			0.20	0.10	0.20	0.10	0.10	229	0.10			22	
L11-453	IMH																														
L10-029	IMH			2.3	418	0.60	0.023		24	0.051	0.90		0.050	0.20	9.8	0.50		82			0.20	0.10	0.23	0.10	0.10	309	0.10			31	
L11-452	IMH																														
L11-566	IMH																														
AX003726	IMH	4.0	0.080	1.6	423	6.3	0.28	0.070	16	0.23	0.40	3.2	0.040	0.050	11	1.0	0.70	313	0.050	0.24	0.050	0.10	0.13	0.020	0.15	432	0.10	6.0	0.50	32	4.8
L11-571	IMH																														
AX003793	IMH	6.0	0.040	2.0	366	0.96	0.060	0.050	23	0.040	0.40	3.6	0.020	0.050	13	1.0	0.70	87	0.050	0.10	0.050	0.10	0.21	0.020	0.15	305	0.10	2.9	0.30	25	3.6
AX003761	IMH	2.0	0.050	1.4	344	2.0	0.12	0.060	31	0.084	0.40	3.2	0.010	0.050	11	1.0	0.70	82	0.050	0.16	0.050	0.10	0.18	0.020	0.11	371	0.10	4.2	0.40	28	4.9
AX022630	IMH	9.0	0.060	2.3	508	1.6	0.050	0.050	17	0.050	0.60	5.6	0.010	0.41	19	1.0	0.80	90	0.050	0.15	0.050	0.10	0.22	0.020	0.33	442	0.10	4.2	0.40	29	3.9
AX003981	IMH	4.0	0.070	1.0	351	1.9	0.10	0.18	17	0.076	0.80	4.0	0.010	0.20	7.0	1.0	0.90	88	0.050	0.17	0.050	0.10	0.21	0.020	0.38	355	0.20	4.8	0.50	26	5.0
AX022643	IMH	1.0	0.11	3.9	808	2.2	0.030	0.050	9.1	0.036	0.60	6.0	0.010	1.6	22	1.0	0.60	129	0.050	0.28	0.050	0.10	0.010	0.020	0.16	263	0.10	8.0	0.80	25	1.9
AX004015	IMH	12	0.10	2.3	722	1.0	0.080	0.080	28	0.13	0.70	6.9	0.010	1.3	27	1.0	0.90	98	0.050	0.25	0.050	0.10	0.22	0.020	0.12	407	0.10	7.1	0.60	34	3.2
AX003952	IMH	4.0	0.050	0.92	393	1.9	0.20	0.10	22	0.094	0.40	2.3	0.010	0.050	7.1	1.0	9.6	128	0.050	0.15	0.050	0.10	0.16	0.020	0.060	428	0.10	3.8	0.30	33	4.3
L11-574	IMH																														
L11-570	IMH																														
L11-575	IMH																														
L11-576	IMH																														
L11-510	IMH																														
L11-569	IMH																														
L11-577	IMH																														
L11-509	IMH																														
L11-513	IMH																														
L11-508	IMH																														
L11-507	IMH																														
L11-512	IMH																														
L11-561	IMH																														
L11-560	IMH																														
L11-559	IMH																														

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-511	IMH																														
L10-052	IMH			1.7	310	1.2	0.044		28	0.043	0.40		0.050	0.10	11	0.50		42			0.20	0.10	0.15	0.10	0.20	321	0.10			24	
L10-053	IMH			1.6	325	1.0	0.052		31	0.063	0.50		0.12	0.10	7.6	0.50		58			0.20	0.10	0.19	0.10	0.10	355	0.10			30	
L10-058	IMH			1.9	518	0.50	0.042		42	0.043	0.60		0.050	0.10	14	0.50		52			0.20	0.10	0.20	0.10	0.10	427	0.10			43	
L11-536	IMH																														
L10-057	IMH			1.9	354	0.20	0.089		21	0.22	0.60		0.050	0.10	6.2	0.50		91			0.20	0.20	0.23	0.10	0.10	329	0.10			29	
L11-531	IMH																														
L10-064	IMH			1.6	284	0.50	0.073		37	0.017	1.2		0.050	0.10	6.6	0.50		45			0.20	0.10	0.34	0.10	0.10	345	0.10			33	
L11-583	IMH																														
L10-201	IMH			2.2	488	0.10	0.063		47	0.076	0.50		0.050	0.10	9.2	0.50		69			0.20	0.20	0.18	0.10	0.10	288	0.10			26	
L11-541	IMH																														
L10-202	IMH			1.3	226	0.20	0.064		15	0.10	0.60		0.050	0.10	3.6	0.50		59			0.20	0.30	0.25	0.10	0.10	238	0.10			17	
L10-204	IMH			1.5	406	0.20	0.059		51	0.053	0.50		0.050	0.10	8.8	0.50		37			0.20	0.20	0.20	0.10	0.10	537	0.10			41	
L11-584	IMH																														
L10-205	IMH			1.4	280	0.30	0.038		24	0.035	0.70		0.050	0.10	4.4	0.50		43			0.20	0.10	0.25	0.10	0.10	206	0.10			23	
L10-063	IMH			0.85	291	0.40	0.061		12	0.11	0.70		0.050	0.10	3.6	0.50		38			0.20	0.80	0.13	0.10	0.30	191	0.10			18	
L11-586	IMH																														
10E28886	IMH																														
10E28885	IMH																														
L11-587	IMH																														
10E28884	IMH																														
10E28883	IMH																														
10E28882	IMH																														
10E28881	IMH																														
L10-071	IMH			2.0	544	1.3	0.032		42	0.029	2.5		0.050	0.20	20	0.50		210			0.20	0.20	0.18	0.10	0.10	226	0.10			28	
10E28880	IMH																														
L11-589	IMH																														
10E28879	IMH																														
10E28878	IMH																														
L11-590	IMH																														
10E28877	IMH																														
L11-591	IMH																														
10E28876	IMH																														
L11-592	IMH																														
10E28875	IMH																														
10E28874	IMH																														
10E28873	IMH																														
10E28872	IMH																														
10E28871	IMH																														
10E28869	IMH																														
L10-069	IMH			2.2	413	0.30	0.055		60	0.014	2.9		0.050	0.20	13	0.50		38			0.20	0.10	0.25	0.10	0.10	400	0.10			39	
10E28868	IMH	9.0	0.13	1.9	460	0.49	0.070	0.070	12	1100	0.40	7.9	0.030	0.050	11	1.0	0.50	86	0.050	0.26	0.050	0.40	0.16	0.020	1.3	87	0.10	7.8	0.80	17	6.6
10E28867	IMH																														
10E28865	IMH																														
10E28864	IMH																														
10E28863	IMH																														
10E28862	IMH																														
10E28861	IMH																														
10E28860	IMH																														
10E28859	IMH																														
L10-077	IMH			2.6	358	0.40	0.060		59	0.020	1.5		0.050	0.10	12	0.50		27			0.20	0.10	0.20	0.10	0.10	309	0.10			29	
10E28858	IMH																														
10E28857	IMH																														
L11-351	IMH																														
10E28856	IMH																														
10E28855	IMH																														
10E28854	IMH																														
10E28853	IMH																														
10E28852	IMH	13	0.060	5.1	797	0.26	0.26	0.050	288	1010	0.60	14	0.010	0.050	9.9	1.0	0.30	299	0.050	0.16	0.050	0.20	0.15	0.020	0.090	283	0.10	4.6	0.40	30	3.3
10E28851	IMH																														
10E28850	IMH																														
L11-352	IMH																														
10E28849	IMH																														
10E28847	IMH																														
10E28846	IMH																														
L10-085	IMH			0.88	189	0.40	0.074		26	0.14	0.70		0.080	0.10	3.3	0.70		74			0.20	0.60	0.13	0.10	0.30	199	0.10			12	
L11-076	IMH																														
L11-075	IMH																														
L11-128	IMH																														
L11-074	IMH																														
L11-120	IMH																														
L11-126	IMH																														
L11-125	IMH																														
L11-136	IMH																														
L11-137	IMH																														
L11-138	IMH																														
L11-139	IMH																														

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-081	IMH																														
L10-100	IMH			1.1	257	0.30	0.030		23	0.043	1.0		0.050	0.10	4.5	0.50		29			0.20	0.20	0.15	0.10	0.10	282	0.10			34	
L11-412	IMH																														
L11-069	IMH																														
L11-068	IMH																														
L11-387	IMH																														
L11-151	IMH																														
L11-147	IMH																														
L11-067	IMH																														
L11-150	IMH																														
L11-066	IMH																														
L11-153	IMH																														
L10-099	IMH			3.3	396	0.60	0.044		59	0.12	0.70		0.050	0.10	8.3	0.50		44			0.20	0.30	0.43	0.10	0.10	459	0.10			28	
L11-134	IMH																														
L-AE-003-1	IMH			3.7	322	0.30	0.087		45	0.14	0.60		0.050	0.10	7.8	0.50		50				0.30	0.33	0.10	0.10	276	0.10			25	
L11-146	IMH																														
L11-064	IMH																														
L11-145A duplicate	IMH																														
L10-098	IMH			2.9	359	0.30	0.057		52	0.014	0.60		0.050	0.10	10	0.50		28			0.20	0.20	0.28	0.10	0.10	472	0.10			27	
L10-091	IMH			1.8	358	0.10	0.047		28	0.071	0.60		0.050	0.10	11	0.50		71			0.20	0.10	0.17	0.10	0.20	269	0.10			24	
L11-144	IMH																														
L10-092	IMH			2.8	457	0.10	0.041		32	0.069	0.50		0.050	0.10	16	0.50		90			0.20	0.20	0.21	0.10	0.10	297	0.10			20	
L11-143	IMH																														
L-AE-001-1	IMH			1.5	242	0.90	0.027		28	0.20	0.80		0.070	0.10	6.5	0.50		40				0.30	0.14	0.10	0.10	259	0.10			19	
L11-001	IMH																														
L-AE-007-1	IMH			1.6	283	0.60	0.040		27	0.31	2.0		0.050	0.10	7.8	0.50		40				0.50	0.19	0.10	0.10	365	0.10			23	
L10-107	IMH			1.6	280	1.0	0.030		23	0.0060	0.70		0.050	0.10	7.2	0.50		26			0.20	0.20	0.36	0.10	0.40	136	0.10			23	
L11-123	IMH																														
L11-117	IMH																														
L-AE-001-2	IMH			3.2	295	1.5	0.079		92	0.12	0.60		0.11	0.10	4.7	0.50		120				0.20	0.24	0.10	0.10	201	0.10			20	
L11-124	IMH																														
L-AE-006-1	IMH			3.0	346	0.60	0.046		51	0.12	0.60		0.060	0.20	5.6	0.50		39				0.30	0.18	0.10	0.10	195	0.10			23	
L10-106	IMH			1.3	244	0.20	0.029		12	0.017	1.1		0.050	0.10	6.1	0.50		23			0.20	0.10	0.22	0.10	0.30	68	0.10			17	
L11-012	IMH																														
L11-051	IMH																														
L11-050	IMH																														
L11-007	IMH																														
L10-119	IMH			3.8	519	5.3	0.019		56	0.10	0.80		0.070	0.70	9.6	0.90		50			0.20	0.10	0.25	0.10	0.10	242	0.20			30	
L10-118	IMH			1.4	387	0.30	0.16		22	0.12	0.50		0.050	0.10	6.3	0.50		184			0.20	0.10	0.17	0.10	0.10	309	0.10			24	
L11-032	IMH																														
L11-008	IMH																														
L11-046	IMH																														
L11-097	IMH																														
L11-098	IMH																														
L11-099	IMH																														
L11-100	IMH																														
L11-045	IMH																														
L11-009	IMH																														
L10-127	IMH			3.0	415	0.20	0.039		24	0.096	1.1		0.050	0.50	11	0.50		81			0.20	0.10	0.21	0.10	0.20	364	0.10			24	
L11-044	IMH																														
L10-134	IMH			2.3	589	1.5	0.027		21	0.044	0.70		0.050	0.50	18	0.50		84			0.20	0.10	0.19	0.10	0.30	375	0.10			22	
L11-043	IMH																														
L10-133	IMH			2.4	324	0.10	0.050		31	0.022	1.1		0.050	0.20	6.4	0.50		71			0.20	0.10	0.35	0.10	0.20	398	0.10			19	
L11-037	IMH																														
L11-042	IMH																														
L10-136	IMH			2.8	231	0.40	0.096		64	0.042	0.50		0.050	0.10	3.6	0.50		90			0.20	0.10	0.32	0.10	0.30	169	0.10			15	
L11-053	IMH																														
L10-143	IMH			3.0	534	4.0	0.022		30	0.015	1.4		0.050	3.4	15	0.50		68			0.20	0.10	0.23	0.10	0.10	416	0.10			40	
L11-036	IMH																														
L10-132	IMH			1.6	365	0.10	0.036		16	0.076	0.70		0.050	0.10	6.9	0.50		75			0.20	0.10	0.17	0.10	0.30	337	0.10			24	
L11-048	IMH																														
L10-142	IMH			1.9	466	0.70	0.029		12	0.015	0.90		0.050	0.80	12	0.50		108			0.20	0.20	0.22	0.10	0.30	210	0.10			21	
L11-052	IMH																														
L10-141	IMH			2.8	525	9.2	0.034		25	0.066	0.60		0.050	0.30	12	0.50		84			0.20	0.10	0.20	0.10	0.30	370	0.10			33	
L11-035	IMH																														
L10-148	IMH			1.5	368	1.0	0.16		17	0.073	0.60		0.050	0.10	6.4	0.50		168			0.20	0.10	0.23	0.10	0.30	501	0.10			25	
L11-071	IMH																														
L10-155	IMH			1.5	440	0.10	0.11		16	0.070	0.50		0.050	0.10	6.3	0.50		134			0.20	0.10	0.20	0.10	0.10	464	0.10			35	
L11-103	IMH																														
L10-156	IMH			2.0	306	0.40	0.040		28	0.035	1.1		0.050	0.10	7.1	0.50		58			0.20	0.10	0.32	0.10	0.30	428	0.10			19	
L11-084	IMH																														
L11-225	IMH																														
L11-226	IMH																														
L11-311	IMH																														
10E28977	IMH																														
10E28975	IMH	10	0.030	2.0	769	1.3	0.060	0.050	37	50	0.20	7.0	0.010	0.050	15	1.0	0.50	114	0.050	0.10	0.050	0.10	0.25	0.020	0.17	671	0.10	2.8	0.20	51	2.2

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
10E28973	IMH																														
10E28971	IMH																														
10E28968	IMH																														
10E28966	IMH																														
L11-310	IMH																														
10E28964	IMH																														
L11-318	IMH																														
10E28962	IMH																														
10E28959	IMH																														
10E28957	IMH																														
10E28955	IMH																														
10E28953	IMH																														
L11-309	IMH																														
10E28951	IMH																														
10E28948	IMH																														
10E28946	IMH																														
10E28944	IMH																														
10E28942	IMH																														
10E28939	IMH																														
10E28937	IMH	8.0	0.050	1.8	625	0.27	0.090	0.050	31	430	1.0	5.4	0.020	0.18	16	1.0	0.40	83	0.050	0.14	0.050	0.20	0.24	0.020	0.16	529	0.10	3.9	0.30	120	3.9
10E28935	IMH																														
L11-320	IMH																														
10E28933	IMH																														
10E28931	IMH																														
10E28928	IMH																														
10E28926	IMH																														
10E28924	IMH																														
10E28922	IMH																														
L11-315	IMH																														
10E28919	IMH																														
L11-308	IMH																														
10E28917	IMH																														
10E28915	IMH																														
L11-317	IMH																														
10E28913	IMH																														
10E28911	IMH																														
10E28908	IMH																														
10E28906	IMH																														
AX023688	IMH	5.0	0.030	1.2	541	1.9	0.050	0.050	37	0.0090	0.30	2.5	0.010	0.13	10	1.0	0.70	37	0.050	0.080	0.050	0.10	0.16	0.020	0.14	580	0.10	2.0	0.20	47	3.9
AX023708	IMH	4.0	0.10	2.5	659	5.4	0.040	0.050	45	0.031	0.40	3.8	0.030	0.81	26	1.0	1.1	69	0.050	0.25	0.050	0.10	0.10	0.020	0.35	425	0.10	6.6	0.70	40	4.1
AX023664	IMH	6.0	0.060	2.2	519	1.2	0.050	0.050	29	0.045	0.80	2.9	0.010	0.17	20	1.0	1.0	42	0.050	0.16	0.050	0.10	0.24	0.020	0.29	625	0.10	4.3	0.40	48	5.9
10E28904	IMH																														
L11-324	IMH																														
10E28902	IMH																														
L11-314	IMH																														
10E28899	IMH																														
10E28897	IMH	10	0.070	2.3	709	0.79	0.070	0.050	20	560	0.20	5.2	0.050	0.060	21	1.0	0.40	204	0.050	0.20	0.050	0.10	0.17	0.020	0.21	387	0.10	5.3	0.40	36	3.5
10E28895	IMH																														
10E28893	IMH																														
10E28891	IMH																														
10E28888	IMH																														
L11-307	IMH																														
L11-322	IMH																														
L11-321	IMH																														
L10-188	IMH			9.3	795	0.50	0.071		722	0.062	0.50		0.050	0.10	3.3	0.50		22			0.20	0.20	0.14	0.10	0.10	123	0.10			35	
IMH																															
n		21	21	80	80	80	80	21	80	80	80	21	80	80	80	80	21	80	21	21	73	80	80	80	80	80	80	21	21	80	21
Min		1.000	0.030	0.850	189.000	0.100	0.016	0.050	6.600	0.006	0.200	1.400	0.010	0.050	3.300	0.500	0.300	22.000	0.050	0.080	0.050	0.100	0.010	0.020	0.050	68.000	0.100	2.000	0.200	12.000	1.900
10th PCTL		4.000	0.030	1.273	277.700	0.100	0.030	0.050	14.140	0.017	0.400	2.500	0.010	0.050	4.690	0.500	0.400	36.980	0.050	0.100	0.050	0.100	0.114	0.020	0.100	198.600	0.100	2.840	0.200	18.900	2.800
Median		6.000	0.060	1.935	401.000	0.600	0.056	0.050	27.900	0.075	0.600	4.000	0.050	0.100	8.750	0.500	0.800	74.500	0.050	0.160	0.200	0.100	0.195	0.100	0.100	309.000	0.100	4.580	0.400	26.500	3.900
90th PCTL		10.000	0.110	3.179	664.000	2.315	0.120	0.100	58.890	0.218	1.210	7.000	0.070	0.520	19.050	1.000	1.200	154.300	0.050	0.280	0.200	0.300	0.286	0.100	0.300	486.600	0.100	8.030	0.800	40.100	5.700
Max		13.000	0.170	9.270	820.000	9.200	0.366	0.200	721.700	1100.000	2.900	14.400	0.320	3.400	33.400	1.000	9.600	313.000	0.050	0.400	0.200	0.800	0.434	0.100	1.260	684.000	0.200	11.500	1.300	120.000	6.600

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L10-022	MAFV			4.9	248	0.40	0.060		539	0.069	0.80		0.39	0.10	2.4	0.50		32			0.20	0.30	0.14	0.10	0.10	57	0.10			37	
L11-535	MAFV																														
L14-006	MAFV	24	0.11	7.1	490	0.73	1.4	0.050	443	0.070	1.7	61	0.010	0.050	7.4	1.0	0.90	1340	0.050	0.20	0.050	0.40	0.17	0.090	0.29	95	0.10	6.0	0.60	39	7.9
L11-518	MAFV																														
L11-487	MAFV																														
L11-427	MAFV																														
L11-425	MAFV																														
L-AW-004-2	MAFV			3.2	204	0.50	0.052		390	0.061	0.40		0.56	0.10	1.8	0.50		36				0.30	0.18	0.10	0.20	56	0.10			19	
L11-421	MAFV																														
L11-456	MAFV																														
L11-429	MAFV																														
L10-036	MAFV			5.1	238	0.30	0.048		455	0.062	0.50		0.080	0.10	2.7	0.50		34			0.20	0.30	0.14	0.10	0.10	54	0.10			22	
L11-434	MAFV																														
L-AW-009-1	MAFV			2.0	313	9.5	0.054		79	0.10	0.60		0.28	0.10	8.5	0.50		63				0.30	0.073	0.10	0.30	92	0.10			12	
L-AW-009-2	MAFV			3.3	518	18	0.031		235	0.086	0.50		0.43	0.10	6.8	0.60		69				0.40	0.14	0.10	0.20	107	0.10			24	
L11-483	MAFV																														
L10-042	MAFV			1.4	330	11	0.036		16	0.098	0.90		3.4	4.4	10	3.3		88			0.30	0.30	0.0050	0.10	0.30	95	0.10			13	
L10-037	MAFV			1.5	321	3.5	0.040		56	0.11	0.30		0.76	0.10	4.3	1.0		52			0.20	0.50	0.15	0.10	0.30	94	0.10			17	
L11-545	MAFV																														
L10-054	MAFV			3.7	222	0.70	0.088		371	0.068	0.50		0.42	0.10	2.6	0.50		51			0.20	0.20	0.16	0.10	0.10	54	0.10			15	
L11-437	MAFV																														
L10-066	MAFV			12	792	1.3	0.052		947	0.043	3.1		0.050	0.10	6.7	0.50		69			0.20	0.20	0.036	0.10	0.10	83	0.10			32	
L11-539	MAFV																														
L-AW-023-4	MAFV			2.1	285	0.60	0.042		128	0.085	0.50		0.57	0.10	3.9	0.50		137				0.40	0.13	0.10	0.40	91	0.10			15	
L11-343	MAFV																														
L11-451	MAFV																														
L11-472	MAFV																														
L11-377	MAFV																														
L11-473	MAFV																														
L11-374	MAFV																														
L11-376	MAFV																														
L11-338	MAFV																														
L10-108	MAFV			1.5	212	1.1	0.059		15	0.089	4.3		3.0	0.10	5.6	2.5		40			0.50	0.60	0.047	0.10	0.30	94	0.10			13	
146683	MAFV	7.0	0.080	3.8	341	2.4	0.070	0.070	42	0.16	0.20	54	0.26	0.050	8.9	1.0	1.1	50	0.050	0.22	0.060	0.40	0.22	0.29	0.22	232	0.10	6.3	0.60	19	3.1
L11-393	MAFV																														
L11-397	MAFV																														
7R97771	MAFV	3.0	0.12	0.62	130	3.0	0.090	0.37	8.2	0.093	1.0	1.4	0.050	0.050	3.9	1.0	0.40	89	0.050	0.25	0.050	0.70	0.15	0.020	0.58	71	0.10	8.3	0.80	5.0	4.1
L10-125	MAFV			2.3	384	14	0.036		81	0.10	0.80		0.060	0.10	8.6	0.50		66			0.20	0.40	0.11	0.10	0.40	144	0.10			22	
L11-022	MAFV																														
7R93062	MAFV	9.0	0.050	3.8	293	9.2	0.10	0.050	218	0.080	0.50	33	0.94	0.050	5.7	2.0	0.80	82	0.050	0.14	0.20	0.20	0.17	0.26	0.24	111	0.10	4.4	0.30	20	3.3
L-AE-002-4	MAFV			4.1	324	20	0.041		346	0.065	0.90		0.39	0.10	3.8	0.70		53				0.20	0.19	0.10	0.10	82	0.10			21	
L11-340	MAFV																														
L11-355	MAFV																														
L10-149	MAFV			5.1	312	31	0.067		413	0.073	0.80		3.8	0.10	6.8	4.9		60			0.50	0.30	0.22	0.20	0.20	153	0.20			17	
L11-010	MAFV																														
L10-147	MAFV			4.6	285	1.6	0.028		396	0.073	0.10		0.13	0.10	1.3	0.50		34			0.20	0.30	0.28	0.20	0.10	109	0.10			22	
L11-058	MAFV																														
L11-057	MAFV																														
L10-158	MAFV			1.8	204	0.20	0.063		11	0.11	1.2		1.3	0.20	3.1	0.50		87			0.20	0.60	0.071	0.10	0.50	49	0.10			10	
L11-259	MAFV																														
10E15144	MAFV	10	0.050	3.5	331	12	0.080	0.11	90	0.089	0.50	26	0.12	0.11	7.2	1.0	0.90	32	0.050	0.12	0.050	0.10	0.22	0.080	0.050	170	0.10	4.2	0.30	20	4.2
L11-313	MAFV																														
L11-312	MAFV																														
L10-182	MAFV			3.5	236	0.50	0.047		366	0.069	1.7		0.34	0.10	1.5	0.50		35			0.20	0.50	0.20	0.10	0.10	81	0.10			13	
L11-325	MAFV																														
L11-173	MAFV																														
L11-306	MAFV																														
L11-299	MAFV																														
MAFV																															
n		5	5	22	22	22	22	5	22	22	22	5	22	22	22	22	5	22	5	5	17	22	22	22	22	22	22	5	5	22	5
Min		3.000	0.050	0.620	130.000	0.200	0.028	0.050	8.200	0.043	0.100	1.400	0.010	0.050	1.300	0.500	0.400	32.000	0.050	0.120	0.050	0.100	0.005	0.020	0.050	49.000	0.100	4.170	0.300	5.000	3.100
10th PCTL		4.600	0.050	1.481	204.800	0.410	0.036	0.050	15.060	0.062	0.310	11.200	0.051	0.050	1.860	0.500	0.560	34.000	0.050	0.128	0.050	0.200	0.049	0.091	0.100	54.200	0.100	4.242	0.300	12.100	3.180
Median		9.000	0.080	3.505	302.500	1.985	0.053	0.070	226.350	0.083	0.700	33.200	0.390	0.100	4.950	0.550	0.900	56.500	0.050	0.200	0.200	0.300	0.150	0.100	0.210	93.000	0.100	6.000	0.600	19.000	4.100
90th PCTL		18.400	0.116	5.137	479.400	17.200	0.090	0.266	453.440	0.105	1.700	58.060	2.863	0.109	8.590	2.450	1.020	88.630	0.050	0.238	0.380	0.590	0.220	0.200	0.400	152.100	0.100	7.500	0.720	31.200	6.420
Max		24.000	0.120	12.000	792.000	30.700	1.350	0.370	946.800	0.158	4.300	60.900	3.770	4.400	10.400	4.900	1.100	1340.000	0.050	0.250	0.500	0.700	0.276	0.290	0.580	232.000	0.200	8.300	0.800	39.000	7.900

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L10-001	PICR			11	596	0.10	0.0040		981	0.041	0.50		0.050	0.10	3.9	0.50		14			0.20	0.20	0.059	0.10	0.30	71	0.10			24	
L10-005	PICR			9.2	559	0.10	0.11		864	0.050	0.30		0.050	0.10	2.7	0.50		41			0.20	0.20	0.055	0.10	0.10	82	0.10			29	
L10-002	PICR			8.4	300	5.9	0.0060		792	0.055	0.30		0.11	0.10	2.7	0.50		11			0.20	0.20	0.086	0.20	0.30	98	0.10			11	
L11-530	PICR																														
L14-007	PICR	14	0.070	12	655	0.57	0.48	0.050	864	0.051	1.0	26	0.050	0.050	6.4	1.0	0.70	232	0.050	0.12	0.050	0.20	0.080	0.070	0.17	101	0.10	3.9	0.50	36	5.7
L11-520	PICR																														
L11-519	PICR																														
L11-517	PICR																														
L11-469	PICR																														
L11-516	PICR																														
L10-017	PICR			9.9	584	0.20	0.051		923	0.046	0.90		0.050	0.10	3.2	0.50		52			0.20	0.20	0.055	0.10	0.10	89	0.10			24	
L10-009	PICR			8.8	381	0.50	0.024		777	0.045	0.20		0.050	0.10	3.0	0.50		20			0.20	0.20	0.090	0.10	0.20	95	0.10			14	
L11-522	PICR																														
L11-463	PICR																														
L11-526	PICR																														
L11-521	PICR																														
L11-525	PICR																														
L11-524	PICR																														
L11-460	PICR																														
L-AW-020-1	PICR			3.2	250	1.1	0.16		250	0.091	0.60		0.050	0.10	3.9	0.50		75				0.30	0.14	0.10	0.30	81	0.10			16	
L-AW-020-2	PICR			8.1	342	370	0.016		760	0.051	9.4		0.080	0.10	2.7	0.50		38				0.20	0.080	0.10	0.40	93	0.10			16	
L10-026	PICR			13	675	0.30	0.19		1138	0.041	2.4		0.050	0.10	3.0	0.50		62			0.20	0.20	0.050	0.10	0.10	77	0.10			28	
L-AW-004-1	PICR			7.8	251	0.20	0.0090		672	0.037	0.80		0.17	0.10	4.9	0.50		21				0.10	0.079	0.10	0.30	126	0.10			9.0	
L10-033	PICR			12	743	0.10	0.17		1078	0.047	1.0		0.050	0.10	3.1	0.50		60			0.20	0.20	0.042	0.10	0.10	71	0.10			28	
L11-528	PICR																														
L11-455	PICR																														
L14-005	PICR	9.0	0.040	13	700	0.50	0.020	0.050	1080	0.044	0.40	21	0.060	0.080	6.6	1.0	0.80	20	0.050	0.050	0.050	0.10	0.040	0.16	0.15	84	0.10	1.5	0.20	20	3.5
L14-004	PICR	8.0	0.060	9.7	400	0.50	0.060	0.050	786	0.048	0.90	27	0.030	0.10	4.1	1.0	0.60	78	0.050	0.060	0.050	0.10	0.050	0.060	0.11	114	0.10	2.1	0.30	30	4.6
AX000395	PICR	10	0.040	12	583	0.52	0.21	0.050	930	0.051	1.7	31	0.040	0.050	4.4	1.0	0.50	58	0.050	0.040	0.050	0.10	0.050	0.10	0.12	99	0.10	1.4	0.20	27	3.4
L11-422	PICR																														
L11-428	PICR																														
L-AW-003-2	PICR			8.0	591	4.8	0.10		680	0.057	1.7		0.19	0.10	2.8	0.50		43				0.20	0.065	0.10	0.10	85	0.10			27	
L11-544	PICR																														
L11-543	PICR																														
L11-542	PICR																														
L11-431	PICR																														
L14-003	PICR	13	0.040	13	715	0.55	0.12	0.050	1030	0.046	1.5	8.3	0.060	0.050	5.0	1.0	0.30	54	0.050	0.040	0.050	0.10	0.040	0.020	0.10	81	0.10	1.3	0.20	25	2.8
L14-002	PICR	7.0	0.040	9.2	450	0.49	0.19	0.050	668	0.049	1.5	29	0.010	0.050	3.6	1.0	0.60	58	0.050	0.050	0.050	0.10	0.060	0.060	0.090	97	0.10	1.7	0.20	27	3.0
L14-001	PICR	10	0.060	12	444	0.46	0.24	0.050	810	0.043	1.9	26	0.010	0.050	4.0	1.0	0.70	148	0.050	0.12	0.050	0.10	0.030	0.040	0.10	106	0.10	3.9	0.40	30	4.7
L-AW-012-1	PICR			4.3	285	0.20	0.015		429	0.060	2.0		0.050	0.10	2.4	0.50		19				0.20	0.089	0.10	0.20	77	0.10			19	
L11-432	PICR																														
L11-433	PICR																														
L-AW-012-2	PICR			8.4	625	0.40	0.025		888	0.049	4.9		0.16	0.10	2.0	0.50		23				0.20	0.067	0.10	0.10	76	0.10			37	
L10-041	PICR			6.0	260	0.20	0.0050		819	0.056	0.30		0.16	0.10	2.4	0.70		10			0.20	0.20	0.066	0.10	0.10	91	0.10			18	
L11-486	PICR																														
AX033593	PICR	11	0.050	11	604	0.40	0.080	0.050	913	0.053	0.40	39	0.040	0.050	5.9	1.0	0.50	33	0.050	0.040	0.050	0.10	0.060	0.17	0.17	100	0.10	1.3	0.20	24	3.5
AX033547	PICR	12	0.030	4.3	253	1.3	0.090	0.050	350	0.071	0.30	45	0.060	0.050	4.1	1.0	0.70	36	0.050	0.060	0.080	0.20	0.21	0.18	0.12	71	0.10	1.9	0.20	19	2.2
L-AW-015-1	PICR			5.7	173	1.6	0.015		708	0.050	0.40		0.20	0.10	2.2	0.50		42				0.20	0.089	0.10	0.20	84	0.10			8.0	
AX033505	PICR	5.0	0.040	9.4	256	1.4	0.030	0.050	753	0.052	0.30	60	0.040	0.15	5.8	1.0	0.70	26	0.050	0.050	0.050	0.10	0.080	0.16	0.46	116	0.20	1.8	0.20	12	4.3
L10-045	PICR			5.7	192	0.80	0.0060		723	0.053	0.40		0.080	0.10	2.4	0.50		13			0.20	0.20	0.073	0.10	0.20	86	0.10			11	
L-AW-015-2	PICR			5.2	407	0.20	0.0080		687	0.051	1.1		0.050	0.20	2.7	0.50		23				0.20	0.030	0.10	0.10	69	0.10			12	
L10-046	PICR			7.9	317	0.30	0.019		699	0.053	0.20		0.050	0.10	5.0	0.50		42			0.20	0.20	0.067	0.10	0.10	100	0.10			17	
L11-547	PICR																														
L10-056	PICR			7.3	538	0.50	0.050		755	0.075	0.40		0.10	0.10	3.3	0.50		43			0.20	0.30	0.094	0.20	0.20	72	0.10			36	
L11-546	PICR																														
L-AW-023-1	PICR			10	554	0.40	0.096		927	0.055	2.5		0.050	0.10	2.8	0.50		61				0.20	0.055	0.10	0.10	91	0.10			24	
L11-480	PICR																														
L11-481	PICR																														
L11-540	PICR																														
L10-068	PICR			5.6	356	4.8	0.044		445	0.066	0.40		0.23	0.10	4.3	0.50		38			0.20	0.20	0.19	0.10	0.10	104	0.10			26	
L11-474	PICR																														
L11-475	PICR																														
L11-476	PICR																														
L11-344	PICR																														
L11-459	PICR																														

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L10-083	PICR			14	710	0.30	0.0090		1339	0.032	0.40		0.050	0.10	6.3	0.50		24			0.20	0.10	0.034	0.10	0.20	74	0.10			23	
L10-082	PICR			12	426	4.8	0.020		1090	0.029	0.90		0.10	0.10	5.7	0.50		20			0.20	0.10	0.043	0.20	0.60	79	0.10			26	
L11-477	PICR																														
L11-479	PICR																														
L10-089	PICR			4.0	239	0.60	0.064		396	0.094	0.70		0.16	0.10	2.7	0.50		77			0.20	0.20	0.090	0.10	0.20	101	0.10			16	
L11-409	PICR																														
L11-407	PICR																														
146691	PICR	5.0	0.050	4.5	318	2.0	0.060	0.050	439	0.073	0.20	18	0.40	0.050	6.5	1.0	0.80	43	0.050	0.12	0.050	0.10	0.090	0.10	0.21	124	0.10	3.6	0.30	15	3.2
146674	PICR	4.0	0.020	9.4	555	1.5	0.030	0.050	948	0.046	0.20	9.5	0.59	0.11	5.1	1.0	0.50	22	0.050	0.040	0.090	0.10	0.050	0.20	0.090	74	0.10	1.1	0.10	25	2.1
L11-414	PICR																														
L11-413	PICR																														
L11-419	PICR																														
L10-138	PICR			9.7	236	0.70	0.0090		1098	0.042	0.70		0.83	0.10	4.2	0.50		25			0.20	0.10	0.063	0.10	0.20	82	0.10			12	
L11-418	PICR																														
L11-417	PICR																														
L11-416	PICR																														
L10-206	PICR			8.4	580	0.70	0.0080		1043	0.042	0.40		0.26	0.10	3.0	0.50		30			0.20	0.20	0.037	0.10	0.10	66	0.10			25	
L11-420	PICR																														
L11-415	PICR																														
L10-146	PICR			1.1	245	0.10	0.050		4.9	0.13	0.40		0.19	0.20	9.9	0.50		156			0.20	0.30	0.056	0.10	0.20	209	0.10			12	
L11-094	PICR																														
L11-177	PICR																														
10E15502	PICR	6.0	0.010	5.9	361	0.88	0.10	0.050	595	0.060	0.30	49	0.46	0.050	3.4	1.0	0.70	47	0.050	0.020	0.050	0.20	0.11	0.29	0.13	76	0.10	0.72	0.10	21	2.1
L10-164	PICR			9.2	764	0.30	0.057		831	0.054	0.40		0.10	0.10	3.5	0.50		27			0.20	0.20	0.068	0.20	0.10	56	0.10			35	
L10-170	PICR			10	833	0.40	0.044		894	0.050	0.60		0.080	0.10	3.3	0.50		16			0.20	0.10	0.061	0.10	0.10	47	0.10			32	
L10-180	PICR			8.1	566	0.40	0.062		780	0.058	0.50		0.23	0.10	2.0	0.50		41			0.20	0.20	0.080	0.10	0.10	73	0.10			30	
L11-241	PICR																														
Z116008	PICR	14	0.020	11	460	0.42	0.030	0.050	844	0.047	0.80	28	0.33	0.22	6.2	1.0	0.60	18	0.050	0.040	0.050	0.10	0.080	0.080	0.18	88	0.10	1.6	0.10	19	2.4
L11-244	PICR																														
L10-178	PICR			8.6	429	0.40	0.021		839	0.038	0.40		0.21	0.10	2.2	0.50		11			0.20	0.10	0.060	0.10	0.10	56	0.10			15	
L11-196	PICR																														
L11-197	PICR																														
L11-198	PICR																														
L11-199	PICR																														
L11-200	PICR																														
L11-246	PICR																														
L11-323	PICR																														
Z113928	PICR	10	0.10	1.8	203	0.42	0.080	0.060	54	0.083	1.0	6.3	0.020	0.050	7.2	1.0	0.50	76	0.050	0.20	0.050	0.50	0.17	0.020	0.49	146	0.10	6.8	0.70	6.0	5.3
L11-297	PICR																														
Z115143	PICR	5.0	0.050	>15	973	0.95	0.050	0.050	953	0.056	0.90	61	0.18	0.050	10	1.0	0.80	9.9	0.050	0.10	0.050	0.10	0.090	0.13	0.14	120	0.10	3.8	0.30	36	4.5
AX023476	PICR	12	0.020	14	702	9.9	0.19	0.050	1000	0.049	0.40	40	0.63	0.050	8.6	2.0	0.60	32	0.050	0.030	0.050	0.10	0.11	0.56	0.14	79	0.10	0.89	0.10	27	1.8
AX023454	PICR	12	0.030	9.9	902	1.1	0.10	0.050	809	0.047	0.50	59	0.080	0.050	8.2	1.0	0.90	33	0.050	0.040	0.050	0.40	0.10	0.19	0.11	76	0.10	1.1	0.20	50	2.8
AX023453	PICR	9.0	0.020	8.1	654	0.83	0.080	0.050	631	0.043	0.40	68	0.070	0.050	6.2	1.0	0.80	23	0.050	0.030	0.050	0.30	0.12	0.18	0.090	94	0.10	0.98	0.10	35	3.0
L11-296	PICR																														
L10-191	PICR			9.2	574	0.90	0.073		966	0.052	0.50		0.25	0.10	2.6	0.50		30			0.20	0.20	0.077	0.10	0.10	81	0.10			28	
L11-288	PICR																														
L11-290	PICR																														
L11-219	PICR																														
L10-193	PICR			12	845	0.60	0.087		1127	0.045	0.70		0.050	0.10	3.8	0.50		48			0.20	0.10	0.055	0.10	0.10	69	0.10			36	
L11-303	PICR																														
L11-224	PICR																														
L11-227	PICR																														
L11-284	PICR																														
L11-304	PICR																														
L11-285	PICR																														
L10-192	PICR			17	938	4.0	0.012		1469	0.027	2.2		0.19	0.10	7.8	0.70		14			0.20	0.10	0.042	0.10	0.10	38	0.10			29	
L11-305	PICR																														
L11-228	PICR																														
L11-287	PICR																														
L11-239	PICR																														
PICR																															
n		19	19	52	53	53	53	19	53	53	53	19	53	53	53	53	19	53	19	19	44	53	53	53	53	53	53	19	19	53	19
Min		4.000	0.010	1.120	173.000	0.100	0.004	0.050	4.900	0.027	0.200	6.300	0.010	0.050	2.000	0.500	0.300	9.900	0.050	0.020	0.050	0.100	0.030	0.020	0.090	38.000	0.100	0.720	0.100	6.000	1.800
10th PCTL		5.000	0.020	4.331	246.000	0.200	0.008	0.050	430.600	0.041	0.300	9.260	0.040	0.050	2.400	0.500	0.500	14.000	0.050	0.030	0.050	0.100	0.040	0.072	0.100	69.000	0.100	0.962	0.100	12.000	2.100
Median		10.000	0.040	9.160	538.000	0.500	0.050	0.050	818.500	0.050	0.500	29.000	0.080	0.100	3.900	0.500	0.700	33.300	0.050	0.050	0.200	0.200	0.067	0.100	0.120	84.000	0.100	1.560	0.200	24.000	3.200
90th PCTL		13.200	0.062	12.658	759.800	4.640	0.185	0.050	1087.920	0.073	1.980	59.980	0.316	0.100	7.080	1.000	0.800	75.800	0.050	0.120	0.200	0.280	0.110	0.200	0.300	115.600	0.100	3.900	0.420	35.800	4.820
Max		14.000	0.100	16.960	973.000	370.200	0.480	0.060	1468.500	0.132	9.400	68.000	0.830	0.220	10.400	2.000	0.900	232.000	0.050	0.200	0.200	0.500	0.210	0.560	0.600	209.000	0.200	6.780	0.700	50.000	5.700

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-582	SLD - mod																														
L10-007	SLD - mod			2.0	321	1.0	0.040		15	0.16	0.50		0.060	0.40	3.9	0.50		136			0.20	0.20	0.19	0.10	0.10	234	0.10			16	
L10-024	SLD - mod			0.52	108	0.80	0.10		8.6	0.11	0.40		0.050	0.10	2.4	0.50		75			0.20	0.30	0.092	0.10	0.60	86	0.10			8.0	
L-AW-004-3	SLD - mod			0.79	122	0.80	0.061		17	0.13	0.40		0.19	0.10	3.9	0.50		76				0.40	0.081	0.10	0.50	69	0.10			6.0	
L10-034	SLD - mod			0.66	154	1.4	0.043		7.5	0.12	1.5		1.4	0.10	2.7	1.6		45			0.20	0.30	0.085	0.10	0.20	60	0.20			15	
L11-435	SLD - mod																														
L10-049	SLD - mod			0.37	66	1.7	0.050		7.8	0.10	0.40		0.050	0.10	1.1	0.50		25			0.20	0.20	0.039	0.10	0.20	23	0.10			4.0	
L11-438	SLD - mod																														
L11-439	SLD - mod																														
L10-050	SLD - mod			7.8	269	1.3	0.0090		813	0.059	0.50		0.66	0.10	4.6	0.70		26			0.20	0.20	0.081	0.10	0.30	93	0.10			13	
L11-436	SLD - mod																														
L11-442	SLD - mod																														
L-AW-023-2	SLD - mod			1.1	130	0.70	0.068		49	0.13	0.70		0.21	0.10	3.0	0.50		72				0.30	0.063	0.10	0.20	89	0.10			7.0	
L11-441	SLD - mod																														
L11-552	SLD - mod																														
L10-051	SLD - mod			1.9	458	1.8	0.022		9.0	0.096	0.50		0.050	1.5	8.4	0.50		64			0.20	0.20	0.0010	0.10	0.20	42	0.10			12	
L11-534	SLD - mod																														
L11-533	SLD - mod																														
L10-059	SLD - mod			1.5	289	0.30	0.055		40	0.049	0.70		0.050	0.10	5.7	0.50		41			0.20	0.10	0.24	0.10	0.20	399	0.10			30	
L11-342	SLD - mod																														
L10-073	SLD - mod			1.3	204	2.3	0.044		14	0.13	1.2		0.86	0.10	6.2	0.50		224			0.20	0.50	0.068	0.10	0.50	98	0.10			14	
7R96097	SLD - mod	3.0	0.19	0.68	210	0.51	0.080	0.18	3.9	0.12	1.7	2.4	0.010	0.050	5.1	1.0	0.75	65	0.050	0.40	0.050	0.60	0.16	0.020	0.40	54	0.10	13	1.3	7.5	8.5
L11-594	SLD - mod																														
L10-088	SLD - mod			1.2	194	4.3	0.071		18	0.12	0.70		1.5	0.10	4.8	2.4		68			0.20	0.60	0.16	0.10	0.30	135	0.10			13	
L10-079	SLD - mod			1.7	294	2.3	0.033		39	0.14	0.40		0.050	0.10	5.4	0.50		77			0.20	0.40	0.13	0.10	0.30	230	0.10			17	
L10-078	SLD - mod			0.77	203	0.30	0.070		8.8	0.11	1.0		0.050	0.40	4.2	0.50		57			0.20	0.50	0.083	0.10	0.50	39	0.10			10	
AME1363	SLD - mod	11	0.13	1.3	259	2.0	0.080	0.10	17	0.11	0.90	2.3	0.13	0.13	8.9	1.0	0.30	59	0.050	0.28	0.050	0.60	0.16	0.020	0.58	113	0.10	8.9	0.90	9.0	4.7
L11-337	SLD - mod																														
L11-331	SLD - mod																														
L10-096	SLD - mod			3.1	134	7.0	0.055		228	0.088	1.1		2.2	0.10	4.9	2.4		97			0.20	0.50	0.16	0.10	0.20	138	0.10			13	
L10-105	SLD - mod			1.5	429	1.6	0.030		21	0.087	0.40		0.64	0.10	11	1.1		101			0.20	0.50	0.017	0.10	0.30	123	0.10			11	
L11-366	SLD - mod																														
L11-410	SLD - mod																														
L11-402	SLD - mod																														
L11-359	SLD - mod																														
7R97645	SLD - mod	4.0	0.11	0.62	120	0.98	0.080	0.38	12	0.10	0.60	1.9	0.70	0.050	4.4	1.0	0.40	72	0.050	0.23	0.050	0.50	0.17	0.020	0.40	73	0.10	7.6	0.80	4.0	4.6
L11-367	SLD - mod																														
L10-111	SLD - mod			1.9	253	5.1	0.058		103	0.085	0.40		0.92	0.10	2.9	1.2		101			0.30	0.20	0.14	0.10	0.20	112	0.10			16	
L11-148	SLD - mod																														
L11-142	SLD - mod																														
L10-103	SLD - mod			0.99	152	1.5	0.072		12	0.11	0.70		0.34	0.10	4.5	0.50		68			0.20	0.60	0.050	0.10	0.20	63	0.10			7.0	
L10-116	SLD - mod			0.89	182	0.60	0.050		9.7	0.15	0.40		0.050	0.10	6.8	0.50		71			0.20	0.40	0.074	0.10	0.50	92	0.10			7.0	
L10-102	SLD - mod			0.94	172	0.70	0.081		24	0.11	0.80		0.060	0.10	2.3	0.50		50			0.20	0.90	0.19	0.10	0.30	161	0.10			14	
L11-379	SLD - mod																														
L11-396	SLD - mod																														
SL-02	SLD - mod			1.3	302	3.3	0.055		22	0.13	0.60		0.85	0.10	5.9	1.5		72			0.20	0.50	0.15	0.10	0.20	131	0.10			13	
L11-135	SLD - mod																														
SL-04	SLD - mod			1.1	226	0.50	0.058		15	0.13	0.40		0.67	0.10	5.4	0.60		68			0.20	0.40	0.14	0.10	0.20	126	0.10			11	
10E28275	SLD - mod	3.0	0.090	0.67	197	0.47	0.090	0.23	4.1	0.041	1.3	5.4	0.080	0.050	3.8	1.0	0.60	37	0.050	0.21	0.050	0.90	0.12	0.020	0.45	71	0.10	6.4	0.70	8.0	5.2
SL-05	SLD - mod			0.55	195	20	0.051		23	0.11	0.60		0.18	0.60	5.5	0.70		52			0.20	0.40	0.050	0.10	0.40	69	0.10			9.0	
L11-390	SLD - mod																														
SL-09	SLD - mod			0.33	161	37	0.058		8.4	0.093	0.80		0.060	0.10	3.9	0.50		59			0.20	0.40	0.036	0.10	0.30	46	0.10			6.0	
SL-10	SLD - mod			1.3	202	1.5	0.042		14	0.066	0.70		0.050	0.10	4.2	0.50		96			0.20	0.30	0.050	0.10	0.50	50	0.10			5.0	
SL-12	SLD - mod			1.4	247	1.9	0.069		58	0.15	0.80		0.12	0.10	6.7	0.50		70			0.20	0.50	0.15	0.10	0.50	109	0.10			14	
SL-13	SLD - mod			0.72	202	1.2	0.071		20	0.10	0.40		0.11	0.10	4.3	0.50		49			0.20	0.30	0.075	0.10	0.30	64	0.10			11	
SL-14	SLD - mod			0.40	136	3.0	0.062		8.7	0.10	0.70		0.19	0.10	2.3	0.50		50			0.20	0.30	0.082	0.10	0.30	81	0.10			9.0	
SL-19	SLD - mod			1.1	220	0.50	0.070		45	0.14	1.3		0.080	0.10	7.1	0.50		50			0.20	0.40	0.13	0.10	0.40	107	0.10			15	
L-AE-003-2	SLD - mod			1.4	226	1.0	0.070		29	0.12	0.80		0.070	0.10	4.3	0.50		87				0.50	0.11	0.10	0.30	138	0.10			15	
L11-391	SLD - mod																														
L11-020	SLD - mod																														
SL-23	SLD - mod			1.5	317	2.3	0.035		36	0.14	0.40		0.070	0.10	5.0	0.50		44			0.20	0.30	0.064	0.10	0.30	63	0.10			22	
SL-24	SLD - mod			1.5	319	1.0	0.055		39	0.14	0.40		0.050	0.10	5.3	0.50		48			0.20	0.30	0.095	0.10	0.30	93	0.10			20	
SL-25	SLD - mod			1.4	178	1.5	0.067		33	0.13	0.50		0.13	0.10	4.3	0.70		74			0.20	0.40	0.13	0.10	0.30	143	0.10			11	
SL-26	SLD - mod			1.5	196	0.50	0.076		26	0.13	0.60		0.060	0.10	5.6	0.50		73			0.20	0.40	0.13	0.10	0.40	120	0.10			11	
SL-27	SLD - mod			1.2	148	0.50	0.068		16	0.14	0.80		0.11	0.10	4.2	0.50		58			0.20	0.40	0.092	0.10	0.40	71	0.10			8.0	
SL-28	SLD - mod			1.7	267	1.1	0.092		51	0.15	1.6		0.26	0.10	3.8	0.50		63			0.20	0.60	0.18	0.10	0.40	72	0.20			27	
SL-29	SLD - mod			2.1	263	1.8	0.050		22	0.14	0.70		0.050	0.10	3.9	0.50		68			0.20	0.40	0.079	0.10	0.50	66	0.10			16	
7R97787	SLD - mod	6.0	0.14	0.93	351	7.9	0.030	0.050	27	0.12	0.60	4.7	0.16	0.15	9.6	1.0	0.30	93	0.050	0.33	0.050	0.60	0.020	0.020	0.36	95	0.20	9.6	0.90	10	3.3
L11-368	SLD - mod																														
L11-371	SLD - mod																														
SL-30	SLD - mod			1.1	232	3.0	0.043		18	0.15	0.50		0.050	0.10	2.7	0.50		133			0.20	0.40	0.082	0.10	0.20	97	0.10			18	
SL-31	SLD - mod			1.0	273	1.6	0.039		13	0.14	0.40		0.050	0.10	1.9	0.50		60			0.20	0.60	0.098	0.10	0.20	136	0.10			16	
SL-32	SLD - mod			0.87	249	2.2	0.042		17	0.14	0.50		0.050	0.10	2.3	0.50		58			0.20	0.60	0.11	0.10	0.20	146	0.10			13	
SL-33	SLD - mod			0.79	242	1.4	0.049		9.7	0.14	0.50		0.050	0.10	1.8	0.50		78			0.20	0.70	0.10	0.10	0.30	150	0.10			13	
SL-34	SLD - mod			0.91	253	3.1	0.049		19	0.14	0.50		0.050	0.10	2.5	0.50		92			0.20	0.70	0.11	0.10	0.30	145	0.10			15	

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SL-35	SLD - mod			0.79	199	1.3	0.049		12	0.15	0.50		0.050	0.10	2.1	0.50		83			0.20	0.40	0.087	0.10	0.20	130	0.10			13	
L11-372	SLD - mod																														
SL-36	SLD - mod			0.94	271	6.0	0.070		21	0.14	0.50		0.090	0.10	6.0	0.60		87			0.20	0.60	0.12	0.10	0.60	118	0.10			12	
SL-37	SLD - mod			1.2	229	2.0	0.072		32	0.13	0.70		0.10	0.10	5.2	0.50		76			0.20	0.60	0.16	0.10	0.50	149	0.10			14	
SL-39	SLD - mod			0.64	199	2.6	0.078		12	0.14	0.60		0.060	0.10	3.1	0.50		79			0.20	0.70	0.084	0.10	0.50	88	0.10			13	
SL-40	SLD - mod			0.88	150	14	0.062		21	0.14	0.90		0.41	0.10	2.9	0.90		66			0.20	0.80	0.12	0.10	0.30	117	0.10			11	
L11-373	SLD - mod																														
SL-42	SLD - mod			1.3	362	32	0.035		28	0.13	0.70		0.090	0.10	8.0	0.50		80			0.20	0.60	0.013	0.10	0.50	69	0.10			21	
SL-43	SLD - mod			1.7	358	1.9	0.032		37	0.11	0.70		0.080	0.10	9.2	0.50		70			0.20	0.40	0.067	0.10	0.40	104	0.10			17	
SL-44	SLD - mod			1.2	179	3.2	0.042		35	0.12	0.40		0.090	0.10	4.2	0.60		80			0.20	0.40	0.083	0.10	0.30	92	0.10			8.0	
L11-149	SLD - mod																														
SL-45	SLD - mod			0.90	205	2.8	0.051		19	0.11	0.90		0.17	0.10	3.7	0.50		59			0.20	0.40	0.069	0.10	0.30	73	0.10			12	
SL-48	SLD - mod			1.8	152	1.7	0.068		102	0.11	0.50		0.54	0.10	2.3	0.50		82			0.20	0.40	0.13	0.10	0.30	126	0.10			10	
SL-49	SLD - mod			0.76	133	2.1	0.065		21	0.13	0.50		0.40	0.10	2.1	0.50		105			0.20	0.60	0.097	0.10	0.40	111	0.20			10	
L11-111	SLD - mod																														
L11-349	SLD - mod																														
L11-002	SLD - mod																														
L11-026	SLD - mod																														
L11-353	SLD - mod																														
L11-005	SLD - mod																														
L11-006	SLD - mod																														
L11-014	SLD - mod																														
L11-031	SLD - mod																														
L11-023	SLD - mod																														
L11-021	SLD - mod																														
L11-025	SLD - mod																														
L11-030	SLD - mod																														
L11-016	SLD - mod																														
L11-329	SLD - mod																														
L11-029	SLD - mod																														
L11-049	SLD - mod																														
L11-077	SLD - mod																														
L11-264	SLD - mod																														
L11-028	SLD - mod																														
L11-107	SLD - mod																														
L11-092	SLD - mod																														
L11-056	SLD - mod																														
L11-112	SLD - mod																														
L11-055	SLD - mod																														
L11-113	SLD - mod																														
L10-161	SLD - mod			1.2	351	13	0.038		17	0.11	0.40		0.16	0.10	3.9	0.50		69			0.30	0.30	0.11	0.10	0.30	165	0.20			19	
L11-091	SLD - mod																														
L11-158	SLD - mod																														
L11-101	SLD - mod																														
L11-159	SLD - mod																														
L11-214	SLD - mod																														
L10-167	SLD - mod			1.3	212	7.3	0.038		20	0.13	0.60		2.1	0.10	3.1	0.80		41			0.20	0.40	0.11	0.10	0.30	126	0.10			19	
L11-160	SLD - mod																														
L11-114	SLD - mod																														
L11-161	SLD - mod																														
L11-040	SLD - mod																														
L10-168	SLD - mod			0.96	158	1.0	0.036		5.7	0.095	0.90		0.73	0.10	3.3	0.50		56			0.20	0.50	0.062	0.10	0.20	86	0.20			11	
L11-163	SLD - mod																														
L11-041	SLD - mod																														
L11-260	SLD - mod																														
L11-261	SLD - mod																														
L11-262	SLD - mod																														
L11-263	SLD - mod																														
L11-164	SLD - mod																														
L10-165	SLD - mod			1.3	333	0.40	0.032		26	0.13	0.40		0.050	0.10	10	0.50		65			0.20	0.80	0.013	0.10	0.40	102	0.10			15	
L11-243	SLD - mod																														
L10-175	SLD - mod			0.94	192	2.4	0.054		7.4	0.13	0.40		0.050	0.10	3.9	0.50		81			0.20	0.40	0.069	0.10	0.30	128	0.10			10	
E211563	SLD - mod	5.0	0.17	0.96	211	0.60	0.10	0.19	5.1	0.088	1.6	2.7	0.16	0.050	6.0	1.0	0.70	69	0.050	0.39	0.050	0.70	0.15	0.020	0.65	78	0.10	12	1.2	6.0	5.2
L11-229	SLD - mod																														
L11-291	SLD - mod																														
L11-165	SLD - mod																														
L11-292	SLD - mod																														
L11-293	SLD - mod																														
L11-294	SLD - mod																														
L11-166	SLD - mod																														
L11-268	SLD - mod																														
L11-267	SLD - mod																														
L11-266	SLD - mod																														
L11-231	SLD - mod																														
L11-230	SLD - mod																														

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-232	SLD - mod																														
L11-265	SLD - mod																														
L11-167	SLD - mod																														
L10-174	SLD - mod			0.80	146	0.70	0.058		9.4	0.12	1.1		0.18	0.20	2.3	0.60		42			0.20	0.90	0.13	0.10	0.30	216	0.10			14	
L11-251	SLD - mod																														
L11-245	SLD - mod																														
L11-279	SLD - mod																														
L10-179	SLD - mod			1.1	177	0.80	0.056		20	0.094	0.50		0.42	0.10	3.8	1.0		41			0.30	0.40	0.11	0.10	0.20	107	0.10			11	
L11-235	SLD - mod																														
L11-236	SLD - mod																														
L10-183	SLD - mod			4.5	274	0.10	0.026		289	0.064	0.70		0.11	0.10	3.0	0.60		30			0.20	0.40	0.11	0.10	0.20	113	0.10			12	
L10-190	SLD - mod			1.9	172	2.5	0.074		13	0.10	1.3		4.8	0.10	9.2	7.1		38			0.60	0.30	0.20	0.10	0.20	210	0.10			15	
L11-247	SLD - mod																														
L10-189	SLD - mod			1.8	294	59	0.039		49	0.079	8.7		0.57	0.20	5.6	1.3		69			0.20	0.20	0.11	0.10	0.20	111	0.10			18	
L11-217	SLD - mod																														
L11-298	SLD - mod																														
L10-194	SLD - mod			1.0	186	54	0.060		25	0.12	0.50		0.090	0.20	4.3	0.50		58			0.20	0.50	0.018	0.10	0.80	64	0.10			12	
L11-273	SLD - mod																														
L11-289	SLD - mod																														
L11-223	SLD - mod																														
L11-301	SLD - mod																														
L11-220	SLD - mod																														
L11-221	SLD - mod																														
L11-280	SLD - mod																														
L11-281	SLD - mod																														
L11-282	SLD - mod																														
SLD - mod																															
n		6	6	69	69	69	69	6	69	69	69	6	69	69	69	69	6	69	6	6	66	69	69	69	69	69	69	6	6	69	6
Min		3.000	0.090	0.330	66.000	0.100	0.009	0.050	3.900	0.041	0.400	1.900	0.010	0.050	1.100	0.500	0.300	25.000	0.050	0.210	0.050	0.100	0.001	0.020	0.100	23.000	0.100	6.430	0.700	4.000	3.300
10th PCTL		3.000	0.100	0.656	135.600	0.500	0.033	0.075	8.280	0.087	0.400	2.100	0.050	0.100	2.300	0.500	0.300	41.000	0.050	0.220	0.200	0.280	0.038	0.100	0.200	62.400	0.100	7.030	0.750	7.000	3.950
Median		4.500	0.135	1.140	205.000	1.700	0.055	0.185	19.500	0.121	0.600	2.550	0.110	0.100	4.200	0.500	0.500	68.000	0.050	0.305	0.200	0.400	0.098	0.100	0.300	104.000	0.100	9.235	0.900	12.000	4.950
90th PCTL		8.500	0.178	1.860	323.400	8.820	0.080	0.305	49.740	0.143	1.300	5.050	0.852	0.160	8.080	1.120	0.725	96.200	0.050	0.395	0.200	0.700	0.157	0.100	0.500	152.200	0.100	12.175	1.225	18.200	6.825
Max		11.000	0.185	7.810	458.000	59.000	0.103	0.380	813.400	0.158	8.700	5.400	4.800	1.500	11.400	7.100	0.750	224.000	0.050	0.400	0.600	0.900	0.236	0.100	0.800	399.000	0.200	12.550	1.250	30.000	8.450

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-445	SLD - strong																														
L10-060	SLD - strong			2.3	358	6.6	0.046		45	0.13	1.6		0.070	0.10	8.2	0.50		71			0.20	0.50	0.12	0.10	0.40	110	0.10			22	
L10-067	SLD - strong			1.9	219	0.80	0.056		67	0.11	0.40		0.050	0.10	4.8	0.50		75			0.20	0.30	0.11	0.10	0.20	98	0.10			12	
Z112558	SLD - strong	2.0	0.17	0.96	215	0.81	0.080	0.32	7.3	0.12	1.4	2.0	0.040	0.050	6.2	1.0	0.50	55	0.050	0.38	0.080	1.0	0.15	0.020	0.64	80	0.10	11	1.1	7.0	4.8
L10-072	SLD - strong			0.94	258	4.8	0.078		11	0.089	1.5		0.080	0.10	4.0	0.50		111			0.20	0.50	0.099	0.10	0.50	108	0.10			15	
L11-408	SLD - strong																														
L10-095	SLD - strong			2.4	169	0.90	0.050		37	0.12	0.90		0.060	0.10	8.0	0.50		52			0.20	0.30	0.083	0.10	0.20	92	0.10			7.0	
L11-401	SLD - strong																														
L10-094	SLD - strong			0.80	188	0.50	0.057		9.6	0.15	0.40		0.67	0.10	3.0	0.50		95			0.20	0.50	0.11	0.10	0.30	110	0.10			12	
7R97303	SLD - strong	3.0	0.12	0.47	106	0.42	0.090	0.31	3.1	0.12	1.0	2.9	0.010	0.050	2.9	1.0	0.50	65	0.050	0.31	0.050	0.60	0.12	0.020	0.27	50	0.10	9.2	0.90	4.0	6.3
L11-152	SLD - strong																														
L10-110	SLD - strong			1.4	238	21	0.065		12	0.11	0.60		0.050	0.10	3.1	0.50		108			0.20	0.40	0.092	0.10	0.80	144	0.10			15	
L11-395	SLD - strong																														
L11-385	SLD - strong																														
L11-411	SLD - strong																														
L10-114	SLD - strong			0.62	147	1.0	0.074		9.2	0.17	0.70		0.050	0.10	3.7	0.50		71			0.20	0.50	0.092	0.10	0.50	53	0.10			8.0	
10E27285	SLD - strong	12	0.14	1.8	340	0.98	0.070	0.070	8.4	0.092	0.60	1.2	0.050	0.060	12	1.0	0.30	66	0.050	0.30	0.050	0.80	0.14	0.020	0.71	92	0.10	9.6	0.90	10	7.0
L10-093	SLD - strong			1.3	198	2.6	0.067		14	0.16	0.40		0.050	0.10	5.1	0.50		62			0.20	0.50	0.077	0.10	0.30	70	0.10			15	
L11-132	SLD - strong																														
L11-131	SLD - strong																														
10E27113	SLD - strong	5.0	0.13	0.49	123	0.85	0.10	0.50	1.8	0.038	1.0	1.7	0.010	0.050	3.3	1.0	0.40	56	0.050	0.32	0.050	0.90	0.15	0.020	0.66	43	0.10	9.5	0.90	6.0	8.7
10E13142	SLD - strong	12	0.13	2.4	302	2.7	0.060	0.10	67	0.12	0.70	5.9	0.060	0.080	12	1.0	0.80	111	0.050	0.31	0.050	0.60	0.25	0.020	0.70	169	0.10	9.4	0.90	22	7.1
L11-118	SLD - strong																														
L11-119	SLD - strong																														
L11-155	SLD - strong																														
10E15888	SLD - strong	15	0.15	4.2	674	0.18	0.070	0.050	93	0.060	1.4	8.4	0.040	2.5	25	1.0	0.50	1060	0.050	0.30	0.050	0.10	0.020	0.020	0.050	158	0.10	10	1.0	19	5.9
L-AE-006-3	SLD - strong			1.5	241	7.5	0.040		28	0.11	1.4		0.070	0.10	8.3	0.50		47				0.30	0.10	0.10	0.30	164	0.10			15	
L11-013	SLD - strong																														
7R48537	SLD - strong	8.0	0.060	1.3	238	1.0	0.070	0.10	13	0.099	1.5	2.7	0.37	0.18	8.4	1.0	0.40	102	0.050	0.13	0.050	0.40	0.15	0.020	0.45	81	0.20	4.3	0.40	11	2.9
L10-163	SLD - strong			1.2	146	0.80	0.061		11	0.11	0.60		1.7	0.10	3.7	0.80		84			0.20	0.30	0.10	0.10	0.20	89	0.20			8.0	
SLD - strong																															
n		7	7	17	17	17	17	7	17	17	17	7	17	17	17	17	7	17	7	7	16	17	17	17	17	17	17	7	7	17	7
Min		2.000	0.060	0.470	106.000	0.180	0.040	0.050	1.800	0.038	0.400	1.200	0.010	0.050	2.900	0.500	0.300	47.000	0.050	0.130	0.050	0.100	0.020	0.020	0.050	43.000	0.100	4.250	0.400	4.000	2.900
10th PCTL		2.600	0.096	0.568	136.800	0.468	0.048	0.062	5.620	0.077	0.400	1.500	0.028	0.050	3.060	0.500	0.360	53.620	0.050	0.232	0.050	0.300	0.081	0.020	0.200	51.800	0.100	7.238	0.700	6.600	4.040
Median		8.000	0.130	1.300	219.000	0.980	0.067	0.100	11.800	0.114	0.900	2.700	0.050	0.100	5.100	0.500	0.500	71.000	0.050	0.310	0.200	0.500	0.110	0.100	0.400	92.000	0.100	9.520	0.900	12.000	6.300
90th PCTL		13.200	0.158	2.404	347.200	6.960	0.084	0.392	67.220	0.153	1.500	6.900	0.490	0.132	11.620	1.000	0.620	111.000	0.050	0.344	0.200	0.840	0.150	0.100	0.704	160.400	0.140	10.680	1.040	20.200	7.740
Max		15.000	0.170	4.230	674.000	20.500	0.100	0.500	92.500	0.169	1.600	8.400	1.670	2.470	24.800	1.000	0.800	1060.000	0.050	0.380	0.200	1.000	0.250	0.100	0.800	169.000	0.200	11.100	1.100	22.000	8.700

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-466	SLD - weak																														
L10-015	SLD - weak			1.3	258	81	0.18		65	0.11	1.0		0.060	0.10	5.0	0.50		147			0.20	0.50	0.15	0.10	0.50	153	1.3			20	
L10-014	SLD - weak			1.3	526	3.1	0.057		7.4	0.15	0.70		0.81	0.10	6.1	1.0		123			0.20	1.3	0.20	0.10	0.70	204	0.10			20	
G9512	SLD - weak	6.0	0.13	1.1	240	1.5	0.060	0.13	6.9	0.026	1.6	3.8	0.42	3.6	8.4	1.0	1.0	94	0.050	0.30	0.050	0.30	0.17	0.020	1.2	75	0.10	8.9	0.90	16	3.5
L11-468	SLD - weak																														
L11-527	SLD - weak																														
L10-019	SLD - weak			1.5	355	0.10	0.065		18	0.15	0.50		0.050	0.10	6.1	0.50		68			0.20	0.10	0.18	0.10	0.10	325	0.10			27	
L11-529	SLD - weak																														
L11-501	SLD - weak																														
L10-044	SLD - weak			0.50	169	7.6	0.044		16	0.11	1.4		2.5	0.10	1.9	2.3		37			0.20	0.20	0.068	0.10	0.20	52	0.10			18	
L10-031	SLD - weak			0.83	166	0.30	0.076		13	0.17	0.70		0.83	0.10	2.1	0.50		96			0.20	0.30	0.14	0.10	0.30	122	0.10			12	
L11-454	SLD - weak																														
L11-484	SLD - weak																														
L11-548	SLD - weak																														
7R12496	SLD - weak	4.0	0.090	0.63	102	6.7	0.090	0.19	28	0.093	1.5	2.6	0.16	0.050	2.9	1.0	0.60	52	0.050	0.19	0.050	0.50	0.11	0.020	0.54	58	0.10	6.4	0.70	5.0	4.5
L10-062	SLD - weak			3.1	329	26	0.025		172	0.094	0.40		0.090	0.10	3.6	0.50		58			0.20	0.20	0.11	0.10	0.40	98	0.10			24	
L11-482	SLD - weak																														
L11-446	SLD - weak																														
L10-090	SLD - weak			4.4	310	0.50	0.093		344	0.081	0.30		0.070	0.10	5.4	0.50		76			0.20	0.30	0.15	0.20	0.20	76	0.10			15	
L11-585	SLD - weak																														
L11-458	SLD - weak																														
L10-081	SLD - weak			0.99	285	0.50	0.044		9.2	0.10	0.60		0.060	0.20	7.5	0.50		64			0.20	0.70	0.039	0.10	0.20	122	0.10			13	
10E28870	SLD - weak																														
L10-097	SLD - weak			3.6	234	1.9	0.16		318	0.069	0.70		0.18	0.10	3.2	0.50		115			0.20	0.30	0.18	0.20	0.10	76	0.10			18	
L11-350	SLD - weak																														
L11-478	SLD - weak																														
L10-123	SLD - weak			0.88	223	2.4	0.052		4.9	0.13	0.50		0.16	0.10	3.8	0.50		63			0.20	0.50	0.075	0.10	0.20	129	0.10			11	
L11-383	SLD - weak																														
L11-082	SLD - weak																														
L11-388	SLD - weak																														
L11-392	SLD - weak																														
L11-382	SLD - weak																														
L11-060	SLD - weak																														
L11-364	SLD - weak																														
L11-375	SLD - weak																														
SL-56	SLD - weak			1.0	164	6.2	0.073		18	0.12	0.60		0.84	0.10	2.6	0.90		74			0.20	0.60	0.19	0.10	0.30	152	0.20			10	
L11-365	SLD - weak																														
SL-57	SLD - weak			0.80	137	22	0.066		21	0.12	0.40		0.81	0.10	2.0	0.50		85			0.20	0.60	0.15	0.10	0.30	113	0.20			8.0	
SL-60	SLD - weak			1.4	232	1.6	0.048		18	0.13	0.40		0.39	0.10	6.8	0.50		73			0.20	0.70	0.078	0.10	0.40	142	0.10			13	
L11-335	SLD - weak																														
L11-027	SLD - weak																														
SL-70	SLD - weak			0.85	118	5.5	0.058		9.9	0.13	0.30		0.83	0.10	1.9	0.50		85			0.20	0.50	0.12	0.10	0.50	60	0.10			6.0	
L11-061	SLD - weak																														
SL-71	SLD - weak			0.78	126	1.4	0.14		7.7	0.12	1.5		0.81	0.10	2.5	0.50		106			0.20	0.40	0.11	0.10	0.40	58	0.10			4.0	
SL-72	SLD - weak			1.4	193	0.20	0.41		30	0.12	0.20		0.89	0.10	4.4	0.50		126			0.20	0.50	0.14	0.10	0.50	88	0.10			8.0	
L10-154	SLD - weak			7.3	334	0.40	0.010		859	0.063	0.70		0.74	0.10	3.0	1.0		35			0.20	0.20	0.052	0.10	0.10	83	0.10			18	
L10-140	SLD - weak			2.6	172	3.1	0.058		157	0.092	1.2		1.5	0.10	2.7	1.0		68			0.20	0.40	0.19	0.10	0.30	111	0.10			9.0	
L11-363	SLD - weak																														
L11-362	SLD - weak																														
L10-145	SLD - weak			1.6	179	0.50	0.051		83	0.079	1.2		0.23	0.10	3.2	0.50		47			0.20	0.40	0.12	0.10	0.30	95	0.10			9.0	
L11-212	SLD - weak																														
L11-080	SLD - weak																														
L10-153	SLD - weak			1.5	245	1.5	0.069		15	0.11	0.90		0.11	0.10	5.1	0.50		76			0.20	0.50	0.11	0.10	0.30	159	0.10			15	
L11-348	SLD - weak																														
L11-024	SLD - weak																														
L11-347	SLD - weak																														
L11-209	SLD - weak																														
L11-357	SLD - weak																														
L11-346	SLD - weak																														
L11-079	SLD - weak																														
L11-345	SLD - weak																														
L11-358	SLD - weak																														
L11-211	SLD - weak																														
L11-339	SLD - weak																														
L11-334	SLD - weak																														
L11-210	SLD - weak																														
L11-019	SLD - weak																														
L11-208	SLD - weak																														

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-330	SLD - weak																														
L11-078	SLD - weak																														
L11-033	SLD - weak																														
L11-326	SLD - weak																														
L10-210	SLD - weak			2.9	256	0.60	0.051		207	0.092	0.30		0.22	0.10	6.5	0.50		56			0.40	0.50	0.13	0.10	0.20	133	0.10			10	
L10-209	SLD - weak			1.5	206	0.60	0.060		18	0.12	0.70		1.1	0.10	6.0	1.0		58			0.40	0.50	0.16	0.10	0.20	156	0.20			12	
L11-206	SLD - weak																														
L-AE-013-1	SLD - weak			0.72	217	1.0	0.055		13	0.10	0.70		0.22	0.10	3.2	0.50		39				0.40	0.075	0.10	0.20	110	0.10			13	
L10-144	SLD - weak			1.7	333	0.90	0.039		30	0.11	0.60		2.0	0.10	8.3	1.3		71			0.40	0.40	0.11	0.10	0.30	125	0.10			16	
L11-085	SLD - weak																														
L11-018	SLD - weak																														
L11-205	SLD - weak																														
L11-207	SLD - weak																														
L11-327	SLD - weak																														
L10-159	SLD - weak			0.98	243	1.8	0.053		11	0.14	0.60		0.95	0.10	3.5	0.50		68			0.20	0.60	0.10	0.10	0.30	133	0.10			11	
L11-328	SLD - weak																														
L11-093	SLD - weak																														
L10-173	SLD - weak			0.89	198	1.4	0.068		7.1	0.10	0.60		0.11	0.10	2.6	0.50		49			0.20	0.20	0.059	0.10	0.20	75	0.10			11	
L11-213	SLD - weak																														
L11-087	SLD - weak																														
L11-203	SLD - weak																														
L11-202	SLD - weak																														
L11-088	SLD - weak																														
L11-108	SLD - weak																														
L11-089	SLD - weak																														
L11-090	SLD - weak																														
L11-162	SLD - weak																														
L11-175	SLD - weak																														
L10-187	SLD - weak			2.6	332	6.4	0.045		34	0.15	0.50		0.30	0.10	11	0.50		40			0.20	0.70	0.095	0.10	0.50	243	0.10			21	
L11-176	SLD - weak																														
L11-174	SLD - weak																														
L11-169	SLD - weak																														
L11-170	SLD - weak																														
L11-201	SLD - weak																														
L10-186	SLD - weak			1.5	199	2.3	0.040		11	0.14	0.40		0.16	0.10	5.4	0.50		71			0.20	0.60	0.10	0.10	0.30	136	0.20			9.0	
L11-295	SLD - weak																														
L11-168	SLD - weak																														
L11-171	SLD - weak																														
L11-178	SLD - weak																														
L11-179	SLD - weak																														
L11-180	SLD - weak																														
L10-176	SLD - weak			1.3	133	12	0.043		15	0.11	0.70		0.84	0.30	4.1	1.1		60			0.20	0.40	0.10	0.10	0.20	85	0.10			9.0	
L11-181	SLD - weak																														
L11-182	SLD - weak																														
L11-242	SLD - weak																														
L11-172	SLD - weak																														
L11-183	SLD - weak																														
L11-184	SLD - weak																														
L11-185	SLD - weak																														
L11-186	SLD - weak																														
L11-187	SLD - weak																														
L11-188	SLD - weak																														
L11-190	SLD - weak																														
L11-192	SLD - weak																														
L11-193	SLD - weak																														
L11-194	SLD - weak																														
L11-195	SLD - weak																														
L11-234	SLD - weak																														
L11-237	SLD - weak																														
L11-258	SLD - weak																														
L11-257	SLD - weak																														
L11-269	SLD - weak																														
L11-271	SLD - weak																														
L10-195	SLD - weak			1.4	310	5.3	0.071		29	0.12	0.70		0.050	0.10	5.7	0.50		71			0.20	0.20	0.088	0.10	0.40	141	0.10			17	
L11-218	SLD - weak																														
L11-302	SLD - weak																														
L11-286	SLD - weak																														
L11-283	SLD - weak																														
SLD - weak																															
n		2	2	32	32	32	32	2	32	32	32	2	32	32	32	32	2	32	2	2	31	32	32	32	32	32	32	2	2	32	2
Min		4.000	0.090	0.500	102.000	0.100	0.010	0.130	4.900	0.026	0.200	2.600	0.050	0.050	1.900	0.500	0.600	35.000	0.050	0.190	0.050	0.100	0.039	0.020	0.100	52.000	0.100	6.400	0.700	4.000	3.500
10th PCTL		4.200	0.094	0.782	133.400	0.410	0.040	0.136	7.430	0.079	0.310	2.720	0.061	0.100	2.140	0.500	0.640	40.700	0.050	0.201	0.200	0.200	0.069	0.100	0.200	61.500	0.100	6.646	0.720	8.000	3.600
Median		5.000	0.110	1.350	227.500	1.700	0.058	0.160	17.850	0.112	0.650	3.200	0.345	0.100	3.950	0.500	0.800	69.500	0.050	0.245	0.200	0.450	0.113	0.100	0.300	117.500	0.100	7.630	0.800	12.500	4.000
90th PCTL		5.800	0.126	3.068	332.900	11.110	0.136	0.184	203.810	0.148	1.380	3.680	1.121	0.100	7.430	1.000	0.960	114.100	0.050	0.289	0.200	0.690	0.179	0.100	0.500	158.700	0.200	8.614	0.880	20.000	4.400
Max		6.000	0.130	7.310	526.000	80.800	0.414	0.190	858.600	0.167	1.600	3.800	2.470	3.620	10.500	2.300	1.000	147.000	0.050	0.300	0.400	1.300	0.196	0.200	1.180	325.000	1.300	8.860	0.900	27.000	4.500

Lorax Sample	Lithology	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
		ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-400	SLPH																														
L11-380	SLPH																														
L10-126	SLPH			5.9	274	1.7	0.027		719	0.056	0.30		1.3	0.10	4.3	1.9		29			0.20	0.20	0.095	0.20	0.10	98	0.10			16	
L11-238	SLPH																														
SLPH																															
n		0	0	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	0	0	1	0
Min		#NUM!	#NUM!	5.930	274.000	1.700	0.027	#NUM!	719.100	0.056	0.300	#NUM!	1.290	0.100	4.300	1.900	#NUM!	29.000	#NUM!	#NUM!	0.200	0.200	0.095	0.200	0.100	98.000	0.100	#NUM!	#NUM!	16.000	#NUM!
10th PCTL		#NUM!	#NUM!	5.930	274.000	1.700	0.027	#NUM!	719.100	0.056	0.300	#NUM!	1.290	0.100	4.300	1.900	#NUM!	29.000	#NUM!	#NUM!	0.200	0.200	0.095	0.200	0.100	98.000	0.100	#NUM!	#NUM!	16.000	#NUM!
Median		#NUM!	#NUM!	5.930	274.000	1.700	0.027	#NUM!	719.100	0.056	0.300	#NUM!	1.290	0.100	4.300	1.900	#NUM!	29.000	#NUM!	#NUM!	0.200	0.200	0.095	0.200	0.100	98.000	0.100	#NUM!	#NUM!	16.000	#NUM!
90th PCTL		#NUM!	#NUM!	5.930	274.000	1.700	0.027	#NUM!	719.100	0.056	0.300	#NUM!	1.290	0.100	4.300	1.900	#NUM!	29.000	#NUM!	#NUM!	0.200	0.200	0.095	0.200	0.100	98.000	0.100	#NUM!	#NUM!	16.000	#NUM!
Max		#NUM!	#NUM!	5.930	274.000	1.700	0.027	#NUM!	719.100	0.056	0.300	#NUM!	1.290	0.100	4.300	1.900	#NUM!	29.000	#NUM!	#NUM!	0.200	0.200	0.095	0.200	0.100	98.000	0.100	#NUM!	#NUM!	16.000	#NUM!
L11-573	SVHYB																														
L11-493	SVHYB																														
L10-061	SVHYB			1.3	200	2.7	0.053		39	0.12	0.60		0.83	0.10	3.4	0.50		87			0.20	0.60	0.18	0.10	0.30	123	0.10			14	
L11-121	SVHYB																														
L-AE-007-2	SVHYB			1.5	213	0.70	0.051		14	0.12	0.60		0.070	0.10	5.4	0.50		44				0.20	0.058	0.10	0.20	56	0.10			9.0	
L11-356	SVHYB																														
7R48465	SVHYB	24	0.090	2.9	473	3.5	0.040	0.050	29	0.096	0.70	6.6	0.030	0.46	14	1.0	0.70	57	0.050	0.17	0.060	0.10	0.12	0.020	0.050	142	0.20	6.2	0.60	37	2.2
L10-157	SVHYB			3.3	705	0.30	0.032		145	0.16	1.8		0.11	0.10	11	0.50		93			0.20	0.70	0.017	0.10	0.30	112	0.10			63	
L11-276	SVHYB																														
SVHYB																															
n		1	1	4	4	4	4	1	4	4	4	1	4	4	4	4	1	4	1	1	3	4	4	4	4	4	4	1	1	4	1
Min		24.000	0.090	1.320	200.000	0.300	0.032	0.050	13.700	0.096	0.600	6.600	0.030	0.100	3.400	0.500	0.700	44.000	0.050	0.170	0.060	0.100	0.017	0.020	0.050	56.000	0.100	6.210	0.600	9.000	2.200
10th PCTL		24.000	0.090	1.362	203.900	0.420	0.034	0.050	18.260	0.102	0.600	6.600	0.042	0.100	4.000	0.500	0.700	47.780	0.050	0.170	0.088	0.130	0.029	0.044	0.095	72.800	0.100	6.210	0.600	10.500	2.200
Median		24.000	0.090	2.190	343.000	1.700	0.046	0.050	33.900	0.116	0.650	6.600	0.090	0.100	7.950	0.500	0.700	71.800	0.050	0.170	0.200	0.400	0.089	0.100	0.250	117.500	0.100	6.210	0.600	25.500	2.200
90th PCTL		24.000	0.090	3.165	635.400	3.239	0.052	0.050	112.890	0.145	1.470	6.600	0.614	0.352	13.020	0.850	0.700	91.200	0.050	0.170	0.200	0.670	0.161	0.100	0.300	136.300	0.170	6.210	0.600	55.200	2.200
Max		24.000	0.090	3.270	705.000	3.470	0.053	0.050	144.600	0.157	1.800	6.600	0.830	0.460	14.100	1.000	0.700	93.000	0.050	0.170	0.200	0.700	0.179	0.100	0.300	142.000	0.200	6.210	0.600	63.000	2.200
L10-203	Unmin. Dyke			1.6	394	1.9	0.028		6.6	0.10	0.60		0.050	0.20	6.6	0.70		82			0.20	0.40	0.077	0.10	0.50	168	0.10			19	
L11-593	Unmin. Dyke																														
10E28866	Unmin. Dyke																														
L10-080	Unmin. Dyke			1.6	333	1.3	0.032		13	0.14	0.50		0.050	0.10	7.2	0.50		191			0.20	0.40	0.061	0.10	0.20	141	0.10			21	
L11-378	Unmin. Dyke																														
10E28848	Unmin. Dyke																														
L10-104	Unmin. Dyke			1.6	394	24	0.040		19	0.12	0.80		0.050	0.10	11	0.50		124			0.20	0.50	0.054	0.10	0.60	138	0.10			23	
L11-398	Unmin. Dyke																														
L11-403	Unmin. Dyke																														
L11-127	Unmin. Dyke																														
L11-406	Unmin. Dyke																														
L11-070	Unmin. Dyke																														
L11-394	Unmin. Dyke																														
L11-065	Unmin. Dyke																														
L11-129	Unmin. Dyke																														
L11-360	Unmin. Dyke																														
L11-059	Unmin. Dyke																														
L-AE-002-3	Unmin. Dyke			0.47	121	3.9	0.056		7.9	0.11	0.60		0.41	0.10	1.6	0.50		70				0.20	0.048	0.10	0.20	50	0.10			11	
L11-062	Unmin. Dyke																														
L11-106	Unmin. Dyke																														
L11-104	Unmin. Dyke																														
L11-333	Unmin. Dyke																														
L11-332	Unmin. Dyke																														
L10-124	Unmin. Dyke			1.0	246	0.70	0.061		3.4	0.12	1.0		0.050	0.20	3.5	0.50		66			0.20	0.50	0.075	0.10	0.60	59	0.10			11	
L10-150	Unmin. Dyke			0.84	257	18	0.050		4.4	0.097	1.4		0.080	0.10	2.8	0.50		65			0.20	0.50	0.032	0.10	0.40	80	0.10			14	
L11-204	Unmin. Dyke																														
L11-039	Unmin. Dyke																														
L10-152	Unmin. Dyke			1.0	237	1.6	0.040		6.2	0.086	0.90		1.0	0.10	5.8	0.50		231			0.20	0.50	0.015	0.10	0.30	85	0.10			10	
L11-109	Unmin. Dyke																														
L11-102	Unmin. Dyke																														
L10-185	Unmin. Dyke			0.98	318	0.90	0.058		18	0.11	0.70		0.53	0.10	6.7	0.50		68			0.20	0.60	0.061	0.10	0.40	113	0.10			12	
L11-250	Unmin. Dyke																														
L11-248	Unmin. Dyke																														
Unmin. Dyke																															
n		0	0	8	8	8	8	0	8	8	8	0	8	8	8	8	0	8	0	0	7	8	8	8	8	8	8	0	0	8	0
Min		#NUM!	#NUM!	0.470	121.000	0.700	0.028	#NUM!	3.400	0.086	0.500	#NUM!	0.050	0.100	1.600	0.500	#NUM!	65.000	#NUM!	#NUM!	0.200	0.200	0.015	0.100	0.200	50.000	0.100	#NUM!	#NUM!	10.000	#NUM!
10th PCTL		#NUM!	#NUM!	0.729	202.200	0.840	0.031	#NUM!	4.100	0.094	0.570	#NUM!	0.050	0.100	2.440	0.500	#NUM!	65.700	#NUM!	#NUM!	0.200	0.340	0.027	0.100	0.200	56.300	0.100	#NUM!	#NUM!	10.700	#NUM!
Median		#NUM!	#NUM!	1.025	287.500	1.750	0.045	#NUM!	7.250	0.112	0.750	#NUM!	0.065	0.100	6.200	0.500	#NUM!	76.000	#NUM!	#NUM!	0.200	0.500	0.058	0.100	0.400	99.000	0.100	#NUM!	#NUM!	13.000	#NUM!
90th PCTL		#NUM!	#NUM!	1.616	394.000	19.940	0.059	#NUM!	18.040	0.125	1.120	#NUM!	0.680	0.200	8.280	0.560	#NUM!	203.000	#NUM!	#NUM!	0.200	0.530	0.076	0.100	0.600	149.100	0.100	#NUM!	#NUM!	21.600	#NUM!
Max		#NUM!	#NUM!	1.630	394.000	24.000	0.061	#NUM!	19.300	0.144	1.400	#NUM!	1.030	0.200	10.800	0.700	#NUM!	231.000	#NUM!	#NUM!	0.200	0.600	0.077	0.100	0.600	168.000	0.100	#NUM!	#NUM!	23.000	#NUM!
All Mine																															
n		61	61	285	286	286	286	61	286	286	286	61	286	286	286	286	61	286	61	61	258	286	286	286	286	286	286	61	61	286	61
Min		1.000	0.010	0.330	66.000	0.100	0.004	0.050	1.800	0.006	0.100	1.200	0.010	0.050	1.100	0.500	0.300	9.900	0.050	0.020	0.050	0.100	0.001	0.020	0.050	23.000	0.100	0.720	0.100	4.000	1.800
10th PCTL		3.000	0.030	0.834	167.500	0.200	0.027	0.050	8.750	0.042	0.400	2.300	0.040	0.050	2.550	0.500	0.400	28.500	0.050	0.040	0.050	0.100	0.049	0.020	0.100	64.000	0.100	1.310	0.200	9.000	2.200
Median		7.000	0.060	1.770	303.000	1.000	0.056	0.050	29.200	0.095	0.600	5.900	0.065	0.100	5.400	0.500	0.700	65.000	0.050	0.160	0.200	0.300	0.114	0.100	0.200	112.500	0.100	4.410	0.400	18.000	4.100
90th PCTL		13.000	0.140	8.990	600.000	7.150	0.103	0.200	815.950	0.147	1.500	49.300	0.810	0.200	11.450	1.000	1.000	123.500	0.050	0.310	0.200	0.600	0.220	0.100	0.500	367.500	0.100	9.580	0.900	34.000	6.300
Max		24.000	0.185	16.960	973.000	370.200	1.350	0.500	1468.500	1100.000	9.400	68.000	4.800	4.400	33.400	7.100	9.600	1340.000	0.050	0.400	0.600	1.300	0.434	0.560	1.260	684.000	1.300	12.550	1.300	120.000	8.700

APPENDIX C-1.4 METAL RESULTS - ORE BY GRADE

Lorax Sample	Drill Hole	From	To	Grade	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
		m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-555	AW-10-105	243	246	low																							
L-AW-025-3	AW-06-025	618	621	low	0.30	2.0	1.4	51	20	70		0.10	2.8		0.10	39	187		1838	3.5	6.0			0.020	0.13		2.0
L11-488	AW-07-060	240	243	low																							
L11-461	AW-06-039	342	345	low																							
L10-027	AW-06-006	281	284	low	0.20	1.1	2.6	50	20	19		0.10	5.4		0.10	8.0	31		1677	0.77	5.0			0.12	0.030		4.0
L-AW-004-4	AW-05-004	234	237	low	0.10	1.5	2.8	34	20	138		0.10	2.6		0.10	45	43		1143	3.2	6.0			0.20	0.090		4.0
L-AW-004-5	AW-05-004	270	273	low	0.20	2.3	1.4	60	20	96		0.10	2.6		0.10	31	11		1268	5.4	7.0			0.040	0.32		2.0
L-AW-003-3	AW-05-003	159	162	low	0.20	1.0	2.7	33	20	35		0.10	1.9		0.10	26	41		1262	1.4	5.0			0.060	0.090		2.0
L10-025	AW-06-033	219	222	low	0.10	1.5	2.4	19	20	158		0.10	2.3		0.10	14	36		1257	1.8	5.0			0.040	0.080		3.0
L10-040	AW-08-090	89.26	92	low	0.20	2.7	4.2	53	20	73		0.10	1.6		0.10	49	819		1198	5.8	8.0			0.22	0.42		2.0
L11-500	AW-07-073	311	314	low																							
L-AW-012-3	AW-06-012	256	259	low	0.10	1.9	1.3	231	20	43		0.10	5.5		0.10	23	231		993	3.5	7.0			0.080	0.14		3.0
L11-430	AW-06-013	498	501	low																							
L11-485	AW-07-058	398	401	low																							
L11-514	AW-08-080	514	517	low																							
L10-039	AW-07-068	150	153	low	0.30	3.0	1.3	76	20	386		0.10	2.0		0.10	39	595		1303	4.7	8.0			0.070	1.4		1.0
L11-572	AW-10-112	99	102	low																							
L11-564	AW-10-107	398	401	low																							
L11-494	AW-07-070	138	141	low																							
L11-558	AW-10-107	48	51	low																							
L10-076	AW-07-049	89	92	low	0.10	3.1	29	28	20	167		0.10	1.5		0.10	39	432		1317	3.4	9.0			0.040	1.6		1.0
L11-538	AW-08-097	277	280	low																							
L11-537	AW-08-097	198	201	low																							
L11-532	AW-08-092	95	98	low																							
L11-370	AN-08-037	373.99	377	low																							
L10-075	AW-07-047	245	248	low	0.20	1.7	2.8	74	20	54		0.10	3.0		0.10	39	86		2021	3.5	6.0			0.14	0.12		2.0
L10-070	AN-07-003	59	62	low	0.10	2.0	8.5	81	22	280		0.10	2.9		0.10	59	945		1286	5.6	5.0			0.060	1.2		1.0
L11-399	AN-08-060	250	253	low																							
L11-116	AE-10-081	453	456	low																							
L10-112	AN-08-060	126	129	low	0.50	1.5	3.9	29	20	216		0.10	2.4		0.10	65	23		1606	2.5	6.0			0.090	0.070		5.0
L11-141	AE-10-091	250	253	low																							
L10-117	AN-08-068	209	212	low	0.10	1.5	2.6	34	20	65		0.10	2.1		0.10	31	214		1316	2.6	6.0			0.11	0.25		2.0
L11-405	AN-08-063	300	303	low																							
L11-384	AN-08-051	178	181	low																							
L11-404	AN-08-063	250	252.3	low																							
L11-381	AN-08-048	299.17	301.2	low																							
L10-122	AN-08-044	287.95	291	low	0.40	1.5	15	61	20	76		0.10	4.8		0.10	81	39		2133	2.8	6.0			0.040	0.13		4.0
SL-01	AN-08-034	8	11	low	0.30	1.5	1.7	75	20	211		0.10	2.3		0.10	18	39		2031	3.2	6.0			0.43	0.12		4.0
L11-386	AN-08-052	222	225	low																							
SL-08	AN-08-034	50	53	low	0.50	0.95	96	67	20	461		0.10	3.1		0.10	30	44		2307	2.2	4.0			1.3	0.12		11
L-AE-004-2	AE-06-004	139	142	low	0.60	0.95	2.1	584	20	30		0.10	1.4		0.10	43	24		6605	1.6	4.0			0.13	0.050		2.0
AME1274	AE-10-092	278	281	low	0.050	1.8	2.0		40	37	0.30	0.020	4.3	11	0.020	12	34	0.44	188	1.4	5.7	0.10	0.14	0.040	0.12	0.020	5.1
SL-16	AN-08-034	98	101	low	0.30	1.4	11	41	20	87		0.10	2.8		0.10	14	33		1532	1.6	5.0			0.22	0.070		3.0
SL-17	AN-08-034	104	107	low	0.40	1.3	2.4	56	20	45		0.10	2.8		0.10	13	55		2162	1.0	5.0			0.17	0.070		3.0
SL-18	AN-08-034	110	113	low	0.60	1.8	4.2	121	20	42		0.10	4.2		0.10	22	72		2268	1.8	7.0			0.080	0.070		3.0
SL-20	AN-08-034	122	125	low	0.30	1.9	1.9	103	20	25		0.10	4.4		0.10	22	67		1504	2.7	8.0			0.050	0.070		4.0
SL-22	AN-08-034	146.6	149	low	0.60	1.1	2.2	38	20	55		0.10	3.6		0.30	11	81		1292	1.4	4.0			0.19	0.070		4.0
L10-115	AN-08-055	351	354	low	0.20	1.4	1.8	75	20	38		0.10	2.6		0.10	30	47		1778	1.9	4.0			0.070	0.060		4.0
L10-109	AN-08-053	303	306	low	0.30	1.8	2.9	172	20	42		0.10	3.2		0.10	17	84		1797	2.0	5.0			0.040	0.090		4.0
L10-113	AE-08-045	201	204	low	0.30	1.9	2.6	201	20	56		0.10	3.3		0.10	22	46		1365	5.6	8.0			0.070	0.080		3.0
SL-38	AN-08-034	267	270	low	0.30	1.5	1.9	98	20	122		0.10	2.9		0.10	14	65		1497	1.7	6.0			0.060	0.12		5.0
SL-47	AN-08-034	321	324	low	0.30	1.2	11	87	20	293		0.10	5.7		0.10	45	47		2205	2.9	3.0			0.050	0.17		3.0
L-AE-002-1	AE-06-002	176	179	low	0.10	1.4	1.8	154	20	120		0.10	2.0		0.10	19	49		1504	2.8	5.0			0.070	0.090		3.0
L10-120	AE-07-042	122	125	low	0.20	1.6	2.6	21	20	12		0.10	4.1		0.10	8.5	23		1227	1.1	5.0			0.020	0.050		1.0
L11-154	AE-10-099	24	27	low																							
SL-51	AN-08-034	366	369	low	0.40	1.4	2.4	167	20	77		0.10	2.5		0.10	28	54		2180	3.6	7.0			0.040	0.080		3.0
L10-207	AN-10-075	65	68	low	0.20	1.6	1.6	27	20	31		0.10	2.0		0.10	18	44		1087	2.7	6.0			0.020	0.12		3.0

Lorax Sample	Drill Hole	From	To	Grade	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
		m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
SL-55	AN-08-034	390	393	low	0.20	1.6	12	40	20	146		0.10	4.6		0.10	24	47		1723	3.5	6.0			0.030	0.10		6.0
SL-58	AN-08-034	408	411	low	0.20	1.2	3.0	66	20	28		0.10	1.6		0.10	26	58		1874	3.1	6.0			0.11	0.080		3.0
L-AE-002-2	AE-06-002	311	314	low	0.40	1.0	3.4	98	47	28		0.10	2.1		0.10	39	52		3294	1.1	4.0			0.080	0.050		2.0
L10-131	AN-08-025	353.5	356.5	low	0.40	0.86	2.2	50	20	29		0.10	6.7		0.10	22	25		1714	5.3	5.0			0.030	0.060		3.0
L-AE-007-3	AE-06-007	290	293	low	0.20	0.86	7.8	85	20	623		0.10	3.1		0.10	10	40		1110	2.0	3.0			0.050	0.11		5.0
SL-65	AN-08-034	450	453	low	0.20	1.6	73	79	20	36		0.10	4.8		0.10	20	34		1198	2.9	6.0			0.050	0.080		4.0
SL-67	AN-08-034	462	465	low	0.20	1.2	3.0	63	20	15		0.10	2.5		0.10	14	42		1175	1.9	5.0			0.010	0.050		3.0
SL-68	AN-08-034	468	471	low	0.30	1.5	4.0	119	20	10		0.10	3.8		0.10	18	48		1678	1.3	6.0			0.040	0.050		5.0
L11-063	AE-07-044	372	375	low																							
L11-003	AE-06-007	485	488	low																							
L11-354	AN-08-023	99	102	low																							
L10-128	AE-07-024	280	283	low	0.40	1.1	3.4	66	20	115		0.10	3.1		0.10	15	25		2066	1.6	5.0			0.12	0.060		3.0
7R92488	AN-07-013	91.5	94	low	0.14	2.2	3.0		60	176	0.30	0.040	2.5	6.2	0.040	58	54	0.91	1130	4.6	8.5	0.10	0.11	0.060	0.23	0.020	2.7
L-AE-013-2	AE-06-013	210	213	low	0.10	2.5	2.2	104	20	96		0.10	2.4		0.10	35	329		1408	3.5	10			0.060	0.75		2.0
L10-169	AM-08-010	115	118	low	0.50	1.6	1.0	26	20	73		0.10	3.0		0.10	23	27		1396	4.5	7.0			0.020	0.16		2.0
L11-017	AE-06-012	138	141	low																							
L11-015	AE-06-011	471	474	low																							
L11-038	AE-07-030	483	486	low																							
10E15293	AE-10-068	304	307	low	0.28	2.6	1.0		50	442	0.10	0.020	1.6	5.2	0.030	34	529	2.2	1410	3.5	6.1	0.10	0.080	0.020	1.4	0.020	2.6
L11-083	AE-08-055	349	352	low																							
L11-115	AE-10-080	499	502	low																							
10E15121	AE-10-067	266.75	269.75	low	0.18	2.9	1.0		40	655	0.10	0.020	1.3	3.8	0.030	32	694	2.3	871	3.0	6.9	0.10	0.12	0.020	1.6	0.020	1.9
10E15461	AM-10-079	241	244	low	0.070	1.7	13		90	281	0.10	0.020	1.1	5.7	0.020	44	745	2.1	702	6.3	5.3	0.20	0.070	0.020	1.1	0.030	2.7
Z114086	AM-09-024	267.5	270.5	low	0.23	2.4	1.0		40	335	0.10	0.030	0.94	2.2	0.050	33	411	1.8	1260	2.8	5.9	0.10	0.080	0.040	0.75	0.020	1.1
Z113697	AM-09-018	204.5	207.5	low	0.13	1.7	4.0		70	549	0.10	0.020	0.42	1.2	0.010	61	683	2.4	920	4.4	3.5	0.20	0.050	0.10	1.1	0.030	0.60
L11-255	AM-10-044	162	166.72	low																							
L11-240	AM-09-033	42	45	low																							
L11-319	AM-10-077	175	178	low																							
L10-184	AM-10-041	125	128	low	0.40	1.9	5.6	147	20	20		0.10	1.9		0.10	149	45		1666	3.5	6.0			0.090	0.10		3.0
L11-249	AM-10-041	74	77	low																							
L11-189	AM-07-007	138	141	low																							
L11-253	AM-10-043	7	10	low																							
L11-256	AM-10-045	21	24	low																							
Z115161	AM-09-021	72	75	low	0.20	1.8	5.0		90	134	0.10	0.040	1.6	1.9	0.060	117	986	2.0	2450	6.1	3.9	0.20	0.050	0.050	1.2	0.040	1.0
Z113530	AM-08-016	212	215	low	0.21	2.1	62		80	204	0.10	0.020	0.83	1.2	0.030	43	876	2.2	1580	5.3	5.3	0.20	0.070	0.020	1.3	0.050	0.60
L11-274	AM-10-052	99	102	low																							
L11-277	AM-10-053	48	51	low																							
	Low-grade ore																										
	n				53	53	53	44	53	53	9	53	53	9	53	53	53	9	53	53	53	9	9	53	53	9	53
	Min				0.050	0.860	1.000	19.000	20.000	10.000	0.100	0.020	0.420	1.200	0.010	8.000	11.000	0.440	188.000	0.770	3.000	0.100	0.050	0.010	0.030	0.020	0.600
	10^{th} PCTL				0.100	1.036	1.320	28.640	20.000	25.600	0.100	0.022	1.448	1.224	0.032	13.040	25.400	0.816	1091.380	1.380	4.000	0.100	0.050	0.020	0.052	0.020	1.000
	Median				0.200	1.580	2.700	66.700	20.000	76.000	0.100	0.100	2.580	3.760	0.100	28.000	49.000	2.090	1497.200	2.890	6.000	0.100	0.080	0.060	0.110	0.020	3.000
	90^{th} PCTL				0.480	2.500	12.820	163.350	49.400	375.800	0.300	0.100	4.752	7.100	0.100	58.740	691.800	2.316	2199.960	5.394	8.000	0.200	0.124	0.186	1.182	0.042	5.000
	Max				0.600	3.120	96.200	583.800	90.000	655.000	0.300	0.100	6.720	10.900	0.300	149.000	986.000	2.380	6604.800	6.290	10.000	0.200	0.140	1.300	1.600	0.050	11.000

Lorax Sample	Drill Hole	From	To	Grade	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
		m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L10-016	AW-07-066	176	179	medium	0.40	1.6	3.0	144	20	29		0.10	3.0		0.10	15	34		2514	0.92	5.0			0.080	0.050		4.0
L11-489	AW-07-062	198	201	medium																							
L-AW-020-4	AW-06-020	352	355	medium	0.50	1.4	1.5	138	20	88		0.10	1.9		0.10	38	30		3556	3.1	5.0			0.080	0.14		6.0
L10-028	AW-06-006	446	449	medium	0.40	1.7	2.5	113	20	326		0.10	2.4		0.10	44	56		2564	3.7	6.0			0.060	0.10		5.0
L11-568	AW-10-109	24	27	medium																							
L11-565	AW-10-107	445	448	medium																							
L11-563	AW-10-107	344	347	medium																							
L11-562	AW-10-107	294	297	medium																							
L10-065	AW-08-098	180	183	medium	0.30	1.6	3.7	525	20	109		0.10	3.8		0.10	38	54		1691	6.7	8.0			0.38	0.22		1.0
L10-121	AN-08-044	100	103	medium	0.40	1.4	5.6	70	20	151		0.10	2.0		0.10	28	39		2777	3.1	5.0			0.32	0.090		4.0
SL-06	AN-08-034	38	41	medium	0.40	0.94	2.6	109	20	335		0.10	2.8		0.10	27	37		2972	1.4	4.0			0.21	0.070		4.0
SL-15	AN-08-034	92	95	medium	0.60	1.2	2.2	88	20	169		0.10	2.2		0.10	19	33		3531	1.9	4.0			0.56	0.090		3.0
L10-137	AN-07-014	101	104	medium	0.30	1.9	3.4	112	20	110		0.10	2.7		0.10	63	61		2523	3.7	8.0			0.27	0.45		4.0
SL-59	AN-08-034	414	417	medium	0.50	1.5	3.4	65	20	34		0.10	2.8		0.10	87	43		3375	4.5	7.0			0.16	0.070		3.0
SL-61	AN-08-034	426	429	medium	0.30	1.8	4.9	146	20	41		0.10	2.8		0.10	30	51		2577	4.8	8.0			0.050	0.11		4.0
SL-63	AN-08-034	438	441	medium	0.40	1.8	2.7	119	20	38		0.10	6.3		0.10	44	47		2680	4.7	8.0			0.050	0.10		7.0
SL-64	AN-08-034	444	447	medium	0.50	1.6	6.8	129	20	32		0.10	3.5		0.10	26	38		2895	3.0	7.0			0.040	0.070		4.0
L11-086	AE-08-059	324	327	medium																							
7R10389	AE-07-025	570	573	medium	0.35	1.3	9.0		620	62	0.40	0.020	2.3	8.8	0.070	5.9	39	0.13	1860	0.57	5.2	0.10	0.19	0.11	0.060	0.030	3.0
L11-278	AM-10-054	178	181	medium																							
L11-110	AE-10-076	424	427	medium																							
10E15171	AE-10-067	395	398	medium	0.12	2.4	12		50	144	0.10	0.020	0.90	1.9	0.020	39	435	2.3	1400	3.1	4.4	0.10	0.080	0.050	0.88	0.030	0.90
L11-233	AM-09-028	280.5	283.5	medium																							
L10-171	AM-10-038	101	104	medium	0.30	1.1	2.7	116	20	39		0.10	1.4		0.10	18	16		2199	3.4	5.0			0.040	0.10		4.0
7R146631	AM-10-061	198	201	medium	0.090	2.6	6.0		70	375	0.10	0.020	2.4	7.5	0.020	35	1240	3.0	1250	6.9	8.2	0.20	0.080	0.010	2.0	0.060	3.6
L11-254	AM-10-044	48	51	medium																							
L10-177	AM-07-003	480	483	medium	0.40	0.89	7.7	99	20	93		0.10	3.3		0.10	236	37		2103	2.3	4.0			0.17	0.060		3.0
L11-270	AM-10-049	73	76	medium																							
	Medium-grade ore																										
	n				17	17	17	14	17	17	3	17	17	3	17	17	17	3	17	17	17	3	3	17	17	3	17
	Min				0.090	0.890	1.500	65.000	20.000	29.000	0.100	0.020	0.900	1.870	0.020	5.900	16.000	0.130	1250.000	0.570	4.000	0.100	0.080	0.010	0.050	0.030	0.900
	10^{th} PCTL				0.228	1.060	2.380	74.930	20.000	33.200	0.100	0.020	1.710	2.996	0.050	16.780	31.800	0.560	1574.720	1.226	4.000	0.100	0.080	0.040	0.060	0.030	2.200
	Median				0.400	1.640	3.400	114.650	20.000	93.000	0.100	0.100	2.680	7.500	0.100	34.900	39.000	2.280	2564.000	3.140	5.200	0.100	0.080	0.080	0.100	0.030	4.000
	90^{th} PCTL				0.500	2.110	8.220	145.310	58.000	329.600	0.340	0.100	3.620	8.540	0.100	72.720	210.600	2.872	3437.740	5.554	8.000	0.180	0.168	0.344	0.622	0.054	5.400
	Max				0.600	2.550	12.000	525.400	620.000	375.000	0.400	0.100	6.330	8.800	0.100	236.200	1240.000	3.020	3556.300	6.870	8.200	0.200	0.190	0.560	1.980	0.060	7.000

Lorax Sample	Drill Hole	From	To	Grade	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
		m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-515	AW-08-082	180	182.34	high																							
L11-523	AW-08-086	166	169	high																							
L11-492	AW-07-066	232	235	high																							
L11-426	AW-06-007	51	54	high																							
L11-457	AW-06-034	292	295	high																							
L11-440	AW-06-020	403	406	high																							
L11-581	AW-10-115	63.09	66	high																							
L11-423	AW-05-002	446	449	high																							
L11-449	AW-06-027	174	177	high																							
L10-018	AW-06-027	114	117	high	0.30	2.8	2.4	219	20	90		0.10	3.2		0.10	40	30		1907	11	14			0.060	0.25		1.0
L-AW-003-4	AW-05-003	345	348	high	0.70	0.76	1.5	533	20	49		0.10	5.8		0.20	28	34		7519	1.4	3.0			0.080	0.040		2.0
L10-043	AW-06-009	150	153	high	1.1	1.1	6.0	405	20	33		0.10	2.2		0.10	42	19		4828	1.0	4.0			0.15	0.050		2.0
L10-032	AW-06-030	429	432	high	0.90	1.7	2.3	240	20	21		0.10	2.4		0.10	41	39		5279	4.2	7.0			0.050	0.10		3.0
L10-038	AW-07-068	108	111	high	0.40	1.8	12	112	20	25		0.10	3.2		0.10	27	37		2536	3.8	7.0			0.57	0.11		3.0
L-AW-005-1	AW-05-005	296	299	high	1.0	1.3	8.1	429	20	101		0.10	5.0		0.10	51	30		7397	2.7	6.0			0.15	0.10		15
L11-567	AW-10-108	412	415	high																							
L-AW-015-3	AW-06-015	295	298	high	0.90	1.2	1.9	627	20	60		0.10	4.1		0.10	37	29		5011	2.0	5.0			0.28	0.070		3.0
L10-047	AW-06-017	174	177	high	0.60	1.1	4.5	165	20	16		0.10	8.5		0.10	24	27		3914	1.5	4.0			0.56	0.030		4.0
L10-048	AW-06-017	366	369	high	0.50	1.7	23	116	20	74		0.10	4.0		0.10	22	120		2798	2.1	7.0			2.2	0.10		3.0
L10-084	AN-07-005	90	93	high	0.80	2.4	13	363	20	497		0.10	2.8		0.20	57	658		6205	5.7	7.0			0.12	1.3		2.0
L11-122	AE-10-083	477	478.65	high																							
L11-369	AN-08-036	238.51	241	high																							
L10-087	AN-07-005	324	327	high	0.50	0.66	322	151	20	105		0.10	6.8		0.10	21	24		4088	1.6	2.0			0.55	0.070		3.0
L11-140	AE-10-091	201	204	high																							
L11-389	AN-08-054	245.97	249	high																							
SL-03	AN-08-034	20	23	high	0.60	1.3	3.1	155	20	213		0.10	2.6		0.10	31	34		5498	3.1	5.0			0.27	0.10		4.0
SL-07	AN-08-034	44	47	high	0.60	0.78	8.1	257	20	298		0.10	4.0		0.10	25	35		7458	1.5	3.0			0.46	0.080		4.0
L-AE-004-1	AE-06-004	109	112	high	0.10	3.0	1.2	281	20	368		0.10	1.8		0.10	40	460		3581	3.2	8.0			0.21	1.8		1.0
SL-11	AN-08-034	68	71	high	0.50	1.6	3.4	72	20	75		0.10	4.4		0.10	48	33		4952	3.6	5.0			0.16	0.080		3.0
L11-145B duplicate	AE-10-092	181	184	high																							
L-AE-004-3	AE-06-004	199	202	high	0.20	1.6	1.0	42	20	24		0.10	2.4		0.10	14	16		1338	1.6	5.0			0.020	0.10		2.0
L11-133	AE-10-089	399	401.42	high																							
L11-130	AE-10-089	248	251	high																							
L-AE-003-4	AE-06-003	198	201	high	0.90	1.3	2.7	389	20	64		0.10	1.6		0.10	72	43		>10000	2.8	5.0			0.12	0.060		2.0
SL-41	AN-08-034	285	288	high	0.80	1.4	2.8	173	20	126		0.10	4.1		0.10	26	41		4247	1.8	5.0			0.13	0.10		5.0
SL-46	AN-08-034	315	318	high	0.70	1.6	4.7	228	20	108		0.10	4.6		0.10	26	40		3658	2.9	6.0			0.030	0.14		4.0
L10-129	AN-08-025	168.3	171.3	high	1.4	1.9	3.3	255	20	5.0		0.10	5.9		0.10	43	172		6630	2.5	7.0			0.14	0.060		8.0
SL-50	AN-08-034	339	342	high	0.50	1.5	2.9	206	20	33		0.10	4.5		0.10	18	38		2891	1.6	6.0			0.050	0.030		2.0
SL-52	AN-08-034	372	375	high	0.90	1.4	2.3	716	20	67		0.10	4.6		0.10	38	54		3521	3.3	7.0			0.090	0.10		4.0
L10-208	AN-10-075	107	110	high	0.60	1.6	7.4	222	20	305		0.10	3.2		0.10	41	16		3925	2.9	6.0			0.070	0.090		5.0
SL-53	AN-08-034	378	381	high	0.80	2.0	20	538	20	72		0.10	5.6		0.10	36	60		4889	3.3	8.0			0.17	0.11		11
SL-54	AN-08-034	384	387	high	1.1	1.4	26	502	20	94		0.10	3.7		0.10	41	43		8419	3.5	6.0			0.11	0.080		4.0
SL-62	AN-08-034	432	435	high	0.90	1.2	92	603	20	34		0.10	8.6		0.10	43	44		5507	3.7	4.0			0.14	0.090		5.0

Lorax Sample	Drill Hole	From	To	Grade	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Ce	Cd	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	K	In	La
		m	*m*		*ppm*	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
L11-336	AN-07-011	322	325	high																							
SL-66	AN-08-034	456	459	high	0.90	1.6	3.6	562	20	25		0.10	3.5		0.10	34	37		3473	2.6	6.0			0.090	0.060		3.0
SL-69	AN-08-034	474	477	high	2.0	1.8	5.0	1194	20	15		0.10	2.4		0.10	64	47		10940	2.6	5.0			0.080	0.080		4.0
L11-034	AE-07-027	549	552	high																							
L11-341	AN-07-013	272	275	high																							
L11-361	AN-08-027	80	82.68	high																							
L10-139	AE-08-058	96	99	high	4.4	0.86	7.3	1911	20	33		0.20	1.9		0.20	120	55		>10000.0	4.6	4.0			0.28	0.060		3.0
L11-105	AE-10-074	22.86	25	high																							
L-AE-013-3	AE-06-013	255	258	high	0.30	1.0	6.6	172	20	46		0.10	4.7		0.10	31	40		2986	2.2	4.0			0.040	0.060		4.0
L11-004	AE-06-008	298	301	high																							
L10-135	AE-07-038	571	574	high	0.60	1.7	7.3	187	20	50		0.10	2.9		0.20	36	55		3291	4.2	8.0			0.10	0.12		3.0
L11-047	AE-07-034	499	502	high																							
L11-011	AE-06-010	463	466	high																							
L11-054	AE-07-039	9	12	high																							
7R104653	AE-08-054	190	193	high	1.1	3.3	1.0		40	548	0.10	0.060	1.6	3.5	0.070	52	700	2.7	7770	4.3	8.6	0.20	0.14	0.13	1.9	0.12	1.7
L10-162	AM-08-012	299	302	high	0.80	1.5	5.3	112	20	83		0.10	2.5		0.20	31	36		3129	2.7	6.0			0.060	0.070		2.0
L10-160	AE-08-054	267	270	high	0.50	2.8	5.5	265	20	189		0.10	2.5		0.10	80	919		5636	4.2	7.0			0.38	0.99		2.0
10E15352	AE-10-068	458	461	high	1.1	2.8	9.0		50	67	0.30	0.050	5.7	5.0	0.080	36	429	1.2	4750	3.7	9.5	0.10	0.11	0.56	0.51	0.12	2.0
L10-172	AM-09-026	267	270	high	0.80	2.2	2.2	245	20	28		0.10	3.0		0.10	31	90		3798	4.7	7.0			0.060	0.22		1.0
L11-252	AM-10-042	97	100	high																							
L11-215	AM-08-012	567	570	high																							
L11-216	AM-08-012	606	609	high																							
L11-316	AM-10-076	429	432	high																							
L11-191	AM-07-007	162	165	high																							
L11-272	AM-10-051	102	103.6	high																							
L11-275	AM-10-052	159	162	high																							
L11-300	AM-10-069	222	225	high																							
	High-grade ore																										
	n				36	36	36	34	36	36	2	36	36	2	36	36	36	2	34	36	36	2	2	36	36	2	36
	Min				0.100	0.660	1.000	42.400	20.000	5.000	0.100	0.050	1.560	3.450	0.070	14.200	16.000	1.220	1337.800	1.040	2.000	0.100	0.110	0.020	0.030	0.120	1.000
	10^{th} PCTL				0.350	0.945	1.700	113.010	20.000	22.500	0.120	0.100	2.055	3.608	0.100	22.750	25.500	1.368	2825.710	1.535	4.000	0.110	0.113	0.050	0.055	0.120	1.850
	Median				0.800	1.565	4.850	249.950	20.000	67.000	0.200	0.100	3.585	4.240	0.100	36.350	40.000	1.960	4498.450	2.885	6.000	0.150	0.125	0.130	0.095	0.120	3.000
	90^{th} PCTL				1.125	2.770	21.200	619.570	20.000	301.500	0.280	0.100	5.865	4.872	0.200	60.500	444.500	2.552	7500.880	4.460	8.000	0.190	0.137	0.555	0.750	0.120	5.000
	Max				4.400	3.330	321.900	1911.300	50.000	548.000	0.300	0.200	8.600	5.030	0.200	120.200	919.000	2.700	10940.000	11.270	14.000	0.200	0.140	2.240	1.870	0.120	15.000

Lorax Sample	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
	ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-555																														
L-AW-025-3			2.6	415	15	0.037		123	0.099	0.60		0.43	0.10	7.5	0.50		88				0.50	0.15	0.10	0.20	98	0.10			18	
L11-488																														
L11-461																														
L10-027			0.88	199	1.2	0.053		9.9	0.11	0.40		1.1	0.10	5.9	0.50		159			0.20	0.60	0.051	0.10	0.50	78	0.10			6.0	
L-AW-004-4			1.4	271	13	0.045		30	0.12	0.80		0.92	0.10	7.0	2.0		74				0.70	0.13	0.10	0.50	118	0.10			13	
L-AW-004-5			1.9	302	1.2	0.091		22	0.18	0.50		0.19	0.10	8.6	0.80		97				0.20	0.21	0.10	0.20	248	0.10			19	
L-AW-003-3			1.1	161	32	0.070		55	0.099	1.4		0.46	0.10	3.4	0.90		40				0.30	0.074	0.10	0.30	58	0.10			10	
L10-025			0.85	136	3.1	0.10		27	0.15	0.40		0.36	0.10	4.8	1.3		91			0.20	0.50	0.11	0.10	0.40	115	0.10			10	
L10-040			7.2	287	107	0.023		648	0.053	0.40		0.16	0.10	4.6	0.50		43			0.20	0.20	0.10	0.20	0.30	108	0.10			15	
L11-500																														
L-AW-012-3			2.9	432	63	0.026		86	0.093	1.1		0.060	0.10	13	0.50		71				0.50	0.075	0.10	0.20	134	0.10			19	
L11-430																														
L11-485																														
L11-514																														
L10-039			4.9	394	16	0.076		200	0.065	0.50		0.14	0.10	4.8	0.70		62			0.20	0.20	0.26	0.10	0.10	179	0.10			24	
L11-572																														
L11-564																														
L11-494																														
L11-558																														
L10-076			4.9	312	34	0.073		370	0.069	1.0		0.38	0.10	3.4	0.70		29			0.20	0.20	0.23	0.10	0.20	98	0.10			27	
L11-538																														
L11-537																														
L11-532																														
L11-370																														
L10-075			1.9	299	5.3	0.038		89	0.098	0.50		0.70	0.10	5.1	1.5		65			0.20	0.20	0.13	0.10	0.20	132	0.10			14	
L10-070			7.8	705	2.2	0.034		615	0.042	1.6		0.25	0.10	5.4	1.2		36			0.20	0.20	0.099	0.10	0.10	125	0.10			25	
L11-399																														
L11-116																														
L10-112			1.2	210	0.70	0.069		15	0.16	0.60		0.41	0.10	4.1	0.50		107			0.20	0.50	0.10	0.10	0.60	95	0.10			13	
L11-141																														
L10-117			2.1	194	58	0.047		179	0.097	0.90		0.46	0.10	3.9	1.3		64			0.20	0.40	0.12	0.10	0.30	87	0.10			13	
L11-405																														
L11-384																														
L11-404																														
L11-381																														
L10-122			1.4	274	2.4	0.036		32	0.13	1.0		2.0	0.10	8.1	1.8		221			0.20	0.40	0.046	0.10	0.30	99	0.10			12	
SL-01			1.1	248	3.4	0.052		23	0.13	0.70		0.63	0.10	4.6	0.60		60			0.20	0.50	0.13	0.10	0.30	124	0.10			12	
L11-386																														
SL-08			0.74	181	17	0.047		31	0.093	0.60		0.41	2.1	4.8	1.2		59			0.20	0.60	0.037	0.10	0.60	70	0.10			9.0	
L-AE-004-2			0.78	127	2.6	0.064		49	0.12	1.1		1.1	0.10	2.9	2.8		33				0.40	0.092	0.10	0.20	50	0.10			15	
AME1274	7.0	0.13	1.9	272	0.32	0.060	0.050	16	0.15	0.90	4.1	0.020	0.050	10	1.0	0.70	81	0.050	0.33	0.050	0.20	0.19	0.020	0.25	98	0.10	10	0.90	8.0	3.7
SL-16			0.82	172	1.2	0.063		28	0.12	0.50		0.22	0.10	3.9	0.60		59			0.20	0.30	0.080	0.10	0.40	79	0.10			10	
SL-17			0.84	131	115	0.052		47	0.14	0.80		0.26	0.10	4.2	1.1		37			0.20	0.30	0.098	0.10	0.50	56	0.10			7.0	
SL-18			1.5	209	0.70	0.051		63	0.13	0.80		0.25	0.10	5.6	1.1		76			0.20	0.30	0.14	0.10	0.40	93	0.10			13	
SL-20			1.8	302	0.80	0.036		71	0.14	0.50		0.14	0.10	6.1	0.70		38			0.20	0.30	0.13	0.10	0.40	112	0.10			15	
SL-22			1.6	281	3.5	0.061		30	0.13	0.90		0.20	0.10	5.7	1.0		82			0.20	0.40	0.076	0.10	0.30	69	0.10			25	
L10-115			0.82	155	2.3	0.098		23	0.12	0.40		1.2	0.10	4.3	0.50		198			0.20	0.40	0.096	0.10	0.30	92	0.10			9.0	
L10-109			1.6	263	1.5	0.066		28	0.11	0.90		0.25	0.10	5.5	0.90		76			0.60	0.60	0.11	0.10	0.40	107	0.10			14	
L10-113			1.8	340	8.0	0.051		39	0.11	0.50		0.15	0.10	5.8	0.80		138			0.20	0.40	0.16	0.10	0.20	276	0.10			23	
SL-38			0.91	185	4.0	0.067		21	0.14	0.50		0.25	0.10	3.9	0.60		69			0.20	0.80	0.10	0.10	0.60	95	0.10			13	
SL-47			1.8	397	16	0.034		36	0.12	0.70		0.64	0.10	13	0.70		102			0.20	0.50	0.0030	0.10	0.20	120	0.10			13	
L-AE-002-1			1.1	178	1.7	0.051		14	0.12	0.60		0.59	0.10	4.0	1.3		131				0.50	0.12	0.10	0.30	132	0.10			9.0	
L10-120			1.3	226	2.6	0.039		25	0.083	3.7		0.12	0.10	3.5	0.50		37			0.20	0.30	0.064	0.10	0.20	69	0.10			15	
L11-154																														
SL-51			1.3	190	8.4	0.055		45	0.12	0.50		0.69	0.10	5.3	0.50		86			0.20	0.40	0.12	0.10	0.30	159	0.10			12	
L10-207			1.7	243	7.4	0.036		61	0.10	0.60		0.16	0.10	4.2	0.70		49			0.20	0.20	0.085	0.10	0.50	106	0.10			14	

Lorax Sample	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
	ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SL-55			0.93	217	1.2	0.049		34	0.13	0.50		0.81	0.10	9.6	0.50		131			0.20	0.60	0.055	0.10	0.30	120	0.10			12	
SL-58			1.1	135	43	0.082		22	0.12	0.40		1.0	0.10	4.3	0.70		67			0.20	0.50	0.16	0.10	0.50	115	0.10			9.0	
L-AE-002-2			0.55	87	1.5	0.057		37	0.13	1.3		1.3	0.20	2.2	1.1		61				0.30	0.078	0.10	0.20	52	0.10			9.0	
L10-131			0.75	160	20	0.036		22	0.085	0.40		4.3	0.10	2.1	0.50		297			0.20	0.30	0.062	0.10	0.60	144	4.9			10	
L-AE-007-3			0.56	202	1.4	0.043		13	0.089	0.90		0.12	0.10	4.7	0.60		130				0.40	0.0030	0.10	0.30	55	0.10			14	
SL-65			1.2	241	5.0	0.039		29	0.14	0.30		0.61	0.50	7.7	0.50		138			0.20	0.60	0.044	0.10	0.40	121	0.10			13	
SL-67			0.84	131	6.8	0.055		14	0.14	0.30		0.66	0.10	2.5	0.50		89			0.20	0.50	0.096	0.10	0.30	89	0.10			8.0	
SL-68			1.1	148	1.8	0.080		17	0.14	0.30		1.0	0.10	4.2	0.50		83			0.20	0.50	0.12	0.10	0.40	83	0.10			8.0	
L11-063																														
L11-003																														
L11-354																														
L10-128			0.81	166	2.1	0.050		17	0.13	0.40		0.85	0.10	3.7	0.50		87			0.20	0.40	0.061	0.10	0.20	93	0.10			10	
7R92488	9.0	0.11	1.6	172	9.3	0.080	0.10	15	0.099	0.90	7.8	2.6	0.050	9.2	2.0	0.60	85	0.050	0.25	0.30	0.60	0.16	0.030	0.33	160	0.20	8.6	0.80	6.0	3.6
L-AE-013-2			3.6	294	0.30	0.047		120	0.073	0.40		0.15	0.10	4.1	0.70		44				0.20	0.23	0.10	0.10	140	0.10			17	
L10-169			1.5	218	6.8	0.043		31	0.084	0.70		0.22	0.10	5.8	0.70		40			0.20	0.20	0.13	0.10	0.50	185	0.10			12	
L11-017																														
L11-015																														
L11-038																														
10E15293	6.0	0.030	3.1	289	8.7	0.15	0.070	295	0.078	0.40	45	1.3	0.050	5.1	2.0	0.90	77	0.050	0.070	0.050	0.20	0.23	0.31	0.13	132	0.10	2.0	0.20	23	2.5
L11-083																														
L11-115																														
10E15121	10	0.030	4.3	355	1.8	0.14	0.060	305	0.082	0.60	53	0.19	0.10	5.1	1.0	0.80	86	0.050	0.070	0.050	0.10	0.24	0.22	0.050	124	0.10	2.3	0.20	27	4.0
10E15461	6.0	0.040	9.1	554	1.5	0.050	0.050	633	0.25	0.40	42	0.14	0.10	5.4	1.0	0.70	18	0.050	0.12	0.050	0.20	0.070	0.13	0.13	112	0.10	3.6	0.30	21	3.1
Z114086	15	0.020	3.8	301	2.8	0.070	0.060	320	0.068	0.60	27	0.36	0.070	3.7	1.0	0.80	32	0.050	0.040	0.050	0.10	0.18	0.090	0.090	74	0.10	1.4	0.10	21	2.5
Z113697	4.0	0.020	11	656	2.2	0.040	0.050	872	0.048	0.20	34	0.57	0.10	5.4	1.0	0.50	21	0.050	0.030	0.050	0.10	0.070	0.13	0.10	61	0.10	1.0	0.10	24	2.6
L11-255																														
L11-240																														
L11-319																														
L10-184			1.5	205	7.9	0.073		37	0.10	1.3		1.9	0.10	5.1	3.5		48			0.20	0.40	0.12	0.10	0.50	119	0.20			14	
L11-249																														
L11-189																														
L11-253																														
L11-256																														
Z115161	9.0	0.030	>15	679	15	0.040	0.050	1520	0.041	1.0	39	1.9	0.060	10	3.0	0.60	20	0.050	0.050	0.12	0.10	0.070	0.19	0.17	67	0.30	1.8	0.20	27	3.0
Z113530	11	0.020	9.8	339	1.4	0.030	0.050	669	0.049	0.40	46	0.29	0.22	5.9	1.0	0.70	14	0.050	0.040	0.050	0.10	0.090	0.14	0.16	84	0.10	1.4	0.10	18	2.8
L11-274																														
L11-277																														
	9	9	52	53	53	53	9	53	53	53	9	53	53	53	53	9	53	9	9	43	53	53	53	53	53	53	9	9	53	9
	4.000	0.020	0.550	87.000	0.300	0.023	0.050	9.900	0.041	0.200	4.100	0.020	0.050	2.100	0.500	0.500	14.100	0.050	0.030	0.050	0.100	0.003	0.020	0.050	50.000	0.100	1.000	0.100	6.000	2.500
	5.600	0.020	0.811	138.400	1.200	0.036	0.050	15.280	0.066	0.400	7.060	0.140	0.100	3.420	0.500	0.580	32.200	0.050	0.038	0.050	0.200	0.052	0.100	0.106	62.200	0.100	1.288	0.100	8.200	2.500
	9.000	0.030	1.475	241.000	3.400	0.051	0.050	35.900	0.111	0.600	38.800	0.410	0.100	5.100	0.800	0.700	71.000	0.050	0.070	0.200	0.400	0.103	0.100	0.300	106.000	0.100	2.040	0.200	13.000	3.000
	11.800	0.114	4.936	411.400	33.440	0.082	0.076	565.920	0.140	1.100	47.100	1.258	0.100	9.080	1.960	0.820	136.600	0.050	0.266	0.200	0.600	0.208	0.130	0.500	156.000	0.100	8.904	0.820	24.000	3.760
	15.000	0.130	11.000	705.000	115.200	0.150	0.100	1520.000	0.246	3.700	53.100	4.250	2.100	13.100	3.500	0.900	297.000	0.050	0.330	0.600	0.800	0.258	0.310	0.600	276.000	4.900	10.200	0.900	27.000	4.000

Lorax Sample	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
	ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L10-016			0.80	126	2.9	0.073		15	0.13	0.50		0.35	0.10	5.5	0.80		54			0.20	0.40	0.12	0.10	1.0	79	0.10			10	
L11-489																														
L-AW-020-4			1.1	237	1.6	0.080		29	0.17	1.0		1.2	0.10	2.6	1.1		83				0.80	0.15	0.10	0.60	121	0.10			14	
L10-028			1.1	389	15	0.060		26	0.16	0.70		0.88	0.20	4.1	1.6		91			0.20	0.70	0.16	0.10	0.60	157	0.20			19	
L11-568																														
L11-565																														
L11-563																														
L11-562																														
L10-065			3.1	581	0.40	0.027		45	0.016	1.0		0.15	0.30	26	2.1		70			0.20	0.10	0.20	0.10	0.10	331	0.10			31	
L10-121			1.0	196	29	0.046		33	0.13	0.70		0.63	0.10	4.2	1.4		49			0.20	0.50	0.094	0.10	0.30	112	0.10			12	
SL-06			0.58	157	5.5	0.058		28	0.091	1.1		0.62	0.30	3.7	1.9		48			0.20	0.50	0.066	0.10	0.40	61	0.10			9.0	
SL-15			0.74	146	8.7	0.069		34	0.11	0.60		0.45	0.10	3.4	0.70		58			0.20	0.30	0.085	0.10	0.40	81	0.10			8.0	
L10-137			2.9	243	22	0.050		60	0.11	0.70		1.1	0.10	11	1.7		57			0.20	0.70	0.17	0.10	0.50	185	0.10			11	
SL-59			1.5	195	26	0.067		23	0.10	0.70		2.7	0.10	5.0	1.0		112			0.20	0.40	0.19	0.10	0.30	141	0.10			11	
SL-61			1.7	211	4.0	0.056		26	0.15	0.50		0.53	0.10	8.0	0.50		86			0.20	0.60	0.16	0.10	0.40	200	0.10			13	
SL-63			1.5	284	31	0.029		45	0.12	0.20		2.2	0.10	9.4	0.50		176			0.20	0.80	0.021	0.10	0.40	199	0.10			17	
SL-64			1.2	201	20	0.050		31	0.14	0.50		0.93	0.20	6.8	0.50		145			0.20	0.50	0.073	0.10	0.40	123	0.10			13	
L11-086																														
7R10389	4.0	0.12	0.58	122	1.2	0.090	0.32	7.7	0.067	2.8	2.0	0.22	0.32	2.8	1.0	0.60	44	0.050	0.29	0.050	0.70	0.11	0.020	0.49	49	0.10	8.4	0.80	13	5.8
L11-278																														
L11-110																														
10E15171	15	0.020	5.5	499	4.3	0.060	0.050	439	0.058	0.30	35	0.38	0.17	4.2	1.0	0.80	32	0.050	0.040	0.050	0.10	0.090	0.12	0.090	63	0.10	1.5	0.20	31	3.0
L11-233																														
L10-171			0.68	137	1.0	0.087		31	0.14	1.0		0.29	0.30	2.4	1.1		50			0.20	0.60	0.10	0.10	0.50	223	0.10			13	
7R146631	7.0	0.050	6.9	374	1.9	0.050	0.14	335	0.25	0.40	71	0.21	0.060	5.1	1.0	1.4	17	0.050	0.17	0.050	0.40	0.10	0.14	0.14	235	0.10	5.5	0.40	19	3.4
L11-254																														
L10-177			0.76	178	43	0.038		24	0.11	0.80		1.8	0.10	4.7	0.70		51			0.30	0.40	0.011	0.10	0.30	72	0.10			12	
L11-270																														
	3	3	17	17	17	17	3	17	17	17	3	17	17	17	17	3	17	3	3	16	17	17	17	17	17	17	3	3	17	3
	4.000	0.020	0.580	122.000	0.400	0.027	0.050	7.700	0.016	0.200	2.000	0.150	0.060	2.400	0.500	0.600	16.700	0.050	0.040	0.050	0.100	0.011	0.020	0.090	49.000	0.100	1.520	0.200	8.000	3.000
	4.600	0.026	0.640	132.600	1.120	0.034	0.068	20.080	0.063	0.360	8.640	0.216	0.100	2.720	0.500	0.640	38.920	0.050	0.066	0.050	0.220	0.048	0.100	0.124	62.200	0.100	2.308	0.240	9.600	3.080
	7.000	0.050	1.120	201.000	5.500	0.058	0.140	30.700	0.124	0.700	35.200	0.620	0.100	4.700	1.000	0.800	57.000	0.050	0.170	0.200	0.500	0.102	0.100	0.400	123.000	0.100	5.460	0.400	13.000	3.400
	13.400	0.106	4.074	433.000	30.000	0.083	0.284	169.940	0.161	1.040	63.600	1.932	0.300	10.040	1.780	1.280	125.200	0.050	0.266	0.200	0.740	0.177	0.108	0.600	227.800	0.100	7.812	0.720	23.800	5.320
	15.000	0.120	6.850	581.000	43.000	0.090	0.320	439.000	0.250	2.800	70.700	2.680	0.320	26.200	2.100	1.400	176.000	0.050	0.290	0.300	0.800	0.201	0.140	1.000	331.000	0.200	8.400	0.800	31.000	5.800

Lorax Sample	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
	ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-515																														
L11-523																														
L11-492																														
L11-426																														
L11-457																														
L11-440																														
L11-581																														
L11-423																														
L11-449																														
L10-018			3.0	538	0.20	0.029		33	0.048	0.50		0.15	0.40	12	0.70		72			0.20	0.20	0.30	0.10	0.10	546	0.10			24	
L-AW-003-4			1.1	94	57	0.027		76	0.10	4.1		5.0	0.10	3.5	3.1		241				0.20	0.044	0.10	0.20	40	0.10			15	
L10-043			0.55	85	5.2	0.073		36	0.15	1.4		0.71	0.10	2.5	1.6		34			0.20	0.30	0.063	0.10	0.20	52	0.10			9.0	
L10-032			1.5	201	3.1	0.057		42	0.14	0.70		1.2	0.10	4.6	1.5		78			0.20	0.40	0.23	0.10	0.40	215	0.10			16	
L10-038			1.8	342	3.9	0.041		26	0.13	0.60		0.28	0.90	7.6	0.70		79			0.20	0.50	0.13	0.10	0.30	143	0.10			15	
L-AW-005-1			1.7	310	58	0.035		43	0.099	0.80		2.0	0.40	12	2.5		173				0.70	0.028	0.10	0.50	117	0.10			18	
L11-567																														
L-AW-015-3			1.7	229	80	0.042		32	0.11	1.4		2.6	0.10	6.7	1.9		125				0.50	0.10	0.10	0.60	108	0.10			12	
L10-047			2.0	289	3.0	0.026		53	0.15	0.30		0.45	0.20	8.2	2.2		68			0.20	0.40	0.034	0.10	0.30	62	0.10			9.0	
L10-048			2.1	370	4.0	0.036		71	0.12	0.80		0.55	5.0	8.0	1.2		101			0.20	0.30	0.11	0.10	0.20	117	0.10			18	
L10-084			4.4	490	59	0.062		226	0.090	1.3		0.78	0.10	8.6	2.5		54			0.20	0.20	0.24	0.10	0.20	298	0.10			31	
L11-122																														
L11-369																														
L10-087			0.93	242	12	0.025		30	0.11	1.0		0.60	2.2	11	1.5		114			0.20	0.30	0.0020	0.10	0.20	82	0.10			11	
L11-140																														
L11-389																														
SL-03			0.97	251	12	0.041		39	0.14	0.70		0.90	0.10	5.3	1.1		53			0.20	0.40	0.083	0.10	0.50	105	0.10			13	
SL-07			0.45	189	33	0.051		43	0.086	1.8		0.81	0.20	4.2	1.6		62			0.20	0.50	0.053	0.10	0.60	52	0.10			10	
L-AE-004-1			4.5	338	0.30	0.12		121	0.085	0.90		0.44	0.10	7.0	3.0		55				0.20	0.30	0.10	0.10	178	0.10			32	
SL-11			1.4	325	13	0.052		52	0.10	0.80		0.61	0.10	9.3	1.4		108			0.20	0.40	0.096	0.10	0.50	143	0.10			19	
L11-145B duplicate																														
L-AE-004-3			1.5	232	0.60	0.056		22	0.094	1.4		0.17	0.10	4.4	1.1		47				0.40	0.13	0.10	0.20	56	0.10			15	
L11-133																														
L11-130																														
L-AE-003-4			1.3	142	15	0.056		87	0.13	0.60		1.8	0.20	6.0	3.8		44				0.30	0.10	0.10	0.20	86	0.10			12	
SL-41			1.0	236	12	0.052		36	0.15	1.1		0.58	0.10	4.3	1.7		59			0.20	0.70	0.082	0.10	0.80	76	0.10			12	
SL-46			1.6	318	4.3	0.043		53	0.13	0.60		0.41	0.10	12	1.0		73			0.20	0.40	0.037	0.10	0.30	118	0.10			17	
L10-129			2.8	404	3.0	0.030		91	0.11	1.0		0.73	0.10	12	2.7		61			0.20	0.50	0.014	0.10	0.70	136	0.10			27	
SL-50			1.0	153	7.0	0.041		35	0.098	0.90		2.3	0.10	2.7	0.90		205			0.20	0.40	0.11	0.10	0.20	63	0.10			11	
SL-52			1.4	215	5.8	0.040		46	0.12	0.50		1.8	0.10	6.8	0.90		139			0.20	0.60	0.078	0.10	0.20	145	0.10			14	
L10-208			1.4	300	13	0.035		58	0.095	1.1		0.50	0.10	5.7	1.3		61			0.20	0.30	0.058	0.10	0.50	112	0.10			17	
SL-53			1.9	315	3.3	0.030		65	0.14	0.70		1.2	0.10	8.8	1.1		87			0.20	0.60	0.0060	0.10	0.40	127	0.10			23	
SL-54			1.2	196	12	0.043		54	0.12	1.3		1.5	0.10	7.2	1.2		138			0.20	0.50	0.086	0.10	0.30	136	0.10			13	
SL-62			1.2	311	38	0.029		40	0.12	0.50		2.2	0.40	8.0	0.80		358			0.20	0.60	0.0020	0.10	0.30	130	0.10			12	

Lorax Sample	Li	Lu	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
	ppm	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
L11-336																														
SL-66			1.4	202	5.0	0.041		37	0.14	0.40		1.0	0.10	6.2	0.50		106			0.20	0.50	0.086	0.10	0.40	117	0.10			15	
SL-69			1.1	143	3.7	0.27		75	0.12	0.80		1.7	0.10	3.4	0.50		128			0.70	0.40	0.13	0.10	0.40	94	0.20			11	
L11-034																														
L11-341																														
L11-361																														
L10-139			1.0	170	8.1	0.052		168	0.080	1.9		3.3	0.10	2.6	6.0		51			0.40	0.40	0.086	0.10	0.30	77	0.10			16	
L11-105																														
L-AE-013-3			0.82	300	3.4	0.043		27	0.11	0.60		0.48	0.10	12	1.0		75				0.40	0.033	0.10	0.30	82	0.10			10	
L11-004																														
L10-135			1.7	278	41	0.057		43	0.13	1.1		0.85	0.50	7.0	0.50		78			0.20	0.40	0.14	0.10	0.80	148	0.30			23	
L11-047																														
L11-011																														
L11-054																														
7R104653	8.0	0.040	4.7	355	7.3	0.080	0.12	297	0.097	0.80	60	1.1	0.26	6.6	2.0	0.80	52	0.050	0.080	0.050	0.10	0.28	0.21	0.060	191	0.10	2.7	0.20	27	4.1
L10-162			1.0	193	3.4	0.056		29	0.12	1.2		0.45	0.20	4.0	0.50		73			0.20	0.50	0.087	0.10	0.30	123	0.10			16	
L10-160			6.7	553	21	0.032		546	0.068	0.50		1.1	0.10	6.1	2.1		57			0.20	0.30	0.13	0.10	0.10	125	0.10			25	
10E15352	24	0.14	4.0	482	13	0.030	0.060	124	0.081	0.60	23	1.3	0.88	13	2.0	0.70	121	0.050	0.29	0.050	0.30	0.090	0.040	0.14	194	0.10	9.7	0.90	26	2.8
L10-172			2.4	297	0.40	0.077		64	0.095	1.1		0.40	0.20	8.1	1.8		43			0.20	0.20	0.16	0.10	0.10	177	0.10			18	
L11-252																														
L11-215																														
L11-216																														
L11-316																														
L11-191																														
L11-272																														
L11-275																														
L11-300																														
	2	2	36	36	36	36	2	36	36	36	2	36	36	36	36	2	36	2	2	29	36	36	36	36	36	36	2	2	36	2
	8.000	0.040	0.450	85.000	0.200	0.025	0.060	22.400	0.048	0.300	23.000	0.150	0.100	2.500	0.500	0.700	34.000	0.050	0.080	0.050	0.100	0.002	0.040	0.060	40.000	0.100	2.740	0.200	9.000	2.800
	9.600	0.050	0.950	148.000	1.800	0.029	0.066	29.250	0.083	0.500	26.680	0.405	0.100	3.450	0.600	0.710	49.000	0.050	0.101	0.200	0.200	0.021	0.100	0.100	59.000	0.100	3.439	0.270	10.500	2.930
	16.000	0.090	1.470	283.500	7.170	0.043	0.090	49.100	0.114	0.800	41.400	0.830	0.100	6.900	1.450	0.750	74.000	0.050	0.185	0.200	0.400	0.087	0.100	0.300	117.500	0.100	6.235	0.550	15.500	3.450
	22.400	0.130	4.215	443.000	48.650	0.075	0.114	146.100	0.139	1.400	56.120	2.240	0.690	11.500	2.850	0.790	156.000	0.050	0.269	0.200	0.600	0.234	0.100	0.600	192.500	0.100	9.031	0.830	26.500	3.970
	24.000	0.140	6.710	553.000	79.900	0.268	0.120	546.200	0.151	4.100	59.800	5.040	5.000	13.000	6.000	0.800	358.000	0.050	0.290	0.700	0.700	0.302	0.210	0.800	546.000	0.300	9.730	0.900	32.000	4.100

APPENDIX C-1.5 NAG TEST RESULTS COMPARISON

Appendix C-1.5
NAG Test Results Comparison

Table C-1.5:
Net Acid Generation Test Results Compared With Selected ABA Test Results

Sample	NAG pH	NAG Acidity to pH 4.5		NAG Acidity to pH 7	Non-SO_4 S	CaNPR	NPR	Rock type
		kg H_2SO_4/t		kg H_2SO_4/t	%			
Guideline	**<4.5**	**>5**	**>0**		**>1**	**<2**	**<2**	
L10-149	**2.55**	**29.40**		44.7	**4.00**	**0.5**	**1.5**	MAFV/PICR
L11-242	**2.65**	**22.05**		29.2	**2.19**	**0.3**	na	SLD
L11-302	**2.96**	**8.92**		14.1	**1.45**	**0.4**	na	SLD
L11-295	**3.03**	**8.82**		14.7	**1.11**	**0.3**	na	SLD
L10-096	**3.33**	**4.56**		8.04	**1.24**	**0.2**	**1.4**	SLD
L10-144	**3.42**	**3.63**		7.15	**1.99**	**0.8**	2.0	SLD
L11-316	**3.54**	**2.94**		10.9	0.52	**0.3**	na	SLD
L11-063	**3.95**	**0.78**		3.33	0.97	**0.4**	na	SLD
L10-184	**4.19**	**0.39**		4.41	0.53	**1.0**	3.2	SLD
L11-091	4.73	0		2.45	0.75	**0.4**	na	SLD
L11-292	4.75	0		2.16	**1.16**	**0.6**	na	SLD
L10-131	5.55	0		2.06	0.33	2.0	3.6	SLD
L10-022	5.87	0		4.61	0.40	**0.3**	2.8	MAFV/PICR
L11-011	5.87	0		1.18	0.74	**0.7**	na	SLD
L10-089	6.00	0		4.21	0.16	**1.0**	11.4	SLD
L10-138	6.02	0		2.16	0.87	**0.2**	3.3	MAFV/PICR
L11-016	6.07	0		12.2	0.00	133	na	SLD
L11-439	6.16	0		1.96	0.01	74.7	na	SLD
L11-033	6.17	0		6.27	0.01	160	na	SLD
L10-094	6.26	0		5.29	0.05	11.7	29.6	SLD
L10-014	6.27	0		1.27	0.55	2.9	6.8	SLD
L11-375	6.27	0		4.70	0.01	176	na	SLD
L11-149	6.29	0		2.60	0.01	165	na	SLD
L11-107	6.32	0		1.47	0.52	**1.3**	na	SLD
L10-209	6.35	0		0.78	**1.17**	**0.7**	**1.6**	SLD
L11-336	6.45	0		1.37	0.31	4.5	na	SLD
L11-337	6.49	0		0.78	0.26	3.2	na	SLD
L10-064	6.50	0		4.41	<0.01	13.3	120	IMH
L10-198	6.53	0		4.80	0.01	16.0	170	IMH
L11-326	6.53	0		0.88	0.50	2.9	na	SLD
L10-112	6.56	0		0.78	0.37	**1.0**	9.1	SLD
Col-4-WR	6.57	0		2.94	0.01	80.0	166	IMH
L11-271	6.61	0		1.37	0.30	3.7	na	SLD
L10-145	6.63	0		1.96	0.21	6.1	17.6	SLD
L10-073	6.65	0		0.98	0.05	32.5	77.2	SLD
L10-010	6.68	0		3.14	<0.01	61.3	171	IMH
L10-159	6.69	0		0.29	0.85	**1.3**	3.7	SLD

Sample	NAG pH	NAG Acidity to pH 4.5	NAG Acidity to pH 7	Non-SO_4 S	CaNPR	NPR	Rock type
		kg H_2SO_4/t	kg H_2SO_4/t	%			
L10-173	6.69	0	1.08	0.08	9.3	37.9	SLD
L11-243	6.69	0	3.14	0.01	149	na	SLD
Col-6-WR	6.72	0	0.78	0.30	3.4	8.7	MAFV/PICR
L10-197	6.72	0	3.33	0.01	125	462	IMH
L11-112	6.73	0	0.59	0.54	**1.6**	na	SLD
10E28868	6.74	0	2.65	0.04	99.8	153	IMH
L10-186	6.75	0	0.49	0.13	5.3	24.7	SLD
L10-196	6.75	0	3.43	0.01	101	300	IMH
L11-402	6.75	0	0.20	0.68	**1.2**	na	SLD
Col-1-Ore	6.76	0	0.20	0.68	3.4	na	SLD
L10-004	6.76	0	2.65	0.02	68.0	223	IMH
L11-101	6.76	0	0.69	0.34	15.1	na	SLD
Col-3-WR	6.80	0	0.25	0.58	**1.8**	3.5	SLD
L11-394	6.81	0	0.59	0.17	11.0	na	SLD
L10-201	6.82	0	1.86	0.02	78.7	239	IMH
L11-088	6.84	0	0.39	0.14	**1.5**	na	SLD
L11-485	6.84	0	0.20	0.39	6.4	na	SLD
L10-199	6.89	0	2.06	<0.01	108	215	IMH
T1 and T2	6.90	0	0.29	0.25	16.3	na	SLD
L10-090	6.91	0	0.49	0.05	26.1	116	MAFV/PICR
L11-114	6.91	0	0.06	0.77	2.7	na	SLD
L10-058	6.93	0	0.39	<0.01	125	390	IMH
L10-156	6.94	0	0.39	<0.01	85.3	421	IMH
L11-400	6.97	0	0.10	1.00	4.0	na	SLD
L10-189	6.98	0	0.10	0.58	2.4	7.9	SLD
L10-203	6.98	0	0.29	0.03	72.0	157	IMH
L10-210	6.98	0	0.10	0.22	6.3	22.1	SLD
L11-350	7.01	0	0	**1.03**	**1.8**	na	SLD
L10-037	7.01	0	0	0.76	**1.7**	6.0	SLD
Col-2-WR	7.03	0	0	0.15	7.1	13.0	SLD
Col-5-WR	7.03	0	0	0.01	181	477	IMH
L11-370	7.03	0	0	0.90	2.5	na	SLD
L11-014	7.04	0	0	0.04	96.0	na	SLD
L11-353	7.05	0	0	0.12	5.3	na	SLD
L11-104	7.05	0	0	0.01	395	na	SLD
L10-062	7.06	0	0	0.08	25.7	65.2	MAFV/PICR
L11-248	7.06	0	0	0.01	485	na	SLD
L10-161	7.07	0	0	0.13	4.1	19.2	SLD
L11-363	7.07	0	0	0.55	**1.8**	na	SLD
L10-123	7.09	0	0	0.13	10.9	25.1	SLD
L11-159	7.09	0	0	0.07	10.0	na	SLD
L11-024	7.11	0	0	0.05	33.6	na	SLD
L11-233	7.13	0	0	0.42	6.2	na	SLD
L11-264	7.13	0	0	0.20	5.1	na	SLD
L10-102	7.14	0	0	0.04	5.3	33.0	SLD
L11-214	7.14	0	0	0.22	3.8	na	SLD

Sample	NAG pH	NAG Acidity to pH 4.5	NAG Acidity to pH 7	Non-SO_4 S	CaNPR	NPR	Rock type
		kg H_2SO_4/t	kg H_2SO_4/t	%			
L11-383	7.18	0	0	0.16	2.5	na	SLD
L11-388	7.18	0	0	0.03	44.8	na	SLD
L10-187	7.19	0	0	0.32	5.1	13.8	SLD
L10-103	7.19	0	0	0.05	31.5	78.0	SLD
L11-398	7.19	0	0	0.03	44.4	na	SLD
L11-166	7.21	0	0	0.17	9.8	na	SLD
L10-146	7.23	0	0	0.07	32.8	57.3	SLD
L10-200	7.24	0	0	0.03	21.3	63.4	IMH
L10-206	7.25	0	0	0.26	**0.9**	33.9	SLD
L11-389	7.26	0	0	0.40	5.1	na	SLD
L10-183	7.27	0	0	0.10	9.6	60.3	SLD
L11-213	7.29	0	0	0.26	4.2	na	SLD
L11-300	7.29	0	0	0.99	8.2	na	SLD
L11-090	7.31	0	0	0.10	3.1	na	SLD
L10-040	7.32	0	0	0.22	4.5	36.4	MAFV/PICR
L11-366	7.33	0	0	0.01	565	na	SLD
L11-385	7.34	0	0	0.04	138	na	SLD
L10-207	7.35	0	0	0.14	6.9	25.0	SLD
L10-011	7.36	0	0	<0.01	539	818	IMH
L11-019	7.37	0	0	0.06	18.4	na	SLD
L11-190	7.39	0	0	0.07	11.7	na	SLD
L10-077	7.47	0	0	0.03	12.4	114	IMH
L10-085	7.50	0	0	0.07	10.7	39.5	IMH
L10-105	7.50	0	0	0.64	9.8	11.4	SLD
L11-105	7.50	0	0	0.50	**1.7**	na	SLD
L10-068	7.51	0	0	0.24	3.8	25.1	MAFV/PICR
L11-578	7.58	0	0	0.03	129	na	SLD
L10-020	7.59	0	0	0.02	57.3	192	IMH
L10-113	7.65	0	0	0.13	13.7	33.2	SLD
L11-390	7.67	0	0	0.06	42.2	na	SLD
L11-373	7.72	0	0	0.09	65.5	na	SLD
L10-001	7.87	0	0	0.01	10.7	992	MAFV/PICR
10E28897	7.88	0	0	0.03	154	679	IMH
L11-106	7.90	0	0	0.03	48.9	na	SLD

Notes: Bold/highlighted values are less than or exceed the relevant guideline is indicated at the top of the table; na means full ABA testing was not completed. If NAG pH<4.5, then sample is PAG; if NAG value >5 kg H_2SO_4/t, sample is PAG with high capacity; if NAG value 0 - 5 kg H_2SO_4/t, sample is PAG with low capacity; if sulphur content >1.0%, NAG test may not be complete; if NPR is < 2.0 sample is PAG.

APPENDIX C-1.6 KINETIC TEST SAMPLE ABA RESULTS

Sample ID	Duplicate	Lithology	Paste pH	TIC	CaNP	Total C	Total S	SO_4 S	Sulphide S	Insol. S	Non-SO_4 S	AP	NP	CaNPR	Bulk NPR
				%	*kg $CaCO_3$/t*	%	%	%	%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
Col-1	-	SLD Ore	8.1	0.67	56	0.68	1.1	0.43	0.56	0.12	0.68	21	73	2.6	3.4
Col-2	HC1	Median-S SLD	8.1	0.37	31	0.35	0.20	0.030	0.16	<0.02	0.17	5.3	58	5.8	11
Col-2 (NP Removed)	HC3, HC5, HC6	Median-S SLD	8.5	<0.05	4.2	0.050	0.13	0.050	0.15	<0.02	0.080	2.5	27	1.7	11
Col-3	HC2	High-S SLD	8.2	0.40	33	0.41	0.80	0.22	0.63	<0.02	0.58	18	63	1.8	3.5
Col-3 (NP Removed)	HC4	High-S SLD	8.3	<0.05	4.2	0.070	0.69	0.060	0.68	<0.02	0.63	20	31	0.21	1.6
Col-4	-	IMH	8.5	0.30	25	0.28	<0.02	<0.01	<0.01	<0.02	0.020	0.63	52	40	83
Col-5	-	IMH	8.4	0.68	57	0.61	<0.02	<0.01	<0.01	<0.02	0.020	0.63	149	91	239
Col-6	-	MAFV/PICR	8.7	0.38	32	0.37	0.31	<0.01	0.32	<0.02	0.31	9.7	81	3.3	8.4
Col-7	-	IMH	8.5	0.65	54	0.67	0.024	<0.01	<0.01	0.024	0.024	0.75	35	72	47
Col-8	-	IMH	8.7	0.52	43	0.53	0.022	<0.01	<0.01	0.022	0.022	0.69	29	63	42
Col-9	-	SVHYB	8.2	0.17	14	0.18	0.84	0.43	0.17	0.24	0.41	13	26	1.1	2.1
Col-10	-	PICR	9.4	0.040	3.3	0.046	0.15	<0.01	0.11	0.043	0.15	4.8	49	0.70	10
Col-11	-	PICR	9.1	0.050	4.2	0.061	0.30	<0.01	0.17	0.13	0.30	9.3	52	0.45	5.6
Col-12	-	MAFV	8.9	0.28	23	0.29	0.31	<0.01	0.26	0.053	0.31	9.8	41	2.4	4.2
Col-13	-	Low-Grade Ore	8.2	0.43	36	0.57	0.71	0.38	0.14	0.19	0.33	10	55	3.5	5.4
Col-14	-	High-Grade Ore	8.4	0.70	58	0.97	0.57	<0.01	0.23	0.34	0.57	18	91	3.3	5.0

APPENDIX C-1.7 KINETIC TEST SAMPLE METAL RESULTS

Sample ID	Duplicate	Lithology	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg
			ppm	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*%*
Col-1	-	SLD Ore	0.30	1.4	2.9	133	<20	77	<0.1	3.1	<0.1	42	41	2085	2.7	5.0	0.12	0.18	3.0	1.6
Col-2	HC1	Median-S SLD	<0.1	1.6	1.5	18	<20	110	<0.1	2.0	<0.1	24	62	442	3.6	6.0	0.020	0.11	3.0	1.5
Col-2 (NP Removed)	HC3, HC5, HC6	Median-S SLD	<0.1	1.5	3.7	15	<20	114	<0.1	0.99	<0.1	23	59	409	3.8	6.0	0.030	0.090	3.0	1.4
Col-3	HC2	High-S SLD	0.20	1.9	5.9	19	<20	129	<0.1	2.4	<0.1	45	169	705	3.3	6.0	0.050	0.19	3.0	2.1
Col-3 (NP Removed)	HC4	High-S SLD	0.20	1.9	3.8	25	<20	113	<0.1	1.2	<0.1	46	175	710	3.5	7.0	0.070	0.13	3.0	2.2
Col-4	-	IMH	<0.1	1.6	1.7	5.6	<20	112	<0.1	2.2	<0.1	26	37	62	5.8	8.0	<0.01	0.20	2.0	1.6
Col-5	-	IMH	<0.1	2.2	2.5	11	<20	137	<0.1	3.1	<0.1	31	142	255	6.2	8.0	0.020	0.49	2.0	2.6
Col-6	-	MAFV/PICR	<0.1	2.4	4.1	4.8	<20	190	<0.1	1.4	<0.1	39	387	231	3.4	5.0	0.040	1.2	2.0	5.1
Col-7	-	IMH	0.050	3.2	5.0		50	147	<0.02	4.6	0.020	24	54	132	7.3	9.8	0.17	0.19	1.9	2.0
Col-8	-	IMH	0.040	3.3	5.0		50	142	<0.02	3.8	0.030	38	249	149	8.3	10	0.010	0.28	1.5	3.4
Col-9	-	SVHYB	0.39	1.8	3.0		30	68	0.020	2.8	0.050	28	81	2340	3.5	7.1	0.030	0.12	4.2	1.3
Col-10	-	PICR	0.030	2.2	10		40	328	<0.02	0.58	0.030	56	578	111	5.1	5.0	0.020	1.2	1.1	11
Col-11	-	PICR	0.070	1.8	4.0		60	367	<0.02	0.55	0.040	63	863	660	5.1	4.4	0.030	1.0	0.70	13
Col-12	-	MAFV	0.030	2.0	2.0		30	192	<0.02	1.9	0.030	28	175	190	2.1	5.9	0.040	0.50	2.8	2.5
Col-13	-	Low-Grade Ore	0.22	1.3	3.0		40	66	<0.02	3.1	0.040	20	65	1730	1.9	5.8	0.22	0.060	5.1	1.0
Col-14	-	High-Grade Ore	0.49	1.7	13		30	98	0.030	3.7	0.040	35	100	3140	3.5	7.0	0.41	0.16	4.3	1.7

Sample ID	Duplicate	Lithology	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
			ppm	*ppm*	*%*	*ppm*	*%*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
Col-1	-	SLD Ore	211	13	0.045	48	0.11	0.80	1.1	<0.1	5.5	1.1	107	<0.2	0.40	0.10	<0.1	0.20	118	<0.1	10
Col-2	HC1	Median-S SLD	222	2.4	0.045	12	0.11	0.80	0.20	<0.1	4.2	<0.5	53	<0.2	0.40	0.10	<0.1	0.30	126	<0.1	13
Col-2 (NP Removed)	HC3, HC5, HC6	Median-S SLD	187	2.8	0.047	25	0.11	1.8	0.16	<0.1	3.8	<0.5	37	<0.2	0.40	0.098	<0.1	-	127	<0.1	13
Col-3	HC2	High-S SLD	233	5.5	0.033	123	0.11	1.2	0.82	<0.1	4.4	1.1	81	<0.2	0.40	0.097	<0.1	0.20	120	<0.1	14
Col-3 (NP Removed)	HC4	High-S SLD	207	8.3	0.032	111	0.11	1.7	0.74	0.10	4.2	0.90	62	<0.2	0.40	0.13	<0.1	-	129	0.10	16
Col-4	-	IMH	362	0.50	0.044	25	0.083	1.0	<0.05	<0.1	7.0	<0.5	61	<0.2	0.30	0.19	<0.1	0.10	307	<0.1	28
Col-5	-	IMH	418	1.3	0.035	39	0.096	0.70	<0.05	<0.1	11	0.70	57	<0.2	0.20	0.23	<0.1	0.10	298	<0.1	20
Col-6	-	MAFV/PICR	322	8.8	0.037	453	0.069	0.40	0.30	<0.1	3.6	<0.5	37	0.20	0.20	0.14	<0.1	0.20	84	<0.1	16
Col-7	-	IMH	455	2.5	0.090	15	0.058	0.80	0.020	1.1	17	<1	128	<0.05	<0.1	0.25	<0.02	0.32	423	0.30	23
Col-8	-	IMH	648	2.2	0.12	155	0.050	0.60	0.020	0.14	14	<1	178	<0.05	<0.1	0.20	<0.02	0.16	415	<0.1	44
Col-9	-	SVHYB	241	7.3	0.060	26	0.17	0.90	0.84	0.13	5.8	1.0	101	<0.05	0.60	0.25	<0.02	0.62	209	0.20	15
Col-10	-	PICR	531	0.89	0.10	847	0.052	1.0	0.12	0.090	5.3	<1	40	<0.05	0.20	0.080	0.13	0.16	87	<0.1	21
Col-11	-	PICR	687	1.2	0.050	950	0.048	0.40	0.29	0.12	6.8	<1	26	<0.05	0.20	0.070	0.18	0.14	73	0.10	30
Col-12	-	MAFV	204	4.4	0.070	148	0.10	0.90	0.33	0.18	4.8	<1	55	<0.05	0.50	0.14	0.060	0.34	79	<0.1	14
Col-13	-	Low-Grade Ore	180	4.6	0.060	22	0.14	0.40	0.70	0.10	6.3	<1	62	<0.05	0.50	0.12	<0.02	0.46	107	0.10	12
Col-14	-	High-Grade Ore	292	42	0.050	62	0.13	1.2	0.60	0.41	11	2.0	72	0.070	0.50	0.13	<0.02	0.47	176	1.0	18

APPENDIX C-1.8 KINETIC TEST SAMPLE PSD

Col-1-Ore

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	11.50	11.5%	11.5%
-3/8" + 1/4"	6.300	22.60	22.7%	34.2%
-1/4" + 6	3.360	24.00	24.1%	58.3%
-6 + 10	1.700	11.20	11.2%	69.5%
-10 + 35	0.425	17.30	17.4%	86.9%
-35 + 100	0.150	5.70	5.7%	92.6%
-100 + 270	0.053	3.80	3.8%	96.4%
-270	-0.053	3.60	3.6%	100.0%
TOTAL		99.70	100.0%	

Col-2-WR

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	7.00	7.0%	7.0%
-3/8" + 1/4"	6.300	35.40	35.5%	42.5%
-1/4" + 6	3.360	25.60	25.7%	68.1%
-6 + 10	1.700	8.40	8.4%	76.6%
-10 + 35	0.425	13.80	13.8%	90.4%
-35 + 100	0.150	3.90	3.9%	94.3%
-100 + 270	0.053	2.70	2.7%	97.0%
-270	-0.053	3.00	3.0%	100.0%
TOTAL		99.80	100.0%	

Col-3-WR

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	6.20	6.2%	6.2%
-3/8" + 1/4"	6.300	19.40	19.4%	25.7%
-1/4" + 6	3.360	24.00	24.0%	49.7%
-6 + 10	1.700	10.70	10.7%	60.4%
-10 + 35	0.425	22.40	22.4%	82.9%
-35 + 100	0.150	7.30	7.3%	90.2%
-100 + 270	0.053	4.60	4.6%	94.8%
-270	-0.053	5.20	5.2%	100.0%
TOTAL		99.80	100.0%	

Col-4-WR

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	14.20	14.2%	14.2%
-3/8" + 1/4"	6.300	28.00	28.1%	42.3%
-1/4" + 6	3.360	17.40	17.5%	59.8%
-6 + 10	1.700	10.50	10.5%	70.3%
-10 + 35	0.425	17.30	17.4%	87.7%
-35 + 100	0.150	5.50	5.5%	93.2%
-100 + 270	0.053	3.60	3.6%	96.8%
-270	-0.053	3.20	3.2%	100.0%
TOTAL		99.70	100.0%	

Col-5-WR

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	4.20	4.2%	4.2%
-3/8" + 1/4"	6.300	21.20	21.2%	25.5%
-1/4" + 6	3.360	25.40	25.5%	50.9%
-6 + 10	1.700	11.90	11.9%	62.8%
-10 + 35	0.425	20.90	20.9%	83.8%
-35 + 100	0.150	6.90	6.9%	90.7%
-100 + 270	0.053	4.90	4.9%	95.6%
-270	-0.053	4.40	4.4%	100.0%
TOTAL		99.80	100.0%	

Col-6-WR

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	8.70	8.8%	8.8%
-3/8" + 1/4"	6.300	22.00	22.2%	30.9%
-1/4" + 6	3.360	19.80	19.9%	50.9%
-6 + 10	1.700	10.70	10.8%	61.6%
-10 + 35	0.425	20.70	20.8%	82.5%
-35 + 100	0.150	7.40	7.5%	89.9%
-100 + 270	0.053	4.60	4.6%	94.6%
-270	-0.053	5.40	5.4%	100.0%
TOTAL		99.30	100.0%	

Col-2-WR NP Removed

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	5.21	5.2%	5.2%
-3/8" + 1/4"	6.300	38.54	38.7%	43.9%
-1/4" + 10	1.700	24.99	25.1%	69.0%
-10 + 35	0.425	17.80	17.9%	86.9%
-35 + 100	0.150	4.98	5.0%	91.9%
-100 + 270	0.053	3.27	3.3%	95.2%
-270	-0.053	4.79	4.8%	100.0%
TOTAL		99.58	100.0%	

Col-3-WR NP Removed

Sieve Designation	Aperture	Weight Retained		
	(mm)	(g)	(%)	Cumulative (%)
+3/8"	9.500	1.71	1.7%	1.7%
-3/8" + 1/4"	6.300	25.34	25.4%	27.1%
-1/4" + 10	1.700	42.61	42.8%	69.9%
-10 + 35	0.425	18.79	18.9%	88.7%
-35 + 100	0.150	4.55	4.6%	93.3%
-100 + 270	0.053	3.02	3.0%	96.3%
-270	-0.053	3.65	3.7%	100.0%
TOTAL		99.67	100.0%	

Column 7

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	1.50	1.5%	1.5%
-3/8" + 1/4"	6.300	30.60	30.6%	32.1%
-1/4" + 5	4.000	24.70	24.7%	56.8%
-5 + 10	1.700	19.00	19.0%	75.8%
-10 + 35	0.425	16.10	16.1%	91.9%
-35 + 100	0.150	4.50	4.5%	96.4%
-100 + 270	0.053	2.20	2.2%	98.6%
-270	-0.053	1.40	1.4%	100.0%
TOTAL		100.00	100.0%	

Column 8

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	6.70	6.7%	6.7%
-3/8" + 3	6.730	29.70	29.7%	36.4%
-3 + 1/4"	6.300	13.50	13.5%	49.9%
-1/4" + 5	4.000	22.30	22.3%	72.2%
-5 + 10	1.700	13.50	13.5%	85.7%
-10 + 35	0.425	9.10	9.1%	94.8%
-35 + 100	0.150	2.50	2.5%	97.3%
-100 + 270	0.053	1.30	1.3%	98.6%
-270	-0.053	1.40	1.4%	100.0%
TOTAL		100.00	100.0%	

Column 9

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	4.10	4.1%	4.1%
-3/8" + 1/4"	6.300	29.10	29.1%	33.2%
-1/4" + 5	4.000	20.80	20.8%	54.0%
-5 + 10	1.700	17.60	17.6%	71.6%
-10 + 35	0.425	18.90	18.9%	90.5%
-35 + 100	0.150	5.60	5.6%	96.1%
-100 + 270	0.053	2.40	2.4%	98.5%
-270	-0.053	1.50	1.5%	100.0%
TOTAL		100.00	100.0%	

Column 10

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	14.20	14.2%	14.2%
-3/8" + 1/4"	6.300	48.00	48.0%	62.2%
-1/4" + 5	4.000	21.20	21.2%	83.4%
-5 + 10	1.700	9.90	9.9%	93.3%
-10 + 35	0.425	5.20	5.2%	98.5%
-35 + 100	0.150	0.70	0.7%	99.2%
-100 + 270	0.053	0.40	0.4%	99.6%
-270	-0.053	0.40	0.4%	100.0%
TOTAL		100.00	100.0%	

Column 11

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	9.20	9.2%	9.2%
-3/8" + 1/4"	6.300	31.00	31.0%	40.2%
-1/4" + 5	4.000	18.10	18.1%	58.3%
-5 + 10	1.700	14.50	14.5%	72.8%
-10 + 35	0.425	17.40	17.4%	90.2%
-35 + 100	0.150	5.20	5.2%	95.4%
-100 + 270	0.053	2.70	2.7%	98.1%
-270	-0.053	1.90	1.9%	100.0%
TOTAL		100.00	100.0%	

Column 12

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	7.90	7.9%	7.9%
-3/8" + 1/4"	6.300	29.60	29.6%	37.5%
-1/4" + 5	4.000	19.90	19.9%	57.4%
-5 + 10	1.700	14.60	14.6%	72.0%
-10 + 35	0.425	17.80	17.8%	89.8%
-35 + 100	0.150	6.40	6.4%	96.2%
-100 + 270	0.053	2.60	2.6%	98.8%
-270	-0.053	1.20	1.2%	100.0%
TOTAL		100.00	100.0%	

Column 13

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	8.30	8.3%	8.3%
-3/8" + 1/4"	6.300	54.60	54.6%	62.9%
-1/4" + 5	4.000	20.30	20.3%	83.2%
-5 + 10	1.700	7.30	7.3%	90.5%
-10 + 35	0.425	5.70	5.7%	96.2%
-35 + 100	0.150	2.00	2.0%	98.2%
-100 + 270	0.053	0.90	0.9%	99.1%
-270	-0.053	0.90	0.9%	100.0%
TOTAL		100.00	100.0%	

Column 14

Sieve Designation	Aperture (mm)	Weight Retained (g)	(%)	Cumulative (%)
+ 3/8"	9.500	0.00	0.0%	0.0%
-3/8" + 1/4"	6.300	0.00	0.0%	0.0%
-1/4" + 5	4.000	20.40	20.4%	20.4%
-5 + 10	1.700	43.20	43.2%	63.6%
-10 + 35	0.425	24.80	24.8%	88.4%
-35 + 100	0.150	4.80	4.8%	93.2%
-100 + 270	0.053	3.10	3.1%	96.3%
-270	-0.053	3.70	3.7%	100.0%
TOTAL		100.00	100.0%	

APPENDIX C-1.9 FIELD BIN ABA RESULTS

Size fraction		**Rinse pH**	**Paste pH**	**TIC**	**CaNP**	**Total C**	**Total S**	**Sulphate S**	**Sulphide S**	**Non-SO_4**	**Insol. S**	**Non-SO_4 AP**	**NP**	**CaNPR**	**Bulk NPR**
mm	*%*			*%*	*kg $CaCO_3$/t*	*%*	*%*	*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
FB1 (IMH)															
<2.36	7	8.0	8.3	0.82	68	1.1	0.080	<0.01	0.020	0.080	0.060	2.5	238	27	95
2.36-9.5	33	8.9	8.7	0.20	17	0.25	0.050	<0.01	0.020	0.050	0.030	1.6	65	11	42
>9.5	60	-	8.8	0.15	13	0.18	0.080	<0.01	0.010	0.080	0.070	2.5	40	5.0	16
FB2 (SLD)															
<2.36	9	8.3	8.3	2.1	176	2.4	0.81	<0.01	0.31	0.81	0.50	25	238	6.9	9.4
2.36-9.5	38	8.8	8.8	1.2	100	1.3	0.41	<0.01	0.090	0.41	0.32	13	156	7.8	12
>9.5	53	-	8.4	0.86	72	0.96	0.43	<0.01	0.12	0.43	0.31	13	83	5.3	6.2
FB3 (IMH)															
<2.36	15	8.9	8.4	1.6	136	1.8	0.030	<0.01	<0.01	0.030	0.030	0.94	232	145	248
2.36-9.5	49	8.9	8.4	1.4	113	1.5	0.020	<0.01	<0.01	0.020	0.020	0.63	193	181	309
>9.5	36	-	8.5	1.2	100	1.4	0.020	<0.01	<0.01	0.020	<0.01	0.63	185	160	296
FB4 (PICR)															
<2.36	31	8.7	8.6	0.58	48	0.68	0.070	<0.01	<0.01	0.070	0.070	2.2	286	22	131
2.36-9.5	43	8.3	8.9	0.40	33	0.46	0.030	<0.01	<0.01	0.030	0.030	0.94	93	36	99
>9.5	26	-	9.0	0.050	4.2	0.050	0.040	0.010	<0.01	0.040	0.030	1.3	89	3.3	71
FB7 (SLD)															
<2.36	10	8.4	8.3	1.7	145	2.1	0.35	<0.01	0.16	0.35	0.19	11	200	13	18
2.36-9.5	50	9.1	8.7	1.0	86	0.90	0.23	<0.01	0.090	0.23	0.14	7.2	82	12	11
>9.5	40	-	8.8	0.67	56	0.69	0.44	<0.01	0.12	0.44	0.32	14	73	4.1	5.3

APPENDIX C-1.10 FIELD BIN METALS RESULTS

Size fraction		**Ag**	**Al**	**As**	**Au**	**B**	**Ba**	**Bi**	**Ca**	**Cd**	**Co**	**Cr**	**Cu**	**Fe**	**Ga**	**Hg**	**K**	**La**	**Mg**
mm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%
FB1 (IMH)																			
<2.36	7	<0.1	2.73	9.20	46.7	<20	283	<0.1	4.08	0.1	47.1	441	664	7.76	12.0	0.04	1.52	8.00	5.30
2.36-9.5	33	<0.1	2.77	6.30	116	<20	396	<0.1	1.48	<0.1	44.7	618	356	8.18	12.0	0.02	2.30	2.00	4.93
>9.5	60	<0.1	2.16	4.10	29.2	<20	319	<0.1	1.42	<0.1	44.8	408	423	8.84	11.0	0.02	1.59	2.00	3.80
FB2 (SLD)																			
<2.36	9	0.9	1.67	3.4	493	<20	155	0.1	6.12	0.1	41.6	61.0	5509	2.81	6.00	0.16	0.10	7.00	2.38
2.36-9.5	38	0.4	1.43	2	182	<20	85.0	<0.1	3.69	<0.1	22.5	70.0	3100	2.13	6.00	0.08	0.09	4.00	1.77
>9.5	53	0.4	1.37	1.8	394	<20	113	<0.1	3.15	<0.1	24.3	66.0	2964	2.08	5.00	0.09	0.09	4.00	1.63
FB3 (IMH)																			
<2.36	15	<0.1	2.97	2.3	14.5	<20	54.0	<0.1	5.93	<0.1	31.0	53	239	5.52	9.00	2.56	0.16	4.00	3.41
2.36-9.5	49	<0.1	2.68	1.90	5.10	<20	41.0	<0.1	4.75	<0.1	25.0	40	189	4.89	8.00	1.11	0.18	2.00	2.70
>9.5	36	<0.1	2.11	1.50	4.70	<20	47.0	<0.1	4.43	<0.1	25.0	78	152	4.85	8.00	0.24	0.13	1.00	1.97
FB4 (PICR)																			
<2.36	31	<0.1	2.36	1.70	9.80	<20	422	<0.1	2.27	0.1	52.4	519	192	4.83	5.00	0.02	0.44	1.00	9.89
2.36-9.5	43	<0.1	2.31	1.60	5.00	<20	280	<0.1	1.70	<0.1	56.6	539	172	5.09	5.00	0.02	0.65	2.00	8.91
>9.5	26	<0.1	2.06	1.50	<0.5	25	376	<0.1	0.46	0.1	66.0	518	35.8	4.98	5.00	0.01	0.60	1.00	9.31
FB7 (SLD)																			
<2.36	10	0.5	1.88	10.5	152	<20	74.0	<0.1	5.72	0.1	28.7	64.0	2681	2.23	7.00	0.11	0.10	4.00	2.37
2.36-9.5	50	0.3	1.48	4.30	95.4	<20	37.0	<0.1	3.16	0.1	15.3	50.0	1870	1.42	5.00	0.06	0.09	3.00	1.45
>9.5	40	0.7	1.57	4.80	851.4	<20	48.0	<0.1	2.90	0.1	37.7	42.0	3168	1.67	6.00	0.11	0.09	3.00	1.33

Size fraction		**Mn**	**Mo**	**Na**	**Ni**	**P**	**Pb**	**S**	**Sb**	**Sc**	**Se**	**Sr**	**Th**	**Ti**	**Tl**	**U**	**V**	**W**	**Zn**
mm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
FB1 (IMH)																			
<2.36	7	662	0.60	0.03	102	0.36	3.20	<0.05	0.20	12.2	0.60	53.0	0.80	0.27	0.1	0.20	425	0.1	36
2.36-9.5	33	375	0.40	0.04	107	0.10	0.90	<0.05	0.10	10.7	0.50	26.0	0.40	0.35	0.1	0.20	470	<0.1	24
>9.5	60	379	0.60	0.05	112	0.06	0.60	<0.05	<0.1	10.5	0.50	27.0	0.30	0.33	0.1	0.20	444	0.1	30
FB2 (SLD)																			
<2.36	9	427	11.2	0.02	56.7	0.10	2.20	0.58	0.20	10.0	1.90	79.0	0.40	0.05	<0.1	0.60	116	0.1	22
2.36-9.5	38	282	4.10	0.04	46.8	0.12	0.90	0.33	0.10	8.40	1.10	56.0	0.40	0.08	<0.1	0.50	107	<0.1	16
>9.5	53	233	3.90	0.04	53.0	0.12	0.60	0.32	0.10	7.50	1.20	54.0	0.40	0.08	<0.1	0.40	107	0.1	14
FB3 (IMH)																			
<2.36	15	692	0.40	0.02	25.0	0.02	1.00	<0.05	0.40	25.9	<0.5	109	0.10	0.14	<0.1	0.30	297	<0.1	31
2.36-9.5	49	547	0.40	0.02	19.4	0.02	0.90	<0.05	0.40	23.2	<0.5	104	0.10	0.11	<0.1	0.20	259	<0.1	26
>9.5	36	514	0.40	0.02	23.8	0.02	0.80	<0.05	0.30	19.8	<0.5	79.0	0.10	0.12	<0.1	0.20	265	<0.1	26
FB4 (PICR)																			
<2.36	31	786	2.30	0.02	809	0.05	1.50	<0.05	0.10	7.40	<0.5	63.0	0.20	0.06	0.1	0.20	95	0.1	33
2.36-9.5	43	669	1.20	0.03	828	0.06	3.50	<0.05	0.10	7.20	<0.5	60.0	0.20	0.06	0.1	0.60	101	0.1	28
>9.5	26	669	0.30	0.03	989	0.05	1.60	<0.05	0.10	5.80	<0.5	40.0	0.20	0.05	0.1	0.10	82.0	0.1	32
FB7 (SLD)																			
<2.36	10	379	11.6	0.03	85.8	0.11	2.10	0.27	0.30	7.40	1.80	97.0	0.40	0.10	<0.1	0.40	105	0.1	17
2.36-9.5	50	210	8.00	0.05	46.9	0.11	0.80	0.16	0.10	5.00	1.10	55.0	0.30	0.10	<0.1	0.30	86.0	0.1	13
>9.5	40	187	5.30	0.06	34.7	0.12	1.40	0.35	0.20	4.60	1.60	61.0	0.40	0.10	<0.1	0.40	86.0	0.1	11

APPENDIX C-1.11 SUMMARY FIELD BIN PSD

☒ THURBER ENGINEERING LTD.
☐ THURBER ENVIRONMENTAL CONSULTANTS LTD.
☐ THURBER CONSULTANTS LTD.

Suite 200 - 1445 West Georgia Street
Vancouver, B.C. V6G 2T3
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Environmental: (604) 687-0100
Fax: (604) 684-5124
Email: kmow@thurber.ca

THURBER

NOTICE OF TRANSMITTAL

TO:	Ms. Stephanie Simpson	DATE:	June 26, 2007
COMPANY:	Lorax		
FROM:	Kirby Mow	OUR FILE No.:	19-3651-5
REFERENCE:	Lab Testing	YOUR FILE No.:	Unspecified

QTY	DESCRIPTION
1	pdf file containing lab results per your June 11, 2007 instructions.

THE ABOVE ITEMS ARE:		ITEMS WERE:	
☐ FOR YOUR APPROVAL	☒ AS REQUESTED	☒ EMAILED	☐ DELIVERED IN PERSON
☐ FOR YOUR COMMENT	☐ FOR YOUR RECORDS	☐ PICKED UP	☐ UNDER SEPARATE COVER
☐ FOR YOUR INFORMATION	☐ FOR CONSTRUCTION	☐ SENT BY MESSENGER	☐ DELIVERED BY HAND

REMARKS:

Stephanie,

We are in the process of sub-dividing the samples to return to you.

I hope to get those over to you within the next few days.

COPIES OF ☐ ITEMS ABOVE ☐ TRANSMITTAL
SENT TO:

PER:

File No.: 19-3651-5
Client: Lorax Environmental Services Ltd.
Project: Unspecified
Date: June 26, 2007

Lab Testing Summary

Sample Identification	As Received Wet Weight (gm)	-19 mm Moisture Content (%)		Bulk Specific Gravity	Bulk Specific Gravity (SSD)	Apparent Specific Gravity	Absorption
#1 Iron Mask (Ajax East)	26623	3.5	+37.5mm	3.11	3.14	3.19	0.85
#1 Iron Mask (Ajax East)			-37.5mm	3.09	3.13	3.22	1.27
#2 Sugarloaf (Ajax West)	25205	3.9	+37.5mm	2.65	2.68	2.74	1.22
#2 Sugarloaf (Ajax West)			-37.5mm	2.62	2.67	2.76	2.05
#3 Iron Mask (Ajax West)	30918	3.4		2.72	2.79	2.91	2.42
#4 Picrite (Ajax West)	26439	5.4		2.77	2.82	2.91	1.72
#5 Cherry Creek (Crescent)	24668	2.3	+37.5mm	2.71	2.74	2.78	0.96
#5 Cherry Creek (Crescent)			-37.5mm	2.66	2.70	2.78	1.62
#6 Pothook (Crescent)	21037	2.4		2.70	2.76	2.86	2.06
#7 Sugarloaf (Ajax East)	19252	3.2		2.66	2.70	2.77	1.49

Test Methods: Specific Gravity/Absorption, ASTM C127; Moisture Content, ASTM D4959

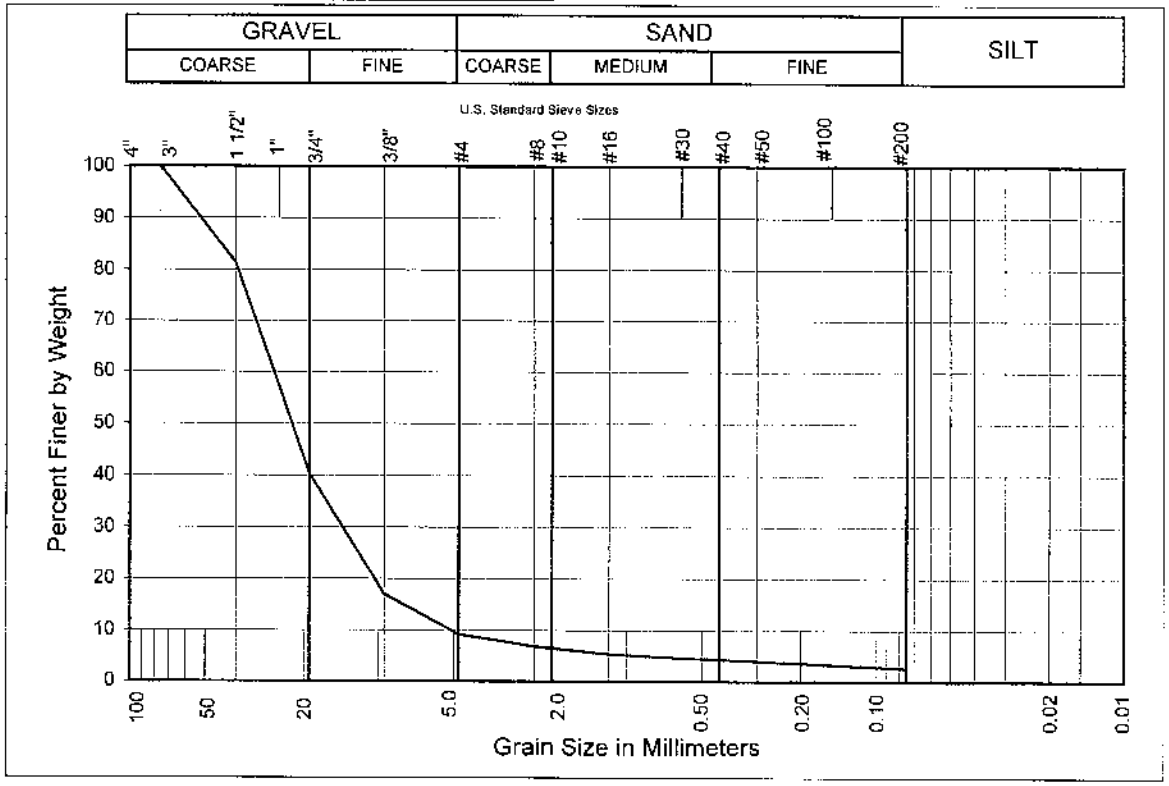
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Iron Mask (Ajax East)
SAMPLE: 1
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	90.8%
SAND	6.6%
FINES	2.6%
MOISTURE CONTENT	3.5%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**81**			
.75	19	**40**			
.375	9.5	**17**			
#4	4.75	**9**			
#8	2.36	**7**			
#16	1.18	**5**			
#30	0.600	**5**			
#50	0.300	**4**			
#100	0.150	**3**			
#200	0.075	**2.6**			

DESCRIPTION:
COMMENTS:

Per:

The results are for the sole use of the designated client only. This report constitutes a testing service only and does not represent any interpretation or opinion regarding the specification compliance or material suitability. Engineering interpretation will be provided by Thurber upon request.

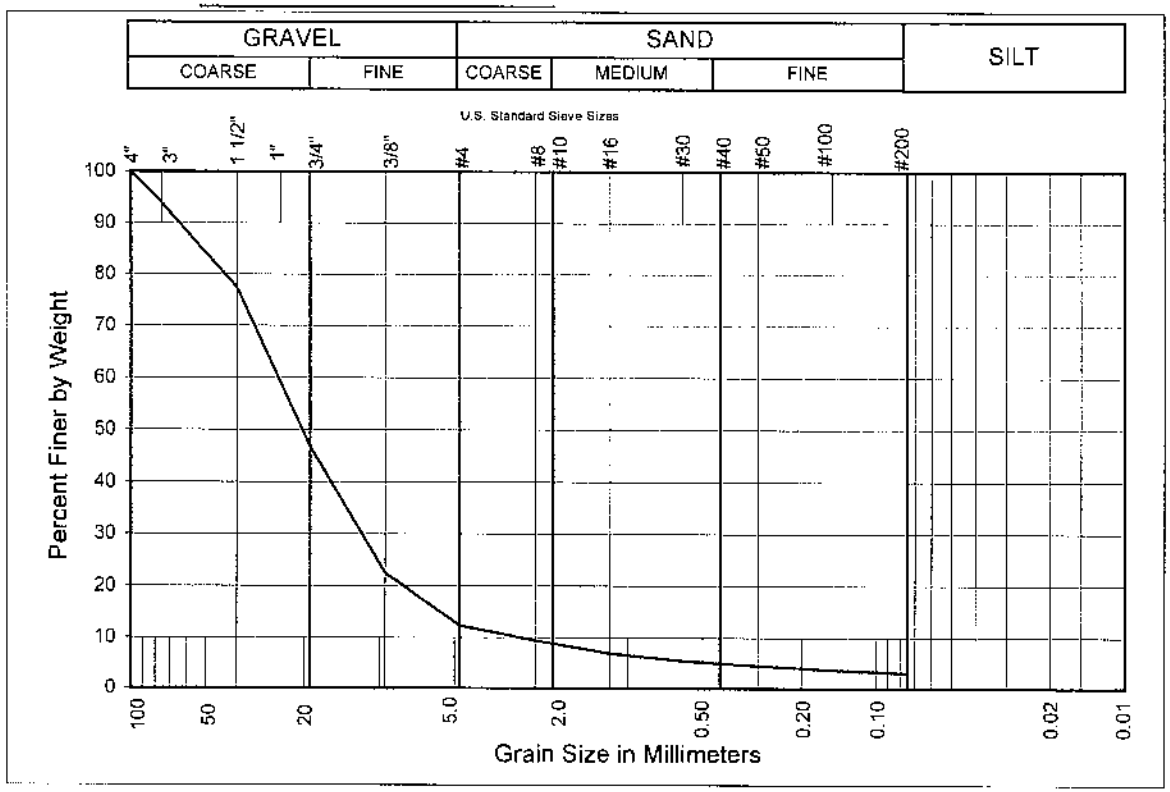
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Sugarloaf (Ajax West)
SAMPLE: 2
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	87.7%
SAND	9.2%
FINES	3.1%
MOISTURE CONTENT	3.9%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**94**			
1.5	37.5	**77**			
.75	19	**47**			
.375	9.5	**23**			
#4	4.75	**12**			
#8	2.36	**9**			
#16	1.18	**7**			
#30	0.600	**5**			
#50	0.300	**4**			
#100	0.150	**4**			
#200	0.075	**3.1**			

DESCRIPTION:
COMMENTS:

Per:

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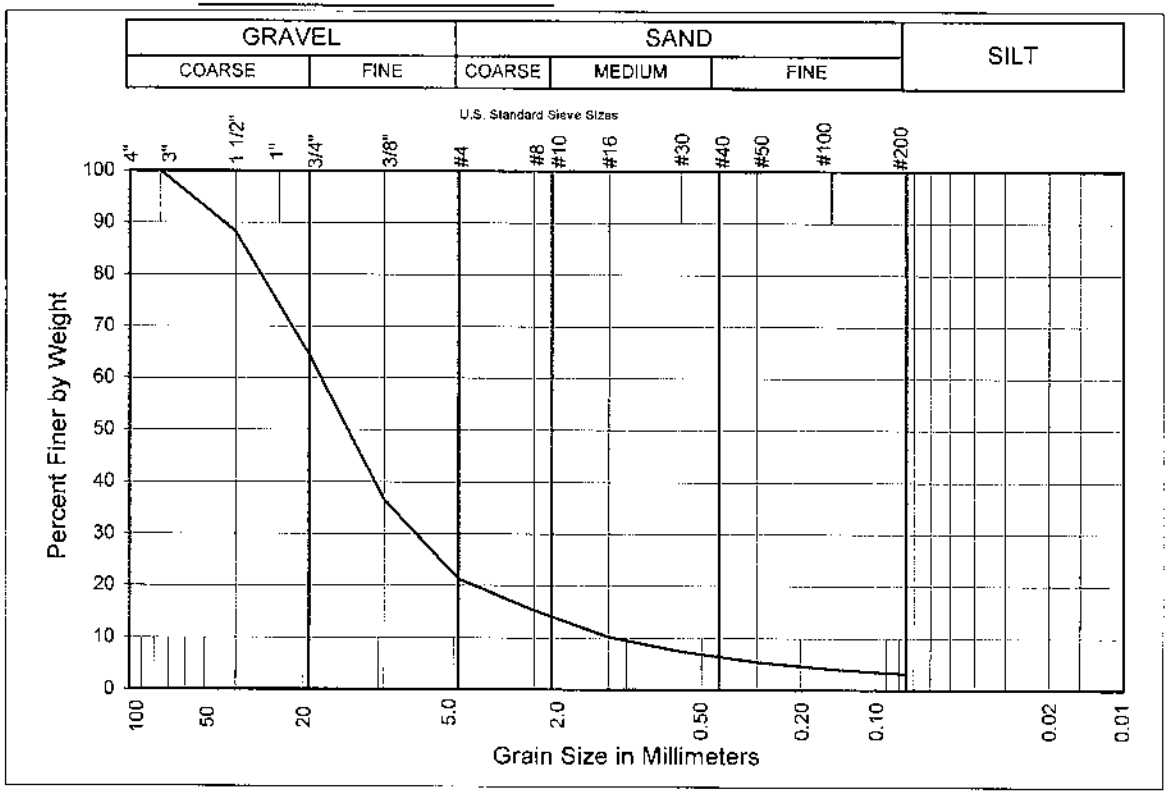
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Iron Mask (Ajax West)
SAMPLE: 3
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	78.8%
SAND	18.0%
FINES	3.2%
MOISTURE CONTENT	3.4%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**88**			
.75	19	**64**			
.375	9.5	**37**			
#4	4.75	**21**			
#8	2.36	**15**			
#16	1.18	**10**			
#30	0.600	**7**			
#50	0.300	**5**			
#100	0.150	**4**			
#200	0.075	**3.2**			

DESCRIPTION:
COMMENTS:

Per:

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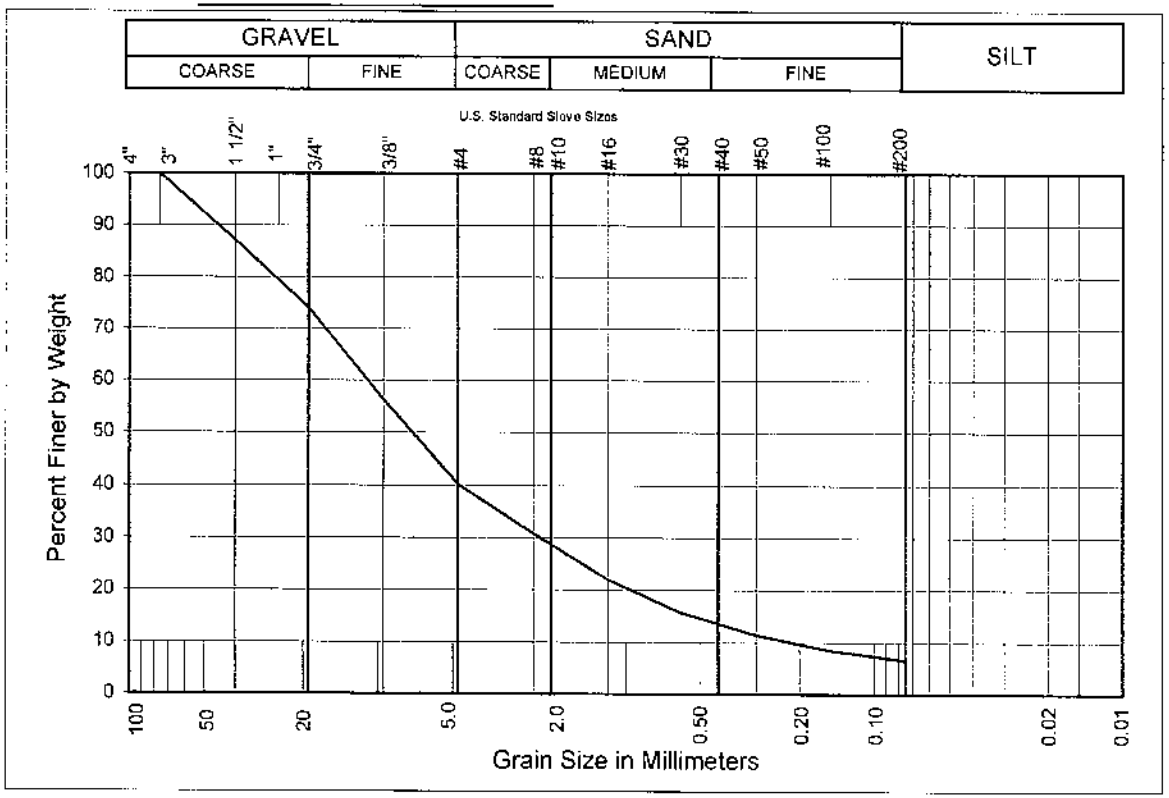
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Picrite (Ajax West)
SAMPLE: 4
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 20, 2007
TESTED BY: KM
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	59.9%
SAND	33.5%
FINES	6.6%
MOISTURE CONTENT	5.4%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**87**			
.75	19	**74**			
.375	9.5	**56**			
#4	4.75	**40**			
#8	2.36	**31**			
#16	1.18	**22**			
#30	0.600	**16**			
#50	0.300	**11**			
#100	0.150	**8**			
#200	0.075	**6.6**			

DESCRIPTION:
COMMENTS:

Per:

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THURBER ENGINEERING LTD.
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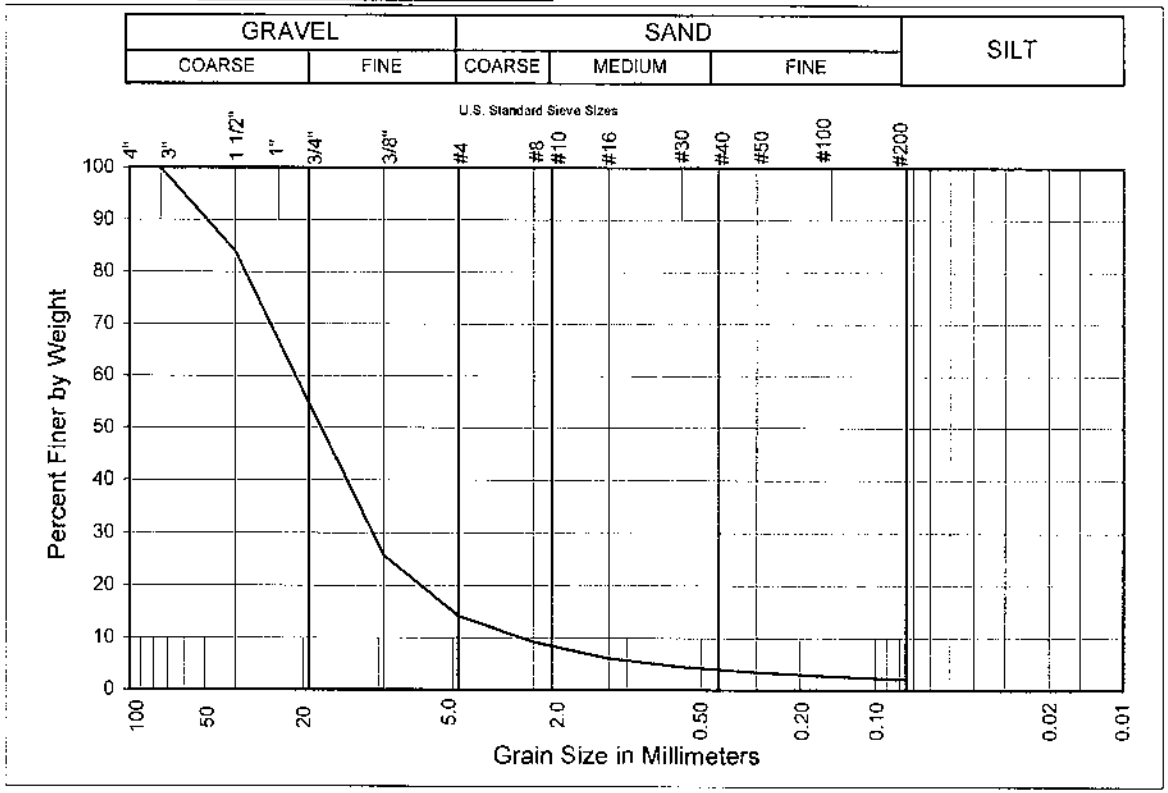
JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Cherry Creek (Crescent)
SAMPLE: 5
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	85.8%
SAND	12.1%
FINES	2.1%
MOISTURE CONTENT	2.3%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**84**			
.75	19	**55**			
.375	9.5	**26**			
#4	4.75	**14**			
#8	2.36	**9**			
#16	1.18	**6**			
#30	0.600	**4**			
#50	0.300	**3**			
#100	0.150	**3**			
#200	0.075	**2.1**			

DESCRIPTION:
COMMENTS:

Per:

The results are for the sole use of the designated client only. This report constitutes a testing service only and does not represent any interpretation or opinion regarding the specification compliance or material suitability. Engineering interpretation will be provided by Thurber upon requrest.

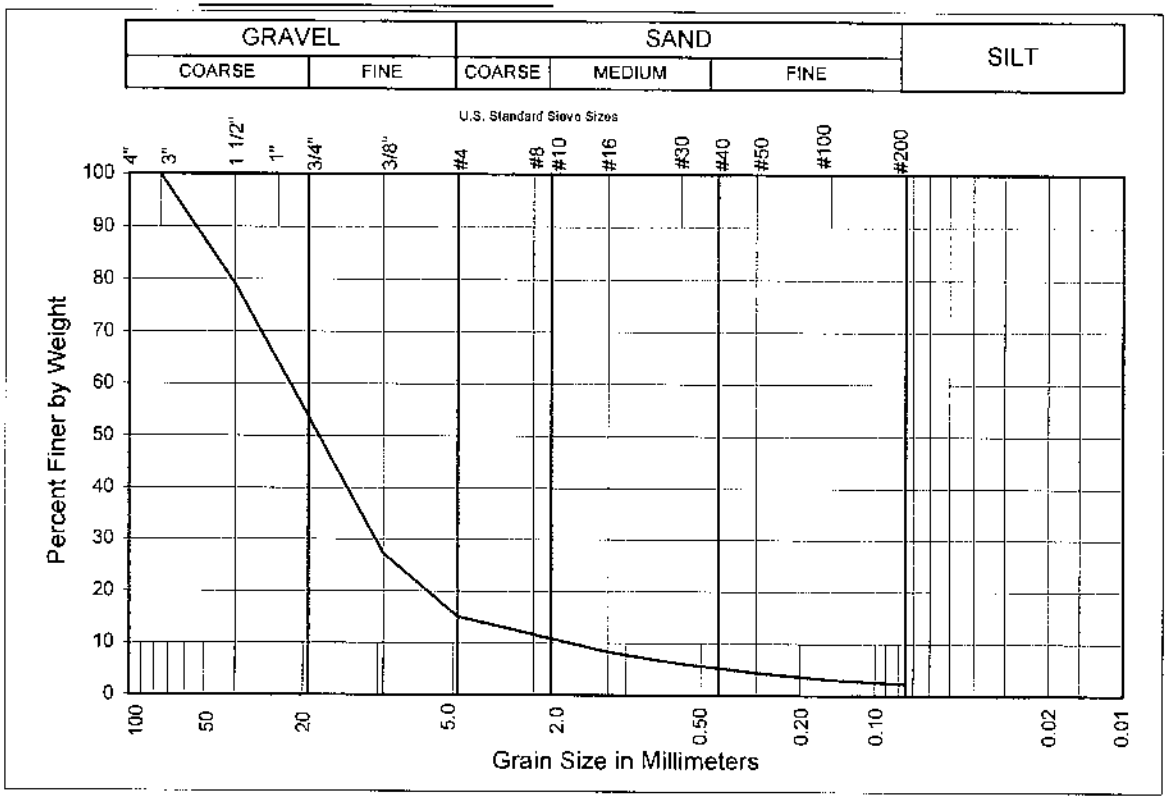
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Pothook (Crescent)
SAMPLE: 6
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Unspecified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



GRAVEL	85.0%
SAND	12.7%
FINES	2.3%
MOISTURE CONTENT	2.4%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**79**			
.75	19	**54**			
.375	9.5	**27**			
#4	4.75	**15**			
#8	2.36	**12**			
#16	1.18	**8**			
#30	0.600	**6**			
#50	0.300	**4**			
#100	0.150	**3**			
#200	0.075	**2.3**			

DESCRIPTION:
COMMENTS:

Per:

The results are for the sole use of the designated client only. This report constitutes a testing service only and does not represent any interpretation or opinion regarding the specification compliance or material suitability. Engineering interpretation will be provided by Thurber upon requrest.

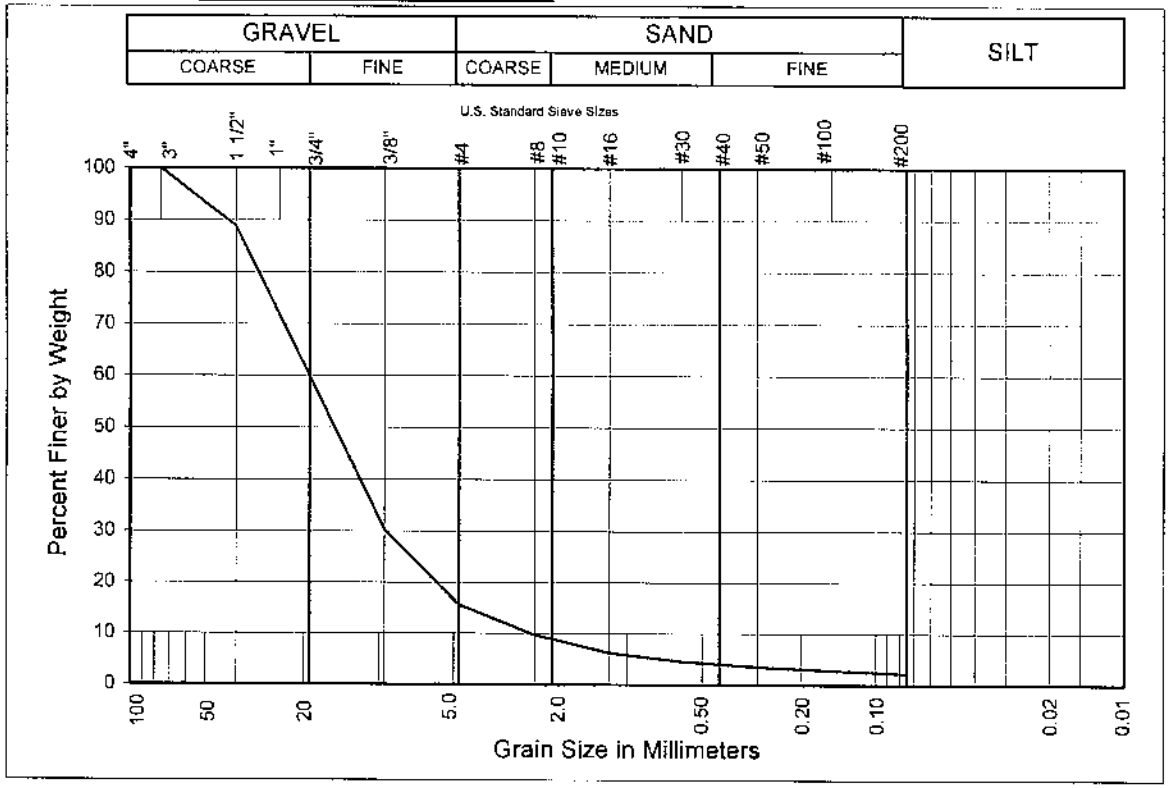
THURBER ENGINEERING LTD.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

JOB NUMBER: 19-3651-5
PROJECT: Unspecified

CLIENT: Lorax Environmental Services Ltd.
ATTENTION:
CC:

SAMPLE LOCATION: Sugarloaf (Ajax East)
SAMPLE: 7
SAMPLE DEPTH: Unspecified
DATE SAMPLED: Not specified
SAMPLED BY: Client

DATE RECEIVED Jun 11, 2007
DATE TESTED: Jun 19, 2007
TESTED BY: KM/BC/KKS
TEST METHOD: ASTM C 136 & C 117
SPECIFICATION:



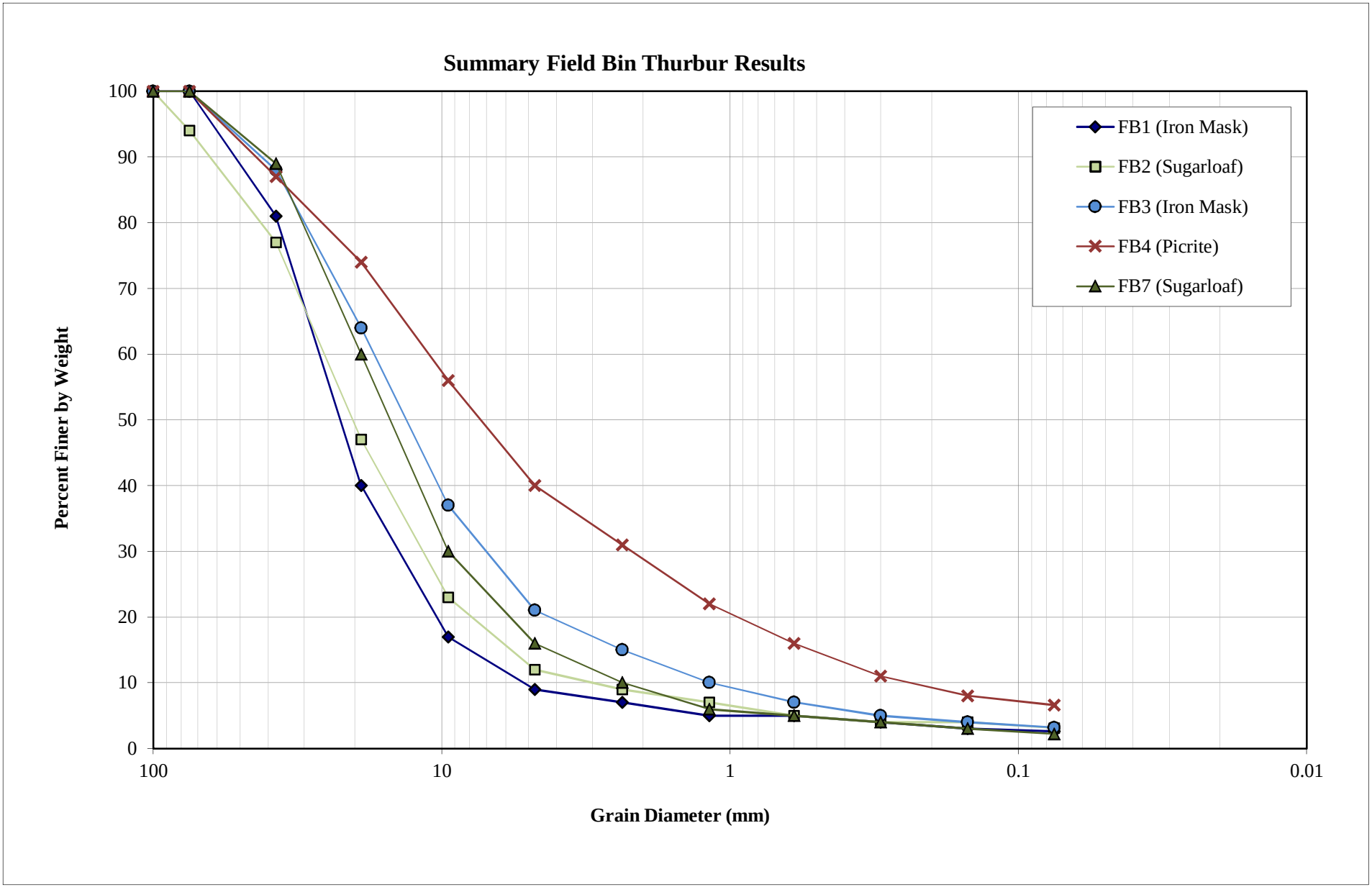
GRAVEL	84.4%
SAND	13.4%
FINES	2.2%
MOISTURE CONTENT	3.2%

Sieve Size		Percent Passing	Specification		Pass/Fail
Inches	mm		Lower	Upper	
4	100	**100**			
3	75	**100**			
1.5	37.5	**89**			
.75	19	**60**			
.375	9.5	**30**			
#4	4.75	**16**			
#8	2.36	**10**			
#16	1.18	**6**			
#30	0.600	**5**			
#50	0.300	**4**			
#100	0.150	**3**			
#200	0.075	**2.2**			

DESCRIPTION:
COMMENTS:

Per:

The results are for the sole use of the designated client only. This report constitutes a testing service only and does not represent any interpretation or opinion regarding the specification compliance or material suitability. Engineering interpretation will be provided by Thurber upon requrest.


Summary Field Bin Thurbur Results
Percent Finer by Weight
100
90
80
70
60
50
40
30
20
10
0
100
10
1
0.1
0.01
Grain Diameter (mm)
FB1 (Iron Mask)
FB2 (Sugarloaf)
FB3 (Iron Mask)
FB4 (Picrite)
FB7 (Sugarloaf)

Appendix C-2 Tailings

APPENDIX C-2.1 ABA RESULTS

Sample ID	**Paste pH**	**TIC**	**CaNP**	**Total C**	**Total S**	**Sulphate S**	**Sulphide S**	**Insoluble S**	**Non-SO_4 AP**	**NP**	**CaNPR**	**Bulk NPR**
		%	*kg $CaCO_3$/t*	*%*	*%*	*%*	*%*	*%*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*		
2009 Tailings	8.1	0.79	66		0.27	0.020	0.25	<0.01	7.8	127	8.4	16
Jan. 24 Tailings	8.4	0.90	75	0.91	0.31	0.020	0.21	0.080	6.6	77	11	12
Jan. 25 Tailings	8.4	0.87	73	0.88	0.31	0.020	0.20	0.090	6.3	74	12	12
Nov. 2013 Tailings	8.2	0.90	75		0.16	<0.01	0.090	0.066	2.8	82	27	29

APPENDIX C-2.2 METALS RESULTS

Sample ID	**Ag**	**Al**	**As**	**Au**	**B**	**Ba**	**Be**	**Bi**	**Ca**	**Cd**	**Ce**	**Co**	**Cr**	**Cs**	**Cu**	**Fe**	**Ga**	**Ge**
	ppm	*%*	*ppm*	*ppb*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*
2009 Tailings	0.2	1.28	3.6	53.2	<20	103		<0.1	3	<0.1		24.8	54		439	2.28	5	
Jan. 24 Tailings	0.19	1.63	12		50	123	0.3	0.03	3.72	0.05	8.65	30.2	183	0.49	923	3.42	6.2	0.1
Jan. 25 Tailings	0.17	1.61	11		50	121	0.3	0.04	3.57	0.05	8.38	30.6	180	0.47	799	3.27	6.2	0.1
Nov. 2013 Tailings	0.12	1.91	6		40	115	0.3	0.02	4.05	0.07	8.94	23.1	176	0.77	421	3.54	6.7	0.1

Sample ID	**Hf**	**Hg**	**In**	**K**	**La**	**Li**	**Lu**	**Mg**	**Mn**	**Mo**	**Na**	**Nb**	**Ni**	**P**	**Pb**	**Rb**	**S**	**Sb**
	ppm	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*
2009 Tailings		0.1		0.07	4			1.29	249	22.3	0.033		45.7	0.122	1.4		0.26	<0.1
Jan. 24 Tailings	0.18	0.14	0.04	0.13	3.9	9	0.12	1.75	301	30.4	0.05	0.11	104	1300	2.7	4.4	0.38	0.25
Jan. 25 Tailings	0.18	0.11	0.03	0.13	3.8	9	0.1	1.74	290	23.9	0.05	0.11	108	1320	2.9	4.7	0.37	0.24
Nov. 2013 Tailings	0.19	0.14	0.04	0.24	4.1	8	0.11	2.12	303	34.7	0.06	0.07	98.4	0.113	1.8	8.4	0.15	0.23

Sample ID	**Sc**	**Se**	**Sn**	**Sr**	**Ta**	**Tb**	**Te**	**Th**	**Ti**	**Tl**	**U**	**V**	**W**	**Y**	**Yb**	**Zn**	**Zr**
	ppm	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
2009 Tailings	5.2	0.9		53			<0.2	0.4	0.066	<0.1	0.4	93	<0.1			16	
Jan. 24 Tailings	8.1	<1	0.5	68.1	<0.05	0.22	<0.05	0.5	0.12	<0.02	0.53	136	0.3	7.06	0.7	15	5.9
Jan. 25 Tailings	7.8	<1	0.5	65.9	<0.05	0.21	<0.05	0.5	0.12	<0.02	0.55	131	0.3	6.96	0.6	13	5.5
Nov. 2013 Tailings	10.4	<1	0.5	71.5	<0.05	0.24	0.05	0.5	0.15	0.03	0.43	167	0.6	7.38	0.7	17	5

APPENDIX C-2.3 SUPERNATANT

	Units	Jan. 2013 Tails Supernatant (1)	Jan. 2013 Tails Supernatant (2)	Jan. 2013 Tails Supernatant (3)	Nov. 2013 Tails Supernatant	Nov. 2013 Tails Supernatant (aged)	BC Water quality guidelines	
pH		7.51	7.67	7.65	5.38*	7.94		
Redox	mV	207						
Conductivity	uS/cm	1834	1440	1430	823	714		
Total Acidity	mg CaCO3/L	12.8			2.6	1.8		
Alkalinity	mg CaCO3/L	63.6	29.5	31.9	<1.0	63.0		
Hardness	mg CaCO3/L	951	758	756	188	131		
Nitrate	mg/L	< 0.05	0.187	0.171	<0.050	<0.025		
Nitrite	mg/L	< 0.06	<0.010	<0.010	<0.010	<0.0050		
Sulphate	mg/L	1159	783	804	359	247		
Ammonia, Total (as N)	mg/L	-	0.0609	0.0846	0.0110	<0.0050		
Bromide (Br)	mg/L	-	<0.50	<0.50	<0.50	<0.25		
Chloride (Cl)	mg/L	-	13.3	13.8	24.4	22.0		
Fluoride (F)	mg/L	-	<0.20	0.20	<0.20	0.22		
Orthophosphate (as P)	mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (as P)	mg/L	-	0.160	0.0571	0.0108	0.0090		
Cyanide, WAD	mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050		
Cyanide, Total	mg/L	-	<0.0050	<0.0050	<0.0050	<0.0050		
DOC	mg/L	-	21.8	22.6	14.8			
TOC	mg/L	-	20.1	20.4	16.4			
Dissolved Metals								
Aluminum Al	mg/L	0.0119	0.0404	0.0499	0.0171	0.0141	0.10	0.050
Antimony Sb	mg/L	0.0009	0.00130	0.00154	0.00298	0.00319	0.020	-
Arsenic As	mg/L	0.0012	0.00024	0.00034	0.0130	0.00365	0.0050	-
Barium Ba	mg/L	0.0203	0.0316	0.0309	0.0323	0.0373	5.0	1.0
Beryllium Be	mg/L	< 0.00002	<0.00010	<0.00010	<0.00010	<0.00010	-	0.0053
Bismuth Bi	mg/L	< 0.00001	<0.00050	<0.00050	<0.00050	<0.00050	-	-
Boron B	mg/L	0.0327	0.027	0.030	0.024	0.032	-	-
Cadmium Cd	mg/L	0.000065	0.000013	0.000014	<0.00013	0.000106	-	0.000088
Calcium Ca	mg/L	277	211	215	71.9	42.0	-	-
Chromium Cr	mg/L	< 0.0005	<0.00010	<0.00010	<0.00010	<0.00010	0.0010	-
Cobalt Co	mg/L	0.000781	0.00019	0.00023	0.00036	0.00061	0.11	0.0040
Copper Cu	mg/L	0.0035	<0.00050	0.00061	0.00130	0.00831	0.031	0.012
Iron Fe	mg/L	< 0.003	<0.030	<0.030	0.022	<0.010	0.35	NP
Lead Pb	mg/L	0.00052	0.000199	0.000069	0.00230	0.000669	0.35	0.017
Lithium Li	mg/L	0.006	0.00145	0.00186	<0.00050	0.00114	-	-
Magnesium Mg	mg/L	63.1	56.1	53.4	2.02	6.24	-	-
Manganese Mn	mg/L	0.108	0.0471	0.0484	0.00771	0.0159	4.0	2.0
Mercury Hg	mg/L	< 0.00001	<0.000010	<0.000010	<0.000010	0.000075		
Molybdenum Mo	mg/L	0.0741	0.0510	0.0514	0.358	0.301	2.0	1.0
Nickel Ni	mg/L	0.0044	0.00125	0.00142	0.00141	0.00084	0.15	-
Phosphorus P	mg/L	< 0.009	<0.30	<0.30	<0.050	<0.050	-	-
Potassium K	mg/L	36.4	25.0	24.6	31.3	17.4	-	196
Selenium Se	mg/L	0.00106	0.00108	0.00106	0.00349	0.00269	-	0.0020
Silicon Si	mg/L	3.55	1.18	1.23	5.76	4.30	-	-
Silver Ag	mg/L	0.00001	<0.000010	<0.000010	0.000016	0.000303	0.0030	0.0015
Sodium Na	mg/L	72.5	51.3	52.2	85.2	81.3	-	-
Strontium Sr	mg/L	2.30	1.81	1.81	0.606	0.350	-	-
Sulphur (S)	mg/L	372			121	85.2	-	-
Thallium Tl	mg/L	< 0.00002	<0.000010	<0.000010	<0.000010	<0.000010	0.00030	-
Tin Sn	mg/L	0.00033	<0.00010	<0.00010	0.00030	0.00016	-	-
Titanium Ti	mg/L	0.0001	<0.010	<0.010	<0.010	<0.010	0.10	2.0
Uranium U	mg/L	0.000177	0.000176	0.000247	0.000035	0.000486	0.30	-
Vanadium V	mg/L	0.00024	<0.0010	<0.0010	0.0077	0.0041	-	0.020
Zinc Zn	mg/L	0.005	<0.0030	<0.0030	0.0243	0.0206	0.20	0.17
Zirconium Zr	mg/L	< 0.00001			-			

Notes: The pH value shaded in orange is lower than expected for Ajax tailings which is likely an analytical error or due to contamination of the sample
Values shaded in red and yellow exceed the maximum and chronic BC water quality guidelines for freshwater aquatic life, respectively.

APPENDIX C-2.4 PSD

2009 Tails

Sieve	**Aperture**	**Weight Retained (Lorax)**		
Designation				**Cumulative**
	(mm)	**(g)**	**(%)**	**(%)**
+60	0.250	14.30	14.4%	14.4%
-60 + 100	0.150	22.20	22.4%	36.9%
-100 + 140	0.106	13.00	13.1%	50.0%
-140 + 270	0.053	18.00	18.2%	68.2%
-270 + 325	0.045	6.90	7.0%	75.2%
-325	-0.045	24.60	24.8%	100.0%
TOTAL		***99.00***	***100.0%***	

November 2013 Tails

Sieve	**Aperture**	**Weight Retained**		
Designation				**Cumulative**
	(mm)	**(g)**	**(%)**	**(%)**
+ 60	0.250	26.50	26.5%	26.5%
-60 + 100	0.150	20.40	20.4%	46.9%
-100 + 140	0.106	12.30	12.3%	59.2%
-140 + 200	0.075	10.20	10.2%	69.4%
-200 + 270	0.053	9.70	9.7%	79.1%
-270 + 325	0.045	5.10	5.1%	84.2%
-325	-0.045	15.80	15.8%	100.0%
TOTAL		***100.00***	***100.0%***	

Appendix C-3 Overburden, 4 Sub-appendices

Appendix C-3 Overburden

APPENDIX C-3.1 OVERBURDEN SAMPLE DESCRIPTIONS

Overburden Sample Descriptions

Title	Sample depth (cm)	Northing	Easting	SURFICIAL MATERIAL	SURFEX1	SURFEX2	C1 depth cm	C1_MOD	C1 CF%	C2	C2 mod	C2CF	COMMENT
S-f77	60	5607698	684849	M	k	r	70	k	15				C not suitable for reclamation
S-n79	75	5607944	685738	M	m		30	k	20				
S-r73	60	5607326	686132	M	u		30	k	20				angular coarse fragments. C is not useful for growing medium
S-u75	75	5607506	686402	M	u	p	25	k	20				
T-d72	130	5607174	684748	M			20	k					moisture variable in this area, IIC was observed elsewhere on cut face
T-f79	60	5607905	682312	M	p	m	100	k					calcareous C, gravel size coarse fragments. Reasonable for use in reclamation.
T-k73	75	5607302	682806	E	j		65	k					heavily grazed
T-k80	60	5608037	682769	LG	j	p	45	k	1				C has suitable texture for growing medium but very calcareous. Could potntially be amended. Could locate an exclosure west of here to measure productivity.
32	60	50.620	-120.401	M	u		10	ca	30	30	k	50	C unsuitable for reclamation
P-W05	80	50.616	-120.384	M			40	k	20				excellent grass growth and soil quality
N-E02	48	50.635	-120.410	M	u		32	ca	50	60	k	50	
N-E08	60	50.631	-120.410	M	U		20	ca		40	k		gravels at BC interface
ED-H09	45	50.611	-120.364	M	h		60	k	50				grass is vigourous, some bare ground between bunch grasses
T-H05	60	50.631	-120.459	M	m		90	k					very fragile, C less compacted than nearby areas
T-K12	60	50.625	-120.456	LG	p		60	k					
P-Z03	60	50.615	-120.377	M	u		60	k					2 zones in B soft zone 12-30, hard zone 30-40 previously mis-identified as a non-calcareous C
N-F14	80	5611030	679555	M	m	r	40	k	30				
P-V12	56	5609400	685199	M	u		14	ca	10	50	k	40	strip 30 cm single lift. Ridge strikes E to W12 Ah is friable, B is loose, quite fragile not as dusty as TSF soils
T-I26	53	5609788	679762	M			70	k	10				
T-E24	150	51	-120	F	j		70						Amazing soil, huge volumes stockpile seperately from brunisol use for key wildlife feature C not calcareous and may be useful for rec

refer to Field Manual for Describing Terrestrial Ecosystems for attribute descriptions
http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25/LMH25_ed2_(2010).pdf.

APPENDIX C-3.2 ABA RESULTS

Sample ID	Description	Sample Depth	Paste pH	TIC	Total C	Total S	SO_4 S	Sulphide S	Insoluble S	Non-SO_4 S	AP	CaNP	NP	CaNPR
				%	%	%	%	%	%	%	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*	*kg $CaCO_3$/t*	
N-E02	morainal	48	8.62	0.83	0.98	0.03	0.02	<0.01	0.01	0.01	0.31	69.2	71.8	221
N-E08	morainal	60	8.40	1.55	1.8	0.03	0.03	<0.01	<0.01	<0.01	0.31	129.2	134.3	413
ED-H09	morainal	45	8.58	1.14	1.4	0.03	0.01	<0.01	0.02	0.02	0.63	95.0	106.7	152
N-F14	morainal	80	8.69	0.89	1.09	0.06	0.03	0.02	0.01	0.03	0.94	74.2	83.5	79
P-V12	morainal	56	8.57	1.17	1.45	0.02	0.01	<0.01	0.01	0.01	0.31	97.5	110.5	312
P-W05(34)	morainal	80	8.24	1.13	1.53	0.03	0.03	<0.01	<0.01	<0.01	0.31	94.2	103.7	301
P-Z03	morainal	60	8.38	1.07	1.25	0.31	0.37	<0.01	<0.01	<0.01	0.31	89.2	101.7	285
T-K12	glaciolacustrine	60	8.41	1.24	1.44	0.06	0.07	<0.01	<0.01	<0.01	0.31	103.3	114.0	331
T-E24	fluvial	150	8.44	0.08	0.3	<0.01	<0.01	<0.01	<0.01	<0.01	0.31	6.7	13.7	21
T-E29	morainal	53	8.51	1.05	1.3	0.01	<0.01	<0.01	0.01	0.01	0.31	87.5	96.1	280
T-H05	morainal	60	8.78	1.45	1.67	0.05	0.03	<0.01	0.02	0.02	0.63	120.8	129.1	193
Truck Shop 32	morainal	60	8.49	1.16	1.54	<0.01	<0.01	<0.01	<0.01	<0.01	0.31	96.7	105.5	309
S - F77	morainal	90	8.57	1.14	1.42	0.05	<0.01	0.01	0.04	0.05	1.6	95.0	105.4	61
S - N79	morainal	50	8.64	1.9	2.14	0.026	<0.01	<0.01	0.026	0.026	0.81	158.3	170.0	195
S - R73	morainal	50	8.52	0.8	1.22	0.027	<0.01	<0.01	0.027	0.027	0.84	66.7	75.3	79
S - U75	morainal	45	8.43	0.7	1.07	0.033	<0.01	<0.01	0.033	0.033	1.0	58.3	68.1	57
T - D72	morainal	40	8.85	0.35	0.476	0.019	<0.01	<0.01	0.019	0.019	0.59	29.2	36.6	49
T - F79	morainal	120	8.36	0.61	0.65	0.082	0.04	0.02	0.022	0.042	1.3	50.8	60.3	39
T - K73	eolian	85	8.35	1.58	1.82	0.124	0.1	<0.01	0.024	0.024	0.75	131.7	140.1	176
T - K80	glaciolacustrine	65	8.66	1.1	1.33	0.733	0.75	<0.01	<0.01	<0.01	0.31	91.7	103.0	293

APPENDIX C-3.3 TAILINGS

Sample ID	Description	Sample Depth	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs
			ppm	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
ACA			*0.075*	*8.2*	*1.8*	*N/A*	*425*	*N/A*	*0.0085*	*4.2*	*0.15*	*N/A*	*25*	*102*	*N/A*
BC Soil Criteria	*Insdustrial*		*10*	*N/A*	*50*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*20*	*N/A*	*300*	*800*	*N/A*
N-E02	morainal	48	0.1	1.78	7	50	272	0.4	0.04	3.76	0.1	15.3	15.6	86	0.53
N-E08	morainal	60	0.1	2.02	8	30	312	0.4	0.04	5.82	0.14	15.2	16.9	59	1.07
ED-H09	morainal	45	0.12	2.05	13	40	232	0.4	0.06	4.82	0.15	18.2	16.9	70	0.77
N-F14	morainal	80	0.21	1.86	9	40	221	0.5	0.05	3.71	0.27	18	15.5	81	0.82
P-V12	morainal	56	0.15	2.19	9	30	157	0.4	0.06	4.98	0.15	20.1	19.8	71	1.05
P-W05(34)	morainal	80	0.12	2.35	9	30	213	0.4	0.05	4.86	0.14	21.3	19	73	0.84
P-Z03	morainal	60	0.16	2.52	10	40	172	0.4	0.05	4.93	0.19	16.9	20.6	89	0.85
T-K12	glaciolacustrine	60	0.1	2.16	10	30	131	0.4	0.11	4.91	0.13	20	19.9	106	1.32
T-E24	fluvial	150	0.06	1.89	9	30	124	0.4	0.06	1.24	0.08	20.7	16.1	87	1.21
T-E29	morainal	53	0.11	1.81	12	30	116	0.4	0.06	4.32	0.12	17.5	15.4	82	1.2
T-H05	morainal	60	0.11	1.62	7	40	79	0.3	0.05	4.3	0.1	14.9	15.9	73	0.65
Truck Shop 32	morainal	60	0.11	2.07	9	40	200	0.5	0.05	4.99	0.14	21.6	16.9	66	0.86
S - F77	morainal	90	0.09	1.92	10	10	203	0.3	0.06	4.08	0.24	15.3	20.4	121	1.4
S - N79	morainal	50	0.07	1.65	6	10	186	0.3	0.04	6.22	0.13	14.9	15.1	92	0.76
S - R73	morainal	50	0.1	1.8	7	<10	178	0.3	0.05	3.31	0.12	16.1	16.1	105	0.75
S - U75	morainal	45	0.09	1.9	7	<10	160	0.3	0.05	3.22	0.12	16.7	17.9	110	0.87
T - D72	morainal	40	0.08	1.63	7	<10	156	0.3	0.07	1.9	0.1	20	15.7	119	1.23
T - F79	morainal	120	0.07	1.91	9	<10	242	0.3	0.05	2.8	0.12	14	19.3	112	0.99
T - K73	eolian	85	0.06	1.66	10	<10	220	0.3	0.04	5.78	0.13	14.2	15.9	104	1.02
T - K80	glaciolacustrine	65	0.11	1.58	8	<10	179	0.3	0.05	5.04	0.13	14.4	15.2	115	0.95

Sample ID	Description	Sample Depth	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Lu	Mg	Mn
			ppm	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*%*	*ppm*
ACA			*60*	*5.6*	*19*	*N/A*	*N/A*	*0.085*	*N/A*	*2.1*	*39*	*N/A*	*N/A*	*2.3*	*950*
BC Soil Criteria	*Insdustrial*		*500*	*N/A*	*N/A*	*N/A*	*N/A*	*10*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
N-E02	morainal	48	97	4	5.8	<0.1	0.19	0.05	<0.02	0.18	7.5	9	0.13	1.33	594
N-E08	morainal	60	80	4.13	6.2	<0.1	0.1	0.11	0.03	0.14	7.2	9	0.14	1.41	663
ED-H09	morainal	45	113	3.93	6.2	<0.1	0.18	0.11	0.02	0.17	9.1	11	0.13	1.49	719
N-F14	morainal	80	101	3.76	6.1	<0.1	0.14	0.12	0.03	0.16	8.9	10	0.27	1.38	651
P-V12	morainal	56	207	4.27	6.8	<0.1	0.25	0.12	0.03	0.16	9.7	11	0.18	1.59	697
P-W05(34)	morainal	80	112	4.52	7.1	<0.1	0.1	0.13	0.03	0.17	10.4	10	0.15	1.47	760
P-Z03	morainal	60	129	4.63	7.5	<0.1	0.2	0.12	0.03	0.2	8.3	12	0.21	1.78	722
T-K12	glaciolacustrine	60	110	4.46	6.8	<0.1	0.31	0.1	0.03	0.2	9.4	12	0.15	2.05	816
T-E24	fluvial	150	80.1	3.89	6.3	<0.1	0.2	0.05	0.02	0.24	9.6	9	0.14	1.16	657
T-E29	morainal	53	89.5	3.82	5.7	<0.1	0.25	0.11	0.02	0.16	8.6	9	0.26	1.32	670
T-H05	morainal	60	125	3.92	5.3	<0.1	0.22	0.05	<0.02	0.16	7.3	9	0.12	1.66	675
Truck Shop 32	morainal	60	100	3.95	6.4	<0.1	0.1	0.1	0.02	0.17	10.6	10	0.14	1.36	628
S - F77	morainal	90	130	3.98	6	0.1	0.21	0.12	0.02	0.16	8	11	0.12	2.39	663
S - N79	morainal	50	146	3.66	5.1	0.1	0.16	0.12	0.02	0.16	7.8	9	0.11	2.11	603
S - R73	morainal	50	103	3.93	5.6	0.1	0.09	0.06	0.02	0.22	8.6	10	0.12	1.7	617
S - U75	morainal	45	132	4.05	5.9	0.1	0.11	0.1	0.02	0.2	8.9	10	0.12	1.67	587
T - D72	morainal	40	83	3.92	5.2	0.1	0.16	0.1	0.02	0.18	10.7	9	0.13	1.27	649
T - F79	morainal	120	108	4.14	6.6	0.1	0.28	0.06	0.02	0.17	7.3	11	0.13	2	669
T - K73	eolian	85	85	3.91	5.6	0.1	0.18	0.06	0.02	0.15	7.4	10	0.12	1.75	667
T - K80	glaciolacustrine	65	94.8	3.66	5.2	0.1	0.24	0.08	0.02	0.15	7.4	9	0.13	1.79	619

Sample ID	Description	Sample Depth	Mo	Na	Nb	Ni	P	Pb	Rb	S	Sb	Sc	Se	Sn	Sr
			ppm	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
ACA			*1.2*	*2.4*	*N/A*	*84*	*1050*	*14*	*N/A*	*0.035*	*0.20*	*22*	*0.050*	*N/A*	*370*
BC Soil Criteria	*Insdustrial*		*40*	*N/A*	*N/A*	*500*	*N/A*	*1000*	*N/A*	*N/A*	*40*	*N/A*	*10*	*N/A*	*N/A*
N-E02	morainal	48	1.45	0.08	0.49	36.1	920	3.3	6.3	<0.01	0.44	8.1	<1	0.3	190
N-E08	morainal	60	1.17	0.08	0.49	28.7	1050	3.7	6.1	0.02	1	10.4	<1	0.3	270
ED-H09	morainal	45	1.29	0.06	0.56	36.6	1030	4.5	8.1	<0.01	0.66	8.9	<1	0.3	191
N-F14	morainal	80	1.19	0.1	0.59	37.6	1100	4.8	6.7	0.04	0.57	8.1	<1	0.4	207
P-V12	morainal	56	1.44	0.08	0.71	43.6	1110	4.8	8.7	<0.01	0.54	10.6	<1	0.4	179
P-W05(34)	morainal	80	1.06	0.08	0.88	40.5	1160	5.2	8	0.02	0.64	11.4	<1	0.4	212
P-Z03	morainal	60	1.37	0.14	0.43	51.4	930	5.5	8.9	0.35	0.65	11.6	<1	0.4	227
T-K12	glaciolacustrine	60	1.16	0.08	0.45	73.6	1510	4.8	9.5	0.05	0.58	10.8	<1	0.4	207
T-E24	fluvial	150	0.94	0.07	0.6	48.4	890	4.6	8.9	<0.01	0.51	10.4	<1	0.4	88.3
T-E29	morainal	53	0.91	0.11	0.53	41.3	1200	4.4	7.5	<0.01	0.53	8.8	<1	0.4	166
T-H05	morainal	60	1.94	0.07	0.48	31.1	1170	3.3	6.8	0.01	0.4	8.5	<1	0.3	294
Truck Shop 32	morainal	60	1.11	0.06	0.93	33.4	1150	4.9	8.2	<0.01	0.63	9	<1	0.4	200
S - F77	morainal	90	1.71	0.06	0.55	87.3	0.11	4.5	7.7	0.04	0.65	9.3	<1	0.4	189
S - N79	morainal	50	2.48	0.06	0.81	46	0.125	2.7	6.5	0.02	0.5	7.2	<1	0.3	267
S - R73	morainal	50	2.43	0.06	1.02	60.3	0.104	3	7.9	0.02	0.52	7.3	<1	0.3	175
S - U75	morainal	45	2.63	0.06	0.99	57.5	0.11	2.8	8.8	0.03	0.58	8.1	<1	0.3	116
T - D72	morainal	40	2.22	0.08	0.54	57.8	0.116	3.7	7.7	0.01	0.52	8.3	<1	0.4	101
T - F79	morainal	120	2.47	0.09	0.19	76.9	0.109	3.4	7.4	0.08	0.48	8.9	<1	0.3	134
T - K73	eolian	85	2.38	0.08	0.64	55.3	0.113	3.1	6.3	0.13	0.6	7.5	<1	<0.3	228
T - K80	glaciolacustrine	65	2.29	0.13	0.67	63.2	0.132	3.2	6.7	0.83	0.45	7.3	<1	0.3	226

Sample ID	Description	Sample Depth	Ta	Tb	Te	Th	Ti	Tl	U	V	W	Y	Yb	Zn	Zr
			ppm	*ppm*	*ppm*	*ppm*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
ACA			*N/A*	*N/A*	*N/A*	*1.2*	*0.57*	*0.85*	*2.7*	*120*	*1.3*	*N/A*	*N/A*	*70*	*N/A*
BC Soil Criteria	*Insdustrial*		*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*1500*	*N/A*
N-E02	morainal	48	<0.05	0.31	<0.05	1.5	0.15	0.06	0.59	191	0.2	8.91	0.8	38	8.1
N-E08	morainal	60	<0.05	0.33	<0.05	1.4	0.12	0.05	0.5	199	0.2	9.67	0.9	39	5.5
ED-H09	morainal	45	<0.05	0.34	0.1	2	0.15	0.07	0.53	164	0.2	9.51	0.8	50	8.4
N-F14	morainal	80	<0.05	0.34	<0.05	1.8	0.14	0.07	0.59	161	0.3	9.44	0.8	43	7.5
P-V12	morainal	56	<0.05	0.36	0.05	2	0.18	0.07	0.58	177	0.2	10.2	0.9	47	11.2
P-W05(34)	morainal	80	<0.05	0.4	<0.05	2	0.19	0.07	0.52	197	0.2	10.8	0.9	48	5.9
P-Z03	morainal	60	<0.05	0.32	0.07	1.7	0.16	0.08	0.52	207	0.2	9.2	0.8	52	9.5
T-K12	glaciolacustrine	60	<0.05	0.36	0.09	1.8	0.15	0.08	0.63	181	0.3	10.2	0.9	51	11.4
T-E24	fluvial	150	<0.05	0.36	<0.05	2.1	0.15	0.08	0.5	146	0.2	9.49	0.9	48	10
T-E29	morainal	53	<0.05	0.34	<0.05	1.8	0.14	0.06	0.53	161	0.2	9.61	0.9	44	11.1
T-H05	morainal	60	<0.05	0.3	<0.05	1.3	0.12	0.06	0.66	181	0.2	8.25	0.7	34	8.4
Truck Shop 32	morainal	60	<0.05	0.35	<0.05	2.2	0.15	0.07	0.62	184	0.2	9.76	0.9	41	6.2
S - F77	morainal	90	<0.05	0.31	<0.05	1.6	0.14	0.07	0.48	149	0.1	8.74	0.8	44	8.2
S - N79	morainal	50	<0.05	0.3	<0.05	1.5	0.14	0.06	0.79	158	0.1	8.69	0.8	39	7.1
S - R73	morainal	50	<0.05	0.32	<0.05	1.6	0.16	0.07	0.51	149	0.1	9.06	0.9	45	4.5
S - U75	morainal	45	<0.05	0.31	<0.05	1.7	0.16	0.07	0.48	158	0.1	8.54	0.8	39	5.8
T - D72	morainal	40	<0.05	0.36	<0.05	2.2	0.15	0.07	0.56	144	0.1	9.22	0.9	46	8.6
T - F79	morainal	120	<0.05	0.33	<0.05	1.3	0.14	0.05	0.52	159	0.1	9.26	0.9	47	9
T - K73	eolian	85	<0.05	0.33	<0.05	1.3	0.13	0.05	0.53	153	0.1	9.4	0.9	41	7.5
T - K80	glaciolacustrine	65	<0.05	0.32	<0.05	1.3	0.14	0.05	0.46	151	0.1	9.5	0.9	41	9.1

APPENDIX C-3.4 SFE

Sample ID		**N-E02**	**N-E08**	**ED-H09**	**N-F14**	**P-V12**	**P-W05(34)**	**P-Z03**	**T-K12**	**T-E24**	**T-E29**	**T-H05**	**Truck Shop 32**
pH		7.8	7.8	7.7	7.8	7.9	7.6	7.6	7.2	7.8	7.7	7.8	7.6
Redox	mV	353	339	348	358	313	333	340	366	330	343	353	356
Conductivity	uS/cm	205	482	186	429	187	275	146	3405	1130	143	537	160
Total Acidity (to pH 8.3)	mg CaCO3/L	7.7	8.9	8.0	9.0	5.6	6.3	6.8	9.3	7.8	6.5	5.8	12
Alkalinity	mg CaCO3/L	67	71	83	73	69	73	95	31	72	86	96	88
Cl	mg/L	0.50	1.7	5.2	1.0	9.1	1.7	7.5	2.4	15	2.4	4.1	4.6
SO_4	mg/L	41	153	17	125	55	3.0	***2076***	508	20	7.0	151	5.0
Dissolved Metals													
Ag[2]	mg/L	0.000040	0.00029	0.000070	0.000040	0.000060	0.000070	0.000040	0.000020	0.000020	0.000030	0.000010	0.000070
Al*	mg/L	0.14	0.069	0.044	0.078	0.065	0.14	0.031	0.017	0.25	0.28	0.031	0.048
As	mg/L	0.0030	0.0042	0.0069	0.0065	0.0055	0.0045	0.0029	0.014	0.012	0.036	0.016	0.0071
B	mg/L	0.046	0.014	0.015	0.079	0.0099	0.035	0.033	0.026	0.015	0.025	0.064	0.019
Ba	mg/L	0.012	0.046	0.072	0.047	0.028	0.038	0.018	0.037	0.0080	0.027	0.025	0.065
Ca	mg/L	12	29	12	17	13	15	377	55	8.4	16	12	17
Cd[2]	mg/L	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	<0.000003	0.0000090	0.0000070	0.000010	0.0000050
Co	mg/L	0.00027	0.00024	0.00016	0.00013	0.00015	0.00018	0.00029	0.00024	0.00042	0.00056	0.00040	0.00033
Cr	mg/L	0.0020	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	0.00090	0.00090	0.00080	<0.0005
Cu[2]	mg/L	0.048	0.024	0.014	0.019	0.028	0.031	0.019	0.0064	0.015	0.014	0.027	0.029
Fe*	mg/L	0.15	0.050	0.022	0.065	0.047	0.14	0.014	0.010	0.31	0.29	0.026	0.037
Hg	ug/L	0.040	0.060	0.020	0.010	0.030	0.090	0.030	0.010	0.020	0.050	0.050	0.060
K	mg/L	10	2.1	2.0	5.2	3.5	2.9	19	13	5.3	3.6	17	3.5
Li	mg/L	0.0010	0.0020	0.0020	0.0030	0.0020	0.0020	0.0050	0.0060	0.0020	0.0010	0.0030	0.0020
Mg	mg/L	11	22	12	30	11	7.0	255	83	6.3	8.2	38	8.7
Mn[2]	mg/L	0.0038	0.0024	0.0020	0.0029	0.0017	0.0033	0.00090	0.0016	0.0042	0.013	0.0035	0.0054
Mo	mg/L	0.013	0.0066	0.0054	0.0047	0.012	0.0012	0.015	0.013	0.012	0.0013	0.014	0.0013
Na	mg/L	13	40	9.5	27	29	11	160	61	19	4.7	32	2.2
Ni[2]	mg/L	0.0022	0.0014	0.00070	0.0011	0.00070	0.0014	0.0017	0.0016	0.0015	0.0021	0.0011	0.0018
P	mg/L	0.12	0.097	0.077	0.20	0.16	0.17	0.040	0.32	0.48	0.76	1.0	0.26
Pb[2]	mg/L	0.00012	0.000030	0.000040	0.000020	<0.00002	0.000060	<0.00002	<0.00002	0.000060	0.00010	<0.00002	0.000030
Sb	mg/L	0.00060	0.0010	0.00070	0.00060	0.0027	0.00060	0.00030	0.00090	0.00090	0.00090	0.0012	0.00090
Se	mg/L	0.00064	0.0047	0.0025	0.0020	0.0047	0.00047	***0.021***	0.015	0.00073	0.00045	0.0026	0.00075
Si	mg/L	2.0	2.0	2.4	2.7	3.3	2.3	2.6	6.2	9.4	3.7	3.3	2.8
Sn	mg/L	0.00025	0.00012	0.00036	0.000090	0.00011	0.00099	0.00012	0.00010	0.00016	0.00015	0.000090	0.00016
Sr	mg/L	0.16	0.35	0.17	0.40	0.10	0.12	3.2	0.94	0.055	0.11	0.57	0.15
Tl	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
U	mg/L	0.00032	0.00066	0.000080	0.0012	0.00027	0.00015	0.00031	0.00063	0.00016	0.000064	0.00049	0.00021
V	mg/L	0.0093	0.019	0.014	0.027	0.024	0.019	0.0042	0.051	0.030	0.056	0.044	0.027
Zn[2]	mg/L	0.0050	0.0040	0.0020	0.0020	0.0020	0.0030	0.0080	0.0030	0.0020	0.0030	0.0040	0.0030

Notes: 1. Contaminated site guidelines correpond to 10x the BC WQG for the protection of freshwater aquatic life (BC MOE, 2006); 2. Hardness dependent guidelines are based on an average in Jacko Lake of 312 mg CaCO3/L (sites JACL-S, JACL-D, JACL-02 and JACL-03; Knight Piesold, 2011); * all guidelines are for total metals with the exception of Al and Fe which are for dissolved species; NP = non proposed. Shaded values exceed half of the lowest contaminated site guideline.

Sample ID		**S - F77**	**S - N79**	**S - R73**	**S - U75**	**T - D72**	**T - F79**	**T - K73**	**T - K80**	**Contam. Sites[1]**	
pH		7.8	8.1	7.9	7.8	8.4	7.8	7.5	7.6	**Max**	**30d Avg**
Redox	mV	415	422	430	437	420	452	459	453		
Conductivity	uS/cm	288	157	181	278	219	930	1505	3766		
Total Acidity (to pH 8.3)	mg CaCO3/L	11	7.2	8.0	8.7	4.6	8.9	9.7	12		
Alkalinity	mg CaCO3/L	87	82	89	83	102	49	38	37		
Cl	mg/L	0.40	2.1	0.90	0.60	0.70	3.4	<2	21	6000	1500
SO_4	mg/L	65	3.0	14	64	14	406	731	***2277***	-	1000
Dissolved Metals											
Ag[2]	mg/L	0.000031	0.000017	0.000057	0.000071	0.000092	0.0000080	0.0000050	0.0000030	0.030	0.015
Al*	mg/L	0.034	0.066	0.16	0.097	0.20	0.0048	0.010	0.0035	1.0	0.50
As	mg/L	0.0052	0.0048	0.0042	0.0041	0.0096	0.0034	0.0035	0.0028	0.050	-
B	mg/L	0.12	0.073	0.075	0.053	0.057	0.028	0.039	0.026	12	-
Ba	mg/L	0.070	0.024	0.023	0.035	0.021	0.022	0.024	0.020	50	10
Ca	mg/L	11	7.3	8.5	16	3.5	18	140	378	-	-
Cd[2]	mg/L	0.000029	0.000038	0.000033	0.000033	0.000027	0.000028	0.000023	0.000024	0.019	0.0049
Co	mg/L	0.00024	0.00013	0.00033	0.00021	0.00015	0.000049	0.000048	0.00012	-	0.040
Cr	mg/L	0.0014	0.00050	0.00063	0.00045	0.0019	0.00038	0.00011	0.00013	0.010	-
Cu[2]	mg/L	0.027	0.020	0.042	0.047	0.013	0.0043	0.0082	0.0080	0.31	0.12
Fe*	mg/L	0.048	0.065	0.20	0.12	0.26	<0.007	<0.007	<0.007	3.5	-
Hg	ug/L	0.020	<0.01	0.030	0.050	0.050	<0.01	<0.01	0.020	1	-
K	mg/L	6.7	12	6.0	7.1	2.9	7.5	11	18	-	1960
Li	mg/L	0.0015	0.0012	0.0020	0.0026	0.0010	0.0014	0.0064	0.0057	8.7	0.96
Mg	mg/L	25	12	11	16	4.1	72	79	236	-	-
Mn[2]	mg/L	0.0037	0.0013	0.0034	0.0035	0.0032	0.0011	0.00037	0.00021	40	20
Mo	mg/L	0.0013	0.0089	0.0081	0.0079	0.010	0.012	0.0067	0.019	20	10
Na	mg/L	9.2	2.9	15	18	44	57	63	208	-	-
Ni[2]	mg/L	0.0035	0.0013	0.0042	0.0041	0.00090	0.00060	0.00050	0.00050	1.5	-
P	mg/L	0.013	0.26	0.11	0.098	0.062	0.0070	0.018	0.094	-	-
Pb[2]	mg/L	0.000090	0.00023	0.00051	0.0015	0.00054	0.0018	0.0014	0.0019	3.5	0.17
Sb	mg/L	0.00090	0.00080	0.00060	0.00050	0.00090	0.00050	0.00020	0.00060	0.20	-
Se	mg/L	0.00076	0.00049	0.0012	0.0043	0.00094	0.017	0.0025	***0.067***	-	0.020
Si	mg/L	2.6	3.3	2.6	2.6	4.8	3.2	2.2	1.9	-	-
Sn	mg/L	0.000040	0.000020	0.000020	0.000030	0.000020	<0.00001	<0.00001	0.000010	-	-
Sr	mg/L	0.18	0.14	0.079	0.15	0.045	0.84	1.4	4.6	-	-
Tl	mg/L	0.000035	0.000011	0.000021	0.000017	0.000030	0.000024	0.000031	0.000023	0.0030	-
U	mg/L	0.00023	0.0014	0.00071	0.00025	0.00089	0.00028	0.00056	0.00039	3.0	-
V	mg/L	0.013	0.046	0.025	0.016	0.058	0.0096	0.0077	0.014	-	0.20
Zn[2]	mg/L	0.0020	0.0020	0.0030	0.0010	0.0020	0.0010	0.044	<0.001	2.0	1.7

Notes: 1.Contaminated site guidelines correpond to 10x the BC WQG for the protection of freshwater aquatic life (BC MOE, 2006); 2. Hardness dependent guidelines are based on an average in Jacko Lake of 312 mg CaCO3/L (sites JACL-S, JACL-D, JACL-02 and JACL-03; Knight Piesold, 2011); * all guidelines are for total metals with the exception of Al and Fe which are for dissolved species; NP = non proposed. Shaded values exceed half of the lowest contaminated site guideline.

Appendix C-4 Modified NP Memorandum

MEMORANDUM

To:	**Nettie Ore (KGHM)**	**Date: May 14, 2015**
From:	**Stephanie Simpson and Bruce Mattson (Lorax)**	**Project #: J933-4**
Subject:	**Revised PAG distribution based on application of modified NP**	

1. Introduction

1.1 Scope

Acid-base accounting (ABA) results for the Ajax drill core static test samples determined that measurable neutralization potential (NP) was present in most Ajax samples both in the form of carbonate and non-carbonate minerals. The potential for non-carbonate NP contained in the silicate minerals to be available to neutralize acidity is largely dependent on the competing rates of sulphide oxidation and silicate dissolution. Therefore, without confirmation from kinetic testwork, the more conservative carbonate NP (CaNP) value was applied for the ARD assessment to minimize the risk of overestimating the available reactive NP of a material. Laboratory kinetic test work has since confirmed that the measured NP from non-carbonate minerals is capable of effectively buffering pH at the rate of acid generation produced by oxidizing sulphide minerals. As a result, a Modified (Mod.) bulk NP was measured in the static test sample population to provide a more realistic estimate of NP for the Ajax samples which reflects NP from both carbonates and non-carbonate phases.

1.2 Background

Previous NP measurements for the drill core static test work included CaNP and Sobek (bulk) NP. CaNP is a simple stoichiometric recalculation of the total inorganic carbon (TIC) content of a sample and assumes that all carbonate minerals contained in a rock will contribute to acid neutralization. The Sobek NP and Mod.NP methods provide information on the bulk NP of a sample and are not mineral specific. Bulk NP is determined using a more direct, analytical technique in which the neutralization capacity of the rock is measured by acid addition and back titration and thus, all readily available neutralizing agents are accounted for. The Mod.NP differs from the Sobek NP in that it is conducted at room temperature for a 24 hour period, the quantity of acid added to the pulp is adjusted to maintain a pH between 1.5 and 2.0 for the 24 hour test duration. Subsequently, the contents of the flask are back titrated to a pH of 8.3 (rather than pH 7.0) to determine the amount of acid consumed during the test.

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Considerably higher Sobek NP values were measured in the Ajax samples in comparison to the CaNP values. However, given that the dissolution kinetics of silicates are typically orders of magnitude slower than carbonates and sulphides, laboratory kinetic tests were set up to evaluate the efficiency of silicate pH buffering in Ajax samples. The availability of the non-carbonate NP in the SLD was evaluated by two sets of humidity cells represented by median sulphur and high sulphur SLD samples. Duplicates of the samples were leached with sodium acetate prior to kinetic testing to remove the carbonate NP. The results of the high sulphur SLD humidity cell test clearly indicate that the absence of carbonate allows for greater rates of silicate mineral dissolution. The observed signatures in the humidity cell leachate suggest that several silicate minerals, including diopside, epidote and biotite, are weathering and attenuating acidity released from pyrite in the SLD.

This memorandum presents the results of the Mod.NP analysis for the Ajax drill core static test samples and the revised proportion of potentially acid generating (PAG) samples for ore and mine rock lithologies based on the net potential ratios (NPR) derived using Mod.NP. For the Ajax Project, *mine rock* is defined as uneconomic disturbed rock that will not undergo processing and will be stored in a mine rock storage facility (MRSF) on site. Samples referred to as *ore* represent rock that has economic value and may be stockpiled temporarily prior to processing. A comparison of Mod.NP with the CaNP for mine rock and ore samples is discussed.

2. Results

2.1 Neutralization Potentials

Table 1 presents the statistical distribution of the ABA results for mine rock and ore of the Ajax deposit. Specifically, the various NP values and acid potential (AP) used to calculate the NPR values are presented. Included in the table are 90^{th} and 10^{th} percentile values, maximum, minimum and median values. The 90^{th} and 10^{th} percentile values are used in discussions rather than maximum and minimum values in order to more appropriately represent the variation in the large data sets and avoid highlighting outliers. Note that all values reported to be below detection were set at the value of detection for calculation purposes. The results of the Mod.NP analyses are provided in the Attachment. It should be noted that samples that returned Mod.NP < CaNP of more than 20% difference are being re-analyzed by the analytical laboratory. For the purpose of this assessment, these samples (10 mine rock and 10 ore samples) have been omitted from the statistical summary tables and plots. The results for these samples have been provided and highlighted in the laboratory reports of the Attachment.

Not all the original static test samples were available for determination of Mod.NP, therefore a reduced sample population of 719 samples, including 596 mine rock and 123 ore samples, was included in the statistical summaries and data plots.

Consistent with previous evaluation, the data in Table 1 demonstrate that slight compositional differences exist between the ore and mine rock sample populations from the Ajax deposit when evaluating their ARD potential. In general, the ore samples have similar AP, NP and ARD potential with an overall trend towards slightly increasing ARD potential as the ore grade increases from low- to high-grade ore. The mine rock samples have considerably lower ARD potentials than the ore samples as a result of the notably lower AP.

For ore (all grades), median values for Mod.NP and CaNP are similar, ranging from 51 kg $CaCO_3$/t in the low-grade ore to >63 kg $CaCO_3$/t in the high-grade ore. A larger discrepancy between the Mod.NP and CaNP values is observed for the mine rock: the median Mod.NP is 35 kg $CaCO_3$/t while the 10^{th} percentile is 17 kg $CaCO_3$/t and the median CaNP value is 26 kg $CaCO_3$/t while the 10^{th} percentile is 6.7 kg $CaCO_3$/t for the same samples. The Sobek NP is considerably higher for all mine rock and ore samples, with median values ranging from 65 kg $CaCO_3$/t in the medium-grade ore to 135 kg $CaCO_3$/t in the high-grade ore and 10^{th} percentile values > 42 kg $CaCO_3$/t.

Figure 1 plots Mod.NP versus CaNP (top plot) and versus Sobek NP (bottom plot) for the Ajax deposit samples. A 1:1 line is presented in each plot that would represent perfect agreement. The results presented in Table 1 and Figure 1 demonstrate that the Sobek NP values for nearly all the Ajax samples are higher than the CaNP and Mod.NP. The higher concentrations likely reflect the dissolution of a greater proportion of silicate minerals in the sample, including slower dissolving phases and phases with lower NP, which are not expected to contribute significantly to the overall available NP of a material and pH buffering (*e.g.*, albite, Na plagioclase end-member). As a result, the Sobek NP method is not considered to be an accurate reflection of the effective NP for the Ajax geologic units.

Many samples, particularly in the mine rock sample population, plot below the 1:1 line in the upper plot of Figure 1, indicating higher Mod.NP compared to CaNP for these samples and demonstrating that non-carbonate minerals are contributing to the higher measured NP. The higher Mod.NP values likely represent the presence of the more mafic silicate minerals that have intermediate to high dissolution rates, including diopside, epidote, actinolite, biotite, olivine and chlorite. These minerals were identified in mine rock samples by Rietveld-refined x-ray diffraction (XRD) and petrographic analysis.

Table 1:
Results of Select Acid-Base Accounting Tests, including Mod.NP and Mod.NPR

	AP kg $CaCO^3$/t	**Mod. NP** kg $CaCO^3$/t	**CaNP** kg $CaCO^3$/t	**Sobek NP** kg $CaCO^3$/t	**NPR**	
					Mod.NP/AP	*CaNP/AP*
Mine Rock						
n	*596*	*596*	*596*	*81*	*596*	*596*
Min	0.2	7.0	0.8	24	0.2	0.1
10th PCTL	0.3	17	6.7	43	1.6	0.9
Median	1.6	35	26	76	26	15
90th PCTL	20	85	81	173	141	128
Max	107	375	392	276	619	712
Low-grade ore						
n	*60*	*60*	*60*	*22*	*60*	*60*
Min	0.3	11	7.5	23	0.5	0.3
10th PCTL	2.8	22	15	42	0.8	0.8
Median	6.9	52	51	99	7.5	6.9
90th PCTL	32	104	104	155	26	28
Max	85	266	314	176	238	232
Medium-grade ore						
n	*18*	*18*	*18*	*7*	*18*	*18*
Min	1.6	26	20	52	0.7	0.6
10th PCTL	5.5	31	27	54	1.7	1.6
Median	10	60	53	65	6.3	6.0
90th PCTL	24	98	105	134	24	23
Max	50	294	332	151	39	44
High-grade ore						
n	*45*	*45*	*45*	*14*	*45*	*45*
Min	3.8	11	5.0	34	0.5	0.2
10th PCTL	10.2	26	17	42	0.7	0.7
Median	18	62	63	135	3.9	3.2
90th PCTL	44	172	192	187	9.6	11
Max	150	340	377	213	16	15

Notes: AP = acid potential calculated from non-sulfate sulfur (*i.e.*, (Total S – Sulfate S)*31.25);
CaNP = Carbonate neutralization potential calculated from total inorganic carbon or total carbon;
Sobek and Modified NP = bulk neutralization potential; and
NPR = net potential ratio.

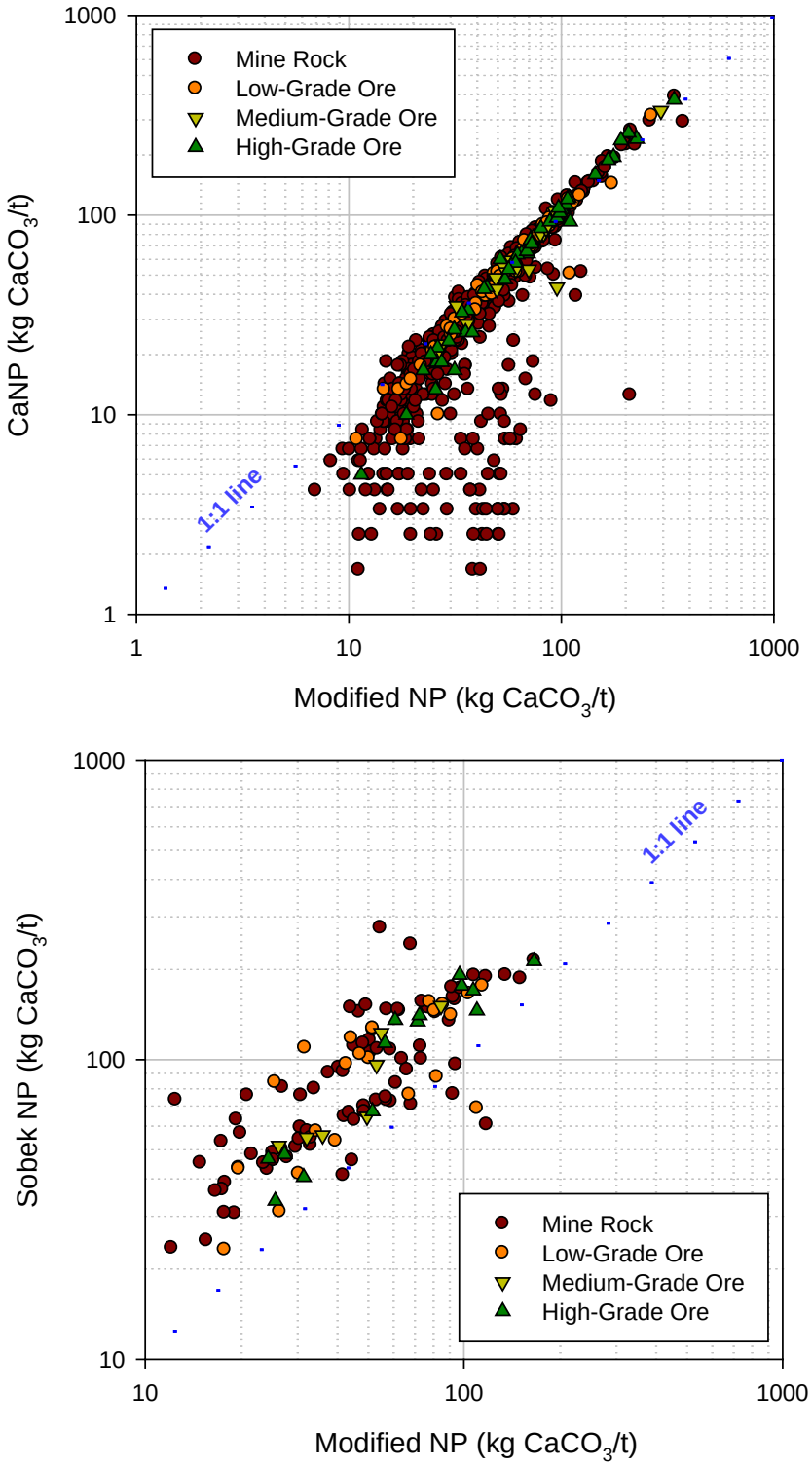

Figure 1: Mod.NP versus CaNP (top) and versus Sobek NP (bottom) for mine rock and ore samples from the Ajax deposit.

2.2 Net Potential Ratios

The NPR values for the Ajax Project mine rock are based on NP over AP (calculated from non-sulphate sulphur values). Consistent with the guidelines adopted by the British Columbia Ministry of Energy Mines and Natural Gas (Price & Errington, 1998) and the more recent guidelines presented in the Prediction Manual for Drainage Chemistry for Sulphidic Geologic Material (MEND, 2009), NPR results are discussed as two groups PAG (NPR<2 = PAG) and non-PAG (NPR>2 = NPAG). The criterion to differentiate between PAG and NPAG rock for the Ajax deposit was refined based on detailed characterization of the deposit's geochemistry, including (1) mineralogical studies confirming the Ca-rich composition of carbonates that are readily available to neutralize acidity, (2) the relatively low sulphur content and low sulphide reactivity (as shown by sulphide oxidation rates measured in kinetic tests), (3) independent NAG test results, and (4) results of kinetic testing which demonstrate sufficient reactivity of non-carbonate NP to neutralize acidity and buffer pH. The criterion of NPR <2 for PAG classification are considered robust and conservative when Mod.NP is used to derive NPR.

NPR values derived from Mod.NP are consistent with CaNP for all ore grades, with a median NPR value >3 and a 10th percentile <2 (Table 1). Mod.NPR values for the Ajax mine rock samples range from 1.6 to 141 with a median value of 26. This is an increase from the CaNPR range of 0.9 to 128 and a median of 15. Figure 2 plots Mod.NPR and CaNPR with a 1:1 line that would show agreement. Several mine rock samples fall below the 1:1 line indicating that there is greater Mod.NP in these samples. In general, ABA data demonstrates that a greater number of mine rock samples relative to ore samples contain NP derived from silicate minerals in addition to carbonate NP (Table 1 and Figure 2).

Median Mod.NPR and CaNPR values for each material type are >3, indicating that the majority of the Ajax samples included in this assessment are NPAG (Table 1). Between grades, 13% of mine rock, 22% of the low-grade ore, 17% of medium-grade ore, and 33% of the high-grade ore samples have NPR values of <2 when Mod.NP is used to calculate NPR (Table 2). Although the proportion of PAG ore samples is similar when CaNP is used to derive NPR, the CaNPR values predict a higher proportion of PAG high-grade ore samples (40%) and PAG mine rock samples (21%).

Table 2:
Revised Number of PAG and NPAG Values for Mine Rock and Ore samples from the Ajax Deposit

	Mod.NPR			CaNPR		
	NPAG	**PAG**	**% PAG**	**NPAG**	**PAG**	**% PAG**
Mine rock	517	79	13%	472	124	21%
Low-grade ore	47	13	22%	47	13	22%
Medium-grade ore	15	3	17%	15	3	17%
High-grade ore	30	15	33%	27	18	40%

Notes: PAG-NPAG cut off of NPR = 2 was chosen to calculate the sample proportions of this table.

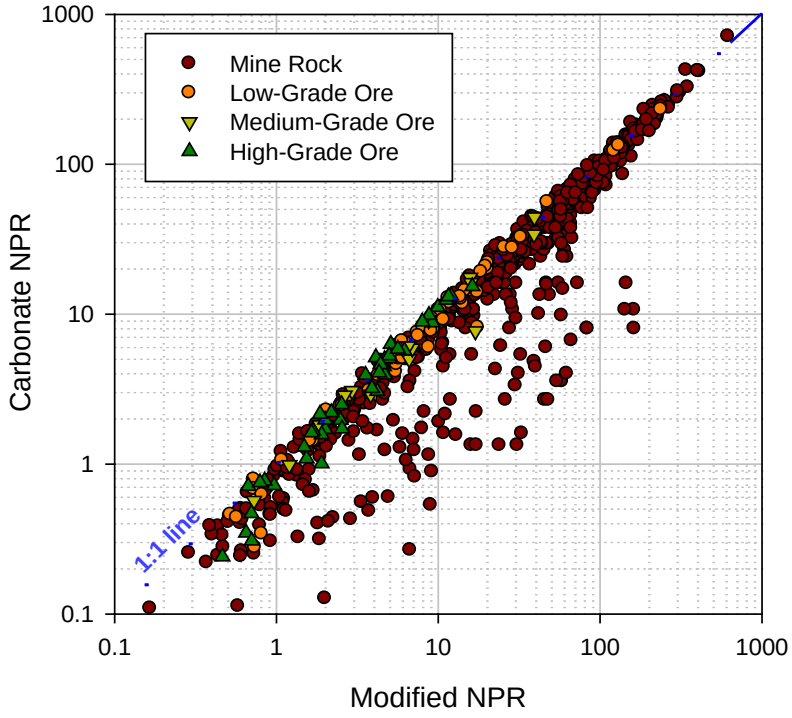

Figure 2: A comparison of Modified NPR versus CaNPR for mine rock and ore samples from the Ajax deposit.

2.3 Mine Rock Lithologies

Thirteen percent of all mine rock samples have NPR values of <2 when Mod.NP is used in NPR calculations (Table 2). This implies that under advanced weathering conditions, a portion of the mine rock will become depleted in NP (*i.e.*, carbonate and non-carbonate) if exposed to atmospheric oxygen over an extended period of time. A large volume of mine rock will be extracted from the deposit over the life of the project; therefore, it is important to understand which material is PAG so that it can be managed and/or stored appropriately.

Table 3 presents the statistical distribution of ABA results by mine rock lithology for the Ajax deposit. Figure 3 presents the Mod.NP values versus CaNP values for the mine rock lithologies. The PICR and MAFV samples, in particular, plot below the 1:1 line, indicating higher Mod.NP for these samples compared to CaNP. Of note, is the large number of PICR samples with < 20 kg $CaCO_3$/t CaNP and 20 kg $CaCO_3$/t < Mod.NP > 80 kg $CaCO_3$/t (Figure 3). Overall, the data presented in Table 3 and Figure 3 demonstrate that the PICR, MAFV and, to a lesser degree, the SLD-strong samples are the mine rock lithologies that have higher Mod.NP compared to CaNP and therefore have higher proportions of non-carbonate minerals contributing to NP. Diopside, epidote, actinolite, biotite, olivine, serpentine and chlorite were identified in samples from the PICR, MAFV and SLD units during mineralogical characterization of the Ajax deposit.

Table 3:
Statistical Range of ABA Values for Lithologies of the Ajax Deposit

	AP kg $CaCO^3$/t	**Mod.NP** kg $CaCO^3$/t	**CaNP** kg $CaCO^3$/t	**NPR**	
				Mod.NP/AP	CaNP/AP
Iron Mask Hybrid (IMH) *(n = 176)*					
Min	0.3	7.0	4.2	4.6	2.7
10th PCTL	0.3	16	9	23	13
Median	0.3	33	28	71	58
90th PCTL	1.6	96	94	207	197
Max	4	223	230	411	416
Sugarloaf Diorite - weakly albitized (SLD - weak) *(n = 111)*					
Min	0.3	8.3	4.2	0.3	0.2
10th PCTL	0.3	16	10	0.9	0.6
Median	6.9	29	25	4.1	3.3
90th PCTL	32	57	52	43	37
Max	69	88	87	247	237
Sugarloaf Diorite - moderately albitized (SLD - mod) *(n = 139)*					
Min	0.2	11	5.8	0.2	0.1
10th PCTL	0.3	18	13	1.0	0.7
Median	3.4	38	32	13	11.8
90th PCTL	32	118	100	107	105
Max	107	342	392	619	712
Sugarloaf Diorite - strongly albitized (SLD - strong) *(n = 19)*					
Min	0.3	18	12	3.5	0.5
10th PCTL	0.3	21	13	6	5
Median	1.3	66	52	33	30
90th PCTL	5.2	101	111	208	196
Max	24	161	172	402	419
Mafic Volcanics (MAFV) *(n = 38)*					
Min	0.3	11	0.8	0.9	0.1
10th PCTL	0.5	16	4	1.5	0.5
Median	5.5	25	12	6	2.4
90th PCTL	21	94	60	66	32
Max	32	375	292	266	237
Picrite (PICR) *(n = 79)*					
Min	0.3	13	1.7	0.6	0.1
10th PCTL	0.6	22	2.5	1.9	0.4
Median	3.1	44	7.5	13.8	2.7
90th PCTL	14	67	39	65	16
Max	45	120	124	163	85
Sugarloaf Volcanic Hybrid (SVHYB) *(n = 6)*					
Min	0.3	20	13	1.4	0.9
10th PCTL	0.6	26	19	4.0	3.9
Median	2.7	47	51	25	21
90th PCTL	12.5	71	70	83	83
Max	15	75	71	117	123
Sugarloaf/Picrite Hybrid					
L11-238	3	56	55	19.9	19.6
L11-380	63	42	32	0.7	0.5
L11-400	31.3	107	124	3	4
Unmineralized Dyke *(n = 25)*					
Min	0.3	18	13	1.2	0.9
10th PCTL	0.3	23	19	9	8
Median	0.6	40	39	63	64
90th PCTL	4.8	67	72	166	143
Max	19.7	83	81	239	243

Notes: AP = acid potential calculated from non-sulfate sulfur (*i.e.*, (Total S – Sulfate S)*31.25);
CaNP = Carbonate neutralization potential calculated from total inorganic carbon or total carbon;
Modified NP = bulk neutralization potential; and
NPR = net potential ratio.

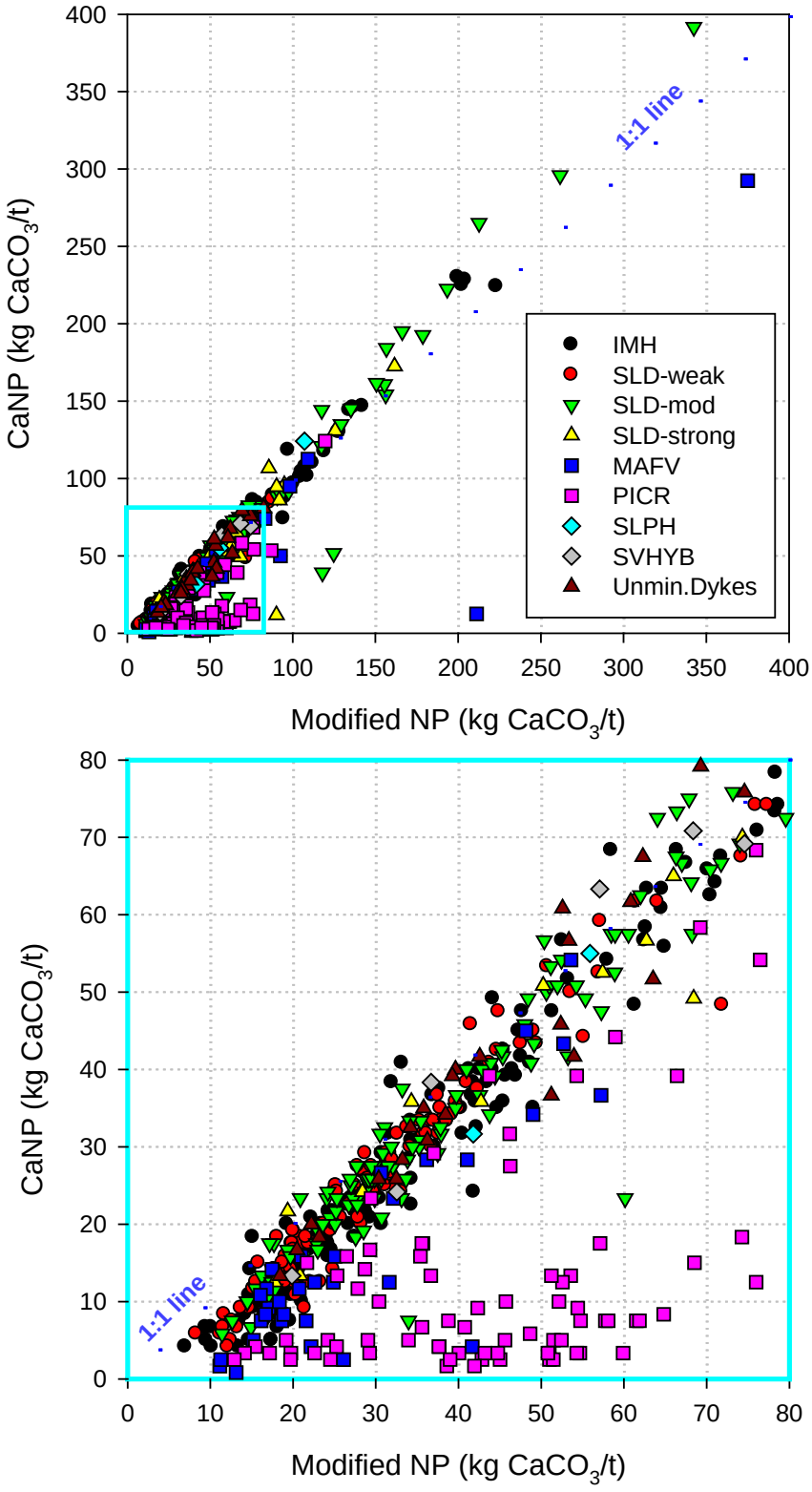

Figure 3: **Mod.NP versus CaNP for the mine rock lithologies of the Ajax deposit. The bottom plot shows the samples within the blue box in the top plot.**

Table 4 presents the percentage of mine rock samples according to the mine rock lithological groups of the Ajax deposit which have NPR values >2 and NPR values of <2. Figure 4 plots the Mod.NPR values versus the CaNPR values for the mine rock lithologies. The major trends in ARD potential observed based on the revised Mod.NP and Mod.NPR values are summarized below.

- Mod.NPR values are systematically higher than CaNPR values with the largest discrepancy in PAG proportion observed for the PICR.
- None of the IMH mine rock samples are characterized as PAG, regardless of whether Mod.NP or CaNP are used in NPR calculations. This is due to the prevalence of low total and non-SO_4 sulphur with median values at or below detection (0.01 %).
- The proportion of PAG material in the SLD unit appears to be at least partly controlled by the degree of albitization with the weakly and moderately albitized samples displaying a PAG proportion of 26% and 22%, respectively when Mod.NP is used in NPR derivations. The PAG proportion for these units when CaNP is used to derive NPR is slightly higher (32% and 25%). The strongly albitized material contains no PAG rock using the Mod.NP as a basis for NPR calculations.
- The MAFV and PICR samples have a similar proportion of PAG samples, 18% and 11%, respectively, when Mod.NP is used to calculate NPR; which is down considerably from 42% and 43%, respectively, when CaNP is used. The PICR samples, in particular, contain notably higher NP values derived from non-carbonate minerals, notably fast reacting silicates, compared to the other mine rock lithologies (Figure 3). Mineralogical investigations indicate that the PICR is composed primarily of actinolite (~40 wt.%), biotite (20 wt.%), chlorite (15-18 wt.%) as well as lesser amounts of olivine, serpentine, diopside and magnetite (Lorax, 2015). Acid soluble serpentine and olivine, in particular, have high neutralizing potential (Jambor *et al.*, 2007). The MAFV tends to display a more felsic character with a higher quartz content (3.6 wt.%) and a significant amount of plagioclase (43 wt.%) and no measurable serpentine or olivine.
- The unmineralized dykes and other minor lithological groups (SVHYB and SLPH) are dominated by NPAG samples when Mod.NP and CaNP are used to calculate NPR. However, sample populations for these units are small and may not conclusively assess the ARD character for these groups.

Table 4:
Distribution of PAG and NPAG NPR Values for Ajax Mine Rock Lithologies

	Mod. NPR	CaNPR
IMH		
# NPAG samples	176	176
# PAG samples	0	0
% PAG	0%	0%
SLD - weak		
# NPAG samples	82	76
# PAG samples	29	35
% PAG	26%	32%
SLD - mod		
# NPAG samples	108	104
# PAG samples	31	35
% PAG	22%	25%
SLD - strong		
# NPAG samples	19	18
# PAG samples	0	1
% PAG	0%	5%
MAFV		
# NPAG samples	31	22
# PAG samples	7	16
% PAG	18%	42%
PICR		
# NPAG samples	70	45
# PAG samples	9	34
% PAG	11%	43%
SLPH/PSLD		
# NPAG samples	2	2
# PAG samples	1	1
% PAG	33%	33%
SVHYB		
# NPAG samples	5	5
# PAG samples	1	1
% PAG	17%	17%
Unmineralized Dykes		
# NPAG samples	24	24
# PAG samples	1	1
% PAG	4%	4%

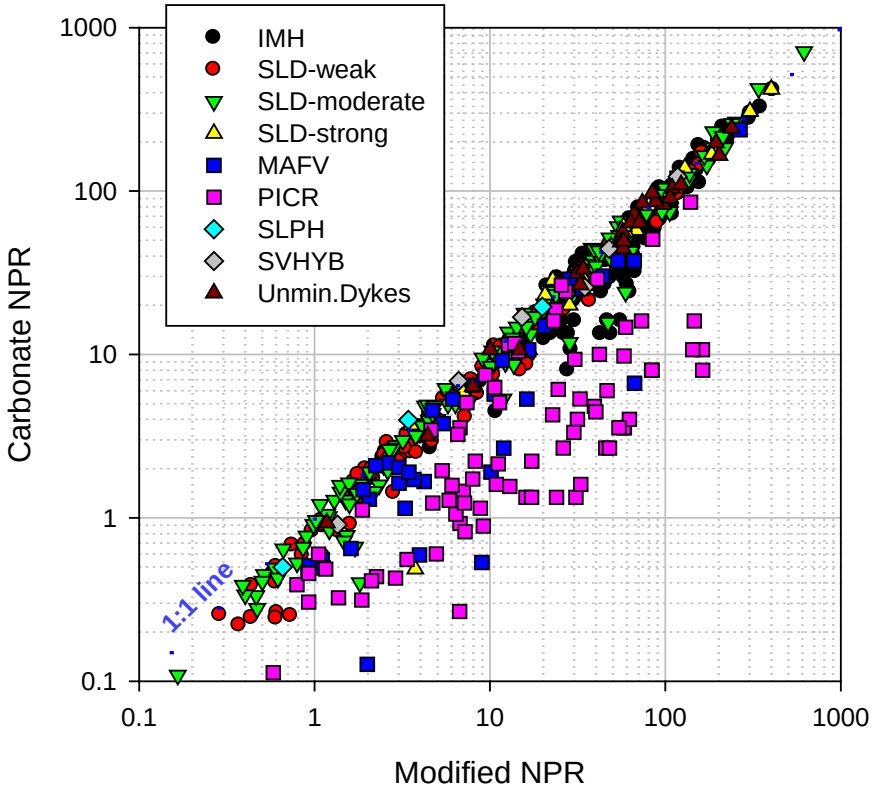

Figure 4: Mod.NPR versus CaNPR for the mine rock lithologies of the Ajax deposit.

3. Summary

The application of Mod.NP is based on results of several static and kinetic tests, mineralogical investigations and robust NPR criteria. Mod.NP provides a more precise estimation of NP for the Ajax geology. Of note is that there was not a significantly greater quantity of NP measured by the Mod.NP method in the ore samples. Thus, the proportion of PAG ore is similar to the original estimate using CaNPR criterion. However, a lower proportion of PAG is estimated for mine rock when NPR is derived from Mod.NP.

The greatest increase between the Mod.NP from the CaNP measurements was observed in the PICR unit where the difference in the median values was 36 kg $CaCO_3$/t. The MAFV and strongly albitized SLD also have increased Mod.NP. This increase results in 89% of PICR samples having no ARD potential (NPAG).

Due to the limited increases in measured NP from the weakly and moderately albitized SLD, the proportion of PAG rock from these units is still estimated to be on the order of ~24%. Since these rock units comprise a significant proportion of the total mine rock tonnage, operational monitoring of these units will be required to isolate PAG volumes for special handling. Similarly, >15% of

samples are PAG from minor geologic units SLVHYB, SLPH and MAFV >15% and operational monitoring would be required to segregate PAG rock from these units if required for the ML/ARD Management Plan.

Conversely, the data sets indicate that the IMH, PICR, and strongly albitized SLD have <15% PAG and do not require operational monitoring to segregate. Operational monitoring of ore for the purposes of segregation is also not proposed. Although up to 33% of the ore samples were PAG, the ARD testing indicates that there is sufficient NP in the ore to maintain neutral conditions in the stockpiles during the operating life of the mine.

4. Implications to Mine Plan

The most notable difference when Mod.NP, rather than CaNP, is used in ARD classification (*i.e.,* PAG versus NPAG) is an increase in the amount of NPAG mine rock and high-grade ore samples (Table 2). There is little to no difference in the overall proportions of PAG and NPAG for the low- and medium-grade ore samples when Mod.NP is used. The application of Mod.NP in PAG designation for the low- and medium-grade ore would probably have little to no effect on the overall mining plan (Table 5). A preliminary evaluation of the implications to the mine plan of the revised NP designations are provided below in Table 5. However, more definitive estimates are being prepared by using these new results as input into an ML/ARD block model.

With respect to the mine rock samples, only 13% are indicated to be PAG when Mod.NP is used for ARD classification compared to 21% when CaNP is used (Table 2). This results in a difference of 7.6%, which when applied to the mine rock tonnage that will be extracted during the life of the mine (indicated to be 1,004,760,848 tonnes at the time the Lorax (2015) *Ajax Geochemical Characterization Study* was prepared), indicates an additional 75,859,444 tonnes of mine rock would be classified as NPAG rather than PAG (Table 5) and would not require special handling and deposition. For the high-grade ore, the difference is 6.7%, which would amount to 11,845,342 tonnes.

Specifically, results from the NP assessment indicate that an additional 32% of the PICR and 24% of MAFV mine rock would be classified as NPAG when Mod.NP is used. The results indicate that an additional 31,287,696 tonnes of PICR (total of 87,018,904 tonnes) and an additional 5,590,787 tonnes of MAFV (total of 19,101,857 tonnes) mine rock would be classified as NPAG.

The application of Mod.NP for the IMH, SLPH/PSLD, SVHYB and unmineralized dykes will have little influence on the proportion of PAG samples, the majority of which are already classified as NPAG (Table 4).

The application of Mod.NP for ARD classification of the SLD would appear to have less of an impact since only an additional 6% of the weakly-albitized SLD and 3% of the moderately albitized SLD would be re-classified as NPAG using Mod.NP (Table 4). However, this amounts

to an additional 6,581,447 tonnes and 3,662,919 tonnes, respectively, of NPAG rock. The data show that all the strongly-albitized SLD mine rock would be classified as NPAG rather than PAG (Table 2 and Table 5).

Table 5:
Tonnage[1] of PAG and NPAG based on Mod.NPR and CaNPR for Ajax Mine Rock and Ore Grades and Mine Rock Lithologies

Designation	Tonnage	Mod.NPR		CaNPR		Difference in NPAG Tonnage
		NPAG	PAG	NPAG	PAG	
High-grade	176,796,145	118,453,417	58,342,728	106,077,687	70,718,458	12,375,730
Medium-grade	207,172,030	171,952,785	35,219,245	171,952,785	35,219,245	0
Low-grade	53,937,031	42,070,884	11,866,147	42,070,884	11,866,147	0
Mine Rock	1,004,760,848	874,141,938	130,618,910	793,761,070	210,999,778	80,380,868
Mine Rock Lithologies						
IMH	604,612,894	604,612,894	0	604,612,894	0	0
SLD weak	109,690,783	81,171,179	28,519,604	74,589,732	35,101,051	6,581,447
SLD mod	122,097,286	95,235,883	26,861,403	91,572,965	30,524,322	3,662,919
SLD strong	3,981,152	3,981,152	0	3,782,094	199,058	199,058
MAFV	23,294,947	19,101,857	4,193,090	13,511,069	9,783,878	5,590,787
PICR	97,774,049	87,018,904	10,755,145	55,731,208	42,042,841	31,287,696
SVHYB	11,006,943	9,135,763	1,871,180	9,135,763	1,871,180	0
Other (99 & 199)	32,302,794	29,718,570	2,584,224	29,718,570	2,584,224	0

Notes: 1. Based on tonnages provided in Table 3-2 of the Lorax (2015) Ajax Geochemical Characterization Study.

5. Closure

We trust that this Memorandum meets your present requirements.

Best regards,
Lorax Environmental Services Ltd.

Stephanie Simpson, M.Sc.
Environmental Geoscientist

Bruce Mattson, M.Sc., P.Geo.
Senior Geochemist

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Appendix D: Kinetic Test Results

APPENDIX D-1.1 KINETIC CELLS PREPARATION AND OPERATION

APPENDIX D-1.2 LAB TEST LEACHATE RESULTS

APPENDIX D-1.3 SGS LAB LETTER (MAY 17, 2012)

APPENDIX D-1.4 LAB KINETIC TEST LEACHATE LOADING RATES

APPENDIX D-2.1 FIELD KINETIC TEST RESULTS

KGHM

APPENDIX D-1.1 KINETIC CELLS PREPARATION AND OPERATION

Standard Operating Procedure

Humidity Cell Preparation/Operation

Objectives:

- To model in the laboratory the geochemical processes of weathering.
- To confirm or reduce uncertainty in the results of static prediction tests.
- To determine the rate of and temporal variation in acid generation and leachate water quality.
- To provide preliminary assessment of ARD control options.

Equipment:

Waste Rock Humidity Cell:

Humidity cell is made from acrylic tubing, with height and diameter appropriate for the sample size. An 8 inch height and 4 inch diameter is suitable for a 1 kg sample.

The cell has a fixed base plate with a leachate drainage hole fitted with a tubing nipple. Approximately one inch above the base, a perforated plexiglass plate is fitted to support the sample. The plate is covered with 1 layer of 80 micron nylon mesh to prevent fine sample falling through the support, while allowing upward flow of air and downward flow of leachate. A hose nipple is fitted to the side wall below the support plant for the dry and humid air inlet. The cell is equipped with a removable lid with a central hose nipple for an air outlet. The air inlet and leachate drain are equipped with suitable pinch valves.

Tailings Humidity Cell:

Tailings Humidity Cell is made from acrylic tubing with an inside diameter of eight inches and a height of four inches. The cell has a fixed base plate with a leachate drainage hole fitted with a tubing nipple. A perforated acrylic support plate is plate is placed inside the cell, one inch above the base plate and covered with a Shark Skin® filter paper and one layer of 80 micron nylon mesh. Inflow of humid and dry air is through an air line placed on the cell through the top cover.

Procedure:

1. Crush sample to a target size of 80 percent minus ¼ inch, or as required by the test program. Tailings are tested at the received particle size.

2. Place 1000 g (or as required by the testing program) of sample in the cell and add sufficient distilled water (or ultra pure water) to moisten sample well without producing drainage.

3. The cell is operated in a 7 day cycle. For the first 3 days, pass dry air into the cell. For next 3 days, switch the air flow to humid air from the humidifier.

4. On the last day of the cycle, disconnect the airflow and add 500 mL of distilled water and allow to soak for 1 hour (leachate drain closed). Drain the cell and record the volume of leachate collected.

5. On the next day, restart the cycle. Humidity cells tests may lasts from 6 to 50 weeks/cycles or more.

6. Filter or centrifuge the leachate to remove solids. Any solids recovered should be returned to the cell. Filter aliquots of the leachate through a membrane filter as required for analytical procedures.

7. Measure leachate pH and other parameters as required by the experimental design. These could include conductivity, redox potential, acidity, alkalinity, sulphate, dissolved metals and other species.

8. pH is measured using the pH meter; redox is measured using the redox meter and probe; conductivity is determined using the conductivity meter; acidity is determined by titration with base to an end point of either pH 4.5 (free acidity) or pH 8.3 (total acidity); alkalinity is determined by titration with an acid to an end point of pH 4.5.

Source: Acid Rock Drainage Prediction Manual. March 1991

APPENDIX D-1.2 LAB TEST LEACHATE RESULTS

Cell ID	Sample ID	Sample Type	Column Packing	Total Volume of Initial Flushings	Flushing Rate/Weekly Input*	Temp	Sampling Frequency	Start-up Date	Operation Procedure	Sample Prep for Flushings
			Dry Wt. of Sample (kg)	(mL)	(mL)	(°C)				
T-1	Cleaner and Rougher Tails Composite	Tailings	1.00	750	500	20-22 °C	Weekly	8-Jun-10	Flood Leach	Stirred
T-2	Cleaner and Rougher Tails Composite	Tailings	6.00	750	500	20-22 °C	Weekly	9-Jun-10	Trickle Leach	None
Col 1	Col-1 WR	Ore	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 2	Col-2 WR	mine Rock	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 3	Col-3 WR	mine Rock	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 4	Col-4 WR	Mine Rock	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 5	Col-5 WR	Mine Rock	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 6	Col-6 WR	Mine Rock	5.00	500	500	20-22 °C	Weekly	22-Dec-10	Trickle Leach	None
Col 7	Col 7 Composite	Mine Rock	5.00	500	300	20-22 °C	Weekly	2-Jul-14	Trickle Leach	None
Col 8	Col 8 Composite	Mine Rock	5.00	500	300	20-22 °C	Weekly	2-Jul-14	Trickle Leach	None
Col 9	Column 9	Mine Rock	5.00	500	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
Col 10	Column 10	Mine Rock	5.00	500	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
Col 11	Column 11	Mine Rock	5.00	500	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
Col 12	Column 12	Mine Rock	5.00	500	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
Col 13	Column 13	Mine Rock	5.00	500	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
Col 14	KM 3889	Mine Rock	5.00	900	300	20-22 °C	Weekly	25-Jun-14	Trickle Leach	None
HC 1	Col-2 WR Composite	Mine Rock	5.00	750	500	20-22 °C	Weekly	22-Dec-10	Flood Leach	None
HC 2	Col-3 WR Composite	Mine Rock	1.00	750	500	20-22 °C	Weekly	22-Dec-10	Flood Leach	None
HC 3	Col-2 WR Composite NP Removed	Mine Rock	1.00	750	500	20-22 °C	Weekly	12-Jan-11	Flood Leach	None
HC 4	Col-3 WR Composite NP Removed	Mine Rock	1.00	750	500	20-22 °C	Weekly	9-Mar-11	Flood Leach	None
HC 5	Col-2 AC-WR	Mine Rock	1.00	500	500	20-22 °C	Weekly	8-Feb-12	Flood Leach	None
HC 6	Col 2 Sul-WR	Mine Rock	1.00	500	500	20-22 °C	Weekly	8-Feb-12	Flood Leach	None
HC 7	Column 10 Composite	Mine Rock	1.00	500	500	20-22 °C	Weekly	18-Jun-14	Flood Leach	None
HC 8	Column 11 Composite	Mine Rock	1.00	500	500	20-22 °C	Weekly	18-Jun-14	Flood Leach	None
HC 9	Column 10 Composite NP Removed	Mine Rock	1.00	500	500	20-22 °C	Weekly	3-Sep-14	Flood Leach	None
HC 10	Column 11 Composite NP Removed	Mine Rock	1.00	500	500	20-22 °C	Weekly	3-Sep-14	Flood Leach	None
T-3	Jan 25 Tailings	Tailings	0.95	715	475	20-22 °C	Weekly	14-Aug-13	Flood Leach	Stirred
T-4	Jan 25 Tailings	Tailings	5.00		500	20-22 °C	Weekly	27-Mar-13	Trickle Leach	None
T-5	Nov 2013 Composite Tailings	Tailings	1.00	500	500	20-22 °C	Weekly	4-Jun-14	Flood Leach	Stirred

Col 1

Sample = Col-1 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	650	240	7.27	4598	#N/A	13.7	147.9	3100	53	0.31	< 3	2450	0.0066	0.0014	0.0350	0.0469	< 0.00002	0.00006	0.903	0.000187	550	0.0015	0.00293	0.0870	0.025	0.00013	0.021	261	0.146	3.58	0.367	0.0303	0.089	72.0	0.0435	9.89	0.00016	437	8.79	1160	< 0.0002	0.00356	0.0012	0.00987	0.0176	0.004	0.00448
29-Dec-10	2	300	310	7.58	4170	#N/A	17.8	132.8	2733	19	0.28	< 0.3	2280	0.0041	0.0011	0.0290	0.0347	< 0.00002	0.00004	0.784	0.000120	514	0.0010	0.00247	0.0371	< 0.002	0.00168	0.024	243	0.146	0.04	0.236	0.0232	0.059	67.5	0.0209	10.5	0.00007	286	9.96	1020	< 0.0002	0.00313	0.0013	0.0158	0.0155	0.003	0.00307
5-Jan-11	3	300	280	7.63	3580	#N/A	17.8	104.9	2654	6.6	0.26	< 0.3	2170	0.0046	0.0009	0.0135	0.0322	< 0.00002	0.00001	0.543	0.000044	477	< 0.0005	0.00174	0.0259	< 0.002	0.00007	0.019	239	0.0987	0.04	0.138	0.0166	0.020	63.3	0.00866	9.33	0.00002	192	9.29	840	< 0.0002	0.00464	0.0008	0.0121	0.01438	0.007	0.00155
12-Jan-11	4	300	290	7.69	3429	#N/A	11.6	92.0	2554	2.0	0.31	< 0.3	2380	0.0050	0.0010	0.0094	0.0315	< 0.00002	< 0.00001	0.455	0.000016	554	< 0.0005	0.00200	0.0212	0.002	0.00005	0.020	243	0.128	0.01	0.103	0.0137	0.026	66.3	0.00482	10.7	< 0.00001	129	10.4	837	< 0.0002	0.00515	0.0009	0.00939	0.0134	0.002	0.00098
19-Jan-11	5	300	310	7.63	3342				2289																																								
26-Jan-11	6	300	300	7.68	3177	#N/A	11.9	85.6	2554	< 2	0.33	< 0.3	2300	0.0035	0.0011	0.0040	0.0359	< 0.00002	0.00001	0.253	0.000124	550	< 0.0005	0.00286	0.0219	< 0.002	0.00008	0.019	224	0.172	0.02	0.201	0.0189	0.069	62.2	0.00361	9.72	< 0.00001	67.9	9.72	819	< 0.0002	0.00758	0.0008	0.00887	0.00622	0.002	0.00044
2-Feb-11	7	300	280	7.63	3010				2491																																								
9-Feb-11	8	300	295	7.87	1183	#N/A	5.7	90.3	1755	< 2	0.28	< 0.3	2090	0.0082	0.0008	0.0034	0.0305	< 0.00002	< 0.00001	0.262	0.000807	529	< 0.0005	0.00402	0.0276	0.002	0.00313	0.015	188	0.179	< 0.01	0.287	0.0285	0.067	52.9	0.00423	10.0	< 0.00001	38.7	7.66	698	< 0.0002	0.00709	0.0017	0.00622	0.00472	0.010	0.00021
16-Feb-11	9	300	285	7.70	2992				2139																																								
23-Feb-11	10	300	305	7.71	3072	#N/A	9.1	78.3	2268	< 2	0.29	< 0.3	1900	0.0042	0.0014	0.0029	0.0277	< 0.00002	< 0.00001	0.201	0.000210	512	0.0011	0.00372	0.0308	< 0.002	0.00151	0.014	157	0.195	0.01	0.249	0.0233	0.050	46.8	0.00368	9.67	0.00001	27.0	7.65	655	< 0.0002	0.0108	0.0010	0.00519	0.00380	0.013	0.00011
2-Mar-11	11	300	295	7.65	2973				2318																																								
9-Mar-11	12	300	315	7.69	2960	#N/A	9.4	74.7	2106	< 2	0.29	< 0.3	1920	0.0036	0.0006	0.0022	0.02964	< 0.00002	< 0.00001	0.144	0.000103	537	0.0005	0.00365	0.0246	0.002	0.00244	0.011	142	0.196	0.01	0.286	0.0184	0.057	47.7	0.00289	9.73	< 0.00001	17.5	7.18	611	0.00002	0.0205	0.0010	0.00430	0.00352	0.011	0.00010
16-Mar-11	13	300	275	7.63	2876				2054																																								
23-Mar-11	14	300	305	7.71	2805	#N/A	8.4	70.2	1796	< 2	0.27	< 0.3	1956	0.0031	0.0008	0.0019	0.0272	< 0.00002	0.00002	0.111	0.000113	575	0.0009	0.00371	0.0222	0.002	0.00048	0.009	126	0.184	< 0.01	0.294	0.0194	< 0.009	49.1	0.00291	9.39	< 0.00001	14.1	7.38	697	< 0.0002	0.0276	0.0010	0.00385	0.00308	0.001	0.00009
30-Mar-11	15	300	295	7.59	2757				1953																																								
6-Apr-11	16	300	300	7.62	2713	#N/A	10.9	68.7	1659	< 2	0.27	< 0.3	1950	0.0038	0.0015	0.0022	0.0290	< 0.00002	< 0.00001	0.0909	0.000060	583	< 0.0005	0.00374	0.0239	0.004	0.00010	0.008	119	0.193	< 0.01	0.277	0.0155	0.021	46.5	0.00254	9.08	< 0.00001	10.3	7.40	666	0.00002	0.0374	0.0008	0.00347	0.0029	0.003	0.00004
13-Apr-11	17	300	305	7.58	2690				1871																																								
20-Apr-11	18	300	300	7.61	2685	#N/A	12.8	67.5	1856	< 2	0.27	< 0.3	1840	0.0044	0.0006	0.0018	0.0288	< 0.00002	0.00002	0.0768	0.000186	586	< 0.0005	0.00483	0.0194	< 0.002	0.00003	0.006	92.5	0.166	0.01	0.305	0.0093	< 0.009	38.0	0.00429	8.26	< 0.00001	8.38	6.72	598	< 0.00002	0.0521	0.0018	0.00263	0.0030	0.007	0.00007
27-Apr-11	19	300	300	7.57	2642				1555																																								
4-May-11	20	300	300	7.58	2595	#N/A	9.5	61.0	1610	< 2	0.20	< 0.3	1740	0.0039	0.0006	0.0016	0.0265	< 0.00002	< 0.00001	0.0595	0.000092	577	< 0.0005	0.00374	0.0169	< 0.02	0.00004	0.006	73.0	0.153	< 0.01	0.266	0.0070	0.067	38.8	0.00030	8.08	< 0.00001	6.99	6.32	575	< 0.00002	0.0664	0.0013	0.00244	0.0026	0.003	0.00007
11-May-11	21	300	300	7.57	2600				1680																																								
18-May-11	22	300	300	7.59	2530	#N/A	15.5	73.8	1631	< 2	0.20	< 0.3	1710	0.0043	0.0004	0.0016	0.0293	< 0.00002	< 0.00001	0.0576	0.000123	580	0.0006	0.00333	0.0153	< 0.002	0.00007	0.006	64.7	0.144	< 0.01	0.259	0.0224	0.024	39.8	0.00452	8.94	0.00004	6.33	6.00	540	0.00002	0.0727	0.0013	0.00220	0.00273	0.005	0.00003
25-May-11	23	300	310	7.64	2561				1555																																								
1-Jun-11	24	300	300	7.68	2526	#N/A	9.5	53.2	1554	< 2	0.19	< 0.3	1590	0.0033	0.0005	0.0053	0.0294	< 0.00002	< 0.00001	0.0670	0.000137	545	< 0.0005	0.00333	0.0159	0.005	0.00006	0.007	55.9	0.141	0.01	0.221	0.0062	0.048	38.4	0.00316	8.97	0.00005	5.66	5.61	552	0.00002	0.0845	0.0012	0.00199	0.0029	0.005	0.00003
8-Jun-11	25	300	280	7.55	2529				1542																																								
15-Jun-11	26	300	295	7.86	2502				1678																																								
22-Jun-11	27	300	300	7.78	2451				2033																																								
29-Jun-11	28	300	300	7.76	2458	#N/A	7.4	55.0	1761	< 2	0.18	< 0.3	1770	0.0038	0.0005	0.0026	0.0429	< 0.00002	< 0.00001	0.0553	0.000100	636	< 0.0005	0.00243	0.0152	0.002	0.00042	0.006	44.6	0.110	0.01	0.211	0.0035	< 0.009	37.8	0.00353	19.4	< 0.00001	4.98	4.69	599	0.00003	0.101	0.0031	0.00159	0.0027	0.006	0.00003
6-Jul-11	29	300	290	7.6	2470				1633																																								
13-Jul-11	30	300	320	7.51	2477				1626																																								
20-Jul-11	31	300	280	7.58	2452				1644																																								
27-Jul-11	32	300	300	7.59	2481	#N/A	8.1	48.6	1729	< 2	0.18	< 0.3	1520	0.0044	0.0006	0.0018	0.0307	< 0.00002	< 0.00001	0.0422	0.000101	553	< 0.0005	0.00305	0.0190	0.050	0.00005	0.005	34.9	0.0919	< 0.01	0.183	0.0287	0.036	31.9	0.00344	8.08	< 0.00001	3.92	4.01	495	0.00003	0.113	0.0020	0.00153	0.0026	0.006	0.00003
3-Aug-11	33	300	310	7.56	2453				1816																																								
10-Aug-11	34	300	280	7.55	2415				1514																																								
17-Aug-11	35	300	300	7.55	2419				1587																																								
24-Aug-11	36	300	295	7.50	2410	#N/A	13.5	48.3	1578	< 2	0.18	< 0.3	1530	0.0062	0.0006	0.0021	0.0333	< 0.00002	< 0.00001	0.0385	0.000048	567	0.0020	0.00111	0.0118	0.008	0.00006	0.005	28.1	0.0189	0.01	0.168	0.0030	0.009	29.8	0.00378	8.15	< 0.00001	3.47	3.44	534	0.00003	0.128	0.0009	0.00124	0.00262	0.004	0.00002
31-Aug-11	37	300	305	7.52	2405				1704																																								
7-Sep-11	38	300	315	7.71	2387	#N/A	8.6	50.6	1689	< 2	0.10	< 0.3	1580	0.0031	0.0006	0.0017	0.0317	< 0.00002	0.00004	0.0414	0.000066	592	0.0014	0.00097	0.0161	< 0.002	0.00005	0.005	25.6	0.0133	< 0.01	0.173	0.0135	< 0.009	25.4	0.00393	7.58	< 0.00001	3.34	3.29	538	0.00003	0.124	0.0012	0.00124	0.0027	0.004	0.00004
14-Sep-11	39	300	280	7.64	2369	#N/A	9.4	50.0	1621	0.8	0.13	< 0.3	1470	0.0041	0.0006	0.0019	0.0327	< 0.00002	< 0.00001	0.0353	0.000064	550	0.0018	0.00152	0.0138	0.008	0.00007	0.005	23.2	0.0126	< 0.01	0.170	0.0033	< 0.009	23.5	0.00392	8.25	< 0.00001	3.54	3.59	505	0.00003	0.132	0.0013	0.00129	0.0027	0.007	0.00005
21-Sep-11	40	300	300	7.54	2384	#N/A	10.3	48.7	1565	< 2	0.12	< 0.3	1660	0.0041	0.0004	0.0022	0.0321	< 0.00002	0.00002	0.0303	< 0.000003	625	0.0017	0.00088	0.0135	0.010	0.00010	0.005	25.2	0.0091	0.02	0.156	0.0033	< 0.009	25.1	0.00397	7.77	< 0.00001	3.32	3.26	565	0.00002	0.133	< 0.0001	0.00130	0.0027	0.015	0.00003
28-Sep-11	41	300	310	7.54	2302				1571																																								
5-Oct-11	42	300	305	7.58	2383				1674																																								
12-Oct-11	43	300	300	7.51	2355				1642																																								
19-Oct-11	44	300	300	7.61	2336	#N/A	6.5	45.3	1657	< 2	0.13	< 0.3	1550	0.0039	0.0004	0.0020	0.0320	< 0.00002	< 0.00001	0.0263	0.000045	588	0.0014	0.00078	0.0123	< 0.003	0.00014	0.004	19.7	0.0023	< 0.01	0.116	0.0024	< 0.009	22.8	0.00333	7.50	< 0.00001	2.71	2.71	522	0.00003	0.133	0.0009	0.00117	0.0025	0.007	0.00002
26-Oct-11	45	300	300	7.58	2374				1670																																								
2-Nov-11	46	300	315	7.55	2364				1695																																								
9-Nov-11	47	300	295	7.49	2371				1498																																								
16-Nov-11	48	300	300	7.56	2360	#N/A	7.8	47.3	1558	< 2	0.12	< 0.3	1560	0.0195	0.0004	0.0019	0.0340	< 0.00002	< 0.00001	0.0292	0.000046	596	< 0.0005	0.00070	0.0123	0.014	0.00002	0.004	17.0	0.0076	< 0.01	0.145	0.0126	< 0.009	20.8	0.00314	7.72	< 0.00001	2.35	2.41	553	0.00003	0.155	0.0012	0.00101	0.0031	0.002	0.00024
23-Nov-11	49	300	300	7.57	2327				1572																																								
30-Nov-11	50	300	295	7.56	2356				1595																																								
7-Dec-11	51	300	295	7.54	2357				1524																																								
14-Dec-11	52	300	300	7.54	2379	#N/A	9.7	51.0	1569	< 2	0.11	< 0.3	1500	0.0036	0.0003	0.0014	0.0304	< 0.00002	< 0.00001	0.0228	0.000049	578	0.0015	0.000914	0.0142	< 0.003	0.00022	0.004	14.2	< 0.0002	< 0.01	0.128	0.0021	< 0.009	20.7	0.00340	8.40	< 0.00001	2.34	2.16	497	0.00003	0.153	0.0011	0.00115	0.00253	0.003	0.00003
21-Dec-11	53	300	300	7.58	2337				1646																																								
28-Dec-11	54	500	500	7.55	2317				1439																																								
4-Jan-12	55	300	305	7.55	2340				1534																																								
11-Jan-12	56	300	295	7.51	2359	#N/A	7.0	55.1	1543	< 2	0.09	< 0.3	1500	0.0266	0.0005	0.0017	0.0310	< 0.00002	< 0.00001	0.0240	0.000029	582	< 0.0005	0.000753	0.0123	< 0.003	0.00004	0.004	11.8	0.0017	0.01	0.0943	0.0048	< 0.009	19.2	0.00422	7.58	< 0.00001	2.13	1.87	509	< 0.00002	0.150	0.0010	0.000814	0.00311	0.004	0.00001
18-Jan-12	57	300	300	7.62	2447				1611																																								
25-Jan-12	58	300	300	7.57	2304				1579																																								
1-Feb-12	59	300	290	7.50	2313				1498																																								
8-Feb-12	60	300	300	7.58	2329	#N/A	10.6	58.5	1570	< 2	0.09	< 0.3	1550	0.0146	0.0008	0.0019	0.0309	< 0.00002	< 0.00001	0.0153	0.000036	603	< 0.0005	0.000978	0.0113	< 0.003	< 0.00002	0.003	10.7	0.0012	< 0.01	0.128	0.0022	0.012	20.4	0.00396	7.11	< 0.00001	2.14	1.69	493	0.00003	0.148	0.0011	0.000936	0.00305	0.003	0.00001
15-Feb-12	61	300	300	7.58	2341				1623																																								
22-Feb-12	62	300	300	7.62	2329				1725																																								
29-Feb-12	63	300	300	7.51	2306				1503																																								
7-Mar-12	64	300	300	7.62	2377	#N/A	14.3	53.4	1529	< 2	0.08	< 0.3	1570	0.0162	0.0004	0.0019	0.0309	< 0.00002	< 0.00001	0.0102	< 0.000003	612	< 0.0005	0.000322	0.0117	< 0.003	0.00003	0.002	10.8	0.0016	< 0.01	0.112	0.0024	< 0.009	18.5	0.00262	8.23	< 0.00001	2.18	1.72	522	0.00002	0.142	0.0005	0.000926	0.00329	0.003	< 0.00001
14-Mar-12	65	300	295	7.56	2335				1608																																								
21-Mar-12	66	300	300	7.54	2364				1379																																								
28-Mar-12	67	300	295	7.49	2374				1624																																								
4-Apr-12	68	300	295	7.61	2353	#N/A	7.6	50.6	1576	< 2	0.09	< 0.3	1430	0.0388	0.0009	0.0020	0.0296	< 0.00002	< 0.00001	0.0169	< 0.000003	556	< 0.0005	0.000463	0.0121	< 0.003	< 0.00002	0.003	9.13	0.0011	< 0.01	0.103	0.0085	< 0.009	21.4	0.00246	7.58	< 0.00001	1.92	1.50	517	0.00002	0.133	0.0008	0.000765	0.00279	0.005	0.00002
11-Apr-12	69	300	295	7.68	2323				1635																																								
18-Apr-12	70	300	295	7.60	2333				1618																																								
25-Apr-12	71	300	295	7.53	2429				1603																																								
2-May-12	72	300	295	7.53	2313	#N/A	13.1	50.9	1550	< 2	0.07	< 0.3	1570	0.0449	0.0004	0.0021	0.0276	< 0.00002	< 0.00001	0.0200	< 0.000003	617	< 0.0005	0.000556	0.0120	< 0.003	0.00002	0.003	8.13	0.0033	0.08	0.110	0.0082	< 0.009	20.1	0.00641	7.08	< 0.00001	1.86	1.42	483	0.00003	0.131	0.0005	0.000726	0.00326	0.003	< 0.00001
9-May-12	73	300	295	7.68	2313				1542																																								
16-May-12	74	300	295	7.59	2313				1392																																								
23-May-12	75	300	300	7.34	2289				1439																																								
30-May-12	76	300	295	7.58	2338	#N/A	10.7	48.4	1361	< 2	0.09	< 0.3	1430	0.0321	0.0013	0.0024	0.0248	< 0.00002	< 0.00001	0.0167	< 0.000003	561	< 0.0005	0.000504	0.0120	0.047	< 0.00002	0.003	7.53	0.0020	0.01	0.121	0.0070	< 0.009	14.2	0.00350	7.02	< 0.00001	1.87	1.36	478	0.00003	0.120	0.0005	0.000726	0.00307	0.004	< 0.00001
6-Jun-12	77	300	295	7.50	2349				1408																																								
13-Jun-12	78	300	295	7.50	2292				1305																																								
20-Jun-12	79	300	300	7.42	2267				1392																																								
27-Jun-12	80																																																
4-Jul-12	81	500	260	7.43	2410	#N/A	9.1	44.7	1441	< 2	0.09	< 0.3	1510	0.0340	0.0004	0.0023	0.0310	< 0.00002	< 0.00001	0.0202	0.000031	588	< 0.0005	0.000353	0.0121	< 0.003	< 0.00002	0.004	10.5	0.0063	< 0.01	0.137	0.0011	< 0.009	25.7	0.00484	7.86	< 0.00001	2.32	1.39	470	0.00004	0.141	0.0004	0.000675	0.00409	0.004	0.00001
11-Jul-12	82																																															

Col 1
Sample = Col-1 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18-Jul-12	83	450	260	7.31	2300				1242																																						
25-Jul-12	84																																														
1-Aug-12	85	500	345	7.52	2381	#N/A	7.8	40.8	1513	< 2	0.09	< 0.3	1450	0.0726	0.0004	0.0025	0.0285	< 0.00002	< 0.00001	0.0200	0.000014	566	< 0.0005	0.000384	0.0434	< 0.003	0.00087	0.003	8.18	0.0050	< 0.01	0.115	0.0047	< 0.009	18.4	0.00435	7.85	< 0.00001	2.09	1.33	499	0.00003	0.140	0.0005	0.000559	0.00516	0.022	< 0.00001
8-Aug-12	86																																														
15-Aug-12	87	500	350	7.37	2260				1317																																						
22-Aug-12	88																																														
29-Aug-12	89	500	390	7.42	2230	#N/A	9.3	43.8	1345	< 1	0.08	< 0.3	1390	0.0454	0.0005	0.0022	0.0282	< 0.00002	< 0.00001	0.0147	0.000023	543	< 0.0005	0.000423	0.0064	0.027	0.00004	0.003	6.97	0.0043	0.06	0.202	0.0009	< 0.009	16.3	0.00508	7.03	< 0.00001	1.88	1.14	450	0.00003	0.109	0.0008	0.000428	0.00452	0.008	0.00006
5-Sep-12	90																																														
12-Sep-12	91	500	340	7.49	2274				1310																																						
19-Sep-12	92																																														
26-Sep-12	93	500	290	7.49	2203	#N/A	8.1	49.3	1489	< 1	0.10	< 0.3	1400	0.0315	0.0004	0.0017	0.0264	< 0.00002	0.00001	0.0168	0.000022	547	< 0.0005	0.000566	0.0059	< 0.003	< 0.00002	0.003	8.06	0.0053	< 0.01	0.210	0.0055	< 0.009	17.9	0.00422	8.21	0.00016	2.14	1.15	485	0.00003	0.106	0.0008	0.000462	0.00490	0.005	0.00003
3-Oct-12	94																																														
10-Oct-12	95	500	480	7.23	2065				1316																																						
17-Oct-12	96																																														
24-Oct-12	97	500	340	7.44	2087	#N/A	8.4	51.1	1252	< 2	0.06	< 0.3	1260	0.0639	< 0.0002	0.0017	0.0235	< 0.00002	< 0.00001	0.0138	0.000027	496	< 0.0005	0.000357	0.007	< 0.003	0.00015	0.003	6.46	0.0044	< 0.01	0.138	0.0036	< 0.009	16.3	0.00290	7.67	< 0.00001	1.75	1.00	425	< 0.00002	0.0938	0.0003	0.000532	0.00450	0.003	< 0.00001
31-Oct-12	98																																														
7-Nov-12	99	500	315	7.39	1917				1209																																						
14-Nov-12	100																																														
21-Nov-12	101	500	290	7.48	2145	#N/A	9.5	51.6	1190	< 2	0.07	< 0.3	1330	0.0185	0.0004	0.0019	0.0259	< 0.00002	< 0.00001	0.0142	0.000011	521	< 0.0005	0.000510	0.0075	< 0.003	0.00010	0.003	6.94	0.0044	< 0.01	0.166	0.0022	< 0.009	16.6	0.00343	7.42	0.00009	1.75	1.05	441	0.00004	0.0906	0.0004	0.000614	0.00463	0.004	0.00005
28-Nov-12	102																																														
5-Dec-12	103	300	190	7.37	2156				1251																																						
12-Dec-12	104																																														
19-Dec-12	105	500	280	7.47	2145	#N/A	8.9	52.4	1066	< 2	0.06	< 0.3	1270	0.0150	0.0004	0.0015	0.0262	< 0.00002	< 0.00001	0.0214	0.000019	497	< 0.0005	0.000404	0.0056	< 0.003	< 0.00002	0.003	6.26	0.0048	< 0.01	0.141	0.0002	0.013	18.3	0.00285	6.72	< 0.00001	1.92	0.983	446	0.00004	0.0978	0.0006	0.000516	0.00537	0.002	0.00001
26-Dec-12	106																																														
2-Jan-13	107	500	185	7.71	2004				1130																																						
9-Jan-13	108																																														
16-Jan-13	109	500	275	7.68	1887	#N/A	7.4	80.1	1031	< 2	0.09	< 0.3	1020	0.0126	0.0010	0.0029	0.0401	< 0.00002	0.00002	0.0221	0.000015	400	< 0.0005	0.000741	0.0078	< 0.003	0.00003	0.004	5.89	0.0091	0.01	0.0621	0.0065	< 0.009	28.7	0.00230	8.59	< 0.00001	2.20	0.855	373	0.00006	0.0900	0.0006	0.000991	0.00486	0.002	0.00001
23-Jan-13	110																																														
30-Jan-13	111	500	305	7.66	1594				948																																						
6-Feb-13	112																																														
13-Feb-13	113	550	200	7.54	1655	#N/A	14.2	78.5	997	< 2	0.08	< 0.3	918	0.0065	0.0008	0.0024	0.0284	< 0.00002	< 0.00001	0.0178	0.000019	358	< 0.0005	0.000616	0.0079	0.039	0.00004	0.004	6.06	0.0105	< 0.01	0.0673	0.0015	< 0.009	27.5	0.00237	9.46	< 0.00001	2.03	0.764	305	0.00004	0.0820	0.0003	0.00105	0.00573	0.001	< 0.00001
20-Feb-13	114																																														
27-Feb-13	115	500	245	7.67	1646				1004																																						
6-Mar-13	116																																														
13-Mar-13	117	500	260	7.63	1787	#N/A	11.9	71.2	943	< 2	0.08	< 0.3	1080	0.0033	0.0007	0.0023	0.0406	< 0.00002	< 0.00001	0.0489	0.000008	423	< 0.0005	0.000402	0.0071	0.004	0.00005	0.004	5.77	0.0108	0.01	0.0890	0.0027	< 0.009	27.0	0.00245	10.1	< 0.00001	1.99	0.860	370	0.00004	0.0842	0.0003	0.000665	0.00635	0.001	< 0.00001
20-Mar-13	118																																														
27-Mar-13	119	600	305	7.84	1396				621																																						
3-Apr-13	120																																														
10-Apr-13	121	600	255	7.80	1459	#N/A	10.6	84.7	938	< 2	0.08	< 0.3	792	0.0022	0.0008	0.0021	0.0353	< 0.00002	0.00002	0.0179	0.000012	308	< 0.0005	0.000438	0.0060	< 0.003	0.00008	0.004	5.32	0.0103	< 0.01	0.0712	0.0016	< 0.009	24.8	0.00211	9.78	< 0.00001	1.67	0.692	254	0.00003	0.0690	0.0002	0.000638	0.00608	0.002	< 0.00001
17-Apr-13	122																																														
24-Apr-13	123	500	200	7.84	1385				919																																						
1-May-13	124																																														
8-May-13	125	500	245	7.52	1458	#N/A	13.4	58.1	856	< 2	0.07	< 0.3	841	0.0026	0.0006	0.0027	0.0340	< 0.00002	< 0.00001	0.0229	0.000024	326	< 0.0005	0.000541	0.0061	< 0.003	< 0.00002	0.004	6.56	0.0109	< 0.01	0.106	0.0026	< 0.009	27.3	0.00284	9.22	< 0.00001	1.94	0.757	284	0.00004	0.0839	0.0003	0.000541	0.00817	0.018	< 0.00001
15-May-13	126																																														
22-May-13	127	500	220	7.44	979				674																																						
29-May-13	128																																														
5-Jun-13	129	500	335	7.51	1332	#N/A	11.5	55.0	801	< 2	0.06	< 0.3	741	0.0017	0.0003	0.0028	0.0263	< 0.00002	< 0.00001	0.0137	0.000007	288	< 0.0005	0.000268	0.0040	< 0.003	0.00003	0.002	5.61	0.0082	< 0.01	0.103	0.0001	< 0.009	17.7	0.00340	7.48	< 0.00001	1.59	0.638	234	0.00007	0.0659	0.0002	0.000237	0.00798	0.003	< 0.00001
12-Jun-13	130																																														
19-Jun-13	131	500	305	7.74	1258				682																																						
26-Jun-13	132																																														
3-Jul-13	133	500	275	7.68	1161	#N/A	11.7	58.7	579	< 0.2	< 0.06	< 0.3	597	0.0068	0.0004	0.0025	0.0255	0.00005	< 0.00001	0.0166	0.000051	232	0.0006	0.000927	0.0044	0.030	0.00018	0.003	4.54	0.0087	< 0.01	0.0977	0.0029	0.010	15.1	0.00274	7.11	< 0.00001	1.36	0.560	196	0.00003	0.0602	0.0003	0.000398	0.00795	0.002	0.00001
10-Jul-13	134																																														
17-Jul-13	135	500	265	7.62	1145				679																																						
24-Jul-13	136																																														
31-Jul-13	137	500	270	7.55	1122	#N/A	9.4	55.9	602	< 2	< 0.06	< 0.3	597	0.0028	0.0004	0.0024	0.0229	< 0.00002	< 0.00001	0.0147	0.000018	232	< 0.0005	0.000304	0.0040	< 0.003	< 0.00002	0.002	4.20	0.0068	< 0.01	0.101	0.0025	< 0.009	13.9	0.00263	7.02	0.00014	1.25	0.575	195	0.00003	0.0545	0.0021	0.000202	0.00693	0.002	< 0.00001
7-Aug-13	138																																														
14-Aug-13	139	500	255	7.70	1211				562																																						
21-Aug-13	140																																														
28-Aug-13	141	500	260	7.69	1104	#N/A	6.6	57.4	542	< 0.2	0.09	< 0.3	613	0.0045	0.0005	0.0031	0.0285	< 0.00002	< 0.00001	0.0208	0.000014	238	< 0.0005	0.000668	0.0049	< 0.003	0.00003	0.003	4.71	0.0086	< 0.01	0.119	0.0013	< 0.009	15.7	0.00289	7.96	< 0.00001	1.31	0.606	183	0.00002	0.0546	0.0002	0.000295	0.00898	0.001	< 0.00001
4-Sep-13	142																																														
11-Sep-13	143	500	265	7.74	1114				588																																						
18-Sep-13	144																																														
25-Sep-13	145	500	235	7.78	1178	#N/A	5.4	62.5	533	< 2	< 0.06	< 0.3	645	0.0038	0.0005	0.0026	0.0324	< 0.00002	< 0.00001	0.0211	0.000014	249	< 0.0005	0.00102	0.0054	< 0.003	0.00003	0.003	5.28	0.0098	< 0.01	0.111	0.0041	0.009	17.0	0.00322	7.84	< 0.00001	1.48	0.652	199	0.00003	0.0521	0.0003	0.000354	0.00763	0.002	< 0.00001
2-Oct-13	146																																														
9-Oct-13	147	500	250	7.47	1116				535																																						
16-Oct-13	148																																														
23-Oct-13	149	500	375	7.66	1133	#N/A	5.0	54.8	583	< 2	< 0.06	< 0.3	590	0.0017	0.0004	0.0020	0.0244	< 0.00002	< 0.00001	0.0183	0.000021	225	< 0.0005	0.000272	0.0034	< 0.003	< 0.00002	0.003	6.64	0.0085	< 0.01	0.129	0.0019	0.011	16.5	0.00516	7.60	< 0.00001	1.58	0.573	188	0.00002	0.0560	0.0002	0.000205	0.00870	< 0.001	< 0.00001
30-Oct-13	150																																														
6-Nov-13	151	500	230	7.96	1079				439																																						
13-Nov-13	152																																														
20-Nov-13	153	550	295	8.19	1015	#N/A	<0.1	74.0	431	< 0.2	< 0.06	< 0.3	520	0.0034	0.0006	0.0020	0.0322	< 0.00002	< 0.00001	0.0198	< 0.000003	202	< 0.0005	0.00039	0.0048	0.064	< 0.00002	0.003	4.61	0.0091	0.02	0.0941	0.0008	0.017	14.8	0.00274	7.90	< 0.00001	1.30	0.545	152	0.00003	0.0462	0.0003	0.000305	0.0092	0.002	0.00001
27-Nov-13	154																																														
4-Dec-13	155	550	85	7.63	2426				1129																																						
11-Dec-13	156																																														
18-Dec-13	157	550	290	7.98	1091	#N/A	4.8	72.2	481	< 2	< 0.06	< 0.3	580	0.0050	0.0005	0.0022	0.0351	< 0.00002	0.00002	0.0222	0.000019	225	< 0.0005	0.00039	0.0045	0.017	< 0.00002	0.003	4.99	0.0080	< 0.01	0.0961	0.0004	< 0.009	17.0	0.00301	8.97	< 0.00001	1.41	0.596	171	0.00004	0.0551	0.0004	0.00041	0.0098	0.002	< 0.00001
25-Dec-13	158																																														
1-Jan-14	159	500	295	7.86	988				396																																						
8-Jan-14	160																																														
15-Jan-14	161	600	290	7.87	1016	#N/A	5.5	78.1	374	< 2	< 0.06	< 0.3	490	0.0030	0.0007	0.0026	0.0360	< 0.00002	< 0.00001	0.0230	0.000021	186	< 0.0005	0.000364	0.0050	< 0.003	< 0.00002	0.003	5.34	0.0072	< 0.01	0.0922	0.0027	< 0.009	14.8	0.00273	8.31	< 0.00001	1.40	0.562	128	0.00003	0.0499	0.0006	0.000352	0.0102	0.003	< 0.00001
22-Jan-14	162																																														
29-Jan-14	163	500	240	7.92	868				333																																						
5-Feb-14	164																																														

Col 1

Sample = Col-1 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
12-Feb-14	165	550	265	7.97	817	#N/A	5.3	95.2	322	< 0.2	< 0.06	< 0.3	430	0.0037	0.0005	0.0019	0.0351	< 0.00002	< 0.00001	0.0197	< 0.000003	165	< 0.0005	0.000425	0.0048	< 0.003	< 0.00002	0.003	5.25	0.0416	< 0.01	0.0847	0.0042	0.018	15.8	0.00242	8.27	0.00003	1.42	0.514	130	< 0.00002	0.0379	0.0005	0.000291	0.00879	< 0.001	< 0.00001
19-Feb-14	166																																															
26-Feb-14	167	500	225	7.93	933				381																																							
5-Mar-14	168																																															
12-Mar-14	169	500	250	7.88	907	#N/A	4.4	80.9	307	< 0.2	< 0.06	< 0.3	440	0.0019	0.0004	0.0019	0.0386	< 0.00002	< 0.00001	0.0187	0.000003	171	< 0.0005	0.000283	0.0040	< 0.003	< 0.00002	0.003	4.54	0.0051	< 0.01	0.0799	0.0017	0.011	16.0	0.00241	8.78	< 0.00001	1.28	0.532	134	0.00002	0.0365	0.0004	0.000297	0.00917	0.001	< 0.00001
19-Mar-14	170																																															
26-Mar-14	171	300	230	7.55	1899	#N/A	6.1	47.1	1083																																							
2-Apr-14	172																																															
9-Apr-14	173	300	505	7.56	1401	#N/A	7.9	55.6	670	< 2	< 0.06	< 0.3	821	0.0026	0.0002	0.0021	0.0397	< 0.000007	< 0.000007	0.0335	0.000012	308	0.00005	0.000428	0.00358	0.004	0.00003	0.00272	12.5	0.0184	< 0.01	0.140	0.0008	< 0.009	17.3	0.00379	7.90	< 0.000002	1.87	1.01	252	0.000023	0.0747	0.00073	0.000352	0.00900	0.003	< 0.002
16-Apr-14	174																																															
23-Apr-14	175	300	240	7.69	1185	#N/A	6.8	52.4	504																																							
30-Apr-14	176																																															
7-May-14	177	500	320	7.81	577	#N/A	4.9	58.5	222	< 0.2	< 0.06	< 0.3	269	0.0013	0.0004	0.0021	0.0251	< 0.000007	0.000014	0.0224	0.000089	102	0.00007	0.000395	0.00358	0.032	0.00001	0.00170	3.75	0.0053	< 0.01	0.158	0.0004	< 0.009	9.51	0.00217	6.63	< 0.000002	0.99	0.339	77.2	0.000017	0.0556	0.00074	0.000155	0.0114	0.002	< 0.002
14-May-14	178																																															
21-May-14	179	300	155	7.88	685	#N/A	13.3	64.0	298																																							
28-May-14	180																																															
4-Jun-14	181	500	330	7.89	443	#N/A	5.0	58.6	164	< 2	< 0.06	< 0.3	208	0.0019	< 0.0002	0.0018	0.0231	< 0.000007	< 0.000007	0.0187	0.000010	76.6	< 0.00003	0.000111	0.00260	0.006	0.00004	0.00191	4.14	0.0042	< 0.01	0.153	0.0001	< 0.009	9.37	0.00272	6.15	< 0.000002	0.99	0.301	51.8	0.000024	0.0385	0.00023	0.000154	0.00982	0.006	< 0.002
11-Jun-14	182																																															
18-Jun-14	183	300	160	7.85	651	#N/A	8.9	58.2	274																																							
25-Jun-14	184																																															
2-Jul-14	185	500	345	7.80	437	#N/A	6.8	64.3	128	< 0.2	< 0.06	< 0.3	192	0.0014	< 0.0002	0.0022	0.0247	< 0.000007	< 0.000007	0.0223	0.000012	70.6	< 0.00003	0.000118	0.00265	< 0.002	< 0.00001	0.00199	3.86	0.0034	0.01	0.134	0.0003	< 0.009	9.05	0.00269	6.33	0.000005	0.98	0.282	49.3	0.000015	0.0345	0.00021	0.000166	0.0103	0.001	< 0.002
9-Jul-14	186																																															
16-Jul-14	187	300	215	7.93	560	#N/A	2.8	58.5	178																																							
23-Jul-14	188																																															
30-Jul-14	189	500	380	7.93	449	#N/A	3.1	70.3	128	< 0.2	< 0.06	< 0.3	194	0.0037	< 0.0002	0.0019	0.0304	< 0.000007	< 0.000007	0.0231	0.000016	70.6	0.00028	0.000247	0.00287	< 0.002	< 0.00001	0.00230	4.39	0.0028	< 0.01	0.172	0.0002	< 0.009	7.97	0.00295	5.75	0.000011	0.94	0.318	49.1	0.000019	0.0312	0.00047	0.000178	0.0101	< 0.001	< 0.002
6-Aug-14	190																																															
13-Aug-14	191	300	145	7.97	588	#N/A	4.1	62.2	211																																							
20-Aug-14	192																																															
27-Aug-14	193	500	380	7.88	498	#N/A	7.8	63.4	171																																							
3-Sep-14	194																																															

June 27/12 Change in analytical schedule
Dec 4/13 Low leachate volume due to high dry air flow the previous week.
Mar 19/14 Change in analytical schedule

Col 2
Sample = Col-2 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	650	250	7.60	5033	#N/A	13.4	181.0	3573	63	0.26	< 3	2430	0.0074	0.0009	0.0033	0.0504	< 0.00002	0.00002	0.318	0.000050	505	0.0025	0.00193	0.0219	0.030	0.00003	0.005	284	0.0554	0.06	0.0795	0.0098	0.093	72.0	0.0170	8.95	0.00003	579	8.99	1240	< 0.0002	0.00359	0.0013	0.0131	0.0145	0.003	0.00508
29-Dec-10	2	300	310	7.73	4070	#N/A	16.1	103.7	2823	18	0.24	< 0.3	2310	0.0074	0.0006	0.0034	0.0229	< 0.00002	0.00002	0.322	< 0.000003	497	0.0010	0.00145	0.0113	0.002	0.00190	0.007	259	0.0443	0.02	0.0455	0.0080	0.044	53.4	0.00713	8.09	0.00003	283	10.0	1050	< 0.0002	0.00337	0.0011	0.0151	0.0116	0.004	0.00111
5-Jan-11	3	300	270	7.70	3412	#N/A	13.7	89.1	2487	5.1	0.20	< 0.3	2130	0.0072	0.0005	0.0021	0.0211	< 0.00002	< 0.00001	0.245	< 0.000003	476	< 0.0005	0.000903	0.0102	< 0.002	0.00003	0.007	227	0.0101	< 0.01	0.0263	0.0058	0.030	47.6	0.00304	7.46	< 0.00001	179	9.32	814	< 0.0002	0.00519	0.0007	0.0125	0.0114	0.005	0.00047
12-Jan-11	4	300	295	7.72	2993	#N/A	9.6	75.6	2119	< 2	0.24	< 0.3	2090	0.0089	0.0005	0.0018	0.0278	< 0.00002	< 0.00001	0.210	< 0.000003	535	< 0.0005	0.000897	0.0087	0.004	0.00015	0.007	184	0.0106	< 0.01	0.0160	0.0029	0.052	42.8	0.00151	8.39	< 0.00001	104	8.75	729	< 0.0002	0.00743	0.0008	0.00895	0.0123	0.002	0.00030
19-Jan-11	5	300	290	7.64	2609				1708																																								
26-Jan-11	6	300	295	7.76	2208	#N/A	9.6	87.9	1364	< 2	0.24	< 0.3	1400	0.0081	0.0007	0.0014	0.0263	< 0.00002	0.00001	0.147	0.000025	429	< 0.0005	0.000700	0.0039	< 0.002	0.00007	0.009	91.7	0.0131	< 0.01	0.0158	0.0059	0.043	31.0	0.00137	8.28	< 0.00001	52.3	5.07	425	< 0.0002	0.0220	0.0007	0.00765	0.0106	0.002	0.00014
2-Feb-11	7	300	280	7.78	1067				613																																								
9-Feb-11	8	300	320	7.87	1187	#N/A	5.4	90.0	717	< 2	0.27	< 0.3	733	0.0114	0.0005	0.0010	0.0211	< 0.00002	0.00005	0.137	0.000097	227	0.0011	0.000873	0.0047	< 0.002	0.00227	0.007	40.5	0.0060	< 0.01	0.0128	0.0082	0.042	16.8	0.00142	8.23	< 0.00001	21.9	2.33	240	< 0.0002	0.0601	0.0014	0.00365	0.0108	0.005	0.00003
16-Feb-11	9	300	295	7.83	1074				538																																								
23-Feb-11	10	300	295	7.87	979	#N/A	5.4	84.7	564	0.2	0.30	< 0.3	522	0.0113	0.0005	0.0009	0.0185	< 0.00002	< 0.00001	0.0745	< 0.000003	162	0.0014	0.000338	0.0043	< 0.002	0.00117	0.006	28.9	0.0043	0.01	0.0200	0.0028	0.042	13.3	0.00119	7.81	< 0.00001	15.9	1.59	166	< 0.0002	0.0890	0.0007	0.00258	0.0108	0.003	0.00010
2-Mar-11	11	300	295	7.87	853				434																																								
9-Mar-11	12	300	295	7.90	816	#N/A	5.2	95.4	368	< 1	0.31	< 0.3	400	0.0114	0.0005	0.0007	0.0230	< 0.00002	< 0.00001	0.0672	0.000017	124	0.0008	0.000296	0.0034	< 0.002	0.00182	0.006	22.3	0.0047	< 0.01	0.0370	0.0021	0.011	12.2	0.00069	7.79	< 0.00001	11.1	1.35	111	< 0.00002	0.117	0.0009	0.00241	0.0114	0.007	0.00003
16-Mar-11	13	300	295	7.89	737				301																																								
23-Mar-11	14	300	295	7.97	654	#N/A	4.6	97.6	232	< 1	0.28	< 0.3	316	0.0102	0.0006	0.0007	0.0231	< 0.00002	< 0.00001	0.0488	0.000013	97.0	0.0005	0.000275	0.0036	< 0.002	0.00003	0.004	17.9	0.0028	< 0.01	0.0471	0.0021	0.013	10.6	0.00086	7.32	< 0.00001	8.55	1.08	91.0	< 0.0002	0.121	0.0007	0.00201	0.0110	< 0.001	0.00002
30-Mar-11	15	300	300	7.86	599				222																																							
6-Apr-11	16	300	295	7.89	573	#N/A	8.2	94.4	192	< 0.2	0.29	< 0.3	260	0.0127	0.0008	0.0010	0.0279	< 0.00002	< 0.00001	0.0413	0.000008	80.1	< 0.0005	0.00022	0.0029	0.005	0.00002	0.004	14.3	0.0077	0.01	0.0554	0.0010	< 0.009	8.89	0.00070	6.67	< 0.00001	6.23	0.771	66.4	< 0.00002	0.140	0.0006	0.00180	0.0117	0.001	< 0.00001
13-Apr-11	17	300	310	7.84	529				186																																							
20-Apr-11	18	300	285	7.90	499	#N/A	9.0	81.9	180	< 0.2	0.28	< 0.3	220	0.0166	0.0005	0.0009	0.0288	< 0.00002	0.00001	0.0355	0.000014	66.3	< 0.0005	0.00033	0.0026	< 0.002	0.00003	0.003	12.4	0.0028	0.01	0.0655	0.0004	< 0.009	8.04	0.00172	6.60	< 0.00001	5.32	0.756	59.3	< 0.00002	0.161	0.0013	0.00141	0.0135	0.003	0.00002
27-Apr-11	19	300	295	7.83	498				150																																							
4-May-11	20	300	295	7.91	448	#N/A	5.5	92.0	126	< 0.2	0.22	< 0.3	210	0.0283	< 0.0002	0.0003	0.0303	< 0.00002	< 0.00001	0.0354	0.000055	63.8	< 0.0005	0.00041	0.0046	< 0.02	0.00127	0.003	12.0	0.0540	< 0.01	0.0851	0.0042	0.122	7.40	0.00007	6.67	< 0.00001	4.46	0.742	49.5	< 0.00002	0.163	0.0024	0.00107	0.0134	0.047	0.00020
11-May-11	21	300	300	7.91	439				132																																							
18-May-11	22	300	290	7.73	417	#N/A	8.2	90.8	116	0.2	0.19	< 0.3	188	0.0131	0.0003	0.0009	0.0329	< 0.00002	< 0.00001	0.0289	0.000008	57.0	0.0007	0.000205	0.0024	< 0.002	0.00003	0.003	11.1	0.0024	< 0.01	0.0501	0.0018	< 0.009	7.42	0.00189	7.49	< 0.00001	4.43	0.635	44.3	< 0.00002	0.145	0.0010	0.00120	0.0143	0.001	< 0.00001
25-May-11	23	300	305	8.02	412				93																																							
1-Jun-11	24	300	280	8.03	380	#N/A	5.5	74.0	108	< 0.2	0.20	< 0.3	160	0.0156	0.0005	0.0009	0.0344	< 0.00002	0.00001	0.0280	0.000025	49.2	< 0.0005	0.00018	0.0026	0.004	0.00006	0.003	9.39	0.0032	0.01	0.0484	< 0.0001	0.077	6.72	0.00114	7.21	< 0.00001	3.70	0.542	37.5	< 0.00002	0.150	0.0009	0.00100	0.0162	0.004	< 0.00001
8-Jun-11	25	300	290	7.90	374				109																																							
15-Jun-11	26	300	290	8.16	365				99																																							
22-Jun-11	27	300	300	8.01	344				121																																							
29-Jun-11	28	300	295	8.13	337	#N/A	3.8	87.3	89	0.5	0.13	< 0.3	148	0.0170	0.0005	0.0013	0.0426	< 0.00002	< 0.00001	0.0322	< 0.000003	44.8	< 0.0005	0.00012	0.0025	0.004	0.00002	0.003	8.68	0.0025	< 0.01	0.0411	0.0010	< 0.009	6.61	0.00127	11.1	< 0.00001	3.48	0.507	30.1	< 0.00002	0.162	0.0007	0.00085	0.0187	0.002	0.00002
6-Jul-11	29	300	305	7.94	315				78																																							
13-Jul-11	30	300	280	7.93	323				78																																							
20-Jul-11	31	300	295	7.93	296				72																																							
27-Jul-11	32	300	300	7.96	280	#N/A	4.0	77.5	68	0.3	0.14	< 0.3	110	0.0179	0.0005	0.0012	0.0485	< 0.00002	< 0.00001	0.0216	< 0.000003	33.5	< 0.0005	0.00019	0.0022	0.052	< 0.00002	0.002	6.19	0.0452	< 0.01	0.0301	0.0019	0.038	4.95	0.00168	6.12	< 0.00001	2.60	0.372	21.9	< 0.00002	0.171	0.0012	0.00071	0.0210	0.003	< 0.00001
3-Aug-11	33	300	305	7.98	264				66																																							
10-Aug-11	34	300	295	7.98	262				59																																							
17-Aug-11	35	300	300	7.98	274				55																																							
24-Aug-11	36	300	295	7.98	268	#N/A	7.4	84.4	53	0.4	0.14	< 0.3	120	0.0187	0.0006	0.0019	0.0618	< 0.00002	< 0.00001	0.0207	0.000004	36.5	0.0014	0.000081	0.0027	0.005	0.00008	0.002	7.01	< 0.0002	0.01	0.0235	0.0001	< 0.009	5.53	0.00115	7.72	< 0.00001	2.76	0.405	20.4	< 0.00002	0.175	0.0004	0.000772	0.0235	0.004	< 0.00001
31-Aug-11	37	300	300	7.97	248				52																																							
7-Sep-11	38	300	295	8.09	245	#N/A	4.8	83.0	50	0.3	0.08	< 0.3	106	0.0185	0.0005	0.0014	0.0600	< 0.00002	0.00002	0.0199	< 0.000003	32.4	0.0014	0.00006	0.0028	< 0.002	0.00006	0.002	6.11	0.0012	0.01	0.0247	0.0008	< 0.009	5.00	0.00162	6.57	< 0.00001	2.35	0.358	17.3	< 0.00002	0.168	0.0009	0.00067	0.0249	0.002	< 0.00001
14-Sep-11	39	300	290	7.99	239	#N/A	5.8	77.9	55	0.3	0.09	< 0.3	110	0.0184	0.0005	0.0014	0.0611	< 0.00002	< 0.00001	0.0188	0.000010	33.5	0.0018	0.00010	0.0029	0.015	0.00005	0.002	6.52	0.0017	0.01	0.0211	< 0.0001	< 0.009	5.06	0.00144	7.00	< 0.00001	2.58	0.376	17.3	< 0.00002	0.173	0.0006	0.00072	0.0255	0.004	0.00001
21-Sep-11	40	300	300	7.90	233	#N/A	5.3	81.4	45	0.3	0.08	< 0.3	105	0.0174	0.0003	0.0015	0.0633	< 0.00002	< 0.00001	0.0163	0.000006	32.0	0.0017	0.00007	0.0029	0.010	0.00005	0.002	6.16	0.0019	< 0.01	0.0190	0.0001	< 0.009	4.81	0.00148	6.61	< 0.00001	2.34	0.356	16.1	< 0.00002	0.168	0.0004	0.00070	0.0254	0.004	< 0.00001
28-Sep-11	41	300	290	7.96	228				44																																							
5-Oct-11	42	300	305	7.96	220				39																																							
12-Oct-11	43	300	245	7.98	226				44																																							
19-Oct-11	44	300	310	8.04	241	#N/A	3.4	90.0	39	0.3	0.09	< 0.3	109	0.0161	0.0004	0.0013	0.0737	< 0.00002	0.00001	0.0150	< 0.000003	33.2	0.0011	0.00006	0.0031	< 0.003	0.00029	0.002	6.41	0.0006	< 0.01	0.0150	0.0001	< 0.009	5.08	0.00116	6.86	< 0.00001	2.29	0.362	13.8	< 0.00002	0.155	0.0002	0.00075	0.0237	0.003	< 0.00001
26-Oct-11	45	300	300	7.99	229				40																																							
2-Nov-11	46	300	295	8.00	223				40																																							
9-Nov-11	47	300	295	7.95	229				38																																							
16-Nov-11	48	300	295	7.98	228	#N/A	4.0	86.0	39	< 0.2	0.09	< 0.3	101	0.0389	0.0003	0.0014	0.0830	< 0.00002	< 0.00001	0.0144	< 0.000003	30.6	< 0.0005	0.00005	0.0029	< 0.003	0.00003	0.002	5.90	0.0005	< 0.01	0.0203	0.0007	0.010	4.42	0.00070	6.75	< 0.00001	1.92	0.337	13.1	< 0.00002	0.176	0.0009	0.00070	0.0262	0.002	< 0.00001
23-Nov-11	49	300	295	8.02	219				37																																							
30-Nov-11	50	300	300	7.99	222				45																																							
7-Dec-11	51	300	295	8.00	232				32																																							
14-Dec-11	52	300	290	7.97	229	#N/A	4.5	90.3	35	0.2	0.07	< 0.3	99.3	0.0246	0.0003	0.0014	0.0815	< 0.00002	< 0.00001	0.0150	0.000022	29.9	0.0018	0.000165	#N/A	0.009	0.00088	0.002	5.99	< 0.0002	< 0.01	0.0227	0.0002	< 0.009	4.82	0.00109	7.50	< 0.00001	1.79	0.348	12.0	< 0.00002	0.163	0.0003	0.000902	0.0240	0.014	< 0.00001
21-Dec-11	53	300	300	8.00	226				37																																							
28-Dec-11	54	500	495	7.96	200				28																																							
4-Jan-12	55	300	295	7.99	213				29																																							
11-Jan-12	56	300	290	7.93	235	#N/A	3.5	105.7	35	0.5	0.06	< 0.3	111	0.0674	0.0002	0.0016	0.116	< 0.00002	< 0.00001	0.0134	0.000008	33.5	< 0.0005	0.000062	0.0028	< 0.003	< 0.00002	0.002	6.67	0.0015	0.01	0.0268	0.0008	< 0.009	5.04	0.00161	7.13	< 0.00001	1.72	0.374	13.0	< 0.00002	0.159	0.0008	0.000752	0.0248	0.001	< 0.00001
18-Jan-12	57	300	295	8.04	242				38																																							
25-Jan-12	58	300	295	7.98	234				48																																							
1-Feb-12	59	300	290	7.95	243				38																																							
8-Feb-12	60	300	290	8.01	238	#N/A	5.6	106.0	39	0.4	< 0.06	< 0.3	104	0.0341	0.0003	0.0014	0.103	< 0.00002	< 0.00001	0.0114	0.000014	31.4	< 0.0005	0.000085	0.0056	< 0.003	< 0.00002	0.002	6.22	0.0014	< 0.01	0.0405	0.0013	< 0.009	4.65	0.00169	6.39	< 0.00001	1.69	0.355	12.3	< 0.00002	0.143	0.0005	0.000885	0.0258	0.004	< 0.00001
15-Feb-12	61	300	290	8.00	243				45																																							
22-Feb-12	62	300	295	8.03	243				42																																							
29-Feb-12	63	300	295	7.92	232				47																																							
7-Mar-12	64	300	295	8.01	221	#N/A	7.8	86.0	37	0.3	< 0.06	< 0.3	102	0.0318	0.0003	0.0017	0.0878	< 0.00002	< 0.00001	0.0101	0.000007	30.7	< 0.0005	0.000035	0.0027	< 0.003	0.00004	0.002	6.20	0.0008	< 0.01	0.0338	0.0002	< 0.009	4.77	0.00133	7.21	< 0.00001	1.57	0.345	12.7	< 0.00002	0.137	0.0002	0.000800	0.0287	0.001	0.00001
14-Mar-12	65	300	295	7.94	215				38																																							
21-Mar-12	66	300	300	7.97	220				33																																							
28-Mar-12	67	300	300	7.88	223				36																																							
4-Apr-12	68	300	300	7.99	209	#N/A	3.6	82.2	36	< 0.2	< 0.06	< 0.3	94.1	0.0590	0.0004	0.0016	0.0875	< 0.00002	< 0.00001	0.0096	< 0.000003	28.4	< 0.0005	0.000027	0.0026	0.138	< 0.00002	0.002	5.61	0.0013	< 0.01	0.0279	0.0008	< 0.009	4.32	0.00120	6.70	< 0.00001	1.42	0.310	11.6	< 0.00002	0.137	0.0009	0.000670	0.0260	0.002	< 0.00001
11-Apr-12	69	300	300	8.05	205				37																																							
18-Apr-12	70	300	300	7.98	221				38																																							
25-Apr-12	71	300	290	7.94	210				37																																							
2-May-12	72	300	300	7.95	204	#N/A	8.1	78.7	39	0.3	< 0.06	< 0.3	91.6	0.0623	0.0002	0.0018	0.0916	< 0.00002	< 0.00001	0.0109	< 0.000003	27.7	< 0.0005	0.000036	0.0028	< 0.003	0.00005	0.002	5.47	0.0004	0.09	0.0270	0.0006	< 0.009	4.21	0.00141	6.32	< 0.00001	1.35	0.308	11.1	< 0.00002	0.138	0.0009	0.000700	0.0284	0.002	< 0.00001
9-May-12	73	300	290	8.08	222				33																																							
16-May-12	74	300	295	7.94	204				31																																							
23-May-12	75	300	295	7.83	203				30																																							
30-May-12	76	300	295	7.98	204	#N/A	6.0	77.6	29	< 0.2	0.06	< 0.3	84.6	0.0558	0.0006	0.0021	0.0845	< 0.00002	< 0.00001	0.0100	< 0.000003	25.5	< 0.0005	0.000048	0.0031	0.009	0.00007	0.002	5.10	0.0005	< 0.01	0.0289	0.0004	< 0.009	3.97	0.00094	6.21	< 0.00001	1.22	0.292	10.2	< 0.00002	0.134	0.0003	0.000727	0.0265	0.003	< 0.00001
6-Jun-12	77	300	305	8.00	196				22																																							
13-Jun-12	78	300	305	7.92	199				23																																							
20-Jun-12	79	300	300	7.95	192				26																																							
27-Jun-12	80																																															
4-Jul-12	81	500	270	7.96	230	#N/A	4.8	86.7	33	< 0.2	< 0.06	< 0.3	96.2	0.0497	0.0002	0.0023	0.114	< 0.00002	< 0.00001	0.0115	0.000006	28.4	< 0.0005	0.000049	0.0053	< 0.003	0.00008	0.002	6.14	0.0043	< 0.01	0.0309	< 0.0001	< 0.009	4.97	0.00223	6.79	< 0.00001	1.63	0.342	12.3	< 0.00002	0.155	0.0003	0.000666	0.0319	0.003	< 0.00001
11-Jul-12	82																																														
18-Jul-12	83	500	250	7.92	241				37																																							
25-Jul-12	84																																														
1-Aug-12	85	500	270	8.08	253	#N/A	3.8	95.0	28	0.2	< 0.06	< 0.3	102	0.0913	0.0004	0.0026	0.108	< 0.00002	< 0.00001	0.0173	< 0.000003	28.6	< 0.0005	0.000052	0.0067	0.019	0.00004	0.003	7.50	0.0026	< 0.01	0.0255	0.0003	< 0.009	7.76	0.00189	8.81	< 0.00001	2.20	0.381	13.3	< 0.00002	0.165	0.0003	0.000869	0.0356	0.002	< 0.00001
8-Aug-12	86																																														
15-Aug-12	87	500	245	7.97	255				36																																							
22-Aug-12	88																																														
29-Aug-12	89	500	310	7.93	216	#N/A	5.1	78.8	32	0.3	< 0.06	< 0.3	85.4	0.0815	0.0004	0.0022	0.0836	< 0.00002	0.00001	0.0124	< 0.000003	24.3	< 0.0005	0.000047	0.0036	0.004	0.00003	0.002	6.01	0.0018	0.03	0.0261	0.0002	< 0.009	6.69	0.00201	7.21	< 0.00001	1.85	0.306	11.4	< 0.00002	0.150	0.0005	0.000632	0.0351	0.004	0.00003
5-Sep-12	90																																														
12-Sep-12	91	500	225	8.00	287				30																																							

Col 2
Sample = Col-2 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
19-Sep-12	92																																													
26-Sep-12	93	500	290	7.95	227	#N/A	4.3	86.5	35	0.2	0.06	< 0.3	89.1	0.0551	0.0003	0.0029	0.0873	< 0.00002	0.00001	0.0141	< 0.000003	24.6	< 0.0005	0.000049	0.0033	< 0.003	0.00003	0.002	6.73	0.0020	< 0.01	0.0238	0.0004	< 0.009	6.73	0.00185	8.43	0.00007	2.14	0.314	12.2	< 0.00002	0.152	0.0009	0.000738	0.0382	0.002	0.00001
3-Oct-12	94																																													
10-Oct-12	95	500	230	7.89	262				31																																					
17-Oct-12	96																																													
24-Oct-12	97	500	230	8.01	290	#N/A	4.9	133.2	31	< 0.2	< 0.06	< 0.3	119	0.0962	0.0002	0.0023	0.130	< 0.00002	< 0.00001	0.0144	0.000004	32.8	< 0.0005	0.000077	0.004	< 0.003	< 0.00002	0.003	8.97	0.0028	0.01	0.01794	0.0004	0.009	8.39	0.00177	8.71	< 0.00001	2.30	0.417	11.2	< 0.00002	0.123	0.0004	0.000870	0.0271	0.002	< 0.00001
31-Oct-12	98																																												
7-Nov-12	99	500	215	7.97	280				25																																					
14-Nov-12	100																																													
21-Nov-12	101	500	295	8.02	220	#N/A	6.4	89.0	37	0.2	0.06	< 0.3	99.5	0.0254	0.0003	0.0025	0.101	< 0.00002	< 0.00001	0.0135	< 0.000003	27.7	< 0.0005	0.000140	0.0030	< 0.003	< 0.00002	0.002	7.37	0.0016	< 0.01	0.0176	0.0004	< 0.009	6.83	0.00162	7.70	0.00006	2.21	0.353	12.1	< 0.00002	0.133	0.0002	0.000670	0.0387	< 0.001	< 0.00001
28-Nov-12	102																																												
5-Dec-12	103	300	220	7.97	222				30																																					
12-Dec-12	104																																													
19-Dec-12	105	500	285	8.01	231	#N/A	4.9	103.0	37	< 0.2	< 0.06	< 0.3	102	0.0251	0.0003	0.0023	0.121	< 0.00002	< 0.00001	0.0192	< 0.000003	27.4	< 0.0005	0.000052	0.0039	< 0.003	< 0.00002	0.002	8.21	0.0027	< 0.01	0.0176	0.0002	0.014	8.37	0.00129	7.11	< 0.00001	2.35	0.347	13.4	< 0.00002	0.130	0.0002	0.000895	0.0329	0.001	< 0.00001
26-Dec-12	106																																												
2-Jan-13	107	500	240	8.22	319				30																																					
9-Jan-13	108																																													
16-Jan-13	109	500	265	8.08	309	#N/A	4.3	166.6	25	< 0.2	< 0.06	< 0.3	137	0.0208	0.0004	0.0023	0.202	< 0.00002	< 0.00001	0.0192	< 0.000003	37.8	< 0.0005	0.000108	0.0041	< 0.003	< 0.00002	0.003	10.3	0.0045	< 0.01	0.0104	0.0008	0.009	9.34	0.00099	7.97	< 0.00001	2.18	0.497	10.3	< 0.00002	0.0976	0.0002	0.001049	0.0286	0.001	< 0.00001
23-Jan-13	110																																												
30-Jan-13	111	500	210	8.11	322				35																																					
6-Feb-13	112																																												
13-Feb-13	113	500	400	8.01	209	#N/A	7.0	85.8	37	< 0.2	< 0.06	< 0.3	94.4	0.0077	0.0002	0.0026	0.0866	< 0.00002	< 0.00001	0.0130	0.000003	26.7	< 0.0005	0.000217	0.0026	< 0.003	< 0.00002	0.002	6.74	0.0012	0.04	0.00857	0.0002	< 0.009	6.22	0.00118	8.28	< 0.00001	1.60	0.341	11.0	< 0.00002	0.116	0.0001	0.000904	0.0372	< 0.001	< 0.00001
20-Feb-13	114																																												
27-Feb-13	115	500	300	7.98	232				41																																					
6-Mar-13	116																																												
13-Mar-13	117	500	285	8.00	301	#N/A	6.8	141.3	28	< 0.2	< 0.06	< 0.3	146	0.0055	0.0003	0.0021	0.212	< 0.00002	< 0.00001	0.0252	0.000008	40.3	< 0.0005	0.000074	0.0036	0.006	< 0.00002	0.003	10.9	0.0033	< 0.01	0.0139	0.0003	< 0.009	10.0	0.00102	9.62	< 0.00001	2.12	0.525	10.4	< 0.00002	0.0862	0.0001	0.00101	0.0307	< 0.001	< 0.00001
20-Mar-13	118																																												
27-Mar-13	119	600	320	8.03	281				27																																					
3-Apr-13	120																																												
10-Apr-13	121	600	450	8.01	191	#N/A	5.4	79.3	27	< 0.2	< 0.06	< 0.3	86.8	0.0069	0.0002	0.0020	0.106	< 0.00002	< 0.00001	0.0115	0.000003	24.8	< 0.0005	0.000094	0.0012	< 0.003	0.00006	0.002	6.03	0.0008	< 0.01	0.00947	0.0002	< 0.009	5.51	0.00086	8.00	< 0.00001	1.27	0.322	8.18	< 0.00002	0.109	< 0.0001	0.000669	0.0293	< 0.001	< 0.00001
17-Apr-13	122																																												
24-Apr-13	123	500	215	8.07	315				32																																					
1-May-13	124																																												
8-May-13	125	500	245	7.98	236	#N/A	7.9	103.6	30	< 0.2	< 0.06	< 0.3	110	0.0078	0.0003	0.0019	0.144	< 0.00002	< 0.00001	0.0171	0.000004	29.3	< 0.0005	0.000391	0.0042	< 0.003	< 0.00002	0.003	8.86	0.0023	< 0.01	0.0194	0.0003	0.013	8.82	0.00119	8.29	< 0.00001	1.81	0.395	10.4	< 0.00002	0.0942	0.0002	0.000937	0.0308	0.001	< 0.00001
15-May-13	126																																												
22-May-13	127	500	225	8.01	272				32																																					
29-May-13	128																																												
5-Jun-13	129	500	325	7.94	188	#N/A	6.2	76.0	25	< 0.2	< 0.06	< 0.3	81.7	0.0094	< 0.0002	0.0021	0.114	< 0.00002	< 0.00001	0.0132	0.000003	22.0	< 0.0005	0.000069	0.0026	< 0.003	< 0.00002	0.002	6.48	0.0024	< 0.01	0.0130	0.0002	< 0.009	6.89	0.00104	7.34	< 0.00001	1.45	0.280	8.12	< 0.00002	0.0976	0.0002	0.000585	0.0355	0.002	< 0.00001
12-Jun-13	130																																												
19-Jun-13	131	500	330	7.99	192				26																																					
26-Jun-13	132																																												
3-Jul-13	133	500	270	7.94	244	#N/A	7.9	103.5	23	< 0.2	< 0.06	< 0.3	108	0.0104	0.0003	0.0018	0.163	< 0.00002	< 0.00001	0.0199	0.000005	29.0	< 0.0005	0.000093	0.0034	0.008	0.00022	0.003	8.58	0.0037	< 0.01	0.0140	0.0004	0.014	8.31	0.00100	8.07	< 0.00001	1.74	0.388	9.37	< 0.00002	0.0924	< 0.0001	0.000803	0.0303	0.002	< 0.00001
10-Jul-13	134																																												
17-Jul-13	135	500	265	7.93	221				28																																					
24-Jul-13	136																																												
31-Jul-13	137	500	320	8.01	198	#N/A	6.2	77.1	23	< 0.2	< 0.06	< 0.3	87.9	0.0162	0.0002	0.0021	0.116	< 0.00002	< 0.00001	0.0140	0.000004	23.7	< 0.0005	0.000074	0.0025	0.005	0.00002	0.002	6.99	0.0010	< 0.01	0.0144	0.0002	< 0.009	7.45	0.00112	7.42	0.00007	1.51	0.310	8.17	< 0.00002	0.0913	0.0002	0.000549	0.0307	< 0.001	< 0.00001
7-Aug-13	138																																												
14-Aug-13	139	500	230	7.95	287				22																																					
21-Aug-13	140																																												
28-Aug-13	141	500	265	8.02	230	#N/A	4.3	94.1	24	< 0.2	< 0.06	< 0.3	107	0.0098	0.0002	0.0020	0.152	< 0.00002	< 0.00001	0.0237	< 0.000003	28.6	< 0.0005	0.000127	0.0031	< 0.003	< 0.00002	0.003	8.55	0.0021	0.02	0.0198	0.0002	< 0.009	8.04	0.00127	8.28	< 0.00001	1.62	0.384	9.05	< 0.00002	0.0888	0.0001	0.000708	0.0322	< 0.001	< 0.00001
4-Sep-13	142																																												
11-Sep-13	143	500	305	8.00	221				21																																					
18-Sep-13	144																																												
25-Sep-13	145	500	255	8.10	282	#N/A	3.6	119.2	21	< 0.2	< 0.06	< 0.3	135	0.0075	0.0003	0.0018	0.223	< 0.00002	< 0.00001	0.0210	0.000004	37.1	< 0.0005	0.000087	0.0036	< 0.003	0.00003	0.003	10.2	0.0019	< 0.01	0.0192	0.0006	0.009	9.34	0.00114	8.27	< 0.00001	1.66	0.489	8.60	< 0.00002	0.0882	< 0.0001	0.000826	0.0291	0.001	< 0.00001
2-Oct-13	146																																												
9-Oct-13	147	500	255	8.04	280				20																																					
16-Oct-13	148																																												
23-Oct-13	149	500	375	7.97	194	#N/A	3.2	73.2	25	< 0.2	< 0.06	< 0.3	84.1	0.0072	< 0.0002	0.0013	0.124	< 0.00002	< 0.00001	0.0138	0.000006	23.1	< 0.0005	0.000048	0.0021	< 0.003	0.00002	0.001	6.41	0.0013	< 0.01	0.0204	0.0002	< 0.009	6.28	0.00117	7.27	< 0.00001	1.16	0.291	7.99	< 0.00002	0.0809	0.0002	0.000487	0.0306	< 0.001	< 0.00001
30-Oct-13	150																																												
6-Nov-13	151	500	245	8.24	304				17																																					
13-Nov-13	152																																												
20-Nov-13	153	550	275	8.45	287	#N/A	#N/A	123.3	18	< 0.2	< 0.06	< 0.3	140	0.0212	0.0003	0.0018	0.237	< 0.00002	< 0.00001	0.0221	< 0.000003	37.4	< 0.0005	0.00010	0.0039	0.008	0.00002	0.003	10.7	0.0019	0.01	0.0257	0.0002	0.010	8.67	0.00114	9.39	< 0.00001	1.66	0.503	8.46	< 0.00002	0.0748	0.0002	0.000898	0.0319	0.002	< 0.00001
27-Nov-13	154																																												
4-Dec-13	155	550	120	8.29	338				35																																					
11-Dec-13	156																																												
18-Dec-13	157	550	330	8.13	267	#N/A	2.3	120.2	14	< 0.2	< 0.06	< 0.3	130	0.0072	0.0003	0.0017	0.215	< 0.00002	< 0.00001	0.0155	0.000009	36.3	< 0.0005	0.00027	0.0056	0.007	< 0.00002	0.003	9.74	0.0023	< 0.01	0.0272	0.0005	< 0.009	8.80	0.00123	8.53	< 0.00001	1.58	0.445	7.67	< 0.00002	0.0626	0.0001	0.00079	0.0257	0.001	< 0.00001
25-Dec-13	158																																												
1-Jan-14	159	500	255	8.20	298				28																																					
8-Jan-14	160																																												
15-Jan-14	161	600	345	8.17	315	#N/A	3.2	127.8	13	< 0.2	< 0.06	< 0.3	150	0.0046	0.0003	0.0019	0.232	< 0.00002	< 0.00001	0.0174	0.000007	41.5	< 0.0005	0.000066	0.0031	< 0.003	< 0.00002	0.003	10.8	0.0012	< 0.01	0.0280	0.0005	< 0.009	8.40	0.00104	8.74	< 0.00001	1.60	0.520	7.08	< 0.00002	0.0650	< 0.0001	0.000728	0.0249	< 0.001	< 0.00001
22-Jan-14	162																																												
29-Jan-14	163	500	210	8.17	309				21																																					
5-Feb-14	164																																												
12-Feb-14	165	550	320	8.22	256	#N/A	2.4	129.3	16	< 0.2	< 0.06	< 0.3	130	0.0059	0.0002	0.0016	0.206	< 0.00002	< 0.00001	0.0188	< 0.000003	34.7	< 0.0005	0.000117	0.0030	< 0.003	< 0.00002	0.003	9.80	0.0083	< 0.01	0.0306	0.0010	< 0.009	8.78	0.00094	9.04	0.00001	1.53	0.431	8.25	< 0.00002	0.0624	0.0001	0.000694	0.0273	0.001	< 0.00001
19-Feb-14	166																																												
26-Feb-14	167	500	245	8.25	303				16																																					
5-Mar-14	168																																												
12-Mar-14	169	500	255	8.19	276	#N/A	2.3	130.0	16	< 0.2	< 0.06	< 0.3	120	0.0053	0.0002	0.0015	0.211	< 0.00002	< 0.00001	0.0186	< 0.000003	33.3	< 0.0005	0.000077	0.0032	< 0.003	< 0.00002	0.003	9.25	0.0019	< 0.01	0.0312	0.0004	< 0.009	8.67	0.00107	9.14	< 0.00001	1.49	0.419	7.94	< 0.00002	0.0596	< 0.0001	0.000752	0.0267	< 0.001	< 0.00001
19-Mar-14	170																																												
26-Mar-14	171	500	375	8.13	181	#N/A	3.2	81.4	18	< 0.2	< 0.06	< 0.3	82.1	0.0107	< 0.0002	0.0013	0.132	< 0.00002	< 0.00001	0.0122	0.000042	23.2	< 0.0005	0.000186	0.0027	0.003	< 0.00002	0.001	5.88	0.0018	< 0.01	0.0253	< 0.0001	< 0.009	5.67	0.00098	7.14	< 0.00001	1.03	0.284	7.33	< 0.00002	0.0742	0.0003	0.000435	0.0319	0.003	< 0.00001
2-Apr-14	172																																												
9-Apr-14	173	300	265	8.09	284	#N/A	5.5	134.0	18	< 0.2	< 0.06	< 0.3	130	0.0049	0.0003	0.0015	0.215	< 0.000007	< 0.000007	0.0227	< 0.000004	35.7	0.00013	0.000051	0.00364	< 0.002	0.00001	0.00261	9.92	0.0027	< 0.01	0.0291	0.0005	< 0.009	8.82	0.00087	9.45	< 0.000002	1.54	0.454	7.74	< 0.000005	0.0740	0.00024	0.000822	0.0278	0.002	< 0.002

Cell Terminated

Dec 14/11 Cu 0.0287. Repeat =
June 27/12 Change in analytical schedule
Dec 4/13 Low leachate volume due to high dry air flow the previous week.
Mar 19/14 Change in analytical schedule

Col 3
Sample = Col-3 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	650	235	7.66	5224	#N/A	14.3	220.9	3561	61	0.21	< 3	2510	0.0053	0.0041	0.0119	0.0510	< 0.00002	0.00002	0.476	0.000377	543	0.0029	0.00302	0.0270	0.024	0.00006	0.014	280	0.0607	0.16	0.838	0.0393	0.118	78.7	0.0748	9.16	0.00009	610	8.54	1260	< 0.0002	0.00385	0.0014	0.00843	0.0199	0.004	0.00448
29-Dec-10	2	300	280	7.71	4462	#N/A	17.8	126.4	2968	14	0.19	< 0.3	2290	0.0046	0.0031	0.0108	0.0302	< 0.00002	0.00002	0.533	0.000373	497	0.0011	0.00313	0.0115	< 0.002	0.00087	0.018	256	0.0589	0.02	0.886	0.0525	0.067	78.1	0.0268	8.74	0.00002	386	8.09	1130	< 0.0002	0.00355	0.0011	0.0108	0.0141	0.003	0.00118
5-Jan-11	3	300	295	7.65	3540	#N/A	14.5	91.1	2659	4.4	0.16	< 0.3	2100	0.0040	0.0024	0.0062	0.0269	< 0.00002	< 0.00001	0.377	0.000205	467	< 0.0005	0.00265	0.0108	< 0.002	0.00003	0.014	227	0.0383	0.03	0.620	0.0576	0.066	76.9	0.0124	7.77	< 0.00001	218	8.81	839	< 0.0002	0.00466	0.0006	0.00826	0.0122	0.005	0.00039
12-Jan-11	4	300	280	7.77	3449	#N/A	10.7	97.6	2648	< 2	0.19	< 0.3	2300	0.0103	0.0026	0.0061	0.0297	< 0.00002	< 0.00001	0.374	0.000236	552	< 0.0005	0.00290	0.0120	0.003	0.00058	0.017	225	0.0326	< 0.01	0.490	0.0654	0.051	80.3	0.00846	9.00	< 0.00001	149	9.36	835	< 0.0002	0.00712	0.0009	0.0141	0.0129	0.004	0.00027
19-Jan-11	5	300	285	7.66	3319				2374																																								
26-Jan-11	6	300	290	7.68	3138	#N/A	9.6	70.0	2345	< 2	0.21	< 0.3	2000	0.0043	0.0029	0.0047	0.0320	< 0.00002	< 0.00001	0.217	0.000096	465	< 0.0005	0.00256	0.0047	< 0.002	0.00021	0.017	203	0.0281	< 0.01	0.358	0.0602	0.052	71.7	0.00752	7.06	< 0.00001	63.1	6.75	837	< 0.0002	0.0104	0.0008	0.00674	0.0107	0.003	0.00012
2-Feb-11	7	300	295	7.67	2930				2305																																								
9-Feb-11	8	300	275	7.82	2842	#N/A	7.9	88.1	2083	< 2	0.17	< 0.3	2010	0.0053	0.0023	0.0038	0.0300	< 0.00002	< 0.00001	0.257	0.000100	546	0.0009	0.00456	0.0088	< 0.002	0.00199	0.018	158	0.0445	< 0.01	0.236	0.0949	0.056	78.8	0.00738	9.02	< 0.00001	31.0	6.98	678	< 0.0002	0.0126	0.0016	0.00682	0.00851	0.004	0.00005
16-Feb-11	9	300	320	7.73	2922				1789																																								
23-Feb-11	10	300	290	7.69	2953	#N/A	7.9	72.9	2327	< 2	0.17	< 0.3	1900	0.0045	0.0020	0.0041	0.0282	< 0.00002	< 0.00001	0.176	0.000085	564	0.0012	0.00368	0.0059	< 0.002	0.00212	0.017	128	0.0462	0.01	0.171	0.0881	0.071	74.5	0.00574	8.51	0.00002	18.2	6.71	684	< 0.0002	0.0193	0.0009	0.00476	0.00667	0.010	0.00004
2-Mar-11	11	300	290	7.71	2884				2117																																								
9-Mar-11	12	300	295	7.68	2851	#N/A	7.5	67.7	2093	< 2	0.19	< 0.3	1780	0.0037	0.0020	0.0034	0.0302	< 0.00002	< 0.00001	0.129	0.000098	538	0.0008	0.00371	0.0042	< 0.002	0.00176	0.014	106	0.0508	< 0.01	0.252	0.0812	0.043	78.1	0.00529	8.59	< 0.00001	11.7	6.33	576	0.00011	0.0298	0.0009	0.00391	0.00611	0.008	0.00004
16-Mar-11	13	300	295	7.70	2817				1994																																								
23-Mar-11	14	300	295	7.75	2795	#N/A	7.7	74.0	1623	< 2	0.18	< 0.3	1842	0.0036	0.0019	0.0028	0.0282	< 0.00002	< 0.00001	0.105	0.000087	589	0.0007	0.00398	0.0048	< 0.002	0.00008	0.012	90.5	0.0511	< 0.01	0.320	0.0876	0.051	77.5	0.00494	8.06	< 0.00001	9.19	6.53	665	< 0.0002	0.0389	0.0009	0.00387	0.00577	0.001	0.00002
30-Mar-11	15	300	300	7.61	2688				1570																																								
6-Apr-11	16	300	295	7.62	2703	#N/A	10.5	70.7	1671	1.1	0.15	< 0.3	1780	0.0042	0.0026	0.0030	0.0312	< 0.00002	< 0.00001	0.0830	0.000087	593	< 0.0005	0.00391	0.0067	0.004	0.00002	0.010	72.5	0.0542	< 0.01	0.348	0.0876	< 0.009	73.4	0.00384	7.83	< 0.00001	6.24	6.13	640	0.00010	0.04784	0.0007	0.00332	0.0051	0.003	0.00001
13-Apr-11	17	300	300	7.58	2650				1540																																								
20-Apr-11	18	300	295	7.62	2675	#N/A	13.2	71.9	1391	< 2	0.18	< 0.3	1720	0.0044	0.0018	0.0028	0.0308	< 0.00002	< 0.00001	0.0723	0.000136	587	< 0.0005	0.00498	0.0043	< 0.002	0.00003	0.008	61.3	0.0464	0.01	0.422	0.0701	0.043	63.3	0.00637	7.42	< 0.00001	5.57	4.80	565	0.00010	0.0605	0.0016	0.00266	0.0053	0.005	0.00003
27-Apr-11	19	300	300	7.56	2572				1529																																								
4-May-11	20	300	300	7.55	2585	#N/A	8.9	53.0	1672	< 2	0.17	< 0.3	1640	0.0046	0.0023	0.0028	0.0290	< 0.00002	< 0.00001	0.0545	0.000129	575	< 0.0005	0.00373	0.0035	< 0.02	0.00004	0.008	48.8	0.0380	< 0.01	0.415	0.0739	0.044	65.3	0.00052	6.90	< 0.00001	4.87	4.41	582	0.00008	0.0743	0.0012	0.00194	0.0049	0.002	0.00004
11-May-11	21	300	290	7.56	2580				1538																																								
18-May-11	22	300	300	7.93	2150	#N/A	15.9	56.1	1564	< 2	0.15	< 0.3	1640	0.0036	0.0016	0.0027	0.0314	< 0.00002	< 0.00001	0.0536	0.000097	586	< 0.0005	0.00329	0.0036	< 0.002	0.00017	0.007	43.0	0.0403	< 0.01	0.382	0.0689	0.024	68.5	0.00593	8.18	0.00002	4.74	4.06	519	0.00010	0.0747	0.0012	0.00205	0.0052	0.002	< 0.00001
25-May-11	23	300	300	7.63	2511				1458																																								
1-Jun-11	24	300	300	7.63	2477	#N/A	9.3	41.8	1584	< 2	0.17	< 0.3	1580	0.0045	0.0018	0.0082	0.0309	< 0.00002	< 0.00001	0.0572	0.000079	575	< 0.0005	0.00296	0.0033	< 0.002	0.00004	0.008	34.7	0.0333	0.01	0.359	0.0452	0.102	60.5	0.00526	7.34	0.00005	4.09	3.59	562	0.00011	0.0862	0.0010	0.00130	0.0055	0.004	0.00001
8-Jun-11	25	300	295	7.48	2529				1419																																								
15-Jun-11	26	300	295	7.78	2472				1678																																								
22-Jun-11	27	300	295	7.70	2493				1972																																								
29-Jun-11	28	300	295	7.65	2448	#N/A	7.5	48.7	1740	< 2	0.21	< 0.3	1700	0.0048	0.0018	0.0030	0.0328	< 0.00002	< 0.00001	0.0498	0.000082	633	< 0.0005	0.00231	0.0034	< 0.002	0.00056	0.007	28.6	0.0333	< 0.01	0.345	0.0483	< 0.009	61.3	0.00625	9.48	< 0.00001	4.04	3.37	580	0.00011	0.0983	0.0009	0.00116	0.0057	0.004	0.00002
6-Jul-11	29	300	300	7.55	2480				1640																																								
13-Jul-11	30	300	300	7.50	2447				1456																																								
20-Jul-11	31	300	295	7.55	2382				1658																																								
27-Jul-11	32	300	300	7.55	2401	#N/A	7.7	41.8	1656	< 2	0.16	< 0.3	1630	0.0066	0.0017	0.0032	0.0312	< 0.00002	< 0.00001	0.0395	0.000088	615	< 0.0005	0.00336	0.0073	0.044	0.00006	0.006	22.5	0.0720	< 0.01	0.322	0.0571	0.026	55.1	0.00589	7.25	< 0.00001	3.52	2.89	545	0.00012	0.106	0.0020	0.00106	0.0058	0.012	0.00002
3-Aug-11	33	300	300	7.49	2353				1643																																								
10-Aug-11	34	300	300	7.47	2356				1534																																								
17-Aug-11	35	300	300	7.58	2348				1678																																								
24-Aug-11	36	300	300	7.47	2331	#N/A	13.1	44.5	1403	< 2	0.15	< 0.3	1430	0.0060	0.0017	0.0033	0.0338	< 0.00002	< 0.00001	0.0369	0.000081	542	0.0017	0.00167	0.0036	0.006	0.00008	0.006	18.3	0.0253	0.01	0.317	0.0275	< 0.009	52.1	0.00698	7.48	< 0.00001	3.05	2.45	506	0.00010	0.118	0.0008	0.000992	0.00611	0.010	< 0.00001
31-Aug-11	37	300	300	7.47	2296				1589																																								
7-Sep-11	38	300	300	7.62	2248	#N/A	7.9	41.5	1562	< 2	0.11	< 0.3	1420	0.0050	0.0017	0.0034	0.0310	< 0.00002	0.00002	0.0368	0.000064	541	0.0012	0.00142	0.0050	< 0.002	0.00020	0.006	15.6	0.0236	< 0.01	0.339	0.0317	< 0.009	41.8	0.00566	6.51	< 0.00001	2.82	2.24	487	0.00011	0.114	0.0010	0.00080	0.0063	0.005	0.00002
14-Sep-11	39	300	300	7.57	2204	#N/A	8.4	43.3	1607	0.8	0.12	< 0.3	1430	0.0057	0.0016	0.0035	0.0315	< 0.00002	< 0.00001	0.0319	0.000080	547	0.0020	0.00215	0.0035	0.008	0.00008	0.005	15.4	0.0271	< 0.01	0.326	0.0277	< 0.009	42.0	0.00526	7.10	< 0.00001	2.97	2.41	495	0.00011	0.120	0.0010	0.00087	0.0063	0.008	0.00004
21-Sep-11	40	300	300	7.53	2199	#N/A	9.4	45.9	1474	< 2	0.10	< 0.3	1480	0.0049	0.0015	0.0033	0.0311	< 0.00002	< 0.00001	0.0282	0.000037	566	0.0014	0.00151	0.0036	0.007	0.00009	0.005	15.3	0.0248	0.01	0.307	0.0266	< 0.009	40.7	0.00665	6.57	< 0.00001	2.74	2.16	500	0.00010	0.122	< 0.0001	0.00093	0.0067	0.010	< 0.00001
28-Sep-11	41	300	295	7.51	2133				1413																																								
5-Oct-11	42	300	295	7.51	2104				1427																																								
12-Oct-11	43	300	300	7.50	2104				1462																																								
19-Oct-11	44	300	265	7.44	2189	#N/A	8.8	44.1	1364	< 2	0.11	< 0.3	1380	0.0054	0.0015	0.0032	0.0309	< 0.00002	< 0.00001	0.0268	0.000039	534	0.0028	0.00141	0.0032	0.003	0.00019	0.005	12.6	0.0206	< 0.01	0.247	0.0230	< 0.009	38.3	0.00498	6.43	< 0.00001	2.40	1.92	473	0.00010	0.120	0.0007	0.00095	0.0055	0.004	0.00003
26-Oct-11	45	300	330	7.59	2009				1381																																								
2-Nov-11	46	300	305	7.58	2012				1345																																								
9-Nov-11	47	300	295	7.52	2016				1233																																								
16-Nov-11	48	300	285	7.55	1976	#N/A	8.3	47.1	1240	< 2	0.13	< 0.3	1200	0.0199	0.0017	0.0032	0.0312	< 0.00002	< 0.00001	0.0277	0.000058	465	< 0.0005	0.00120	0.0042	< 0.003	< 0.00002	0.005	9.78	0.0171	< 0.01	0.285	0.0272	< 0.009	37.2	0.00500	6.54	< 0.00001	2.10	1.63	405	0.00010	0.152	0.0009	0.00070	0.0070	0.003	0.00001
23-Nov-11	49	300	305	7.58	1861				1033																																								
30-Nov-11	50	300	290	7.56	1879				1106																																								
7-Dec-11	51	300	295	7.60	1847				1122																																								
14-Dec-11	52	300	290	7.60	1840	#N/A	8.3	54.8	1102	< 2	0.11	< 0.3	1040	0.0074	0.0016	0.0029	0.0272	< 0.00002	< 0.00001	0.0252	0.000083	405	0.0021	0.00126	0.0098	0.006	0.00019	0.004	8.23	0.0139	0.01	0.268	0.0175	< 0.009	39.8	0.00491	7.33	< 0.00001	2.12	1.60	348	0.00010	0.160	0.0009	0.000868	0.00650	0.007	0.00001
21-Dec-11	53	300	285	7.59	1773				1081																																								
28-Dec-11	54	500	505	7.59	1474				936																																								
4-Jan-12	55	300	295	7.56	1671				955																																								
11-Jan-12	56	300	290	7.57	1652	#N/A	5.7	62.1	1031	0.2	0.10	< 0.3	914	0.0345	0.0019	0.0028	0.0262	< 0.00002	< 0.00001	0.0195	0.000047	355	< 0.0005	0.000941	0.0038	< 0.003	< 0.00002	0.004	6.78	0.0133	0.01	0.212	0.0168	< 0.009	33.4	0.00533	6.28	< 0.00001	1.81	1.33	309	0.00008	0.163	0.0010	0.000597	0.00746	0.002	< 0.00001
18-Jan-12	57	300	300	7.63	1656				1039																																								
25-Jan-12	58	300	280	7.62	1584				974																																								
1-Feb-12	59	300	295	7.57	1542				904																																								
8-Feb-12	60	300	300	7.64	1474	#N/A	9.0	64.9	842	0.3	0.10	< 0.3	820	0.0176	0.0020	0.0030	0.0258	< 0.00002	< 0.00001	0.0190	0.000070	318	< 0.0005	0.00117	0.0047	< 0.003	< 0.00002	0.003	6.42	0.0119	< 0.01	0.274	0.0270	< 0.009	31.8	0.00520	6.01	< 0.00001	1.90	1.25	259	0.00010	0.155	0.0009	0.000624	0.00762	0.002	< 0.00001
15-Feb-12	61	300	295	7.62	1478				929																																								
22-Feb-12	62	300	290	7.66	1447				843																																								
29-Feb-12	63	300	285	7.57	1419				822																																								
7-Mar-12	64	300	285	7.62	1362	#N/A	11.4	52.0	786	< 1	0.09	< 0.3	794	0.0184	0.0016	0.0030	0.0233	< 0.00002	< 0.00001	0.0154	0.000010	307	< 0.0005	0.000553	0.0035	< 0.003	< 0.00002	0.003	6.62	0.0108	< 0.01	0.274	0.0126	< 0.009	32.9	0.00399	6.62	< 0.00001	1.90	1.31	261	0.00009	0.155	0.0004	0.000501	0.00816	0.002	0.00002
14-Mar-12	65	300	290	7.56	1312				791																																								
21-Mar-12	66	300	290	7.56	1264				722																																								
28-Mar-12	67	300	285	7.56	1251				727																																								
4-Apr-12	68	300	280	7.65	1153	#N/A	6.5	51.6	634	< 0.2	0.09	< 0.3	613	0.0451	0.0016	0.0027	0.0227	< 0.00002	< 0.00001	0.0172	0.000007	236	< 0.0005	0.000540	0.0031	< 0.003	0.00005	0.003	5.63	0.0083	< 0.01	0.240	0.0129	< 0.009	27.3	0.00321	6.19	< 0.00001	1.70	1.16	207	0.00009	0.146	0.0006	0.000440	0.00778	0.003	< 0.00001
11-Apr-12	69	300	290	7.69	1088				603																																								
18-Apr-12	70	300	285	7.61	1084				591																																								
25-Apr-12	71	300	285	7.59	1069				575																																								
2-May-12	72	300	285	7.56	996	#N/A	10.0	50.3	564	< 0.2	0.08	< 0.3	513	0.0526	0.0016	0.0028	0.0231	< 0.00002	< 0.00001	0.0172	0.000007	197	< 0.0005	0.000418	0.0033	< 0.003	0.00003	0.003	5.40	0.0072	0.03	0.252	0.0101	< 0.009	24.6	0.00501	5.76	< 0.00001	1.62	1.06	168	0.00009	0.147	0.0007	0.000380	0.00872	0.003	< 0.00001
9-May-12	73	300	295	7.77	946				391																																								
16-May-12	74	300	285	7.62	944				411																																								
23-May-12	75	300	275	7.55	920				398																																								
30-May-12	76	300	290	7.65	910	#N/A	8.0	48.9	318	< 0.2	0.08	< 0.3	400	0.0446	0.0016	0.0028	0.0216	< 0.00002	< 0.00001	0.0169	0.000009	152	< 0.0005	0.000355	0.0033	< 0.003	< 0.00002	0.003	4.89	0.0060	< 0.01	0.268	0.0085	< 0.009	22.6	0.00401	5.45	< 0.00001	1.49	1.01	133	0.00008	0.136	0.0004	0.000385	0.00821	0.003	< 0.00001
6-Jun-12	77	300	290	7.66	834				329																																								
13-Jun-12	78	300	290	7.59	816				302																																								
20-Jun-12	79	300	290	7.63	793				343																																								
27-Jun-12	80																																																
4-Jul-12	81	600	305	7.54	977	#N/A	9.5	83.1	421	< 1	0.11	< 0.3	461	0.0446	0.0035	0.0044	0.0325	< 0.00002	< 0.00001	0.0282	0.000045	174	< 0.0005	0.000514	0.0066	< 0.003	0.00086	0.005	6.55	0.0101	0.01	0.419	0.0100	< 0.009	35.3	0.00679	8.23	< 0.00001	2.27	1.10	145	0.00010	0.150	0.0005	0.000755	0.0103	0.003	< 0.00001
11-Jul-12	82																																															
18-Jul-12	83	600	265	7.85	964				388																																								
25-Jul-12	84																																															
1-Aug-12	85	500	250	7.59	1006	#N/A	12.0	120.9	341	< 0.2	0.12	< 0.3	451	0.0788	0.0050	0.0064	0.0436	< 0.00002	< 0.00001	0.0403	0.000015	168	< 0.0005	0.000514	0.0052	< 0.003	< 0.00002	0.007	7.46	0.0097	< 0.01	0.434	0.0113	< 0.009	49.6	0.00697	10.4	< 0.00001	3.00	1.24	145	0.00012	0.132	0.0006	0.00106	0.0135	0.002	< 0.00001
8-Aug-12	86																																															
15-Aug-12	87	500	225	7.83	1164				523																																								
22-Aug-12	88																																															
29-Aug-12	89	500	300	7.70	938	#N/A	7.9	67.5	438	< 1	0.12	< 0.3	393	0.0748	0.0034	0.0051	0.0306	< 0.00002	0.00001	0.0236	0.000014	145	< 0.0005	0.000346	0.0035	0.006	0.00004	0.004	7.31	0.0099	0.11	0.517	0.0064	< 0.009	44.1	0.00712	8.02	< 0.00001	2.58	1.09	132	0.00008	0.138	0.0006	0.000586	0.0128	0.002	0.00004
5-Sep-12	90																																															
12-Sep-12	91	500	175	7.87	1110				414																																								
19-Sep-12	92																																															
26-Sep-12	93	500	250	7.83	1014	#N/A	7.3	115.5	432	< 1	0.11	< 0.3	438	0.0459	0.0039	0.0054	0.0331	< 0.00002	< 0.00001	0.0320	0.000052	160	< 0.0005	0.000528	0.0049	< 0.003	< 0.00002	0.006	9.36	0.0124	0.01	0.558	0.0114	< 0.009	48.5	0.00759	10.0	0.00005	2.95	1.21	146	0.00010	0.112	0.0008	0.00108	0.0129	0.003	0.00003
3-Oct-12	94																																															
10-Oct-12	95	500	175	7.79	980				342																																								
17-Oct-12	96																																								

Col 3
Sample = Col-3 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14-Nov-12	100																																														
21-Nov-12	101	500	280	7.74	944	#N/A	7.7	67.7	379	< 0.2	0.11	< 0.3	430	0.0207	0.0021	0.0054	0.0266	< 0.00002	< 0.00001	0.0221	0.000135	156	< 0.0005	0.000494	0.0044	< 0.003	0.00002	0.004	10.0	0.0132	< 0.01	0.553	0.0074	< 0.009	41.7	0.00642	7.94	0.00006	2.72	1.10	145	0.00009	0.103	0.0004	0.000645	0.0135	0.003	0.00002
28-Nov-12	102																																														
5-Dec-12	103	300	280	7.66	1044				433																																						
12-Dec-12	104																																														
19-Dec-12	105	500	305	7.79	854	#N/A	6.2	67.6	406	< 0.2	0.11	< 0.3	393	0.0134	0.0026	0.0062	0.0309	< 0.00002	< 0.00001	0.0297	0.000041	141	< 0.0005	0.000295	0.0026	< 0.003	< 0.00002	0.005	9.79	0.0114	< 0.01	0.509	0.0054	< 0.009	49.5	0.00464	7.82	< 0.00001	2.58	1.09	147	0.00010	0.123	0.0004	0.000563	0.0160	0.002	< 0.00001
26-Dec-12	106																																														
2-Jan-13	107	500	210	7.78	1056				387																																						
9-Jan-13	108																																														
16-Jan-13	109	500	285	7.85	868	#N/A	5.6	116.2	368	< 0.2	0.10	< 0.3	353	0.0157	0.0038	0.0058	0.0344	< 0.00002	0.00001	0.0275	0.000008	125	< 0.0005	0.000447	0.0039	< 0.003	< 0.00002	0.005	9.86	0.0097	< 0.01	0.446	0.0113	< 0.009	45.7	0.00480	7.77	< 0.00001	2.22	0.977	121	0.00010	0.0842	0.0005	0.000895	0.0124	0.002	< 0.00001
23-Jan-13	110																																														
30-Jan-13	111	600	330	7.97	746				287																																						
6-Feb-13	112																																														
13-Feb-13	113	600	290	7.89	919	#N/A	13.5	163.9	356	< 0.2	0.09	< 0.3	367	0.0022	0.0040	0.0082	0.0377	< 0.00002	< 0.00001	0.0338	0.000022	128	< 0.0005	0.000483	0.0034	< 0.003	0.00002	0.007	11.5	0.0054	< 0.01	0.378	0.0132	< 0.009	51.0	0.00537	11.5	< 0.00001	2.38	1.11	105	0.00012	0.0814	0.0003	0.00153	0.0181	0.001	< 0.00001
20-Feb-13	114																																														
27-Feb-13	115	500	225	7.79	891				343																																						
6-Mar-13	116																																														
13-Mar-13	117	500	285	7.79	868	#N/A	11.7	141.3	309	< 0.2	0.09	< 0.3	386	0.0018	0.0035	0.0069	0.0485	< 0.00002	< 0.00001	0.0355	0.000032	135	< 0.0005	0.000382	0.0037	0.009	< 0.00002	0.006	11.7	0.0101	0.01	0.511	0.0120	< 0.009	53.5	0.00571	10.2	< 0.00001	2.41	1.11	116	0.00011	0.0739	0.0003	0.00107	0.0157	0.001	< 0.00001
20-Mar-13	118																																														
27-Mar-13	119	600	370	7.85	773				294																																						
3-Apr-13	120																																														
10-Apr-13	121	600	345	7.74	734	#N/A	11.2	147.4	279	< 0.2	0.08	< 0.3	298	0.0020	0.0029	0.0057	0.0498	< 0.00002	< 0.00001	0.0250	0.000010	103	< 0.0005	0.000374	0.0023	< 0.003	0.00005	0.005	9.72	0.0073	< 0.01	0.325	0.0098	< 0.009	42.5	0.00405	9.33	< 0.00001	1.70	0.901	77.1	0.00009	0.0766	0.0002	0.000880	0.0145	< 0.001	< 0.00001
17-Apr-13	122																																														
24-Apr-13	123	500	275	7.83	783				322																																						
1-May-13	124																																														
8-May-13	125	500	250	7.76	749	#N/A	11.4	83.3	364	< 0.2	0.09	< 0.3	318	0.0036	0.0029	0.0062	0.0459	< 0.00002	< 0.00001	0.0243	0.000009	110	< 0.0005	0.000509	0.0031	0.019	< 0.00002	0.005	10.7	0.0075	< 0.01	0.431	0.0070	< 0.009	46.0	0.00507	8.90	< 0.00001	1.90	0.952	106	0.00009	0.0908	0.0003	0.000786	0.0162	0.002	< 0.00001
15-May-13	126																																														
22-May-13	127	500	250	7.89	759				327																																						
29-May-13	128																																														
5-Jun-13	129	500	315	7.71	622	#N/A	8.3	59.6	281	< 0.2	0.09	< 0.3	258	0.0028	0.0018	0.0061	0.0350	< 0.00002	< 0.00001	0.0178	0.000021	90.2	< 0.0005	0.000198	0.0024	< 0.003	< 0.00002	0.003	7.94	0.0068	< 0.01	0.368	0.0037	< 0.009	36.9	0.00416	8.08	< 0.00001	1.54	0.731	83.4	0.00007	0.0926	0.0002	0.000329	0.0175	0.001	< 0.00001
12-Jun-13	130																																														
19-Jun-13	131	500	320	7.75	626				283																																						
26-Jun-13	132																																														
3-Jul-13	133	500	290	7.79	719	#N/A	9.9	87.2	278	< 0.2	0.08	< 0.3	294	0.0048	0.0027	0.0060	0.0485	< 0.00002	< 0.00001	0.0226	0.000025	102	< 0.0005	0.000318	0.0027	0.005	0.00162	0.004	9.63	0.0097	< 0.01	0.357	0.0069	< 0.009	39.0	0.00401	7.88	< 0.00001	1.67	0.862	92.9	0.00008	0.0830	0.0003	0.000586	0.0147	0.002	< 0.00001
10-Jul-13	134																																														
17-Jul-13	135	500	285	7.82	686				292																																						
24-Jul-13	136																																														
31-Jul-13	137	500	290	7.81	685	#N/A	9.0	79.4	252	< 1	0.08	< 0.3	297	0.0038	0.0022	0.0058	0.0387	< 0.00002	< 0.00001	0.0180	0.000012	103	< 0.0005	0.000282	0.0029	< 0.003	< 0.00002	0.004	9.41	0.0071	< 0.01	0.344	0.0064	< 0.009	39.1	0.00417	7.71	0.00005	1.54	0.839	89.3	0.00008	0.0723	0.0003	0.000465	0.0133	< 0.001	< 0.00001
7-Aug-13	138																																														
14-Aug-13	139	500	270	7.76	793				271																																						
21-Aug-13	140																																														
28-Aug-13	141	500	280	7.88	713	#N/A	6.3	91.4	269	< 0.2	0.08	< 0.3	299	0.0038	0.0024	0.0062	0.0475	< 0.00002	< 0.00001	0.0266	0.000017	103	< 0.0005	0.000270	0.0030	< 0.003	< 0.00002	0.005	10.3	0.0083	< 0.01	0.386	0.0063	< 0.009	39.4	0.00493	8.12	< 0.00001	1.52	0.886	84.0	0.00008	0.0735	0.0003	0.000644	0.0166	< 0.001	< 0.00001
4-Sep-13	142																																														
11-Sep-13	143	500	280	7.84	672				231																																						
18-Sep-13	144																																														
25-Sep-13	145	500	235	7.91	731	#N/A	5.4	99.6	270	< 0.2	0.08	< 0.3	318	0.0039	0.0025	0.0060	0.0532	< 0.00002	< 0.00001	0.0247	0.000012	108	< 0.0005	0.000273	0.0038	< 0.003	0.00004	0.004	11.4	0.0080	< 0.01	0.385	0.0081	< 0.009	41.6	0.00488	8.16	< 0.00001	1.74	0.926	88.2	0.00009	0.0712	0.0003	0.000660	0.0153	0.002	< 0.00001
2-Oct-13	146																																														
9-Oct-13	147	500	265	7.91	685				257																																						
16-Oct-13	148																																														
23-Oct-13	149	500	385	7.79	576	#N/A	4.2	56.6	247	< 0.2	0.07	< 0.3	229	0.0019	0.0013	0.0045	0.0284	< 0.00002	< 0.00001	0.0178	0.000032	77.5	< 0.0005	0.000154	0.0019	< 0.003	< 0.00002	0.003	8.51	0.0060	< 0.01	0.277	0.0035	0.010	32.4	0.00429	6.90	< 0.00001	1.26	0.627	73.4	0.00008	0.0735	0.0002	0.000252	0.0156	< 0.001	< 0.00001
30-Oct-13	150																																														
6-Nov-13	151	500	240	8.09	787				241																																						
13-Nov-13	152																																														
20-Nov-13	153	550	330	7.99	671	#N/A	<0.1	126.6	184	< 0.2	< 0.06	< 0.3	280	0.0116	0.0024	0.0049	0.0560	0.00003	0.00002	0.0230	< 0.000003	96.1	< 0.0005	0.00040	0.0038	< 0.003	0.00002	0.004	10.2	0.0076	0.01	0.295	0.0072	0.012	35.5	0.00384	7.86	< 0.00001	1.47	0.835	65.9	0.00010	0.0538	0.0003	0.000647	0.0151	0.004	0.00002
27-Nov-13	154																																														
4-Dec-13	155	550	110	8.05	973				290																																						
11-Dec-13	156																																														
18-Dec-13	157	550	300	8.06	709	#N/A	4.2	132.9	198	< 0.2	< 0.06	< 0.3	300	0.0072	0.0024	0.0045	0.0574	< 0.00002	< 0.00001	0.0210	0.000025	104	< 0.0005	0.00026	0.0031	0.005	< 0.00002	0.005	11.0	0.0063	< 0.01	0.331	0.0070	< 0.009	39.9	0.00430	8.02	< 0.00001	1.67	0.802	74.1	0.00010	0.0487	0.0004	0.00069	0.0140	0.001	< 0.00001
25-Dec-13	158																																														
1-Jan-14	159	500	230	8.01	797				216																																						
8-Jan-14	160																																														
15-Jan-14	161	600	310	8.00	814	#N/A	5.7	150.3	196	< 0.2	< 0.06	< 0.3	350	0.0020	0.0029	0.0050	0.0664	< 0.00002	< 0.00001	0.0260	0.000033	119	< 0.0005	0.000269	0.0027	< 0.003	< 0.00002	0.005	12.9	0.0067	< 0.01	0.298	0.0092	< 0.009	41.0	0.00406	8.70	< 0.00001	1.81	0.954	73.0	0.00010	0.0497	0.0005	0.000730	0.0141	< 0.001	< 0.00001
22-Jan-14	162																																														
29-Jan-14	163	500	255	8.07	708				190																																						
5-Feb-14	164																																														
12-Feb-14	165	550	300	8.05	684	#N/A	5.2	170.2	162	< 0.2	0.07	< 0.3	310	0.0022	0.0024	0.0040	0.0614	< 0.00002	< 0.00001	0.0254	0.000049	104	< 0.0005	0.000302	0.0030	< 0.003	< 0.00002	0.005	11.6	0.0078	< 0.01	0.328	0.0102	0.024	41.9	0.00333	8.58	0.00001	1.70	0.836	71.0	0.00009	0.0439	0.0005	0.000638	0.0138	0.001	< 0.00001
19-Feb-14	166																																														
26-Feb-14	167	500	240	8.09	762				190																																						
5-Mar-14	168																																														
12-Mar-14	169	500	275	8.01	694	#N/A	4.8	129.1	159	< 0.2	0.06	< 0.3	280	0.0078	0.0022	0.0042	0.0619	0.00007	< 0.00001	0.0229	0.000026	95.8	< 0.0005	0.00111	0.0031	< 0.003	0.00004	0.004	10.4	0.0055	< 0.01	0.314	0.0078	< 0.009	37.7	0.00393	8.44	< 0.00001	1.53	0.775	73.3	0.00011	0.0447	0.0003	0.000643	0.0140	0.002	< 0.00001
19-Mar-14	170																																														
26-Mar-14	171	300	305	7.79	805	#N/A	5.0	50.9	353																																							
2-Apr-14	172																																														
9-Apr-14	173	500	490	7.87	641	#N/A	6.6	58.8	220	< 0.2	0.07	< 0.3	277	0.0020	0.0009	0.0034	0.0360	< 0.000007	< 0.000007	0.0201	0.000057	96.6	0.00003	0.000132	0.00174	< 0.002	< 0.00001	0.00213	8.70	0.0066	< 0.01	0.236	0.0027	0.014	25.4	0.00223	6.54	< 0.000002	1.02	0.744	85.0	0.000061	0.0821	0.00027	0.000277	0.0128	0.002	< 0.002
16-Apr-14	174																																														
23-Apr-14	175	300	195	7.92	715	#N/A	4.3	56.0	283																																							
30-Apr-14	176																																														
7-May-14	177	500	350	7.99	539	#N/A	4.5	57.5	170	< 0.2	0.06	< 0.3	217	0.0015	0.0014	0.0037	0.0300	< 0.000007	< 0.000007	0.0228	0.000200	74.0	< 0.00003	0.000309	0.00226	< 0.002	< 0.00001	0.00229	7.87	0.0060	< 0.01	0.371	0.0027	0.013	28.1	0.00364	6.23	< 0.000002	1.26	0.604	67.1	0.000063	0.0795	0.00065	0.000196	0.0164	0.002	< 0.002
14-May-14	178																																														
21-May-14	179	300	170	7.95	686	#N/A	11.9	57.6	302																																							
28-May-14	180																																														
4-Jun-14	181	500	355	8.03	562	#N/A	5.1	57.5	204	< 0.2	0.06	< 0.3	232	0.0038	0.0010	0.0039	0.0254	< 0.000007	< 0.000007	0.0202	0.000043	79.7	0.00006	0.000445	0.00427	0.004	0.00005	0.00248	7.91	0.0041	< 0.01	0.304	0.0020	0.015	27.3	0.00342	5.72	0.000005	1.20	0.606	67.7	0.000072	0.0654	0.00025	0.000211	0.0154	0.010	< 0.002
11-Jun-14	182																																														
18-Jun-14	183	300	175	7.84	709	#N/A	8.8	56.6	257																																							
25-Jun-14	184																																														
2-Jul-14	185	500	360	7.94	516	#N/A	5.4	64.9	174	< 0.2	0.08	< 0.3	214	0.0074	0.0010	0.0038	0.0258	< 0.000007	< 0.000007	0.0218	0.000014	72.1	< 0.00003	0.000108	0.00188	< 0.002	< 0.00001	0.00246	8.18	0.0033	0.01	0.298	0.0020	< 0.009	26.5	0.00376	5.71	0.000006	1.23	0.555	64.1	0.000063	0.0552	0.00023	0.000201	0.0139	0.001	< 0.002
9-Jul-14	186																																														
16-Jul-14	187	300	200	7.95	665	#N/A	3.0	53.7	235																																							
23-Jul-14	188																																														
30-Jul-14	189	500	380	7.91	517	#N/A	3.2	68.1	177	< 0.2	< 0.06	< 0.3	205	0.0035	0.0010	0.0036	0.0260	< 0.000007	< 0.000007	0.0225	0.000030	69.2	0.00017	0.000217	0.00174	< 0.002	< 0.00001	0.00262	7.91	0.0026	< 0.01	0.298	0.0020	< 0.009	24.1	0.00360	5.14	0.000012	1.15	0.541	60.3	0.000067	0.0528	0.00034	0.000215	0.0141	< 0.001	< 0.002
6-Aug-14	190																																														
13-Aug-14	191	300	185	7.87	629	#N/A	4.1	58.1	228																																							
20-Aug-14	192																																														
27-Aug-14	193	500	380	7.90	492	#N/A	6.4	62.0	154																																							
3-Sep-14	194																																														

June 27/12 Change in analytical schedule
Dec 4/13 Low leachate volume due to high dry air flow the previous week.
March 19/14 Change in analytical schedule

Col 4
Sample = Col-4 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	600	280	7.81	1026	#N/A	6.6	126.5	136	150	0.32	0.5	230	0.0073	0.0008	0.0026	0.0363	< 0.00002	0.00001	0.191	< 0.000003	60.6	0.0029	0.00027	0.0083	0.003	0.00002	0.002	19.0	0.0116	0.02	0.0177	0.0021	0.086	25.1	0.0014	10.7	< 0.00001	133	0.723	54.1	< 0.0002	0.00426	0.0010	0.000177	0.0126	0.002	0.00010
29-Dec-10	2	300	295	8.14	500	#N/A	8.3	159.4	55	38	0.33	< 0.3	82.9	0.0142	0.0008	0.0042	0.0269	< 0.00002	< 0.00001	0.223	< 0.000003	20.8	0.0013	0.000122	0.0025	< 0.002	0.00154	0.003	7.51	0.0030	< 0.01	0.0168	0.0008	0.029	11.4	0.00092	11.4	< 0.00001	74.3	0.277	25.2	< 0.0002	0.00645	0.0008	0.000224	0.0240	0.002	0.00003
5-Jan-11	3	300	300	8.16	332	#N/A	6.5	187.4	19	7.1	0.28	< 0.3	60.2	0.0150	0.0007	0.0037	0.0316	< 0.00002	< 0.00001	0.186	< 0.000003	15.0	< 0.0005	0.000058	0.0027	< 0.002	0.00002	0.003	5.50	0.0014	0.03	0.0111	0.0006	0.032	9.21	0.00054	9.79	< 0.00001	52.7	0.203	9.84	< 0.0002	0.0122	0.0008	0.000158	0.0280	< 0.001	< 0.00001
12-Jan-11	4	300	290	8.22	287	#N/A	3.4	184.3	15	2.6	0.30	< 0.3	67.8	0.0197	0.0008	0.0037	0.0391	< 0.00002	< 0.00001	0.161	< 0.000003	17.0	< 0.0005	0.000069	0.0042	0.004	0.00010	0.003	6.15	0.0026	< 0.01	0.00798	0.0005	0.012	10.2	0.00017	11.3	< 0.00001	50.4	0.232	8.20	< 0.0002	0.02640	0.0002	0.000183	0.0342	0.001	0.00003
19-Jan-11	5	300	290	8.16	261				12																																							
26-Jan-11	6	300	285	8.18	251	#N/A	3.6	163.4	9	0.9	0.25	< 0.3	54	0.0187	0.0008	0.0038	0.0518	< 0.00002	< 0.00001	0.115	< 0.000003	14	< 0.0005	0.00004	0.0028	< 0.002	0.00006	0.003	5	< 0.0002	< 0.01	0.001	0.0004	< 0.009	7.7	0.00029	8.34	< 0.00001	26.3	0.19	5	< 0.0002	0.0822	0.0009	0.00015	0.0351	0.006	0.00002
2-Feb-11	7	300	265	8.18	232				9																																						
9-Feb-11	8	300	330	8.16	281	#N/A	2.9	130.4	39	0.6	0.21	< 0.3	107	0.0219	0.0007	0.0047	0.0558	< 0.00002	< 0.00001	0.105	< 0.000003	27.3	0.0008	0.000148	0.0017	0.002	0.00106	0.003	9.40	0.0015	< 0.01	0.00845	0.0033	0.029	9.51	0.00027	10.3	< 0.00001	21.7	0.391	18.1	< 0.0002	0.144	0.0004	0.000409	0.0374	0.006	0.00002
16-Feb-11	9	300	300	8.15	197				<2																																						
23-Feb-11	10	300	295	8.11	212	#N/A	3.7	123.6	9	0.4	0.16	< 0.3	75.7	0.0191	0.0005	0.0058	0.0634	< 0.00002	< 0.00001	0.0650	< 0.000003	19.4	0.0010	0.000060	0.0027	< 0.002	0.00033	0.003	6.63	0.0018	0.01	0.00322	0.0009	0.026	7.38	0.00030	9.82	< 0.00001	13.2	0.247	2.66	< 0.0002	0.237	0.0002	0.000321	0.0357	0.001	< 0.00001
2-Mar-11	11	300	285	8.12	227				10																																						
9-Mar-11	12	300	280	8.12	224	#N/A	3.1	130.3	8	< 1	0.15	< 0.3	83.4	0.0193	0.0004	0.0053	0.0764	< 0.00002	< 0.00001	0.0565	0.000006	21.2	0.0009	0.000044	0.0020	0.005	0.00230	0.003	7.42	0.0017	< 0.01	0.00345	0.0004	0.024	8.09	< 0.00004	9.80	< 0.00001	10.1	0.280	2.16	< 0.00002	0.272	0.0003	0.000303	0.0367	0.008	0.00001
16-Mar-11	13	300	295	8.12	224				10																																						
23-Mar-11	14	300	300	8.17	221	#N/A	2.8	129.4	8	0.3	0.12	< 0.3	92.8	0.0152	0.0004	0.0053	0.0786	< 0.00002	< 0.00001	0.0418	< 0.000003	23.5	0.0006	0.000068	0.0014	< 0.002	0.00199	0.003	8.30	0.0008	< 0.01	0.00568	0.0009	< 0.009	8.20	0.00014	9.41	< 0.00001	7.62	0.310	2.15	< 0.0002	0.236	0.0001	0.000322	0.0340	< 0.001	< 0.00001
30-Mar-11	15	300	285	8.00	209				6																																						
6-Apr-11	16	300	300	8.05	210	#N/A	5.2	128.7	6	0.2	0.12	< 0.3	96.5	0.0171	0.0008	0.0058	0.0845	< 0.00002	< 0.00001	0.0339	< 0.000003	24.8	< 0.0005	0.00007	0.0008	0.006	0.00007	0.003	8.41	0.0060	< 0.01	0.00365	0.0006	0.012	8.16	0.00012	9.41	< 0.00001	5.84	0.284	2.11	< 0.00002	0.229	0.0002	0.00031	0.0344	0.002	< 0.00001
13-Apr-11	17	300	290	8.01	196				4																																						
20-Apr-11	18	300	295	8.06	196	#N/A	7.1	119.5	4	0.2	0.10	< 0.3	78.6	0.0242	0.0003	0.0063	0.0728	< 0.00002	< 0.00001	0.0341	0.000005	19.8	< 0.0005	0.00011	0.0009	< 0.002	0.00003	0.002	7.08	0.0013	< 0.01	0.0122	0.0005	0.027	6.80	0.00085	8.23	< 0.00001	4.26	0.268	1.85	< 0.00002	0.247	0.0004	0.00033	0.0371	0.002	0.00003
27-Apr-11	19	300	300	8.02	189				4																																						
4-May-11	20	300	310	8.03	183	#N/A	4.4	109.3	5	< 0.2	0.08	< 0.3	76.6	0.0218	0.0003	0.0059	0.0695	< 0.00002	< 0.00001	0.0250	< 0.000003	19.8	< 0.0005	0.00008	0.0007	< 0.02	0.00002	0.002	6.60	0.0024	0.01	0.0118	0.0011	< 0.009	6.00	< 0.00004	7.60	< 0.00001	3.40	0.251	1.87	< 0.00002	0.217	0.0003	0.00028	0.0354	0.001	0.00001
11-May-11	21	300	295	8.05	202				5																																						
18-May-11	22	300	300	7.94	195	#N/A	4.8	100.5	5	0.6	0.08	< 0.3	81.8	0.0213	< 0.0002	0.0057	0.0794	< 0.00002	< 0.00001	0.0250	< 0.000003	21.2	< 0.0005	0.000072	0.0005	< 0.002	0.00003	0.002	7.00	0.0035	0.01	0.00982	0.0008	< 0.009	6.10	0.00048	8.13	< 0.00001	2.95	0.254	2.04	< 0.00002	0.201	0.0013	0.000289	0.0351	< 0.001	< 0.00001
25-May-11	23	300	315	8.16	190				4																																						
1-Jun-11	24	300	315	8.13	181	#N/A	5.0	96.8	4	1.0	0.07	< 0.3	76.9	0.0222	0.0002	0.0059	0.0727	< 0.00002	< 0.00001	0.0259	0.000003	20.0	< 0.0005	0.00008	0.0008	< 0.002	< 0.00002	0.002	6.53	0.0015	< 0.01	0.0116	0.0002	0.047	5.70	< 0.00004	8.02	< 0.00001	2.55	0.243	1.98	< 0.00002	0.200	0.0003	0.00028	0.0381	0.002	< 0.00001
8-Jun-11	25	300	305	8.02	176				4																																						
15-Jun-11	26	300	315	8.27	178				4																																						
22-Jun-11	27	300	315	8.11	162				4																																						
29-Jun-11	28	300	305	8.26	194	#N/A	3.0	114.5	5	1.2	0.08	< 0.3	85.3	0.0230	0.0003	0.0056	0.0832	< 0.00002	< 0.00001	0.0284	0.000004	21.7	< 0.0005	0.00005	0.0007	0.003	0.00023	0.003	7.56	0.0006	0.01	0.0112	0.0007	< 0.009	6.10	0.00006	9.04	< 0.00001	2.29	0.280	1.70	< 0.00002	0.206	< 0.0001	0.00029	0.0392	0.002	0.00002
6-Jul-11	29	300	305	8.06	174				3																																						
13-Jul-11	30	300	310	7.96	161				3																																						
20-Jul-11	31	300	315	8.04	170				2																																						
27-Jul-11	32	300	310	8.06	171	#N/A	3.4	94.2	<2	0.7	0.06	< 0.3	74.6	0.0261	0.0003	0.0053	0.0707	< 0.00002	< 0.00001	0.0208	0.000004	19.8	< 0.0005	0.00010	< 0.0005	0.047	0.00003	0.002	6.12	0.0444	< 0.01	0.0127	0.0013	0.035	4.78	0.00041	6.88	< 0.00001	1.69	0.236	2.89	< 0.00002	0.198	0.0004	0.00026	0.0372	0.005	< 0.00001
3-Aug-11	33	300	315	8.05	158				<2																																						
10-Aug-11	34	300	315	8.05	157				2																																						
17-Aug-11	35	300	295	8.07	182				12																																						
24-Aug-11	36	300	300	8.06	171	#N/A	5.9	97.6	<2	0.8	0.06	< 0.3	77.2	0.0278	0.0002	0.0052	0.0802	< 0.00002	< 0.00001	0.0201	< 0.000003	20.2	0.0011	0.000040	0.0008	0.003	0.00005	0.002	6.48	0.0016	0.01	0.0116	0.0001	< 0.009	4.69	0.00032	7.41	< 0.00001	1.60	0.239	1.80	< 0.00002	0.203	0.0001	0.000260	0.0384	0.003	< 0.00001
31-Aug-11	37	300	355	8.06	172				3																																						
7-Sep-11	38	300	320	8.16	158	#N/A	4.1	93.0	3	0.6	< 0.06	< 0.3	72.4	0.0287	0.0003	0.0055	0.0676	< 0.00002	0.00001	0.0190	< 0.000003	19.0	0.0011	0.00003	0.0008	0.002	0.00011	0.002	6.06	0.0031	0.01	0.0169	0.0007	< 0.009	4.39	0.00017	6.53	< 0.00001	1.36	0.225	1.64	< 0.00002	0.190	0.0003	0.00022	0.0370	0.002	< 0.00001
14-Sep-11	39	300	310	8.07	162	#N/A	4.5	92.7	2	0.6	< 0.06	< 0.3	78.2	0.0289	0.0003	0.0049	0.0714	< 0.00002	< 0.00001	0.0179	0.000005	20.3	0.0018	0.00006	0.0008	0.008	0.00004	0.002	6.70	0.0036	0.01	0.0118	< 0.0001	< 0.009	4.44	0.00007	6.82	< 0.00001	1.48	0.244	1.75	< 0.00002	0.195	0.0002	0.00023	0.0355	0.002	< 0.00001
21-Sep-11	40	300	305	8.03	171	#N/A	5.3	99.1	3	0.7	< 0.06	< 0.3	83.9	0.0246	< 0.0002	0.0049	0.0780	< 0.00002	< 0.00001	0.0159	< 0.000003	21.6	0.0014	0.00004	0.0013	0.008	0.00005	0.002	7.30	0.0036	0.01	0.0106	0.0003	0.016	4.63	0.00023	6.81	< 0.00001	1.49	0.265	1.73	< 0.00002	0.190	0.0002	0.00023	0.0338	0.002	< 0.00001
28-Sep-11	41	300	300	8.04	163				3																																						
5-Oct-11	42	300	315	8.01	161				3																																						
12-Oct-11	43	300	310	8.02	161				3																																						
19-Oct-11	44	300	290	7.93	176	#N/A	4.8	100.1	2	0.7	< 0.06	< 0.3	84.0	0.0242	0.0002	0.0044	0.0806	< 0.00002	0.00001	0.0140	< 0.000003	21.4	0.0015	0.00003	0.0008	< 0.003	0.00026	0.002	7.43	< 0.0002	< 0.01	0.00613	0.0002	< 0.009	4.66	0.00016	6.65	< 0.00001	1.32	0.263	1.26	< 0.00002	0.180	< 0.0001	0.00023	0.0304	0.004	< 0.00001
26-Oct-11	45	300	325	8.03	160				3																																						
2-Nov-11	46	300	310	8.05	159				3																																						
9-Nov-11	47	300	300	8.00	167				2																																						
16-Nov-11	48	300	310	8.04	164	#N/A	3.7	95.0	<2	0.4	< 0.06	< 0.3	78.9	0.0409	< 0.0002	0.0039	0.0747	< 0.00002	< 0.00001	0.0146	< 0.000003	20.2	< 0.0005	0.00003	0.0014	< 0.003	0.00005	0.002	6.88	< 0.0002	< 0.01	0.00583	0.0007	< 0.009	4.04	0.00010	6.44	< 0.00001	1.09	0.247	1.39	< 0.00002	0.186	0.0008	0.00017	0.0293	0.005	< 0.00001
23-Nov-11	49	300	310	8.06	157				3																																						
30-Nov-11	50	300	300	8.06	159				6																																						
7-Dec-11	51	300	310	8.04	166				3																																						
14-Dec-11	52	300	300	8.04	173	#N/A	4.5	101.6	2	0.6	< 0.06	< 0.3	79.8	0.0278	< 0.0002	0.0033	0.0789	< 0.00002	< 0.00001	0.0147	0.000011	20.5	0.0016	0.000048	0.0031	< 0.003	0.00035	0.002	6.96	< 0.0002	0.01	0.0057	0.0002	< 0.009	4.34	0.00031	7.12	< 0.00001	0.99	0.259	1.07	< 0.00002	0.191	0.0001	0.000224	0.0265	0.003	< 0.00001
21-Dec-11	53	300	290	8.05	170				3																																						
28-Dec-11	54	500	495	8.01	147				<2																																						
4-Jan-12	55	300	285	8.01	162				<2																																						
11-Jan-12	56	300	290	7.99	170	#N/A	3.5	112.7	2	0.7	< 0.06	< 0.3	81.8	0.0645	< 0.0002	0.0034	0.0868	< 0.00002	< 0.00001	0.0127	< 0.000003	21.0	< 0.0005	0.000031	0.0007	< 0.003	0.00004	0.002	7.13	0.0002	0.01	0.00320	0.0007	< 0.009	4.15	0.00022	6.28	< 0.00001	0.89	0.260	1.03	< 0.00002	0.176	0.0004	0.000173	0.0268	0.002	< 0.00001
18-Jan-12	57	300	295	8.03	167				3																																						
25-Jan-12	58	300	300	8.01	171				8																																						
1-Feb-12	59	300	295	7.98	168				2																																						
8-Feb-12	60	300	290	8.04	167	#N/A	5.4	112.0	2	0.7	< 0.06	< 0.3	75.5	0.0427	0.0002	0.0034	0.0810	< 0.00002	< 0.00001	0.0120	< 0.000003	19.3	< 0.0005	0.000045	0.0011	< 0.003	< 0.00002	0.002	6.64	< 0.0002	< 0.01	0.00405	0.0010	< 0.009	3.96	0.00014	5.87	< 0.00001	0.91	0.247	0.94	< 0.00002	0.184	0.0002	0.000165	0.0276	0.002	< 0.00001
15-Feb-12	61	300	295	8.03	167				3																																						
22-Feb-12	62	300	295	8.05	167				3																																						
29-Feb-12	63	300	295	8.00	172				5																																						
7-Mar-12	64	300	305	8.01	156	#N/A	7.8	92.8	2	0.7	< 0.06	< 0.3	76.8	0.0410	< 0.0002	0.0036	0.0717	< 0.00002	< 0.00001	0.0104	< 0.000003	19.7	< 0.0005	0.000024	0.0006	< 0.003	0.00007	0.002	6.71	< 0.0002	< 0.01	0.00592	0.0002	< 0.009	4.06	0.00016	6.67	< 0.00001	0.85	0.246	0.95	< 0.00002	0.185	< 0.0001	0.000150	0.0276	< 0.001	< 0.00001
14-Mar-12	65	300	295	7.95	153				4																																						
21-Mar-12	66	300	295	7.96	168				3																																						
28-Mar-12	67	300	300	7.93	159				4																																						
4-Apr-12	68	300	305	8.03	156	#N/A	3.4	92.3	3	0.4	< 0.06	< 0.3	74.8	0.0614	< 0.0002	0.0030	0.0729	< 0.00002	< 0.00001	0.0111	< 0.000003	19.5	< 0.0005	0.000013	0.0007	< 0.003	< 0.00002	0.002	6.36	< 0.0002	< 0.01	0.00547	0.0004	< 0.009	3.74	0.00022	6.19	< 0.00001	0.78	0.238	1.05	< 0.00002	0.176	< 0.0001	0.000145	0.0246	0.002	< 0.00001
11-Apr-12	69	300	300	8.06	144				3																																						
18-Apr-12	70	300	300	7.99	152				3																																						
25-Apr-12	71	300	300	7.96	149				4																																						
2-May-12	72	300	300	7.93	157	#N/A	7.7	91.3	5	0.7	< 0.06	< 0.3	76.2	0.0910	< 0.0002	0.0028	0.0700	< 0.00002	< 0.00001	0.0150	< 0.000003	20.1	< 0.0005	0.000022	0.0018	< 0.003	0.00008	0.002	6.31	< 0.0002	0.04	0.00574	0.0006	< 0.009	3.58	0.00018	5.70	< 0.00001	0.80	0.238	0.94	< 0.00002	0.166	0.0005	0.000138	0.0241	0.003	< 0.00001
9-May-12	73	300	310	8.05	147				4																																						
16-May-12	74	300	290	7.99	151				5																																						

Col 4
Sample = Col-4 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
23-May-12	75	300	300	7.89	150				5																																						
30-May-12	76	300	295	7.96	152	#N/A	5.1	84.8	2	0.5	0.06	< 0.3	65.8	0.0754	< 0.0002	0.0028	0.0572	< 0.00002	< 0.00001	0.0111	< 0.000003	17.2	< 0.0005	0.000027	0.0008	< 0.003	< 0.00002	0.002	5.55	< 0.0002	< 0.01	0.00580	0.0003	< 0.009	3.36	0.00011	5.59	< 0.00001	0.67	0.216	0.80	< 0.00002	0.163	0.0001	0.000144	0.0241	0.002	< 0.00001
6-Jun-12	77	300	300	7.99	155				3																																						
13-Jun-12	78	300	295	7.91	145				4																																						
20-Jun-12	79	300	295	7.96	145				2																																						
27-Jun-12	80																																														
4-Jul-12	81	500	270	7.96	161	#N/A	4.5	93.2	2	0.3	< 0.06	< 0.3	69.8	0.0653	< 0.0002	0.0039	0.0708	< 0.00002	< 0.00001	0.0123	0.000008	17.4	< 0.0005	0.000025	0.0039	0.003	0.00009	0.002	6.37	0.0016	0.02	0.00605	< 0.0001	< 0.009	4.75	0.00029	6.63	< 0.00001	0.99	0.230	1.17	< 0.00002	0.181	0.0006	0.000171	0.0302	0.005	0.00051
11-Jul-12	82																																														
18-Jul-12	83	500	270	8.05	171				3																																						
25-Jul-12	84																																														
1-Aug-12	85	500	290	8.13	186	#N/A	3.5	107.0	3	0.3	< 0.06	< 0.3	81.0	0.103	0.0003	0.0036	0.0842	< 0.00002	0.00004	0.0175	< 0.000003	19.5	< 0.0005	0.000032	0.0017	< 0.003	0.00253	0.003	7.84	0.0021	< 0.01	0.00776	0.0003	< 0.009	6.21	0.00026	7.77	< 0.00001	1.17	0.272	1.18	< 0.00002	0.195	0.0002	0.000284	0.0291	0.002	< 0.00001
8-Aug-12	86																																														
15-Aug-12	87	500	265	8.07	185				4																																						
22-Aug-12	88																																														
29-Aug-12	89	500	340	7.95	141	#N/A	4.9	83.1	5	0.4	< 0.06	< 0.3	65.1	0.0832	0.0002	0.0040	0.0678	< 0.00002	< 0.00001	0.0131	< 0.000003	15.8	< 0.0005	0.000034	0.0014	0.005	< 0.00002	0.002	6.24	0.0003	< 0.01	0.00862	0.0002	< 0.009	5.57	0.00031	7.36	< 0.00001	1.03	0.219	1.19	< 0.00002	0.190	0.0005	0.000328	0.0365	0.002	0.00001
5-Sep-12	90																																														
12-Sep-12	91	500	255	8.09	226				5																																						
19-Sep-12	92																																														
26-Sep-12	93	500	315	8.02	159	#N/A	3.6	93.8	6	0.4	< 0.06	< 0.3	67.5	0.0549	< 0.0002	0.0036	0.0648	< 0.00002	< 0.00001	0.0141	< 0.000003	16.3	< 0.0005	0.000017	0.0011	< 0.003	< 0.00002	0.002	6.52	0.0025	< 0.01	0.0105	0.0006	< 0.009	5.04	0.00030	8.12	0.00002	1.07	0.215	1.22	< 0.00002	0.170	0.0003	0.000196	0.0352	0.004	< 0.00001
3-Oct-12	94																																														
10-Oct-12	95	500	260	7.97	211				4																																						
17-Oct-12	96																																														
24-Oct-12	97	500	250	8.10	247	#N/A	4.7	152.8	6	< 0.2	< 0.06	< 0.3	109	0.0948	< 0.0002	0.0031	0.109	< 0.00002	< 0.00001	0.0159	< 0.000003	26.8	< 0.0005	0.000036	0.0015	< 0.003	< 0.00002	0.004	10.1	0.0049	< 0.01	0.00363	0.0004	< 0.009	6.90	0.00027	8.04	< 0.00001	1.29	0.355	1.23	< 0.00002	0.147	0.0006	0.000315	0.0234	0.002	< 0.00001
31-Oct-12	98																																														
7-Nov-12	99	500	265	8.04	238				3																																						
14-Nov-12	100																																														
21-Nov-12	101	500	290	8.03	153	#N/A	4.7	91.5	7	0.3	< 0.06	< 0.3	73.5	0.0305	0.0002	0.0037	0.0694	< 0.00002	< 0.00001	0.0123	0.000014	17.6	< 0.0005	0.000163	0.0024	0.007	0.00004	0.002	7.17	0.0006	< 0.01	0.00508	0.0004	< 0.009	5.00	0.00025	7.72	0.00002	1.06	0.236	1.20	< 0.00002	0.154	0.0005	0.000199	0.0345	0.003	< 0.00001
28-Nov-12	102																																														
5-Dec-12	103	300	235	8.05	161				3																																						
12-Dec-12	104																																														
19-Dec-12	105	500	285	8.14	188	#N/A	4.4	125.1	<2	< 0.2	< 0.06	< 0.3	98.3	0.0229	0.0002	0.0033	0.0959	< 0.00002	< 0.00001	0.0227	< 0.000003	23.6	< 0.0005	0.000024	0.0015	0.005	0.00004	0.003	9.54	0.0017	< 0.01	0.00614	0.0002	< 0.009	7.11	0.00021	8.26	< 0.00001	1.42	0.316	1.42	< 0.00002	0.186	< 0.0001	0.000234	0.0317	0.001	< 0.00001
26-Dec-12	106																																														
2-Jan-13	107	500	245	8.06	302				<2																																						
9-Jan-13	108																																														
16-Jan-13	109	500	335	8.10	295	#N/A	3.8	196.6	3	< 0.2	< 0.06	< 0.3	146	0.0162	0.0003	0.0029	0.169	< 0.00002	< 0.00001	0.0222	< 0.000003	36.7	< 0.0005	0.000046	0.0016	< 0.003	< 0.00002	0.005	13.1	0.0037	< 0.01	0.00395	0.0005	< 0.009	8.28	0.00017	7.88	< 0.00001	1.34	0.490	1.40	< 0.00002	0.119	< 0.0001	0.000225	0.0235	0.001	< 0.00001
23-Jan-13	110																																														
30-Jan-13	111	600	365	8.11	302				4																																						
6-Feb-13	112																																														
13-Feb-13	113	550	300	8.12	329	#N/A	8.5	201.9	5	< 0.2	< 0.06	< 0.3	157	0.0071	0.0003	0.0036	0.148	< 0.00002	< 0.00001	0.0217	0.000003	39.3	< 0.0005	0.000196	0.0017	< 0.003	0.00006	0.005	14.2	0.0049	< 0.01	0.00354	0.0003	< 0.009	8.82	0.00018	9.49	< 0.00001	1.47	0.537	1.38	< 0.00002	0.0905	< 0.0001	0.000290	0.0249	0.002	< 0.00001
20-Feb-13	114																																														
27-Feb-13	115	500	255	8.05	303				5																																						
6-Mar-13	116																																														
13-Mar-13	117	500	260	8.13	206	#N/A	5.7	115.9	3	< 0.2	< 0.06	< 0.3	103	0.0067	0.0003	0.0030	0.105	< 0.00002	< 0.00001	0.0245	0.000003	25.2	< 0.0005	0.000027	0.0017	< 0.003	< 0.00002	0.004	9.63	0.0026	< 0.01	0.00492	0.0002	< 0.009	7.56	0.00020	9.74	< 0.00001	1.21	0.334	1.10	< 0.00002	0.102	< 0.0001	0.000245	0.0327	< 0.001	< 0.00001

Cell Terminated
June 27/12 Change in analytical schedule

Col 5
Sample = Col-5 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	650	235	7.78	1801	#N/A	9.8	228.5	469	130	0.35	< 0.3	541	0.0051	0.0026	0.0066	0.0629	< 0.00002	0.00001	0.347	< 0.000003	152	0.0029	0.00058	0.0205	0.007	0.00008	0.005	39.3	0.0257	0.03	0.0454	0.0045	0.070	50.7	0.0061	12.8	< 0.00001	201	1.83	178	< 0.0002	0.00338	0.0014	0.000306	0.0327	0.004	0.00044
29-Dec-10	2	300	305	8.01	941	#N/A	10.1	179.0	224	29	0.45	< 0.3	186	0.0061	0.0026	0.0108	0.0297	< 0.00002	< 0.00001	0.380	< 0.000003	51.1	0.0016	0.000203	0.0084	< 0.002	0.00105	0.005	14.2	0.0007	0.02	0.0277	0.0016	0.012	27.6	0.00268	12.3	< 0.00001	119	0.715	103	< 0.0002	0.00334	0.0012	0.000379	0.0438	0.003	0.00010
5-Jan-11	3	300	290	8.07	562	#N/A	7.4	187.9	126	6.0	0.50	< 0.3	103	0.0072	0.0025	0.0106	0.0250	< 0.00002	< 0.00001	0.312	< 0.000003	27.5	0.0009	0.000089	0.0070	< 0.002	0.00002	0.004	8.41	0.0007	0.03	0.0154	0.0008	< 0.009	20.3	0.00073	11.0	< 0.00001	83.6	0.406	47.0	< 0.0002	0.00473	0.0008	0.000586	0.0527	0.001	0.00003
12-Jan-11	4	300	290	8.15	460	#N/A	4.3	193.8	87	2.4	0.60	< 0.3	86.9	0.0102	0.0028	0.0107	0.0292	< 0.00002	< 0.00001	0.270	< 0.000003	22.9	0.0005	0.000071	0.0064	0.003	0.00006	0.004	7.20	0.0024	< 0.01	0.00841	0.0007	0.026	19.3	0.00018	12.0	< 0.00001	73.2	0.346	32.8	< 0.0002	0.00545	0.0005	0.00986	0.0631	0.002	0.00005
19-Jan-11	5	300	295	8.12	415				60																																								
26-Jan-11	6	300	300	8.15	382	#N/A	4.3	179.2	50	1.5	0.60	< 0.3	62	0.0104	0.0027	0.0090	0.0359	< 0.00002	< 0.00001	0.203	< 0.000003	16	< 0.0005	0.00004	0.0032	< 0.002	0.00012	0.005	5	0.0002	< 0.01	0.004	0.0004	0.018	13.9	0.00047	8.91	< 0.00001	44.5	0.24	24	< 0.0002	0.0060	0.0009	0.00012	0.0645	0.004	0.00008
2-Feb-11	7	300	300	8.13	323				45																																							
9-Feb-11	8	300	305	8.19	303	#N/A	2.5	158.1	34	3.0	0.50	< 0.3	78.3	0.0100	0.0025	0.0084	0.0482	< 0.00002	< 0.00001	0.168	< 0.000003	21.0	0.0013	0.000093	0.0022	< 0.002	0.00209	0.004	6.28	0.0021	< 0.01	0.00325	0.0012	0.027	15.1	0.00051	11.0	< 0.00001	39.1	0.296	13.7	< 0.0002	0.00771	< 0.0001	0.000167	0.0634	< 0.001	0.00001
16-Feb-11	9	300	300	8.14	307				30																																							
23-Feb-11	10	300	305	8.11	318	#N/A	3.8	146.3	33	1.8	0.43	< 0.3	89.8	0.0087	0.0021	0.0079	0.0532	< 0.00002	< 0.00001	0.117	< 0.000003	23.7	0.0012	0.000042	0.0036	< 0.002	0.00181	0.004	7.41	0.0015	0.01	0.00227	0.0006	0.024	14.6	0.00174	10.8	< 0.00001	30.4	0.334	12.1	< 0.0002	0.00591	0.0003	0.000119	0.0576	0.003	0.00001
2-Mar-11	11	300	290	8.10	303				34																																							
9-Mar-11	12	300	300	8.10	307	#N/A	3.4	139.7	30	2.5	0.39	< 0.3	94.1	0.0077	0.0021	0.0075	0.0650	< 0.00002	< 0.00001	0.0981	0.000004	24.9	0.0007	0.000051	0.0019	< 0.002	0.00136	0.005	7.76	0.0022	0.01	0.00255	0.0005	0.036	15.2	0.00053	10.3	< 0.00001	18.8	0.366	9.71	< 0.00002	0.00563	0.0002	0.000106	0.0557	0.003	0.00002
16-Mar-11	13	300	295	8.09	291				30																																							
23-Mar-11	14	300	300	8.12	283	#N/A	3.2	131.0	31	2.4	0.34	< 0.3	97.7	0.0072	0.0018	0.0064	0.0647	< 0.00002	< 0.00001	0.0718	< 0.000003	26.0	0.0009	0.000060	0.0019	< 0.002	0.00003	0.004	7.95	0.0012	< 0.01	0.00280	0.0006	0.031	14.7	0.00056	9.56	< 0.00001	13.1	0.374	9.72	< 0.0002	0.00904	0.0002	0.000102	0.0529	< 0.001	0.00001
30-Mar-11	15	300	280	8.05	270				17																																							
6-Apr-11	16	300	300	8.00	269	#N/A	6.0	131.6	20	1.8	0.32	< 0.3	97.0	0.0082	0.0025	0.0071	0.0706	< 0.00002	< 0.00001	0.0614	< 0.000003	26.1	< 0.0005	0.00005	0.0019	0.005	0.00006	0.004	7.76	0.0061	< 0.01	0.00277	0.0002	< 0.009	13.5	0.00015	9.15	< 0.00001	9.06	0.325	8.27	< 0.00002	0.0148	0.0003	0.00012	0.0540	0.003	0.00002
13-Apr-11	17	300	305	7.98	254				19																																							
20-Apr-11	18	300	300	7.98	251	#N/A	6.9	117.1	18	3.0	0.30	< 0.3	88.1	0.0104	0.0017	0.0068	0.0643	< 0.00002	< 0.00001	0.0576	< 0.000003	23.3	< 0.0005	0.00010	0.0016	< 0.002	0.00003	0.003	7.24	0.0016	< 0.01	0.00449	0.0002	< 0.009	12.1	0.00121	8.59	< 0.00001	6.33	0.345	8.17	< 0.00002	0.0310	0.0004	0.00010	0.0582	0.004	0.00003
27-Apr-11	19	300	290	7.99	255				18																																							
4-May-11	20	300	305	8.00	253	#N/A	4.4	118.0	17	3.1	0.24	< 0.3	95.6	0.0085	0.0020	0.0059	0.0669	< 0.00002	< 0.00001	0.0450	0.000005	25.6	< 0.0005	0.00008	0.0015	< 0.02	0.00005	0.003	7.72	0.0014	0.01	0.00523	0.0010	0.017	12.6	< 0.00004	8.36	< 0.00001	4.75	0.368	7.59	< 0.00002	0.0431	0.0003	0.00011	0.0522	0.001	0.00002
11-May-11	21	300	290	7.99	238				19																																							
18-May-11	22	300	300	7.99	249	#N/A	3.2	100.0	18	3.8	0.20	< 0.3	98.3	0.0075	0.0014	0.0064	0.0721	< 0.00002	< 0.00001	0.0428	< 0.000003	26.2	0.0007	0.00007	0.0011	< 0.002	< 0.00002	0.003	7.97	0.0021	0.01	0.00563	0.0007	0.036	13.2	0.0008	9.41	< 0.00001	4.03	0.371	8.00	< 0.00002	0.0544	0.0011	0.00011	0.0542	< 0.001	< 0.00001
25-May-11	23	300	308	8.07	241				17																																							
1-Jun-11	24	300	295	8.06	241	#N/A	4.8	97.7	17	3.8	0.20	< 0.3	92.5	0.0084	0.0016	0.0066	0.0750	< 0.00002	< 0.00001	0.0441	< 0.000003	24.8	< 0.0005	0.00012	0.0014	< 0.002	< 0.00002	0.003	7.43	0.0016	0.01	0.00673	< 0.0001	0.066	12.1	0.00044	8.88	< 0.00001	3.05	0.351	7.10	< 0.00002	0.0790	0.0002	0.00011	0.0574	0.002	< 0.00001
8-Jun-11	25	300	295	7.98	233				17																																							
15-Jun-11	26	300	295	8.22	243				15																																							
22-Jun-11	27	300	295	8.17	230				27																																							
29-Jun-11	28	300	305	8.20	223	#N/A	3.2	101.0	21	3.4	0.17	< 0.3	87.6	0.0104	0.0014	0.0073	0.0770	< 0.00002	< 0.00001	0.0424	0.000004	23.1	< 0.0005	0.00004	0.0011	< 0.002	0.00006	0.003	7.27	0.0010	0.01	0.0109	0.0005	< 0.009	11.8	0.00040	9.00	< 0.00001	2.17	0.344	6.85	< 0.00002	0.118	0.0001	0.00011	0.0619	0.003	< 0.00001
6-Jul-11	29	300	295	8.01	237				21																																							
13-Jul-11	30	300	295	7.94	236				18																																							
20-Jul-11	31	300	290	8.03	233				22																																							
27-Jul-11	32	300	300	8.02	229	#N/A	3.8	99.9	21	1.9	0.17	< 0.3	84.7	0.0105	0.0014	0.0064	0.0794	< 0.00002	< 0.00001	0.0338	< 0.000003	22.4	< 0.0005	0.00009	0.0015	0.048	0.00004	0.003	6.99	0.0437	< 0.01	0.0182	0.0012	0.039	10.4	0.00086	7.44	< 0.00001	1.67	0.337	7.06	< 0.00002	0.131	0.0005	0.00012	0.0584	0.006	< 0.00001
3-Aug-11	33	300	285	7.95	219				20																																							
10-Aug-11	34	300	305	7.99	225				16																																							
17-Aug-11	35	300	290	8.02	224				20																																							
24-Aug-11	36	300	300	7.98	222	#N/A	6.4	102.6	19	1.7	0.14	< 0.3	97.0	0.0096	0.0015	0.0065	0.0870	< 0.00002	< 0.00001	0.0322	0.000006	25.5	0.0016	0.000038	0.0017	< 0.002	0.00005	0.004	8.10	0.0009	< 0.01	0.0240	< 0.0001	< 0.009	11.3	0.00334	8.71	< 0.00001	1.62	0.381	7.34	< 0.00002	0.146	< 0.0001	0.000109	0.0590	0.003	< 0.00001
31-Aug-11	37	300	310	8.01	219				21																																							
7-Sep-11	38	300	300	8.12	202	#N/A	4.2	95.7	18	1.2	0.11	< 0.3	86.5	0.0105	0.0014	0.0074	0.0772	< 0.00002	0.00002	0.0305	< 0.000003	22.9	0.0020	0.00003	0.0013	0.004	0.00014	0.003	7.10	0.0005	< 0.01	0.0266	0.0006	< 0.009	9.91	0.00098	7.32	< 0.00001	1.27	0.338	6.56	< 0.00002	0.145	0.0003	0.00009	0.0583	0.003	< 0.00001
14-Sep-11	39	300	300	8.03	209	#N/A	5.7	98.7	17	1.4	0.12	< 0.3	91.9	0.0111	0.0014	0.0069	0.0852	< 0.00002	< 0.00001	0.0289	0.000004	24.1	0.0018	0.00006	0.0013	0.009	0.00005	0.003	7.72	0.0011	0.06	0.0240	< 0.0001	< 0.009	9.97	0.00068	7.47	< 0.00001	1.38	0.363	6.20	< 0.00002	0.151	0.0002	0.00011	0.0570	0.002	0.00001
21-Sep-11	40	300	285	7.96	206	#N/A	5.6	99.3	15	1.3	0.09	< 0.3	89.2	0.0098	0.0012	0.0066	0.0830	< 0.00002	< 0.00001	0.0245	< 0.000003	23.4	0.0018	0.00003	0.0014	0.007	0.00004	0.003	7.49	0.0010	0.01	0.0233	0.0001	0.010	9.53	0.00084	7.11	< 0.00001	1.25	0.348	6.03	< 0.00002	0.157	0.0002	0.00010	0.0554	0.003	< 0.00001
28-Sep-11	41	300	300	8.00	214				18																																							
5-Oct-11	42	300	300	7.99	211				15																																							
12-Oct-11	43	300	285	7.96	215				16																																							
19-Oct-11	44	300	305	7.99	210	#N/A	3.0	101.6	13	1.1	0.10	< 0.3	94.0	0.0090	0.0012	0.0058	0.0935	< 0.00002	< 0.00001	0.0220	< 0.000003	24.6	0.0020	0.00003	0.0013	< 0.003	0.00016	0.003	7.91	< 0.0002	< 0.01	0.0213	0.0001	< 0.009	10.0	0.00078	7.34	< 0.00001	1.12	0.364	5.21	< 0.00002	0.149	0.0001	0.00008	0.0504	0.005	< 0.00001
26-Oct-11	45	300	290	8.01	207				15																																							
2-Nov-11	46	300	305	8.01	206				16																																							
9-Nov-11	47	300	300	7.96	206				11																																							
16-Nov-11	48	300	295	8.00	202	#N/A	3.9	100.1	12	1.0	0.11	< 0.3	89.1	0.0209	0.0013	0.0061	0.0954	< 0.00002	< 0.00001	0.0234	0.000010	23.4	< 0.0005	0.00004	0.0015	< 0.003	0.00006	0.003	7.47	< 0.0002	0.01	0.0256	0.0006	< 0.009	8.92	< 0.00004	7.04	< 0.00001	0.94	0.343	5.04	< 0.00002	0.175	0.0008	0.00008	0.0507	0.002	< 0.00001
23-Nov-11	49	300	295	8.00	202				9																																							
30-Nov-11	50	300	285	7.97	203				11																																							
7-Dec-11	51	300	290	8.01	206				9																																							
14-Dec-11	52	300	300	8.00	204	#N/A	4.2	104.2	9	0.9	0.09	< 0.3	86.8	0.0110	0.0010	0.0052	0.0945	< 0.00002	< 0.00001	0.0194	0.000018	22.8	0.0022	0.000042	0.0018	0.010	0.00014	0.003	7.25	< 0.0002	0.01	0.0261	< 0.0001	< 0.009	9.15	0.00061	7.51	< 0.00001	0.83	0.347	4.43	< 0.00002	0.171	0.0004	0.000098	0.0461	0.005	0.00017
21-Dec-11	53	300	295	8.01	204				11																																							
28-Dec-11	54	500	495	7.96	189				8																																							
4-Jan-12	55	300	295	7.98	191				6																																							
11-Jan-12	56	300	305	7.97	199	#N/A	3.6	117.2	8	0.8	0.08	< 0.3	90.3	0.0436	0.0011	0.0053	0.105	< 0.00002	< 0.00001	0.0181	0.000097	23.6	< 0.0005	0.000043	0.0013	< 0.003	0.00016	0.003	7.63	0.0006	0.01	0.0194	0.0006	< 0.009	9.01	0.00116	6.69	< 0.00001	0.71	0.358	4.04	< 0.00002	0.173	0.0003	0.000069	0.0440	0.004	< 0.00001
18-Jan-12	57	300	290	8.01	204				10																																							
25-Jan-12	58	300	300	7.97	201				17																																							
1-Feb-12	59	300	300	7.94	209				9																																							
8-Feb-12	60	300	290	7.99	206	#N/A	6.3	122.0	12	0.8	0.08	< 0.3	87.2	0.0218	0.0014	0.0048	0.102	< 0.00002	< 0.00001	0.0158	0.000010	23.0	0.0006	0.000055	0.0013	< 0.003	< 0.00002	0.003	7.25	0.0002	< 0.01	0.0292	0.0002	< 0.009	8.65	0.00124	6.22	< 0.00001	0.76	0.359	3.94	< 0.00002	0.169	0.0004	0.000082	0.0452	0.003	< 0.00001
15-Feb-12	61	300	300	7.98	205				12																																							
22-Feb-12	62	300	290	8.03	200				9																																							
29-Feb-12	63	300	295	7.96	199				8																																							
7-Mar-12	64	300	280	7.97	204	#N/A	7.5	108.0	8	1.0	0.07	< 0.3	94.8	0.0200	0.0010	0.0051	0.105	< 0.00002	< 0.00001	0.0157	< 0.000003	24.6	< 0.0005	0.000023	0.0013	< 0.003	< 0.00002	0.003	8.08	0.0002	< 0.01	0.0251	0.0004	< 0.009	9.33	0.00111	7.05	< 0.00001	0.68	0.377	4.12	< 0.00002	0.161	0.0002	0.000074	0.0445	0.001	< 0.00001
14-Mar-12	65	300	305	7.94	199				13																																							
21-Mar-12	66	300	280	7.93	207				10																																							
28-Mar-12	67	300	305	7.93	208				12																																							
4-Apr-12	68	300	295	8.00	193	#N/A	3.6	100.7	10	0.6	0.08	< 0.3	83.9	0.0533	0.0009	0.0046	0.0992	< 0.00002	< 0.00001	0.0153	< 0.000003	21.8	< 0.0005	0.000013	0.0011	< 0.003	< 0.00002	0.003	7.13	< 0.0002	< 0.01	0.0216	0.0003	< 0.009	8.11	0.00109	6.16	< 0.00001	0.61	0.341	3.88	< 0.00002	0.155	< 0.0001	0.000061	0.0402	0.003	< 0.00001
11-Apr-12	69	300	295	8.07	193				11																																							
18-Apr-12	70	300	295	7.97	190				9																																							
25-Apr-12	71	300	300	7.96	197				12																																							
2-May-12	72	300	285	7.88	192	#N/A	8.1	98.6	15	0.9	0.06	< 0.3	91.2	0.0956	0.0009	0.0043	0.0992	< 0.00002	< 0.00001	0.0259	< 0.000003	24.6	0.0008	0.000031	0.0017	0.005	0.00023	0.003	7.23	0.0004	0.11	0.0199	0.0005	< 0.009	7.59	0.00089	5.94	< 0.00001	0.66	0.345	3.77	< 0.00002	0.154	0.0004	0.000069	0.0405	0.007	0.00001
9-May-12	73	300	305	8.06	192				10																																							
16-May-12	74	300	290	7.99	190				8																																							

Col 5
Sample = Col-5 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
23-May-12	75	300	300	7.89	186				8																																						
30-May-12	76	300	290	7.96	180	#N/A	4.9	91.1	7	0.5	0.08	< 0.3	76.2	0.0427	0.0009	0.0046	0.0839	< 0.00002	< 0.00001	0.0154	< 0.000003	19.8	< 0.0005	0.000032	0.0011	< 0.003	< 0.00002	0.003	6.50	0.0002	< 0.01	0.0173	0.0002	< 0.009	7.70	0.00112	5.82	< 0.00001	0.52	0.314	3.27	< 0.00002	0.150	0.0002	0.000065	0.0399	0.002	< 0.00001
6-Jun-12	77	300	295	7.98	186				6																																						
13-Jun-12	78	300	295	7.89	178				7																																						
20-Jun-12	79	300	295	7.96	176				7																																						
27-Jun-12	80																																														
4-Jul-12	81	500	280	7.96	201	#N/A	4.7	98.3	9	0.4	0.08	< 0.3	78.5	0.0436	0.0010	0.0054	0.109	< 0.00002	< 0.00001	0.0184	< 0.000003	19.6	< 0.0005	0.000023	0.0036	< 0.003	0.00008	0.003	7.20	0.0025	0.01	0.0199	< 0.0001	< 0.009	9.59	0.00236	6.32	< 0.00001	0.78	0.330	4.84	< 0.00002	0.181	0.0003	0.000070	0.0501	0.005	< 0.00001
11-Jul-12	82																																														
18-Jul-12	83	450	265	7.72	200				10																																						
25-Jul-12	84																																														
1-Aug-12	85	500	245	8.17	252	#N/A	3.1	131.5	8	0.2	0.09	< 0.3	97.7	0.0904	0.0016	0.0058	0.130	< 0.00002	< 0.00001	0.0273	< 0.000003	22.3	< 0.0005	0.000038	0.0030	< 0.003	0.00004	0.006	10.2	0.0043	< 0.01	0.0113	0.0003	< 0.009	17.4	0.00150	8.89	< 0.00001	1.18	0.405	4.55	< 0.00002	0.171	0.0003	0.000095	0.0497	0.003	< 0.00001
8-Aug-12	86																																														
15-Aug-12	87	500	250	8.08	262				11																																						
22-Aug-12	88																																														
29-Aug-12	89	500	315	7.96	188	#N/A	5.0	95.4	13	0.4	0.09	< 0.3	68.8	0.0713	0.0013	0.0059	0.106	< 0.00002	< 0.00001	0.0175	< 0.000003	15.8	< 0.0005	0.000022	0.0039	0.005	< 0.00002	0.003	7.11	0.0005	0.07	0.0106	0.0002	< 0.009	14.2	0.00182	7.06	< 0.00001	0.85	0.292	3.91	< 0.00002	0.175	0.0004	0.000079	0.0534	0.003	0.00002
5-Sep-12	90																																														
12-Sep-12	91	500	220	8.14	341				11																																						
19-Sep-12	92																																														
26-Sep-12	93	500	295	7.98	210	#N/A	3.8	110.2	15	0.4	0.08	< 0.3	78.7	0.0414	0.0012	0.0063	0.110	< 0.00002	< 0.00001	0.0195	< 0.000003	17.8	< 0.0005	0.000021	0.0015	< 0.003	< 0.00002	0.004	8.34	0.0020	< 0.01	0.00995	0.0003	< 0.009	15.4	0.00169	8.64	0.00001	0.94	0.314	4.38	< 0.00002	0.179	0.0004	0.000081	0.0539	0.001	0.00001
3-Oct-12	94																																														
10-Oct-12	95	500	215	8.02	334				10																																						
17-Oct-12	96																																														
24-Oct-12	97	500	215	8.16	385	#N/A	5.3	228.3	11	< 0.2	0.07	< 0.3	154	0.0534	0.0016	0.0056	0.243	< 0.00002	< 0.00001	0.0237	0.000009	35.2	< 0.0005	0.000062	0.0021	< 0.003	0.00197	0.008	16.2	0.0080	0.01	0.00592	0.0005	< 0.009	25.0	0.00167	10.0	< 0.00001	1.40	0.640	3.87	< 0.00002	0.105	0.0002	0.000094	0.0388	0.002	< 0.00001
31-Oct-12	98																																														
7-Nov-12	99	500	200	8.13	388				7																																						
14-Nov-12	100																																														
21-Nov-12	101	500	310	8.05	197	#N/A	5.4	105.6	16	0.3	0.10	< 0.3	78.6	0.0206	0.0011	0.0069	0.119	< 0.00002	< 0.00001	0.0151	0.000009	17.8	< 0.0005	0.000170	0.0027	0.005	0.00004	0.003	8.30	0.0007	0.01	0.00711	0.0005	< 0.009	15.5	0.00163	8.16	0.00002	1.00	0.323	4.12	< 0.00002	0.167	0.0003	0.000084	0.0533	0.002	< 0.00001
28-Nov-12	102																																														
5-Dec-12	103	300	255	8.03	199				8																																						
12-Dec-12	104																																														
19-Dec-12	105	500	285	8.16	214	#N/A	3.6	129.9	8	< 0.2	0.07	< 0.3	81.6	0.0177	0.0014	0.0066	0.125	< 0.00002	< 0.00001	0.0260	< 0.000003	18.1	< 0.0005	0.000030	0.0014	< 0.003	< 0.00002	0.004	8.86	0.0031	< 0.01	0.00693	0.0003	< 0.009	18.5	0.00124	7.60	< 0.00001	1.02	0.332	3.78	< 0.00002	0.182	0.0002	0.000090	0.0528	0.001	< 0.00001
26-Dec-12	106																																														
2-Jan-13	107	500	225	8.06	347				8																																						
9-Jan-13	108																																														
16-Jan-13	109	500	305	8.12	350	#N/A	3.7	221.5	7	< 0.2	0.07	< 0.3	145	0.0184	0.0016	0.0053	0.250	< 0.00002	< 0.00001	0.0275	< 0.000003	32.7	0.0007	0.000071	0.0021	< 0.003	< 0.00002	0.008	15.4	0.0054	< 0.01	0.00470	0.0006	< 0.009	25.2	0.00117	8.86	< 0.00001	1.21	0.621	3.72	< 0.00002	0.113	0.0002	0.000111	0.0410	0.002	< 0.00001
23-Jan-13	110																																														
30-Jan-13	111	500	240	8.16	407				8																																						
6-Feb-13	112																																														
13-Feb-13	113	600	310	8.09	451	#N/A	9.5	261.2	9	< 0.2	0.06	< 0.3	174	0.0027	0.0015	0.0061	0.268	< 0.00002	< 0.00001	0.0285	< 0.000003	37.3	< 0.0005	0.000192	0.0020	< 0.003	0.00021	0.009	19.6	0.0023	< 0.01	0.00316	0.0004	< 0.009	27.9	0.00133	11.9	< 0.00001	1.36	0.774	3.19	< 0.00002	0.112	< 0.0001	0.000153	0.0472	0.001	< 0.00001
20-Feb-13	114																																														
27-Feb-13	115	500	230	8.06	404				7																																						
6-Mar-13	116																																														
13-Mar-13	117	500	270	8.03	403	#N/A	8.2	220.7	5	0.3	0.06	< 0.3	185	0.0014	0.0014	0.0053	0.355	< 0.00002	< 0.00001	0.0309	< 0.000003	42.1	0.0007	0.000056	0.0022	0.004	0.00002	0.008	19.3	0.0050	< 0.01	0.00453	0.0003	< 0.009	30.9	0.00135	11.5	< 0.00001	1.33	0.781	3.40	< 0.00002	0.106	< 0.0001	0.000133	0.0427	0.003	< 0.00001

Cell Terminated .
June 27/12 Change in analytical schedule

Col 6
Sample = Col-6 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	650	220	7.28	4497	#N/A	19.1	312.6	2474	63	0.11	< 3	1870	0.0044	0.0046	0.0654	0.115	< 0.00002	0.00006	0.290	0.00296	360	0.0037	0.00839	0.0484	0.013	0.00021	0.008	237	0.0675	0.08	6.83	0.741	1.06	232	0.0192	9.42	0.00065	474	5.93	891	0.0003	0.00251	0.0025	0.000774	0.00747	0.006	0.00127
29-Dec-10	2	300	300	7.84	2391	#N/A	14.3	174.3	1020	15	0.10	< 0.3	702	0.0029	0.0042	0.0781	0.0505	< 0.00002	0.00005	0.369	0.00333	140	0.0014	0.00355	0.0211	0.004	0.00252	0.006	85.7	0.0600	0.01	7.98	0.313	0.193	159	0.00588	11.7	0.00005	238	2.46	440	< 0.0002	0.00297	0.0013	0.000821	0.00573	0.004	0.00024
5-Jan-11	3	300	295	7.96	1483	#N/A	9.6	157.1	643	4.6	0.09	< 0.3	384	0.0032	0.0035	0.0488	0.0423	< 0.00002	< 0.00001	0.344	0.00191	74.8	0.0010	0.00200	0.0163	< 0.002	0.00006	0.005	48.0	0.0337	< 0.01	5.11	0.152	0.108	122	0.00279	10.6	< 0.00001	149	1.34	220	< 0.0002	0.00407	0.0011	0.000518	0.00677	0.006	0.00007
12-Jan-11	4	300	290	8.04	1093	#N/A	5.7	163.8	424	2.5	0.11	< 0.3	276	0.0156	0.0038	0.0515	0.0421	< 0.00002	< 0.00001	0.365	0.00155	53.1	0.0007	0.00128	0.0212	0.004	0.00052	0.004	34.9	0.0240	< 0.01	3.61	0.0975	0.077	87.5	0.00227	11.6	< 0.00001	115	1.03	162	< 0.0002	0.00485	0.0009	0.000776	0.00736	0.044	0.00006
19-Jan-11	5	300	300	8.05	909				323																																								
26-Jan-11	6	300	300	8.06	805	#N/A	5.7	144.8	288	0.7	0.13	< 0.3	172	0.0032	0.0035	0.0518	0.0456	< 0.00002	< 0.00001	0.329	0.00016	33.4	< 0.0005	0.00052	0.0061	< 0.002	0.00004	0.004	21.6	0.0089	< 0.01	1.58	0.0435	0.053	66.1	0.00168	9.5	< 0.00001	64	0.64	132	< 0.0002	0.00525	0.0009	0.000285	0.00743	0.003	0.00003
2-Feb-11	7	300	300	8.05	717				286																																								
9-Feb-11	8	300	305	8.05	767	#N/A	4.0	125.6	305	0.6	0.15	< 0.3	250	0.0021	0.0032	0.0478	0.0664	< 0.00002	< 0.00001	0.326	0.000117	49.4	0.0006	0.000731	0.0051	< 0.002	0.00019	0.004	30.7	0.0102	< 0.01	0.785	0.0587	0.066	78.1	0.00273	11.3	< 0.00001	52.2	0.909	109	< 0.0002	0.00470	0.0018	0.000321	0.00705	< 0.001	< 0.00001
16-Feb-11	9	300	305	8.04	880				292																																							
23-Feb-11	10	300	305	8.00	964	#N/A	5.8	123.4	403	< 2	0.10	< 0.3	334	0.0031	0.0024	0.0370	0.0646	< 0.00002	< 0.00001	0.269	0.000047	66.7	0.0013	0.000703	0.0058	< 0.002	0.00585	0.005	40.6	0.0098	0.01	0.447	0.0751	0.081	77.8	0.00155	11.4	< 0.00001	35.2	1.19	132	< 0.0002	0.00401	0.0010	0.000345	0.00561	0.003	0.00002
2-Mar-11	11	300	305	8.06	951				412																																								
9-Mar-11	12	300	290	8.02	1139	#N/A	6.1	149.5	463	3.0	0.08	< 0.3	430	0.0097	0.0023	0.0294	0.0784	< 0.00002	< 0.00001	0.260	0.000058	88.0	0.0007	0.00112	0.0092	< 0.002	0.00148	0.005	51.7	0.0159	0.01	0.378	0.115	0.043	89.0	0.00124	12.3	< 0.00001	24.3	1.48	142	0.00015	0.00387	0.0015	0.000541	0.00496	0.003	0.00005
16-Mar-11	13	300	250	7.94	1049				402																																								
23-Mar-11	14	300	330	8.04	1065	#N/A	5.3	151.2	395	3.2	0.08	< 0.3	434	0.0017	0.0019	0.0316	0.0556	< 0.00002	< 0.00001	0.203	0.000059	88.6	0.0008	0.000997	0.0039	< 0.002	0.00306	0.005	51.8	0.0173	< 0.01	0.324	0.111	0.047	89.2	0.00156	12.2	< 0.00001	15.2	1.53	150	< 0.0002	0.00301	0.0012	0.000571	0.00455	0.049	< 0.00001
30-Mar-11	15	300	295	7.97	948				338																																								
6-Apr-11	16	300	300	7.95	916	#N/A	7.8	147.3	338	2.9	0.09	< 0.3	370	0.0026	0.0024	0.0335	0.0566	< 0.00002	< 0.00001	0.157	0.000111	78.5	< 0.0005	0.00084	0.0027	0.005	0.00271	0.004	41.7	0.0223	< 0.01	0.289	0.0906	< 0.009	75.6	0.00048	11.9	< 0.00001	8.91	1.12	112	0.00014	0.00277	0.0010	0.00046	0.0044	0.052	0.00002
13-Apr-11	17	300	305	7.97	852				287																																								
20-Apr-11	18	300	305	7.96	832	#N/A	10.0	145.3	253	3.4	0.09	< 0.3	310	0.0038	0.0016	0.0326	0.0535	< 0.00002	< 0.00001	0.154	0.000065	65.1	< 0.0005	0.00089	0.0029	< 0.002	0.00037	0.004	35.3	0.0183	< 0.01	0.305	0.0731	0.026	61.7	0.00227	11.2	0.00001	6.55	1.06	96.2	0.00013	0.00297	0.0021	0.00037	0.0046	0.007	0.00005
27-Apr-11	19	300	295	7.97	821				273																																								
4-May-11	20	300	300	7.98	749	#N/A	6.3	138.1	213	3.1	0.09	< 0.3	270	0.0019	0.0019	0.0254	0.0501	< 0.00002	< 0.00001	0.113	0.000034	57.1	< 0.0005	0.00064	0.0019	< 0.02	0.00002	0.004	31.0	0.0127	< 0.01	0.287	0.0650	0.037	62.7	0.00010	10.4	< 0.00001	4.94	0.918	80.2	0.00009	0.00339	0.0024	0.00029	0.0044	0.002	< 0.00001
11-May-11	21	300	300	8.00	705				223																																								
18-May-11	22	300	295	7.98	691	#N/A	6.0	115.4	188	2.9	0.11	< 0.3	243	0.0018	0.0016	0.0279	0.0507	< 0.00002	< 0.00001	0.120	0.000026	51.6	0.0009	0.00055	0.0018	< 0.002	0.00095	0.003	27.6	0.0118	< 0.01	0.276	0.0558	0.022	60.8	0.00232	11.5	< 0.00001	4.16	0.794	71.2	0.00012	0.00304	0.0016	0.00029	0.0045	0.031	< 0.00001
25-May-11	23	300	295	8.11	638				190																																								
1-Jun-11	24	300	295	8.08	629	#N/A	5.6	117.7	183	2.8	0.09	< 0.3	210	0.0254	0.0016	0.0256	0.0558	< 0.00002	< 0.00001	0.109	0.00169	46.2	< 0.0005	0.00261	0.407	< 0.002	0.00864	0.004	24.0	0.0103	< 0.01	0.231	0.0511	0.076	54.7	0.00197	10.6	< 0.00001	3.22	0.706	59.6	0.00012	0.00246	0.0012	0.00029	0.0047	0.040	< 0.00001
8-Jun-11	25	300	295	8.01	620				165																																								
15-Jun-11	26	300	295	8.22	583				148																																								
22-Jun-11	27	300	290	8.21	545				184																																								
29-Jun-11	28	300	300	8.12	521	#N/A	3.3	131.0	137	2.3	0.09	< 0.3	170	0.106	0.0014	0.0289	0.0529	< 0.00002	< 0.00001	0.105	0.000030	38.3	< 0.0005	0.00054	0.0038	< 0.002	0.00007	0.004	19.2	0.0074	< 0.01	0.270	0.0399	< 0.009	49.6	0.00132	10.7	< 0.00001	2.62	0.575	44.1	0.00011	0.00302	0.0011	0.00020	0.0053	0.006	< 0.00001
6-Jul-11	29	300	295	8.04	513				123																																								
13-Jul-11	30	300	300	7.96	493				114																																								
20-Jul-11	31	300	300	8.06	470				114																																								
27-Jul-11	32	300	300	8.05	457	#N/A	4.5	122.5	101	1.8	0.12	< 0.3	130	0.0031	0.0020	0.0274	0.0548	< 0.00002	< 0.00001	0.0954	0.000020	29.6	< 0.0005	0.00028	0.0028	0.046	0.00004	0.003	14.7	0.0464	< 0.01	0.239	0.0332	0.029	41.5	0.00174	8.62	< 0.00001	1.98	0.427	32.1	0.00008	0.00302	0.0016	0.00011	0.0051	0.004	< 0.00001
3-Aug-11	33	300	290	8.00	444				104																																								
10-Aug-11	34	300	290	8.03	435				86																																								
17-Aug-11	35	300	285	8.04	430				89																																								
24-Aug-11	36	300	290	8.01	425	#N/A	6.8	117.3	96	1.7	0.11	< 0.3	135	0.0337	0.0019	0.0358	0.0686	< 0.00002	0.00085	0.0785	0.000021	30.4	0.0026	0.00119	0.0016	< 0.002	0.00023	0.003	14.3	0.0018	< 0.01	0.239	0.0308	< 0.009	43.3	0.00157	9.54	< 0.00001	1.77	0.433	31.1	0.00026	0.00473	0.0006	0.000116	0.00564	0.006	0.00002
31-Aug-11	37	300	295	8.00	428				100																																								
7-Sep-11	38	300	290	8.13	415	#N/A	4.5	116.4	98	1.6	0.09	< 0.3	135	0.0045	0.0015	0.0328	0.0652	< 0.00002	< 0.00001	0.0780	0.000047	30.7	0.0016	0.00025	0.0185	< 0.002	0.00010	0.003	14.1	0.0029	< 0.01	0.252	0.0261	< 0.009	42.2	0.00368	8.63	< 0.00001	1.64	0.427	32.1	0.00008	0.00554	0.0014	0.00012	0.0055	0.004	< 0.00001
14-Sep-11	39	300	295	8.11	407	#N/A	5.5	114.8	101	1.5	0.10	< 0.3	130	0.0039	0.0015	0.0302	0.0696	< 0.00002	0.00003	0.0733	0.000043	30.5	0.0015	0.00017	0.0017	0.008	0.00005	0.003	14.1	0.0032	0.05	0.237	0.0273	< 0.009	40.4	0.00138	8.56	< 0.00001	1.66	0.421	29.1	0.00009	0.00683	0.0008	0.00012	0.0054	0.003	0.00002
21-Sep-11	40	300	295	8.00	399	#N/A	5.6	116.7	88	1.3	0.08	< 0.3	134	0.0067	0.0012	0.0328	0.0638	< 0.00002	< 0.00001	0.0694	0.000310	30.6	0.0022	0.00158	0.272	0.006	0.00008	0.003	14.0	0.0032	0.01	0.257	0.0288	0.016	41.4	0.00136	8.69	< 0.00001	1.63	0.423	29.9	0.00009	0.00722	0.0008	0.00010	0.0059	0.022	< 0.00001
28-Sep-11	41	300	295	8.00	392				83																																								
5-Oct-11	42	300	295	8.03	377				80																																								
12-Oct-11	43	300	290	7.98	378				78																																								
19-Oct-11	44	300	305	8.08	376	#N/A	3.3	114.9	71	1.0	0.14	< 0.3	123	0.0036	0.0011	0.0316	0.0571	< 0.00002	< 0.00001	0.0597	0.000941	28.1	0.0018	0.00053	0.0015	< 0.003	0.00153	0.002	12.7	0.0008	< 0.01	0.219	0.0283	< 0.009	41.9	0.00163	8.59	< 0.00001	1.40	0.371	25.2	0.00008	0.00759	0.0008	0.00009	0.0050	0.045	< 0.00001
26-Oct-11	45	300	300	8.05	378				77																																								
2-Nov-11	46	300	300	8.02	367				75																																								
9-Nov-11	47	300	295	7.99	371				65																																								
16-Nov-11	48	300	300	8.03	360	#N/A	4.3	115.2	75	0.9	0.11	< 0.3	121	0.0164	0.0014	0.0331	0.0758	< 0.00002	< 0.00001	0.0619	0.000021	28.1	< 0.0005	0.00011	0.0021	< 0.003	0.00009	0.002	12.3	0.0003	0.01	0.222	0.0254	< 0.009	39.6	0.00062	8.78	< 0.00001	1.20	0.362	23.7	0.00008	0.0155	0.0010	0.00008	0.0060	0.003	< 0.00001
23-Nov-11	49	300	255	8.03	356				59																																								
30-Nov-11	50	300	330	7.98	354				81																																								
7-Dec-11	51	300	295	8.02	344				56																																								
14-Dec-11	52	300	295	8.02	349	#N/A	4.8	118.0	55	0.8	0.10	< 0.3	108	0.0031	0.0011	0.0309	0.0729	< 0.00002	< 0.00001	0.0535	0.000004	24.8	0.0020	0.000097	0.0016	0.004	0.00019	0.002	11.2	< 0.0002	0.01	0.215	0.0230	< 0.009	41.5	0.00132	9.03	< 0.00001	1.04	0.334	19.4	0.00008	0.0204	0.0005	0.000097	0.00534	0.002	0.00002
21-Dec-11	53	300	300	8.03	341				63																																								
28-Dec-11	54	500	495	8.00	310				49																																								
4-Jan-12	55	300	300	7.99	308				46																																								
11-Jan-12	56	300	295	7.99	323	#N/A	3.6	129.5	55	0.8	0.11	< 0.3	106	0.0447	0.0014	0.0351	0.0851	< 0.00002	< 0.00001	0.0468	0.000027	24.3	< 0.0005	0.000085	0.0015	< 0.003	0.00042	0.002	10.9	0.0019	0.01	0.185	0.0213	< 0.009	39.0	0.00189	8.21	< 0.00001	0.96	0.320	18.1	0.00008	0.0245	0.0006	0.000073	0.00605	< 0.001	< 0.00001
18-Jan-12	57	300	295	8.01	328				56																																								
25-Jan-12	58	300	295	8.00	324				55																																								
1-Feb-12	59	300	295	7.97	327				53																																								
8-Feb-12	60	300	295	8.01	329	#N/A	5.7	134.0	53	0.7	0.10	< 0.3	100	0.0200	0.0014	0.0326	0.0833	< 0.00002	< 0.00001	0.0423	0.000022	23.6	0.0005	0.000099	0.0021	< 0.003	< 0.00002	0.002	10.0	0.0014	< 0.01	0.234	0.0203	0.009	36.7	0.00189	7.66	< 0.00001	0.97	0.311	16.6	0.00008	0.0287	0.0007	0.000084	0.00643	0.003	< 0.00001
15-Feb-12	61	300	295	7.98	331				65																																								
22-Feb-12	62	300	295	8.03	329				57																																								
29-Feb-12	63	300	295	7.99	320				65																																								
7-Mar-12	64	300	295	7.99	324	#N/A	7.7	118.4	47	0.8	0.10	< 0.3	106	0.0163	0.0011	0.0331	0.0840	< 0.00002	< 0.00001	0.0417	0.000011	25.1	< 0.0005	0.000067	0.0024	< 0.003	< 0.00002	0.002	10.6	0.0016	0.01	0.230	0.0195	0.014	40.2	0.00120	8.73	< 0.00001	0.93	0.320	17.5	0.00007	0.0331	0.0004	0.000074	0.00668	0.003	< 0.00001
14-Mar-12	65	300	295	7.97	324				54																																								
21-Mar-12	66	300	295	7.95	324				50																																								
28-Mar-12	67	300	295	7.97	330				50																																								
4-Apr-12	68	300	295	8.02	313	#N/A	4.0	113.6	52	0.7	0.10	< 0.3	96.6	0.0446	0.0010	0.0321	0.0813	< 0.00002	< 0.00001	0.0405	< 0.000003	22.9	< 0.0005	0.000053	0.0013	< 0.003	< 0.00002	0.002	9.58	0.0012	0.02	0.220	0.0187	0.012	35.3	0.00152	7.67	< 0.00001	0.80	0.296	16.3	0.00007	0.0369	0.0002	0.000069	0.00590	0.006	0.00002
11-Apr-12	69	300	295	8.09	312				53																																								
18-Apr-12	70	300	290	8.00	316				56																																								
25-Apr-12	71	300	295	8.01	322				52																																								
2-May-12	72	300	290	7.92	314	#N/A	8.6	111.4	52	0.7	0.09	< 0.3	99.3	0.0471	0.0010	0.0311	0.0838	< 0.00002	< 0.00001	0.0388	< 0.000003	23.7	< 0.0005	0.000060	0.0019	0.003	0.00005	0.002	9.76	0.0011	0.10	0.227	0.0167	< 0.009	33.0	0.00152	7.64	< 0.00001	0.82	0.297	16.5	0.00008	0.0432	0.0004	0.000084	0.00661	0.003	< 0.00001
9-May-12	73	300	300	8.08	312				47																																								
16-May-12	74	300	295	8.01	314				51																																								

Col 6
Sample = Col-6 WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
23-May-12	75	300	295	7.94	310				44																																						
30-May-12	76	300	295	8.00	308	#N/A	5.4	107.1	41	0.7	0.10	< 0.3	92.5	0.0591	0.0009	0.0352	0.0799	< 0.00002	< 0.00001	0.0425	< 0.000003	21.9	0.0005	0.000255	0.0023	< 0.003	0.00005	0.002	9.19	0.0015	< 0.01	0.238	0.0167	0.011	36.3	0.00219	7.74	< 0.00001	0.69	0.286	15.5	0.00008	0.0458	0.0009	0.000084	0.00651	0.004	0.00002
6-Jun-12	77	300	300	7.99	294				38																																						
13-Jun-12	78	300	290	7.93	293				39																																						
20-Jun-12	79	300	295	7.98	294				46																																						
27-Jun-12	80																																														
4-Jul-12	81	500	310	7.92	340	#N/A	5.2	93.4	57	0.2	0.10	< 0.3	93.5	0.0367	0.0009	0.0423	0.0699	< 0.00002	< 0.00001	0.0396	0.000033	21.9	< 0.0005	0.000148	0.0046	< 0.003	0.00003	0.002	9.45	0.0056	< 0.01	0.387	0.0126	0.028	41.8	0.00360	7.46	< 0.00001	0.88	0.288	23.6	0.00009	0.0607	0.0005	0.000088	0.00782	0.003	< 0.00001
11-Jul-12	82																																														
18-Jul-12	83	500	260	7.90	345				80																																						
25-Jul-12	84																																														
1-Aug-12	85	500	325	8.05	345	#N/A	3.7	88.3	70	0.2	0.13	< 0.3	89.6	0.0815	0.0012	0.0469	0.0641	< 0.00002	0.00002	0.0504	0.000005	19.5	0.0005	0.000104	0.0018	< 0.003	0.00079	0.002	9.93	0.0027	< 0.01	0.350	0.0081	0.015	46.8	0.00253	8.29	< 0.00001	0.97	0.269	25.7	0.00010	0.0696	0.0005	0.000104	0.0107	0.002	0.00001
8-Aug-12	86																																														
15-Aug-12	87	500	305	7.96	341				71																																						
22-Aug-12	88																																														
29-Aug-12	89	500	365	7.89	291	#N/A	5.1	84.5	58	0.2	0.11	< 0.3	79.6	0.0824	0.0012	0.0449	0.0680	< 0.00002	< 0.00001	0.0363	0.000007	18.0	< 0.0005	0.000099	0.0061	0.005	< 0.00002	0.002	8.42	0.0018	0.01	0.281	0.0069	< 0.009	42.4	0.00209	7.69	< 0.00001	0.82	0.248	19.6	0.00007	0.0713	0.0004	0.000057	0.00899	0.002	0.00003
5-Sep-12	90																																														
12-Sep-12	91	500	285	7.99	320				54																																						
19-Sep-12	92																																														
26-Sep-12	93	500	320	7.92	290	#N/A	4.5	91.5	60	< 0.2	0.11	< 0.3	73.7	0.0481	0.0009	0.0443	0.0604	< 0.00002	< 0.00001	0.0390	0.000027	15.9	0.0006	0.000068	0.0014	0.008	< 0.00002	0.002	8.27	0.0018	< 0.01	0.247	0.0060	< 0.009	39.8	0.00196	7.79	0.00001	0.81	0.213	18.0	0.00008	0.0785	0.0009	0.000044	0.00958	0.002	0.00003
3-Oct-12	94																																														
10-Oct-12	95	500	335	7.89	282				48																																						
17-Oct-12	96																																														
24-Oct-12	97	500	340	7.98	266	#N/A	3.8	94.6	40	< 0.2	0.12	< 0.3	64.9	0.0550	0.0008	0.0376	0.0568	< 0.00002	< 0.00001	0.0344	0.000010	14.2	< 0.0005	0.000066	0.0014	0.003	< 0.00002	0.001	7.18	0.0009	< 0.01	0.180	0.0061	< 0.009	34.8	0.00146	7.27	0.00019	0.67	0.193	13.0	0.00005	0.0767	0.0006	0.000043	0.00835	0.001	< 0.00001
31-Oct-12	98																																														
7-Nov-12	99	500	320	7.96	253				38																																						
14-Nov-12	100																																														
21-Nov-12	101	500	275	7.98	294	#N/A	5.6	103.1	48	0.2	0.10	< 0.3	87.5	0.0228	0.0008	0.0390	0.0782	< 0.00002	< 0.00001	0.0293	0.000010	19.5	0.0008	0.000201	0.0017	< 0.003	< 0.00002	0.002	9.43	0.0017	< 0.01	0.225	0.0086	< 0.009	35.5	0.00171	7.04	0.00002	0.79	0.267	17.2	0.00008	0.0725	0.0024	0.000061	0.00874	0.002	< 0.00001
28-Nov-12	102																																														
5-Dec-12	103	300	170	7.97	311				51																																						
12-Dec-12	104																																														
19-Dec-12	105	500	255	8.02	262	#N/A	3.9	84.4	54	< 0.2	0.08	< 0.3	71.7	0.0782	0.0008	0.0334	0.0574	< 0.00002	< 0.00001	0.0385	0.000004	15.3	0.0008	0.000174	0.0022	0.051	0.00002	0.002	8.13	0.0053	< 0.01	0.230	0.0071	0.013	44.1	0.00171	6.09	< 0.00001	0.91	0.207	19.8	0.00008	0.0830	0.0020	0.000034	0.00949	0.002	0.00001
26-Dec-12	106																																														
2-Jan-13	107	500	120	8.23	470				63																																						
9-Jan-13	108																																														
16-Jan-13	109	500	275	8.16	481	#N/A	3.5	224.4	51	< 0.2	0.07	< 0.3	133	0.0200	0.0020	0.0461	0.148	< 0.00002	< 0.00001	0.0665	0.000020	27.2	0.0010	0.000348	0.0026	< 0.003	0.00008	0.004	15.8	0.0053	< 0.01	0.217	0.0191	< 0.009	73.7	0.00204	10.4	< 0.00001	1.35	0.385	18.3	0.00014	0.0658	0.0003	0.000143	0.00790	0.002	< 0.00001
23-Jan-13	110																																														
30-Jan-13	111	600	320	8.12	422				39																																						
6-Feb-13	112																																														
13-Feb-13	113	600	315	8.24	526	#N/A	7.9	231.4	47	< 0.2	0.10	< 0.3	138	0.0039	0.0018	0.0518	0.132	< 0.00002	< 0.00001	0.0552	0.000012	28.3	0.0006	0.000364	0.0022	< 0.003	0.00003	0.004	16.5	0.0034	< 0.01	0.155	0.0181	< 0.009	73.6	0.00191	13.1	< 0.00001	1.29	0.400	14.7	0.00012	0.0667	0.0001	0.000197	0.00899	0.001	0.00001
20-Feb-13	114																																														
27-Feb-13	115	500	205	8.13	494				49																																						
6-Mar-13	116																																														
13-Mar-13	117	500	265	8.22	488	#N/A	5.3	199.9	44	0.2	0.10	< 0.3	143	0.0026	0.0017	0.0483	0.189	< 0.00002	< 0.00001	0.0606	0.000015	29.6	0.0007	0.000230	0.0026	0.005	0.00002	0.004	16.7	0.0039	< 0.01	0.199	0.0172	< 0.009	83.2	0.00220	12.2	< 0.00001	1.33	0.403	18.1	0.00011	0.0673	0.0002	0.000142	0.00897	< 0.001	< 0.00001

Cell Terminated
June 27/12 Change in analytical schedule

Col 7
Sample = 7R10669, Z110931,7R49056

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2-Jul-14	1	500	280	7.66	793	#N/A	5.1	86.4	129	36	0.45	< 0.3	128	0.0418	0.0113	0.0138	0.0110	0.000025	< 0.000007	0.326	0.000050	43.3	0.00048	0.000303	0.00564	0.003	0.00011	0.00230	4.76	0.0055	< 0.01	0.00619	0.0010	< 0.009	9.41	0.00038	5.83	0.000008	89.4	0.498	48.3	0.000007	0.00255	0.00037	0.000104	0.00840	0.004	< 0.002
9-Jul-14	2	300	245	8.10	541	#N/A	2.6	103.5	97	13	0.47	< 0.3	53.9	0.0372	0.0151	0.0510	0.0076	< 0.000007	0.000020	0.397	< 0.000003	17.5	0.00038	0.000071	0.00259	0.002	< 0.00001	0.00284	2.46	0.0018	< 0.01	0.00542	0.0004	0.011	5.76	0.00017	6.46	< 0.000002	74.7	0.235	34.7	< 0.000005	0.00351	0.00038	0.000107	0.0230	< 0.001	< 0.002
16-Jul-14	3	300	235	8.04	383	#N/A	4.0	101.5	52	3.7	0.42	< 0.3	32.3	0.0444	0.0156	0.0795	0.00695	< 0.000007	< 0.000007	0.286	< 0.000003	10.5	0.00017	0.000251	0.00271	0.046	< 0.00001	0.00255	1.48	0.0005	< 0.01	0.00733	0.0005	< 0.009	3.96	0.00012	5.63	< 0.000002	53.8	0.143	18.4	< 0.000005	0.00480	0.00021	0.000084	0.0396	< 0.001	< 0.002
23-Jul-14	4	300	255	8.11	282	#N/A	2.5	91.1	37	2.0	0.35	< 0.3	31.3	0.0518	0.0159	0.100	0.00688	< 0.000007	< 0.000007	0.243	< 0.000003	10.2	< 0.00003	0.000052	0.00167	0.002	0.00007	0.00220	1.41	0.0009	< 0.01	0.0134	0.0002	< 0.009	3.46	0.00009	5.72	< 0.000002	48.7	0.138	14.3	< 0.000005	0.00595	0.00028	0.000093	0.0422	< 0.001	< 0.002
30-Jul-14	5	300	240	8.25	292				33																																							
6-Aug-14	6	300	265	8.14	229	#N/A	1.6	90.8	22	0.6	0.25	< 0.3	29.9	0.0533	0.0194	0.106	0.00840	< 0.000007	< 0.000007	0.189	< 0.000003	9.85	< 0.00003	0.000045	0.00166	0.008	0.00002	0.00195	1.28	0.0010	< 0.01	0.00129	0.0001	< 0.009	3.01	0.00010	5.62	< 0.000002	38.4	0.129	8.49	< 0.000005	0.00622	0.00054	0.000120	0.0417	< 0.001	< 0.002
13-Aug-14	7	300	240	8.13	241				18																																							
20-Aug-14	8	300	245	8.15	220	#N/A	2.2	92.9	15	0.4	0.22	< 0.3	35.7	0.0426	0.0183	0.106	0.0129	< 0.000007	< 0.000007	0.158	< 0.000003	11.5	< 0.00003	0.000061	0.00132	< 0.002	< 0.00001	0.00243	1.72	0.0007	< 0.01	0.00385	0.0001	0.010	3.45	0.00012	5.69	< 0.000002	32.6	0.164	6.35	< 0.000005	0.00488	0.00019	0.000132	0.04446	0.001	< 0.002
27-Aug-14	9	300	245	8.15	196				14																																							
3-Sep-14	10	300	255	7.98	178	#N/A	5.5	77.2																																								

Col 8
Sample = 10E28852,10E28897,10E28975

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2-Jul-14	1	500	280	7.77	1543	#N/A	8.3	171.2	446	34	0.20	< 0.3	321	0.0123	0.0018	0.0174	0.0249	< 0.000007	< 0.000007	0.279	0.000052	61.5	0.00073	0.000275	0.00883	0.005	0.00007	0.00740	40.8	0.0273	< 0.01	0.0333	0.0041	< 0.009	15.4	0.00123	10.9	0.000003	185	0.906	158	< 0.000005	0.00060	0.00067	0.000186	0.0123	0.010	< 0.002
9-Jul-14	2	300	245	8.26	900	#N/A	1.9	143.0	217	7.8	0.25	< 0.3	119	0.0055	0.0014	0.0454	0.0091	< 0.000007	0.000012	0.329	< 0.000003	20.4	0.00021	0.000133	0.00321	0.003	0.00002	0.00546	16.4	0.0047	< 0.01	0.0249	0.0029	< 0.009	8.64	0.00073	11.4	< 0.000002	124	0.347	87.2	< 0.000005	0.00040	0.00061	0.000195	0.03416	0.001	< 0.002
16-Jul-14	3	300	240	8.42	595	#N/A	#N/A	140.8	105	2.2	0.26	< 0.3	53.6	0.0174	0.0015	0.0951	0.00547	< 0.000007	< 0.000007	0.280	< 0.000003	9.22	0.00035	0.000259	0.00311	0.045	0.00001	0.00413	7.43	0.0022	< 0.01	0.0140	0.0020	< 0.009	5.70	0.00039	10.5	< 0.000002	86.0	0.162	38.2	< 0.000005	0.00037	0.00086	0.000138	0.0646	0.001	< 0.002
23-Jul-14	4	300	275	8.29	441	#N/A	1.7	130.4	67	1.1	0.22	< 0.3	44.3	0.0188	0.0014	0.112	0.00540	< 0.000007	< 0.000007	0.255	< 0.000003	7.87	0.00015	0.000090	0.00211	0.006	< 0.00001	0.00334	5.99	0.0016	< 0.01	0.0125	0.0014	< 0.009	4.72	0.00033	10.3	< 0.000002	63.2	0.136	26.5	< 0.000005	0.00027	0.00073	0.000129	0.0785	< 0.001	< 0.002
30-Jul-14	5	300	265	8.37	422				58																																								
6-Aug-14	6	300	260	8.36	351	#N/A	#N/A	134.9	35	0.5	0.19	< 0.3	34.1	0.0200	0.0015	0.106	0.00467	< 0.000007	< 0.000007	0.202	< 0.000003	6.17	0.00014	0.000053	0.00195	0.008	0.00004	0.00267	4.55	0.0011	< 0.01	0.00421	0.0008	< 0.009	4.14	0.00027	9.97	< 0.000002	52.6	0.105	14.5	< 0.000005	0.00009	0.00042	0.000144	0.0798	0.001	< 0.002
13-Aug-14	7	300	260	8.34	351				30																																								
20-Aug-14	8	300	250	8.38	355	#N/A	#N/A	135.7	27	0.4	0.17	< 0.3	34.6	0.0163	0.0011	0.109	0.00579	< 0.000007	< 0.000007	0.175	< 0.000003	6.14	0.00027	0.000066	0.00104	0.003	0.00001	0.00291	4.68	0.0011	< 0.01	0.00391	0.0006	0.018	4.35	0.00025	10.2	< 0.000002	55.1	0.110	10.7	< 0.000005	0.00007	0.00042	0.000122	0.08844	0.001	< 0.002
27-Aug-14	9	300	220	8.25	306				20																																								
3-Sep-14	10	300	245	8.28	331	#N/A	3.2	118.4																																									

Col 9
Sample = Column 9 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	500	325	7.35	2971	#N/A	20.3	53.4	1956	27	0.12	< 0.3	1550	0.0255	0.0018	0.0081	0.0496	< 0.000007	< 0.000007	0.884	0.000100	565	0.00009	0.000818	0.0122	0.006	0.00014	0.00690	34.0	0.0555	0.03	0.0206	0.0061	< 0.009	34.3	0.00190	7.22	< 0.000002	128	6.60	612	0.000096	< 0.00001	0.00039	0.00104	0.00507	0.007	< 0.002
2-Jul-14	2	300	240	7.51	2970	#N/A	10.3	34.3	1796	22	0.11	< 0.3	1540	0.0271	0.0017	0.0042	0.0282	< 0.000007	0.000009	0.869	0.000038	567	0.00057	0.00268	0.0117	0.008	< 0.00001	0.0135	29.6	0.0772	< 0.01	0.0235	0.0124	< 0.009	24.3	0.00164	6.65	0.000046	113	6.27	585	0.000031	0.00057	0.00011	0.00100	0.00607	0.015	< 0.002
9-Jul-14	3	300	235	7.62	2906	#N/A	6.5	38.6	1728	10	0.11	< 0.3	1540	0.0043	0.0020	0.0020	0.0299	< 0.000007	< 0.000007	0.617	0.000053	574	0.00028	0.00148	0.0216	< 0.002	0.00002	0.0142	25.7	0.135	< 0.01	0.0242	0.0080	0.018	21.9	0.00102	6.37	< 0.000002	84.1	5.77	561	0.000011	0.00055	0.00043	0.000759	0.00229	0.005	< 0.002
16-Jul-14	4	300	245	7.66	2843	#N/A	6.0	33.5	1531	4.4	0.09	< 3	1530	0.0177	0.0017	0.0014	0.0241	< 0.000007	0.000024	0.563	0.000089	579	0.00060	0.00124	0.0172	0.058	0.00006	0.0117	19.7	0.141	< 0.01	0.0287	0.0049	< 0.009	18.1	0.00075	5.41	< 0.000002	56.1	5.41	541	0.000018	0.00086	0.00115	0.000531	0.00220	0.011	< 0.002
23-Jul-14	5	300	275	7.55	2524				1589																																								
30-Jul-14	6	300	245	7.60	2524	#N/A	5.5	38.1	1493	2.5	#N/A	#N/A	1510	0.0229	0.0012	0.0011	0.0237	< 0.000007	0.000371	0.477	0.000075	578	0.00049	0.00267	0.00384	< 0.002	0.00019	0.00828	15.4	0.138	< 0.01	0.0255	0.0104	< 0.009	14.2	0.00077	5.66	0.00117	37.7	4.04	517	< 0.000005	0.00048	0.00071	0.000491	0.00298	0.011	< 0.002
6-Aug-14	7	300	255	7.67	2482				1399																																								
13-Aug-14	8	300	245	7.60	2487	#N/A	6.6	34.6	1589	< 2	0.06	< 0.3	1500	0.0169	< 0.0002	0.0009	0.0218	< 0.000007	< 0.000007	0.376	0.000112	582	0.00031	0.00181	0.0155	0.008	0.00005	0.00663	12.7	0.155	< 0.01	0.0234	0.0050	< 0.009	12.2	0.00053	5.34	< 0.000002	25.3	4.03	514	< 0.000005	0.00162	0.00061	0.000359	0.00210	0.014	< 0.002
20-Aug-14	9	300	250	7.65	2525				1377																																							
27-Aug-14	10	300	235	7.50	2377	#N/A	9.3	32.1	1576																																							
3-Sep-14	11	300	240	7.51	2394																																										

Col 10
Sample = Column 10 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	500	290	8.27	1266	#N/A	10.5	149.0	309	18	0.16	< 0.3	162	0.0039	0.0145	0.390	0.0641	< 0.000007	0.000009	0.268	< 0.000003	35.7	0.00218	0.000566	0.00570	0.003	0.00005	0.00467	17.7	0.0057	0.03	0.0293	0.0383	< 0.009	80.1	0.00753	8.05	< 0.000002	150	0.580	124	0.000085	0.00095	0.00034	0.000076	0.00315	0.003	< 0.002
2-Jul-14	2	350	275	7.82	972	#N/A	10.6	146.2	240	6.8	0.15	< 0.3	105	0.0018	0.0164	0.583	0.0425	< 0.000007	< 0.000007	0.366	< 0.000003	18.3	0.00037	0.000295	0.00290	< 0.002	< 0.00001	0.00518	14.4	0.0034	< 0.01	0.0187	0.0264	< 0.009	66.3	0.00351	10.8	0.000006	106	0.369	90.2	0.000042	0.00193	0.00042	0.000089	0.00254	0.001	< 0.002
9-Jul-14	3	300	230	8.43	807	#N/A	#N/A	149.8	162	3.2	0.15	< 0.3	77.9	0.0013	0.0163	0.691	0.0415	< 0.000007	< 0.000007	0.372	< 0.000003	12.6	0.00054	0.000204	0.00238	< 0.002	0.00001	0.00453	11.3	0.0023	< 0.01	0.0119	0.0178	0.012	61.6	0.00178	11.6	< 0.000002	81.5	0.270	63.7	0.000032	0.00201	0.00055	0.000079	0.00281	0.001	< 0.002
16-Jul-14	4	300	250	8.23	602	#N/A	2.9	126.1	106	1.4	0.14	< 0.3	56.5	0.0020	0.0120	0.669	0.0367	< 0.000007	< 0.000007	0.297	< 0.000003	9.53	0.00058	0.000259	0.00152	0.028	< 0.00001	0.00385	7.94	0.0016	< 0.01	0.00783	0.0113	< 0.009	47.2	0.00118	9.24	< 0.000002	53.2	0.199	36.7	0.000025	0.00110	0.00032	0.000043	0.00290	< 0.001	< 0.002
23-Jul-14	5	300	260	8.32	457				71																																							
30-Jul-14	6	300	260	8.32	428	#N/A	#N/A	133.3	70	0.7	0.11	< 0.3	59.5	0.0054	0.0101	0.600	0.0518	< 0.000007	< 0.000007	0.306	< 0.000003	11.2	0.00069	0.000145	0.00181	< 0.002	< 0.00001	0.00371	7.68	0.0020	< 0.01	0.00659	0.0100	< 0.009	37.7	0.00103	8.89	< 0.000002	37.3	0.225	23.6	0.000024	0.00032	0.00063	0.000037	0.00255	0.001	< 0.002
6-Aug-14	7	300	265	8.37	370				49																																						
13-Aug-14	8	300	280	8.28	358	#N/A	2.5	115.1	48	0.4	0.11	< 0.3	57.0	0.0026	0.0085	0.594	0.0578	< 0.000007	< 0.000007	0.261	< 0.000003	10.5	0.00060	0.000117	0.00099	< 0.002	< 0.00001	0.00333	7.49	0.0019	< 0.01	0.00318	0.0075	0.013	36.1	0.00078	8.90	< 0.000002	28.0	0.215	16.6	0.000016	0.00015	0.00028	0.000048	0.00217	0.001	< 0.002
20-Aug-14	9	300	230	8.35	348				40																																						
27-Aug-14	10	300	240	8.27	307	#N/A	4.5	104.6	41																																						
3-Sep-14	11	300	270	8.30	304																																									

Col 11
Sample = Column 11 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	500	250	7.86	3319	#N/A	16.6	258.0	1479	37	< 0.06	< 0.3	1230	0.0058	0.0029	0.0121	0.109	< 0.000007	< 0.000007	0.519	0.000023	250	0.00215	0.00142	0.0127	0.014	0.00011	0.00559	148	0.0314	0.03	0.106	0.182	0.019	157	0.0140	9.29	< 0.000002	256	2.74	497	0.000341	< 0.00001	0.00060	0.000095	0.00110	0.010	< 0.002
2-Jul-14	2	350	260	7.91	2051	#N/A	13.5	118.6	846	11	< 0.06	< 0.3	560	0.0005	0.0031	0.0189	0.0419	< 0.000007	< 0.000007	0.592	< 0.000003	99.7	0.00109	0.000703	0.00510	< 0.002	0.00001	0.00336	75.5	0.0146	< 0.01	0.0601	0.110	< 0.009	103	0.00659	12.0	< 0.000002	148	1.32	312	0.000205	0.00019	0.00046	0.000073	0.00078	0.005	< 0.002
9-Jul-14	3	300	235	8.14	1437	#N/A	3.8	110.4	568	4.2	< 0.06	< 0.3	353	0.0006	0.0029	0.0140	0.0356	< 0.000007	< 0.000007	0.607	< 0.000003	61.4	0.00036	0.000493	0.00361	0.079	0.00001	0.00249	48.5	0.0096	< 0.01	0.0408	0.0825	< 0.009	81.4	0.00372	11.6	< 0.000002	90.9	0.808	187	0.000146	0.00026	0.00060	0.000045	0.00082	0.003	< 0.002
16-Jul-14	4	300	245	8.16	1037	#N/A	2.9	98.7	305	2.0	< 0.06	< 0.3	249	0.0014	0.0024	0.0112	0.0312	< 0.000007	< 0.000007	0.544	< 0.000003	43.0	0.00053	0.000463	0.00234	0.099	0.00003	0.00211	34.5	0.0074	< 0.01	0.0267	0.0630	< 0.009	61.5	0.00311	9.75	< 0.000002	55.3	0.582	115	0.000099	0.00036	0.00034	0.000031	0.00087	0.003	< 0.002
23-Jul-14	5	300	260	8.13	792				273																																							
30-Jul-14	6	300	270	8.18	725	#N/A	2.6	114.3	234	1.0	< 0.06	< 0.3	191	0.0033	0.0022	0.0101	0.0417	< 0.000007	< 0.000007	0.601	< 0.000003	32.6	0.00082	0.000288	0.00169	0.003	< 0.00001	0.00194	26.7	0.0048	< 0.01	0.0161	0.0438	< 0.009	48.8	0.00321	9.86	< 0.000002	36.1	0.504	75.6	0.000091	0.00004	0.00066	0.000024	0.00081	0.001	< 0.002
6-Aug-14	7	300	245	8.20	618				154																																							
13-Aug-14	8	300	250	8.17	626	#N/A	3.2	104.9	170	0.8	< 0.06	< 0.3	170	0.0013	0.0020	0.0102	0.0444	< 0.000007	< 0.000007	0.557	< 0.000003	27.5	0.00046	0.000218	0.00286	< 0.002	0.00002	0.00177	24.6	0.0037	< 0.01	0.0118	0.0345	0.012	45.2	0.00268	9.48	< 0.000002	24.6	0.409	58.6	0.000074	0.00016	0.00038	0.000038	0.00064	0.003	< 0.002
20-Aug-14	9	300	245	8.21	585				163																																							
27-Aug-14	10	300	225	8.15	546	#N/A	4.8	97.0	155																																							
3-Sep-14	11	300	265	8.11	522																																										

Col 12
Sample = Column 12 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	500	265	7.82	1679	#N/A	17.4	146.9	625	45	0.30	< 0.3	492	0.0187	0.0037	0.0240	0.0677	< 0.000007	< 0.000007	0.464	< 0.000003	139	0.00095	0.000798	0.0114	0.022	0.00004	0.00520	35.3	0.0160	0.04	0.0936	0.0391	0.016	38.0	0.0124	12.1	< 0.000002	149	1.85	212	0.000036	0.00024	0.00063	0.000993	0.0134	0.007	< 0.002
2-Jul-14	2	300	230	8.05	958	#N/A	5.5	93.4	311	19	0.42	< 0.3	177	0.0029	0.0047	0.0360	0.0478	< 0.000007	< 0.000007	0.505	< 0.000003	48.1	0.00043	0.000289	0.00483	< 0.002	< 0.00001	0.00493	13.7	0.0038	< 0.01	0.0674	0.0266	< 0.009	32.6	0.00728	13.8	< 0.000002	98.7	0.692	104	0.000026	0.00026	0.00055	0.000853	0.0228	0.001	< 0.002
9-Jul-14	3	300	240	8.15	700	#N/A	2.9	101.8	171	6.3	0.46	< 0.3	103	0.0029	0.0055	0.0415	0.0407	< 0.000007	< 0.000007	0.417	< 0.000003	27.7	0.00040	0.000222	0.00424	< 0.002	0.00001	0.00406	8.18	0.0021	< 0.01	0.0351	0.0201	0.014	27.1	0.00334	13.7	< 0.000002	77.7	0.436	64.0	0.000022	0.00024	0.00068	0.000691	0.0292	0.001	< 0.002
16-Jul-14	4	300	235	8.23	571	#N/A	2.0	98.1	127	2.4	0.44	< 0.3	79.9	0.0042	0.0056	0.0431	0.0360	< 0.000007	< 0.000007	0.309	< 0.000003	21.8	0.00068	0.000294	0.00406	0.020	0.00001	0.00417	6.20	0.0017	< 0.01	0.0231	0.0172	< 0.009	23.2	0.00203	12.1	< 0.000002	54.0	0.341	45.6	0.000021	0.00019	0.00044	0.000603	0.0342	0.001	< 0.002
23-Jul-14	5	300	250	8.15	420				103																																							
30-Jul-14	6	300	280	8.18	375	#N/A	2.0	101.6	85	0.7	0.30	< 0.3	66.5	0.0155	0.0043	0.0360	0.0381	< 0.000007	< 0.000007	0.243	< 0.000003	18.6	0.00090	0.000184	0.00210	< 0.002	< 0.00001	0.00351	4.85	0.0032	< 0.01	0.0148	0.0136	< 0.009	17.5	0.00109	10.6	< 0.000002	38.1	0.284	26.5	0.000019	0.00002	0.00081	0.000472	0.0343	< 0.001	< 0.002
6-Aug-14	7	300	295	8.22	338				65																																						
13-Aug-14	8	300	260	8.14	382	#N/A	3.2	92.7	83	0.4	0.24	< 0.3	80.6	0.0080	0.0038	0.0327	0.0541	< 0.000007	< 0.000007	0.185	< 0.000003	22.5	0.00044	0.000169	0.00297	< 0.002	0.00009	0.00349	5.93	0.0024	< 0.01	0.0163	0.0127	< 0.009	19.8	0.00084	10.7	< 0.000002	33.7	0.339	28.0	0.000017	0.00030	0.00041	0.000566	0.0289	0.002	< 0.002
20-Aug-14	9	300	255	8.17	390				88																																						
27-Aug-14	10	300	260	8.11	338	#N/A	5.3	84.1	71																																						
3-Sep-14	11	300	270	8.09	319																																									

Col 13
Sample = Column 13 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	500	295	7.59	5297	#N/A	26.5	178.0	3050	95	0.21	< 3	2830	0.0043	0.0017	0.0104	0.0721	< 0.000007	0.000023	1.16	0.000344	502	0.00253	0.00356	0.109	0.029	0.00007	0.0216	383	0.0894	0.08	0.217	0.0216	0.018	64.0	0.0162	15.4	< 0.000002	364	8.78	1110	0.000029	0.00070	0.00182	0.00654	0.0320	0.021	0.028
2-Jul-14	2	300	250	7.79	4746	#N/A	10.9	69.2	3101	38	0.22	< 0.3	2650	0.0048	0.0007	0.0068	0.0383	< 0.000007	< 0.000007	0.868	0.000513	487	0.00215	0.00263	0.0528	0.006	< 0.00001	0.0193	349	0.0504	0.02	0.138	0.0319	< 0.009	53.6	0.00898	15.8	0.000084	232	7.51	1030	0.000014	0.00203	0.00159	0.00537	0.0362	0.027	0.009
9-Jul-14	3	300	240	7.76	4294	#N/A	8.5	61.0	2584	14	0.21	< 0.3	2410	0.0008	0.0013	0.0054	0.0353	< 0.000007	< 0.000007	0.522	0.000115	495	0.00065	0.00154	0.0340	0.006	0.00002	0.0141	285	0.0408	< 0.01	0.0679	0.0113	< 0.009	45.2	0.00392	15.2	0.000010	147	6.47	894	0.000007	0.00212	0.00116	0.00429	0.0300	0.016	0.005
16-Jul-14	4	300	260	7.76	3996	#N/A	6.8	49.0	2171	4.8	0.20	< 3	2250	0.0048	0.0014	0.0037	0.0280	< 0.000007	0.000022	0.487	0.000093	507	0.00048	0.00142	0.0320	0.018	0.00003	0.0136	239	0.0455	< 0.01	0.0431	0.0082	0.009	39.3	0.00164	13.3	< 0.000002	91.3	6.13	808	0.000016	0.00153	0.00091	0.00272	0.0248	0.013	0.002
23-Jul-14	5	300	250	7.70	3443				2354																																							
30-Jul-14	6	300	255	7.69	3299	#N/A	7.1	51.4	2082	< 2	0.17	< 0.3	2060	0.0252	0.0009	0.0030	0.0262	< 0.000007	0.000315	0.394	0.000022	515	0.00073	0.00255	0.0144	0.007	0.00038	0.0100	188	0.0370	< 0.01	0.0343	0.0091	< 0.009	31.2	0.00077	13.4	0.00122	52.8	4.26	711	< 0.000005	0.00078	0.00140	0.00242	0.0236	0.022	< 0.002
6-Aug-14	7	300	230	7.74	3177				1730																																						
13-Aug-14	8	300	245	7.69	3058	#N/A	8.0	47.1	1756	< 2	0.15	< 0.3	1520	0.0066	< 0.0002	0.0028	0.0256	< 0.000007	< 0.000007	0.285	0.000014	411	0.00077	0.00132	0.0198	< 0.002	0.00005	0.00833	119	0.0333	< 0.01	0.0290	0.0043	0.009	25.2	0.00054	13.7	< 0.000002	35.3	4.17	510	< 0.000005	0.00034	0.00087	0.00224	0.0223	0.018	< 0.002
20-Aug-14	9	300	295	7.72	3088				1863																																						
27-Aug-14	10	300	235	7.63	2797	#N/A	9.2	42.9	2045																																						
3-Sep-14	11	300	240	7.64	2781																																									

Col 14
Sample = KM 3889

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
25-Jun-14	1	900	250	7.44	6283	#N/A	40.6	140.9	3360	150	0.24	< 3	2940	0.0066	0.0039	0.0149	0.0260	< 0.000007	< 0.000007	0.304	0.000197	467	0.00049	0.00476	0.118	< 0.002	0.00006	0.0442	432	0.175	26.5	3.14	0.0328	0.027	121	0.0731	8.56	0.000542	531	8.87	1470	0.000081	< 0.00001	0.00069	0.0119	0.00597	0.010	< 0.002
2-Jul-14	2	300	265	7.83	3124	#N/A	9.9	83.3	1732	23	0.35	< 0.3	1450	0.0030	0.0035	0.0109	0.0215	< 0.000007	< 0.000007	0.264	0.000103	251	0.00060	0.00202	0.0221	< 0.002	< 0.00001	0.0335	201	0.0740	0.02	1.94	0.0314	< 0.009	91.4	0.01484	8.67	0.000043	262	3.43	663	0.000055	0.00023	0.00052	0.00443	0.00779	0.018	< 0.002
9-Jul-14	3	300	235	7.98	2310	#N/A	5.1	84.8	1244	4.0	0.43	< 0.3	736	0.0014	0.0052	0.0100	0.0224	< 0.000007	< 0.000007	0.186	0.000062	147	0.00027	0.000877	0.0167	0.002	< 0.00001	0.0252	89.9	0.0384	< 0.01	1.38	0.0059	0.016	71.2	0.00774	8.28	< 0.000002	158	2.01	391	0.000051	0.00023	0.00058	0.00269	0.00647	0.006	< 0.002
16-Jul-14	4	300	250	8.05	2046	#N/A	3.7	79.0	923	1.1	0.48	< 3	633	0.0034	0.0057	0.0093	0.0179	< 0.000007	0.000017	0.203	0.000060	126	< 0.00003	0.000515	0.0140	< 0.002	< 0.00001	0.0254	77.5	0.0303	< 0.01	1.03	0.0039	< 0.009	65.5	0.00849	7.41	< 0.000002	130	1.75	312	0.000056	0.00025	0.00079	0.00219	0.00647	0.005	< 0.002
23-Jul-14	5	300	220	7.98	1693				850																																							
30-Jul-14	6	300	285	7.99	1657	#N/A	4.5	86.7	861	0.5	0.48	< 0.3	580	0.0067	0.0059	0.0059	0.0165	< 0.000007	< 0.000007	0.161	0.000079	117	0.00110	0.000764	0.0160	0.003	< 0.00001	0.0247	70.0	0.0320	< 0.01	0.640	0.0039	< 0.009	57.7	0.0121	7.00	< 0.000002	81.0	1.62	264	0.000050	< 0.00001	0.00062	0.00191	0.00435	0.002	< 0.002
6-Aug-14	7	300	210	8.03	1586				698																																							
13-Aug-14	8	300	275	7.98	1493	#N/A	5.5	78.5	651	< 1	0.51	< 0.3	591	0.0019	0.0062	0.0053	0.0183	< 0.000007	< 0.000007	0.133	0.000033	119	0.00007	0.000756	0.0199	< 0.002	< 0.00001	0.0240	71.3	0.0339	< 0.01	0.552	0.0034	< 0.009	56.3	0.0148	7.15	< 0.000002	38.8	1.60	240	0.000050	0.00007	0.00029	0.00204	0.00299	0.002	< 0.002
20-Aug-14	9	300	265	7.99	1455				664																																							
27-Aug-14	10	300	235	7.99	1305	#N/A	7.8	71.6	623																																							
3-Sep-14	11	300	225	7.99	1337																																										

HC 1
Sample =Col-2 WR Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	500	370	7.70	841	#N/A	4.3	31.6	450		4.9	0.09	< 0.3	386	0.0239	< 0.0002	0.0008	0.0305	< 0.00002	< 0.00001	0.0469	0.000005	107	0.0007	0.00023	0.0050
29-Dec-10	2	500	465	7.69	735	#N/A	7.5	31.1	369		3.2	0.06	< 0.3	314	0.0356	< 0.0002	0.0008	0.0272	< 0.00002	< 0.00001	0.0520	< 0.000003	84.2	0.0008	0.000171	0.0023
5-Jan-11	3	500	465	7.59	634	#N/A	6.8	28.2	323		1.8	0.06	< 0.3	305	0.0273	< 0.0002	0.0008	0.0194	< 0.00002	< 0.00001	0.0443	0.000015	83.5	< 0.0005	0.000136	0.0020
12-Jan-11	4	500	445	7.56	438	#N/A	3.6	26.3	227		0.5	< 0.06	< 0.3	213	0.0320	< 0.0002	0.0004	0.0195	< 0.00002	< 0.00001	0.0346	< 0.000003	60.2	< 0.0005	0.000102	0.0014
19-Jan-11	5	500	455	7.57	396				177																	
26-Jan-11	6	500	450	7.61	325	#N/A	2.9	24.9	142		< 0.2	< 0.06	< 0.3	134	0.0406	< 0.0002	0.0005	0.0214	< 0.00002	< 0.00001	0.0257	< 0.000003	39.1	< 0.0005	0.000077	0.0007
2-Feb-11	7	500	410	7.67	309				151																	
9-Feb-11	8	500	460	7.20	177	#N/A	3.7	21.8	56		< 0.2	< 0.06	< 0.3	83.6	0.0520	< 0.0002	0.0004	0.0223	< 0.00002	< 0.00001	0.0260	< 0.000003	25.2	0.0007	0.000085	0.0011
16-Feb-11	9	500	505	7.77	186				67																	
23-Feb-11	10	500	455	7.76	160	#N/A	2.8	25.4	57		< 0.2	< 0.06	< 0.3	68.0	0.0404	< 0.0002	0.0005	0.0186	< 0.00002	< 0.00001	0.0147	< 0.000003	20.7	0.0010	0.000043	0.0011
2-Mar-11	11	500	460	7.77	161				59																	
9-Mar-11	12	500	440	7.72	162	#N/A	2.3	25.2	56		< 0.2	< 0.06	< 0.3	67.3	0.0430	< 0.0002	< 0.0002	0.0206	< 0.00002	< 0.00001	0.0117	< 0.000003	20.5	0.0008	0.000048	0.0006
16-Mar-11	13	500	455	7.78	147				52																	
23-Mar-11	14	500	470	7.87	131	#N/A	2.4	26.1	35		< 0.2	< 0.06	< 0.3	55.6	0.0379	< 0.0002	0.0002	0.0160	< 0.00002	< 0.00001	0.0103	< 0.000003	17.1	< 0.0005	0.000044	0.0011
30-Mar-11	15	500	455	7.88	114				27																	
6-Apr-11	16	500	465	7.87	109	#N/A	3.6	28.0	27		< 0.2	< 0.06	< 0.3	45.7	0.0432	0.0004	0.0006	0.0187	< 0.00002	< 0.00001	0.0096	< 0.000003	13.8	< 0.0005	0.00003	0.0007
13-Apr-11	17	500	465	7.68	98				19																	
20-Apr-11	18	500	465	8.03	93	#N/A	5.7	29.1	19		< 0.2	< 0.06	< 0.3	37.4	0.0409	< 0.0002	< 0.0002	0.0154	< 0.00002	< 0.00001	0.0082	0.000016	11.7	< 0.0005	0.00006	0.0005
27-Apr-11	19	500	465	7.79	88				16																	
4-May-11	20	500	470	7.75	92	#N/A	3.1	26.5	19		< 0.2	0.06	< 0.3	38.2	0.0423	< 0.0002	0.0006	0.0170	< 0.00002	< 0.00001	0.0078	< 0.000003	12.0	< 0.0005	0.00004	0.0006
11-May-11	21	500	450	7.74	75				15																	
18-May-11	22	500	440	7.90	77	#N/A	2.3	23.9	15		< 0.2	< 0.06	< 0.3	32.7	0.0475	< 0.0002	0.0004	0.0196	< 0.00002	< 0.00001	0.0058	< 0.000003	10.3	0.0005	0.000033	< 0.0005
25-May-11	23	500	420	7.94	73				12																	
1-Jun-11	24	500	415	7.91	71	#N/A	3.6	24.0	11		< 0.2	< 0.06	< 0.3	29.2	0.0752	< 0.0002	0.0004	0.0173	< 0.00002	0.00001	0.0063	< 0.000003	9.26	< 0.0005	0.00004	0.0012
8-Jun-11	25	500	420	7.81	68				10																	
15-Jun-11	26	500	415	7.93	67				11																	
22-Jun-11	27	500	420	7.89	63				15																	
29-Jun-11	28	500	420	7.93	62	#N/A	2.3	22.9	10		< 0.2	< 0.06	< 0.3	25.7	0.0447	< 0.0002	0.0003	0.0142	< 0.00002	< 0.00001	0.0095	0.000007	8.30	< 0.0005	0.00003	0.0006
6-Jul-11	29	500	420	7.71	56				10																	
13-Jul-11	30	500	430	7.75	61				11																	
20-Jul-11	31	500	425	7.70	51				8																	
27-Jul-11	32	500	445	7.65	50	#N/A	2.2	17.7	6		< 0.2	< 0.06	< 0.3	19.1	0.0554	< 0.0002	0.0004	0.0134	< 0.00002	< 0.00001	0.0056	< 0.000003	5.97	< 0.0005	0.00004	< 0.0005
3-Aug-11	33	500	435	7.88	50				6																	
10-Aug-11	34	500	430	7.79	53				6																	
17-Aug-11	35	500	440	7.80	49				6																	
24-Aug-11	36	500	430	7.86	48	#N/A	4.4	21.9	6		< 0.2	< 0.06	< 0.3	21.4	0.0425	< 0.0002	0.0002	0.0138	< 0.00002	< 0.00001	0.0057	< 0.000003	6.80	0.0012	0.000026	0.0012
31-Aug-11	37	500	440	7.84	61				13																	
7-Sep-11	38	500	425	7.81	59	#N/A	3.0	20.9	13		< 0.2	< 0.06	< 0.3	25.2	0.0622	< 0.0002	0.0005	0.0147	< 0.00002	0.00001	0.0063	< 0.000003	8.13	0.0016	0.00003	0.0011
14-Sep-11	39	500	420	7.76	45	#N/A	3.0	17.1	8		< 0.2	0.11	< 0.3	20.7	0.0607	< 0.0002	0.0003	0.0134	< 0.00002	< 0.00001	0.0054	0.000019	6.57	0.0025	0.00006	0.0012
21-Sep-11	40	500	420	7.74	40	#N/A	3.4	18.1	5		< 0.2	< 0.06	< 0.3	18.7	0.0445	< 0.0002	0.0003	0.0117	< 0.00002	< 0.00001	0.0048	< 0.000003	5.94	0.0011	0.00003	0.0008
28-Sep-11	41	500	425	7.85	39				5																	
5-Oct-11	42	500	435	7.67	40				5																	
12-Oct-11	43	500	470	7.96	40				5																	
19-Oct-11	44	500	450	7.64	36	#N/A	2.2	15.2	4		< 0.2	< 0.06	< 0.3	17.2	0.0326	< 0.0002	0.0002	0.0123	< 0.00002	< 0.00001	0.0050	< 0.000003	5.44	0.0012	0.00002	0.0009
26-Oct-11	45	500	430	7.68	40				6																	
2-Nov-11	46	500	435	7.87	38				4																	
9-Nov-11	47	500	430	7.91	40				4																	
16-Nov-11	48	500	420	7.77	37	#N/A	2.8	16.9	4		< 0.2	< 0.06	< 0.3	16.7	0.0630	< 0.0002	0.0005	0.0135	< 0.00002	< 0.00001	0.0043	< 0.000003	5.24	< 0.0005	0.00003	0.0010
23-Nov-11	49	500	435	7.94	39				4																	
30-Nov-11	50	500	435	7.93	38				5																	
7-Dec-11	51	500	425	7.87	36				3																	
14-Dec-11	52	500	425	7.77	36	#N/A	3.3	20.7	3		< 0.2	< 0.06	< 0.3	16.2	0.0567	< 0.0002	< 0.0002	0.0144	< 0.00002	< 0.00001	0.0032	0.000009	4.98	0.0011	0.000044	0.0011
21-Dec-11	53	500	425	7.90	34				3																	
28-Dec-11	54	500	435	7.73	31				2																	
4-Jan-12	55	500	430	7.92	36				2																	
11-Jan-12	56	500	415	7.61	32	#N/A	2.8	20.1	3	< 1	< 0.2	< 0.06	< 0.3	14.6	0.0927	< 0.0002	0.0003	0.0148	< 0.00002	< 0.00001	0.0043	0.000009	4.43	< 0.0005	0.000098	0.0013
18-Jan-12	57	500	450	7.79	35				4																	
25-Jan-12	58	500	450	7.64	39				6																	
1-Feb-12	59	500	455	7.74	37				3																	
8-Feb-12	60	500	450	7.89	36	#N/A	4.2	24.7	3	< 0.5	< 0.2	< 0.06	< 0.3	15.2	0.0442	< 0.0002	0.0006	0.0145	< 0.00002	< 0.00001	0.0036	< 0.000003	4.74	< 0.0005	0.000026	0.0010
15-Feb-12	61	500	450	7.80	35				4																	
22-Feb-12	62	500	450	7.80	37				5																	
29-Feb-12	63	500	455	7.58	32				4																	
7-Mar-12	64	500	460	7.93	36	#N/A	4.9	22.7	3	< 0.5	< 0.2	< 0.06	< 0.3	17.3	0.0426	< 0.0002	0.0005	0.0152	< 0.00002	< 0.00001	0.0031	< 0.000003	5.41	< 0.0005	0.000024	0.0008
14-Mar-12	65	500	465	7.55	39				4																	
21-Mar-12	66	500	465	7.66	37				3																	
28-Mar-12	67	500	460	7.51	35				4																	
4-Apr-12	68	500	450	7.67	40	#N/A	2.6	22.5	4	< 0.5	< 0.2	< 0.06	< 0.3	18.3	0.0667	< 0.0002	0.0003	0.0195	< 0.00002	< 0.00001	0.0034	< 0.000003	5.81	< 0.0005	0.000007	0.0007
11-Apr-12	69	500	470	7.70	34				4																	
18-Apr-12	70	500	465	7.74	39				5																	
25-Apr-12	71	500	460	7.84	38				4																	
2-May-12	72	500	455	7.90	37	#N/A	5.1	22.1	4	1.3	< 0.2	< 0.06	< 0.3	17.1	0.0481	< 0.0002	0.0004	0.0187	< 0.00002	< 0.00001	0.0039	0.000005	5.46	< 0.0005	0.000021	0.0019
9-May-12	73	500	470	7.76	38				6																	
16-May-12	74	500	455	7.58	34				5																	
23-May-12	75	500	470	7.55	37				4																	
30-May-12	76	500	465	7.83	36	#N/A	3.7	21.8	3	0.6	< 0.2	< 0.06	< 0.3	16.8	0.0634	< 0.0002	< 0.0002	0.0173	< 0.00002	< 0.00001	0.0042	< 0.000003	5.34	< 0.0005	0.000021	0.0009
6-Jun-12	77	500	480	7.66	37				3																	
13-Jun-12	78	500	460	7.77	33				3																	
20-Jun-12	79	500	460	7.68	32				4																	
27-Jun-12	80	500	465	7.53	31	#N/A	4.0	15.4	3	4.6	< 0.2	< 0.06	< 0.3	14.2	0.0745	< 0.0002	0.0004	0.0146	< 0.00002	< 0.00001	0.0060	< 0.000003	4.53	< 0.0005	< 0.000002	0.0009
4-Jul-12	81	500	465	7.62	39				3																	
11-Jul-12	82	500	425	7.71	36				5																	
18-Jul-12	83	500	495	7.61	39				3																	
25-Jul-12	84	500	470	7.54	35	#N/A	2.5	15.1	2	< 0.5	< 0.2	0.13	< 0.3	14.4	0.0701	< 0.0002	0.0004	0.0180	< 0.00002	< 0.00001	0.0047	< 0.000003	4.57	< 0.0005	0.00001	0.0007
1-Aug-12	85	500	470	7.73	33				3																	
8-Aug-12	86	500	460	7.94	33				3																	
15-Aug-12	87	500	435	7.54	32				3																	
22-Aug-12	88	500	495	7.78	40	#N/A	4.4	22.5	5	2.9	< 0.2	< 0.06	< 0.3	17.0	0.0608	0.0002	< 0.0002	0.0225	< 0.00002	0.00002	0.0037	< 0.000003	5.42	< 0.0005	0.000041	0.0008
29-Aug-12	89	500	450	7.57	31				4																	
5-Sep-12	90	500	490	7.81	38				5																	
12-Sep-12	91	500	465	7.57	31				5																	
19-Sep-12	92	500	465	7.84	35	#N/A	3.9	22.9	5	< 0.5	< 0.2	< 0.06	< 0.3	14.9	0.0623	< 0.0002	0.0003	0.0199	< 0.00002	< 0.00001	0.0066	< 0.000003	4.80	< 0.0005	0.000019	< 0.0005
26-Sep-12	93	500	460	7.71	34				5																	
3-Oct-12	94	500	500	7.72	34				3																	

HC 1
Sample =Col-2 WR Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
10-Oct-12	95	500	465	7.60	29				3																	
17-Oct-12	96	500	485	7.68	31	#N/A	3.5	17.1	4	1.2	< 0.2	< 0.06	< 0.3	17.2	0.0329	< 0.0002	< 0.0002	0.0206	< 0.00002	< 0.00001	0.0033	< 0.000003	4.75	< 0.0005	0.000058	< 0.0005
24-Oct-12	97	500	465	7.48	31				4																	
31-Oct-12	98	500	500	7.87	39				4																	
7-Nov-12	99	500	460	7.68	31				3																	
14-Nov-12	100	500	490	8.20	36	#N/A	8.2	29.2	4	< 0.5	< 0.2	< 0.06	< 0.3	16.7	0.0569	< 0.0002	0.0003	0.0273	< 0.00002	< 0.00001	0.0031	0.000008	5.36	< 0.0005	0.000121	0.0193
21-Nov-12	101	500	495	7.87	35				4																	
28-Nov-12	102	500	495	8.09	43				6																	
5-Dec-12	103	500	465	8.12	32				4																	
12-Dec-12	104	500	480	8.08	41	#N/A	3.3	27.0	2	< 0.5	< 0.2	< 0.06	< 0.3	19.6	0.0726	0.0002	0.0003	0.0289	< 0.00002	< 0.00001	0.0024	0.000003	6.50	< 0.0005	< 0.000002	0.0010
19-Dec-12	105	500	465	7.84	36				<2																	
26-Dec-12	106	500	425	7.48	32				<2																	
2-Jan-13	107	500	445	8.04	43				<2																	
9-Jan-13	108	500	465	8.16	36	#N/A	4.4	26.4	2	0.8	< 0.2	< 0.06	< 0.3	19.8	0.0640	< 0.0002	0.0003	0.0251	< 0.00002	< 0.00001	0.0025	< 0.000003	6.51	< 0.0005	0.000015	0.0007
16-Jan-13	109	500	455	8.00	39				3																	
23-Jan-13	110	500	445	8.14	37				5																	
30-Jan-13	111	500	465	7.80	34				4																	
6-Feb-13	112	500	455	7.98	31	#N/A	4.6	17.9	4	< 0.5	< 0.2	< 0.06	< 0.3	14.2	0.0433	< 0.0002	0.0009	0.0216	< 0.00002	< 0.00001	0.0025	< 0.000003	4.60	< 0.0005	0.000063	0.0007
13-Feb-13	113	500	465	8.10	33				3																	
20-Feb-13	114	500	455	7.91	32				2																	
27-Feb-13	115	500	470	7.31	30				4																	
6-Mar-13	116	500	455	7.92	30	#N/A	4.4	22.5	3	< 0.5	< 0.2	< 0.06	< 0.3	14.1	0.0393	< 0.0002	0.0003	0.0224	< 0.00002	< 0.00001	0.0055	< 0.000003	4.57	< 0.0005	0.000202	< 0.0005
13-Mar-13	117	500	460	7.72	32				3																	
20-Mar-13	118	500	455	8.08	30				4																	
27-Mar-13	119	500	460	8.11	34				4																	
3-Apr-13	120	500	460	8.02	35	#N/A	4.3	21.8	2	< 0.5	< 0.2	< 0.06	< 0.3	16.7	0.0484	< 0.0002	< 0.0002	0.0258	< 0.00002	< 0.00001	0.0037	< 0.000003	5.43	< 0.0005	0.000014	0.0009
10-Apr-13	121	500	455	7.99	32				5																	
17-Apr-13	122	500	465	7.87	30				5																	
24-Apr-13	123	500	445	8.08	32				6																	
1-May-13	124	500	445	7.97	28	#N/A	4.7	17.0	6	< 0.5	< 0.2	< 0.06	< 0.3	12.4	0.0367	< 0.0002	0.0004	0.0195	< 0.00002	< 0.00001	0.0037	< 0.000003	4.02	< 0.0005	0.000090	0.0016
8-May-13	125	500	460	8.11	32				6																	
15-May-13	126	500	450	8.02	25				3																	
22-May-13	127	500	495	7.92	31				3																	
29-May-13	128	500	460	7.99	33	#N/A	4.7	20.6	3	1.5	< 0.2	< 0.06	< 0.3	15.6	0.0436	< 0.0002	< 0.0002	0.0239	< 0.00002	< 0.00001	0.0030	< 0.000003	5.05	< 0.0005	0.000015	0.0008
5-Jun-13	129	500	455	7.81	30				5																	
12-Jun-13	130	500	460	7.72	32				2																	
19-Jun-13	131	500	455	7.92	31				5																	
26-Jun-13	132	500	465	7.57	31	#N/A	2.9	14.7	3	< 0.5	< 0.2	< 0.06	< 0.3	14.4	0.0415	< 0.0002	0.0009	0.0229	< 0.00002	< 0.00001	0.0010	0.000004	4.70	< 0.0005	0.000042	0.0009
3-Jul-13	133	500	460	7.92	32				2																	
10-Jul-13	134	500	460	7.62	30				5																	
17-Jul-13	135	500	440	7.86	32				4																	
24-Jul-13	136	500	455	7.57	26	#N/A	6.1	15.5	3	< 0.5	< 0.2	< 0.06	< 0.3	13.0	0.0358	< 0.0002	< 0.0002	0.0214	< 0.00002	< 0.00001	0.0033	< 0.000003	4.20	< 0.0005	0.000014	0.0007
31-Jul-13	137	500	450	7.80	28				4																	
7-Aug-13	138	500	450	7.50	28				7																	
14-Aug-13	139	500	450	7.87	29				3																	
21-Aug-13	140	500	455	7.60	29	#N/A	4.9	15.6	3	< 0.5	< 0.2	< 0.06	< 0.3	14.3	0.0471	< 0.0002	< 0.0002	0.0217	< 0.00002	< 0.00001	0.0038	0.000005	4.67	< 0.0005	0.000033	0.0006
28-Aug-13	141	500	450	7.84	25				5																	
4-Sep-13	142	500	435	7.51	29				5																	
11-Sep-13	143	500	455	7.92	26				3																	
18-Sep-13	144	500	450	7.63	26	#N/A	3.6	14.6	4	< 0.5	< 0.2	< 0.06	< 0.3	12.6	0.0449	0.0002	< 0.0002	0.0209	< 0.00002	< 0.00001	0.0090	< 0.000003	4.10	< 0.0005	0.000029	0.0007
25-Sep-13	145	500	435	7.79	26				3																	
2-Oct-13	146	500	450	7.79	27				4																	
9-Oct-13	147	500	455	8.04	28				5																	
16-Oct-13	148	500	450	7.46	26	#N/A	1.7	12.3	4	< 0.5	< 0.2	0.07	< 0.3	12.9	0.0563	< 0.0002	0.0003	0.0227	< 0.00002	< 0.00001	0.0038	0.000126	4.19	0.0011	0.000123	0.0012
23-Oct-13	149	500	470	7.53	29				5																	
30-Oct-13	150	500	450	7.43	28				5																	
6-Nov-13	151	500	455	7.48	29				4																	
13-Nov-13	152	500	460	7.65	26	#N/A	3.7	13.3	4	< 0.5	< 0.2	< 0.06	< 0.3	12.7	0.0363	0.0003	0.0003	0.0225	< 0.00002	< 0.00001	0.0033	< 0.000003	4.12	< 0.0005	0.000080	0.0013
20-Nov-13	153	500	445	8.06	28				5																	
27-Nov-13	154	500	455	7.49	29				4																	
4-Dec-13	155	500	455	7.77	27				3																	
11-Dec-13	156	500	450	7.62	26	#N/A	1.5	12.7	3	0.8	< 0.2	< 0.06	< 0.3	12.4	0.0365	< 0.0002	< 0.0002	0.0231	< 0.00002	< 0.00001	0.0025	0.000139	4.03	< 0.0005	0.000344	0.0015
18-Dec-13	157	500	455	8.06	29				3																	
25-Dec-13	158	500	455	7.78	27				4																	
1-Jan-14	159	500	455	7.67	27				3																	
8-Jan-14	160	500	455	7.65	28	#N/A	1.1	13.4	3	< 0.5	< 0.2	< 0.06	< 0.3	13.5	0.0405	< 0.0002	< 0.0002	0.0260	< 0.00002	< 0.00001	0.0030	< 0.000003	4.30	< 0.0005	0.000016	0.0009
15-Jan-14	161	500	450	8.11	30				4																	
22-Jan-14	162	500	460	7.71	28				4																	
29-Jan-14	163	500	435	7.58	27				3																	
5-Feb-14	164	500	450	7.66	26	#N/A	2.1	14.3	4	1.8	< 0.2	< 0.06	< 0.3	12.4	0.0391	< 0.0002	< 0.0002	0.0227	< 0.00002	< 0.00001	0.0023	0.000011	4.01	< 0.0005	0.000020	0.0013
12-Feb-14	165	500	435	7.94	24				4																	
19-Feb-14	166	500	445	7.71	26				4																	
26-Feb-14	167	500	495	7.79	29				5																	
5-Mar-14	168	500	455	7.49	27	#N/A	3.5	16.1	5	< 0.5	< 0.2	< 0.06	< 0.3	13.7	0.0261	< 0.0002	0.0003	0.0240	< 0.00002	< 0.00001	0.0024	< 0.000003	4.49	< 0.0005	0.000012	0.0006
12-Mar-14	169	500	450	7.95	27	#N/A	1.7	15.6	4	< 0.5	< 0.2	< 0.06	< 0.3	12.9	0.0313	< 0.0002	< 0.0002	0.0264	< 0.00002	< 0.00001	0.0035	< 0.000003	4.21	< 0.0005	0.000129	0.0014
19-Mar-14	170	500	440	7.86	26	#N/A	3.6	14.9	4	< 0.5	< 0.2	< 0.06	< 0.3	11.9	0.0470	< 0.0002	< 0.0002	0.0229	< 0.00002	0.00005	0.0029	< 0.000003	3.88	< 0.0005	0.000063	0.0014

Cell Terminated

Mar 12/14 Change in analytical schedule

HC 1
Sample =Col-2 WR Composite

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	< 0.002	0.00005	< 0.001	28.7	0.0073	< 0.01	0.00456	0.0020	0.065	11.9	0.0009	2.08	< 0.00001	51.9	1.34	167	< 0.0002	0.00034	0.0002	0.000721	0.00754	0.001	0.00034
29-Dec-10	2	< 0.002	0.00214	0.001	25.3	0.0075	< 0.01	0.00721	0.0014	0.056	7.38	0.00080	1.72	< 0.00001	37.7	1.21	135	< 0.0002	0.00026	0.0002	0.00119	0.00760	0.002	0.00014
5-Jan-11	3	< 0.002	0.00005	0.001	23.4	0.0076	0.03	0.0071	0.0018	0.030	6.89	0.00052	1.70	< 0.00001	27.8	1.14	113	< 0.0002	0.00035	0.0001	0.00108	0.00713	< 0.001	0.00005
12-Jan-11	4	< 0.002	0.00006	0.001	15.1	0.0084	< 0.01	0.00270	0.0003	0.022	4.78	0.00044	1.53	< 0.00001	15.5	0.785	77.3	< 0.0002	0.00077	0.0002	0.000946	0.00613	0.001	0.00004
19-Jan-11	5																							
26-Jan-11	6	< 0.002	0.00006	0.001	8.95	0.0046	< 0.01	0.00870	0.0008	0.025	3.15	0.00009	1.25	< 0.00001	6.93	0.461	65.7	< 0.0002	0.00031	0.0002	0.000402	0.00568	0.004	0.00003
2-Feb-11	7																							
9-Feb-11	8	0.002	0.00199	< 0.001	5.04	0.0035	< 0.01	0.0204	0.0012	< 0.009	2.43	0.00018	1.42	< 0.00001	3.39	0.282	24.9	< 0.0002	0.00049	0.0003	0.000208	0.00660	0.005	0.00001
16-Feb-11	9																							
23-Feb-11	10	< 0.002	0.00175	< 0.001	3.95	0.0047	0.01	0.00670	0.0008	< 0.009	1.84	0.00012	1.22	< 0.00001	2.30	0.219	18.7	< 0.0002	0.00035	0.0003	0.000218	0.00470	0.002	< 0.00001
2-Mar-11	11																							
9-Mar-11	12	0.009	0.00134	< 0.001	3.89	0.0060	< 0.01	0.00189	0.0004	0.033	1.98	0.00005	1.34	< 0.00001	1.88	0.214	16.4	< 0.00002	0.00095	0.0004	0.000201	0.00515	0.002	0.00001
16-Mar-11	13																							
23-Mar-11	14	< 0.002	0.00006	< 0.001	3.16	0.0044	< 0.01	0.00189	0.0004	0.042	1.67	< 0.00004	1.18	< 0.00001	1.36	0.180	13.8	< 0.0002	0.00055	0.0002	0.000195	0.00472	< 0.001	< 0.00001
30-Mar-11	15																							
6-Apr-11	16	0.006	0.00004	< 0.001	2.73	0.0103	< 0.01	0.00155	< 0.0001	< 0.009	1.54	< 0.00004	1.15	< 0.00001	1.07	0.141	9.98	< 0.00002	0.00039	0.0002	0.00014	0.0051	0.006	< 0.00001
13-Apr-11	17																							
20-Apr-11	18	0.003	0.00002	< 0.001	2.00	0.0052	< 0.01	0.00204	0.0001	0.022	1.31	0.00066	1.07	0.00006	0.83	0.121	7.70	< 0.00002	0.00054	0.0003	0.00013	0.0050	0.003	< 0.00001
27-Apr-11	19																							
4-May-11	20	< 0.02	0.00004	< 0.001	1.98	0.0046	0.01	0.00753	< 0.0001	0.016	1.37	< 0.00004	1.14	< 0.00001	0.74	0.125	7.13	< 0.00002	0.00047	0.0004	0.00011	0.0047	0.003	< 0.00001
11-May-11	21																							
18-May-11	22	0.004	< 0.00002	< 0.001	1.70	0.0040	< 0.01	0.00194	0.0002	< 0.009	1.21	< 0.00004	1.13	< 0.00001	0.71	0.101	5.94	< 0.00002	0.00093	0.0003	0.000078	0.00492	< 0.001	< 0.00001
25-May-11	23																							
1-Jun-11	24	0.007	0.00003	< 0.001	1.49	0.0061	< 0.01	0.00181	< 0.0001	0.087	1.11	0.00005	1.07	< 0.00001	0.56	0.0877	4.57	< 0.00002	0.00122	0.0004	0.00006	0.0054	0.004	< 0.00001
8-Jun-11	25																							
15-Jun-11	26																							
22-Jun-11	27																							
29-Jun-11	28	0.008	0.00090	< 0.001	1.22	0.0049	< 0.01	0.00127	0.0002	< 0.009	0.908	< 0.00004	1.59	< 0.00001	0.46	0.0857	3.94	< 0.00002	0.00116	0.0001	0.00006	0.0051	0.003	< 0.00001
6-Jul-11	29																							
13-Jul-11	30																							
20-Jul-11	31																							
27-Jul-11	32	0.055	< 0.00002	< 0.001	1.03	0.0463	< 0.01	0.00137	0.0005	0.030	0.818	0.00005	0.84	< 0.00001	0.36	0.0620	2.71	< 0.00002	0.00102	0.0008	0.00008	0.0047	0.001	0.00003
3-Aug-11	33																							
10-Aug-11	34																							
17-Aug-11	35																							
24-Aug-11	36	0.013	0.00004	< 0.001	1.08	0.0040	< 0.01	0.0014	< 0.0001	< 0.009	0.790	0.00013	1.00	< 0.00001	0.36	0.0701	2.94	< 0.00002	0.00131	0.0002	0.000051	0.00473	0.002	< 0.00001
31-Aug-11	37																							
7-Sep-11	38	0.022	0.00012	< 0.001	1.18	0.0033	< 0.01	0.00352	0.0002	< 0.009	0.832	0.00004	0.97	< 0.00001	0.33	0.0856	4.52	< 0.00002	0.00026	0.0009	0.00006	0.0049	0.002	< 0.00001
14-Sep-11	39	0.032	0.00021	< 0.001	1.03	0.0047	0.01	0.00150	< 0.0001	< 0.009	0.768	< 0.00004	0.99	< 0.00001	0.37	0.0680	2.69	< 0.00002	0.00164	0.0008	0.00005	0.0044	0.006	0.00001
21-Sep-11	40	0.014	0.00004	< 0.001	0.943	0.0042	0.01	0.00130	< 0.0001	< 0.009	0.699	0.00004	0.86	< 0.00001	0.35	0.0582	2.23	< 0.00002	0.00128	0.0003	0.00004	0.0043	0.002	< 0.00001
28-Sep-11	41																							
5-Oct-11	42																							
12-Oct-11	43																							
19-Oct-11	44	< 0.003	0.00018	< 0.001	0.879	0.0024	< 0.01	0.00077	0.0001	< 0.009	0.660	< 0.00004	0.82	< 0.00001	0.30	0.0509	1.71	< 0.00002	0.00134	0.0001	0.00004	0.0037	0.005	< 0.00001
26-Oct-11	45																							
2-Nov-11	46																							
9-Nov-11	47																							
16-Nov-11	48	0.014	0.00005	< 0.001	0.878	0.0025	< 0.01	0.00314	0.0003	< 0.009	0.651	0.00010	0.82	< 0.00001	0.25	0.0498	1.55	< 0.00002	0.00041	0.0008	0.00004	0.0037	0.001	< 0.00001
23-Nov-11	49																							
30-Nov-11	50																							
7-Dec-11	51																							
14-Dec-11	52	0.021	0.00028	< 0.001	0.909	0.0018	< 0.01	0.0008	< 0.0001	< 0.009	0.641	< 0.00004	0.87	< 0.00001	0.23	0.0486	1.33	< 0.00002	0.00022	0.0010	0.000053	0.00320	0.004	< 0.00001
21-Dec-11	53																							
28-Dec-11	54																							
4-Jan-12	55																							
11-Jan-12	56	0.018	0.00004	< 0.001	0.864	0.0033	0.01	0.00094	0.0004	< 0.009	0.591	0.00009	0.70	< 0.00001	0.26	0.0415	1.18	< 0.00002	0.00023	0.0009	0.000044	0.00344	0.002	0.00001
18-Jan-12	57																							
25-Jan-12	58																							
1-Feb-12	59																							
8-Feb-12	60	0.008	0.00004	< 0.001	0.828	0.0040	< 0.01	0.00362	0.0002	< 0.009	0.551	0.00010	0.64	< 0.00001	0.22	0.0440	1.10	< 0.00002	0.00037	0.0004	0.000053	0.00301	0.002	< 0.00001
15-Feb-12	61																							
22-Feb-12	62																							
29-Feb-12	63																							
7-Mar-12	64	0.007	0.00003	< 0.001	0.923	0.0030	< 0.01	0.00319	0.0002	< 0.009	0.585	0.00006	0.72	< 0.00001	0.20	0.0485	1.22	< 0.00002	0.00096	0.0002	0.000073	0.00317	0.002	< 0.00001
14-Mar-12	65																							
21-Mar-12	66																							
28-Mar-12	67																							
4-Apr-12	68	< 0.003	< 0.00002	< 0.001	0.921	0.0039	< 0.01	0.00491	0.0003	< 0.009	0.572	< 0.00004	0.70	< 0.00001	0.21	0.0504	1.19	< 0.00002	0.00041	< 0.0001	0.000060	0.00308	0.001	< 0.00001
11-Apr-12	69																							
18-Apr-12	70																							
25-Apr-12	71																							
2-May-12	72	0.006	0.00003	< 0.001	0.836	0.0028	0.04	0.00807	0.0003	< 0.009	0.574	< 0.00004	0.67	< 0.00001	0.21	0.0464	1.10	< 0.00002	0.00056	0.0002	0.000064	0.00322	0.003	< 0.00001
9-May-12	73																							
16-May-12	74																							
23-May-12	75																							
30-May-12	76	0.004	< 0.00002	< 0.001	0.836	0.0035	0.01	0.00980	< 0.0001	< 0.009	0.572	0.00017	0.73	< 0.00001	0.18	0.0469	1.13	< 0.00002	0.00160	0.0003	0.000076	0.00354	0.002	< 0.00001
6-Jun-12	77																							
13-Jun-12	78																							
20-Jun-12	79																							
27-Jun-12	80	0.005	< 0.00002	< 0.001	0.708	0.0025	0.01	0.00786	< 0.0001	< 0.009	0.504	< 0.00004	0.70	< 0.00001	0.17	0.0417	1.21	< 0.00002	0.00088	0.0002	0.000060	0.00308	0.002	< 0.00001
4-Jul-12	81																							
11-Jul-12	82																							
18-Jul-12	83																							
25-Jul-12	84	0.004	< 0.00002	< 0.001	0.720	0.0029	< 0.01	0.00387	0.0001	< 0.009	0.454	0.00012	0.62	< 0.00001	0.18	0.0409	0.98	< 0.00002	0.00052	0.0003	0.000089	0.00309	0.004	< 0.00001
1-Aug-12	85																							
8-Aug-12	86																							
15-Aug-12	87																							
22-Aug-12	88	0.007	< 0.00002	< 0.001	0.853	0.0023	< 0.01	0.00593	0.0003	< 0.009	0.540	0.00015	0.77	< 0.00001	0.20	0.0516	1.11	< 0.00002	0.00026	0.0002	0.000087	0.00299	0.002	< 0.00001
29-Aug-12	89																							
5-Sep-12	90																							
12-Sep-12	91																							
19-Sep-12	92	0.003	< 0.00002	< 0.001	0.711	0.0025	0.01	0.00458	< 0.0001	< 0.009	0.483	0.00007	0.73	< 0.00001	0.18	0.0429	0.83	< 0.00002	0.00031	0.0003	0.000062	0.00344	< 0.001	< 0.00001
26-Sep-12	93																							
3-Oct-12	94																							

HC 1
Sample =Col-2 WR Composite

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
10-Oct-12	95																							
17-Oct-12	96	0.006	< 0.00002	< 0.001	1.30	0.0020	< 0.01	0.00440	< 0.0001	< 0.009	0.636	< 0.00004	0.79	< 0.00001	5.17	0.0443	1.17	< 0.00002	0.00034	0.0001	0.000073	0.00229	0.001	< 0.00001
24-Oct-12	97																							
31-Oct-12	98																							
7-Nov-12	99																							
14-Nov-12	100	< 0.003	< 0.00002	< 0.001	0.808	0.0015	0.01	0.00441	0.0002	< 0.009	0.474	0.00006	0.73	< 0.00001	0.16	0.0498	0.72	< 0.00002	0.00025	< 0.0001	0.000265	0.00263	0.003	< 0.00001
21-Nov-12	101																							
28-Nov-12	102																							
5-Dec-12	103																							
12-Dec-12	104	0.009	< 0.00002	< 0.001	0.819	0.0022	< 0.01	0.00417	0.0002	< 0.009	0.498	0.00013	0.82	< 0.00001	0.16	0.0497	0.75	< 0.00002	0.00050	0.0002	0.000096	0.00389	0.002	< 0.00001
19-Dec-12	105																							
26-Dec-12	106																							
2-Jan-13	107																							
9-Jan-13	108	0.005	< 0.00002	< 0.001	0.852	0.0036	< 0.01	0.00231	0.0001	< 0.009	0.573	0.00006	0.68	< 0.00001	0.17	0.0476	0.70	< 0.00002	0.00021	0.0003	0.000409	0.00307	< 0.001	< 0.00001
16-Jan-13	109																							
23-Jan-13	110																							
30-Jan-13	111																							
6-Feb-13	112	0.004	0.00002	< 0.001	0.669	0.0032	< 0.01	0.00287	< 0.0001	< 0.009	0.494	0.00014	0.80	< 0.00001	0.13	0.0372	1.57	< 0.00002	0.00008	0.0002	0.000075	0.00280	0.001	< 0.00001
13-Feb-13	113																							
20-Feb-13	114																							
27-Feb-13	115																							
6-Mar-13	116	0.005	0.00005	< 0.001	0.662	0.0019	< 0.01	0.00276	< 0.0001	< 0.009	0.471	0.00006	0.64	< 0.00001	0.14	0.0375	0.46	< 0.00002	0.00021	< 0.0001	0.000056	0.00281	< 0.001	< 0.00001
13-Mar-13	117																							
20-Mar-13	118																							
27-Mar-13	119																							
3-Apr-13	120	0.003	0.00007	< 0.001	0.760	0.0026	< 0.01	0.00295	< 0.0001	< 0.009	0.533	0.00007	0.67	< 0.00001	0.21	0.0424	0.75	< 0.00002	0.00011	0.0003	0.000221	0.00345	< 0.001	< 0.00001
10-Apr-13	121																							
17-Apr-13	122																							
24-Apr-13	123																							
1-May-13	124	< 0.003	< 0.00002	< 0.001	0.578	0.0022	< 0.01	0.00235	< 0.0001	< 0.009	0.412	0.00005	0.49	< 0.00001	0.12	0.0315	0.55	< 0.00002	0.00031	0.0002	0.000042	0.00238	< 0.001	< 0.00001
8-May-13	125																							
15-May-13	126																							
22-May-13	127																							
29-May-13	128	0.004	< 0.00002	< 0.001	0.719	0.0028	< 0.01	0.00193	< 0.0001	< 0.009	0.464	0.00007	0.64	< 0.00001	0.14	0.0388	0.68	< 0.00002	0.00007	0.0002	0.000047	0.00265	< 0.001	< 0.00001
5-Jun-13	129																							
12-Jun-13	130																							
19-Jun-13	131																							
26-Jun-13	132	0.082	0.00007	< 0.001	0.644	0.0026	< 0.01	0.00188	< 0.0001	< 0.009	0.463	0.00008	0.66	< 0.00001	0.13	0.0354	0.75	< 0.00002	0.00033	0.0001	0.000056	0.00241	< 0.001	< 0.00001
3-Jul-13	133																							
10-Jul-13	134																							
17-Jul-13	135																							
24-Jul-13	136	< 0.003	< 0.00002	< 0.001	0.600	0.0019	< 0.01	0.00131	< 0.0001	< 0.009	0.415	0.00008	0.55	< 0.00001	0.11	0.0328	0.52	< 0.00002	0.00009	< 0.0001	0.000042	0.00221	0.003	< 0.00001
31-Jul-13	137																							
7-Aug-13	138																							
14-Aug-13	139																							
21-Aug-13	140	0.118	< 0.00002	< 0.001	0.630	0.0004	0.02	0.00147	< 0.0001	< 0.009	0.473	0.00008	0.63	< 0.00001	0.14	0.0360	0.57	< 0.00002	0.00010	0.0002	0.000048	0.00246	< 0.001	< 0.00001
28-Aug-13	141																							
4-Sep-13	142																							
11-Sep-13	143																							
18-Sep-13	144	< 0.003	0.00002	< 0.001	0.567	0.0023	< 0.01	0.00174	< 0.0001	< 0.009	0.417	0.00007	0.47	< 0.00001	0.11	0.0304	0.48	< 0.00002	0.00002	0.0002	0.000031	0.00219	< 0.001	< 0.00001
25-Sep-13	145																							
2-Oct-13	146																							
9-Oct-13	147																							
16-Oct-13	148	0.005	0.00003	< 0.001	0.598	0.0075	< 0.01	0.00171	0.0002	< 0.009	0.431	0.00007	0.57	0.00001	0.13	0.0308	0.56	< 0.00002	0.00023	< 0.0001	0.000060	0.00265	0.009	< 0.00001
23-Oct-13	149																							
30-Oct-13	150																							
6-Nov-13	151																							
13-Nov-13	152	0.012	< 0.00002	< 0.001	0.578	0.0020	< 0.01	0.00226	0.0002	< 0.009	0.452	0.00008	0.52	< 0.00001	0.48	0.0300	1.42	< 0.00002	0.00007	0.0002	0.000042	0.00223	< 0.001	< 0.00001
20-Nov-13	153																							
27-Nov-13	154																							
4-Dec-13	155																							
11-Dec-13	156	0.608	0.00010	< 0.001	0.560	0.0043	< 0.01	0.00156	0.0005	0.018	0.391	0.00006	0.52	< 0.00001	0.11	0.0281	1.17	< 0.00002	0.00006	0.0004	0.000117	0.00217	0.001	< 0.00001
18-Dec-13	157																							
25-Dec-13	158																							
1-Jan-14	159																							
8-Jan-14	160	0.008	< 0.00002	< 0.001	0.662	0.0016	< 0.01	0.00192	< 0.0001	< 0.009	0.443	0.00006	0.52	< 0.00001	0.13	0.0315	0.55	< 0.00002	0.00008	0.0003	0.000048	0.00215	< 0.001	< 0.00001
15-Jan-14	161																							
22-Jan-14	162																							
29-Jan-14	163																							
5-Feb-14	164	0.013	< 0.00002	< 0.001	0.585	0.0014	< 0.01	0.0018	< 0.0001	< 0.009	0.399	0.00006	0.54	0.00001	0.10	0.0295	0.40	< 0.00002	0.00007	0.0003	0.000043	0.00196	< 0.001	< 0.00001
12-Feb-14	165																							
19-Feb-14	166																							
26-Feb-14	167																							
5-Mar-14	168	0.008	< 0.00002	< 0.001	0.606	0.0015	< 0.01	0.00131	< 0.0001	< 0.009	0.382	< 0.00004	0.56	< 0.00001	0.10	0.0322	0.35	< 0.00002	0.00008	< 0.0001	0.000045	0.00206	< 0.001	< 0.00001
12-Mar-14	169	0.006	< 0.00002	< 0.001	0.586	0.0017	< 0.01	0.00762	0.0001	< 0.009	0.398	0.00005	0.56	< 0.00001	0.12	0.0309	0.43	< 0.00002	0.00013	0.0002	0.000062	0.00223	< 0.001	< 0.00001
19-Mar-14	170	< 0.003	0.00002	< 0.001	0.546	0.0012	< 0.01	0.00117	0.0001	< 0.009	0.372	0.00021	0.53	< 0.00001	0.12	0.0276	0.38	< 0.00002	0.00003	0.0002	0.000039	0.00190	0.001	< 0.00001

Cell Terminated

Mar 12/14 Change in analytical schec

HC 2
Sample =Col-3 WR Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	500	365	7.43	1460	#N/A	5.8	31.6	891		3.8	0.08	< 0.3	814	0.0102	0.0007	0.0027	0.0401	< 0.00002	< 0.00001	0.0617	0.000023	251	0.0005	0.00085	0.0037
29-Dec-10	2	500	490	7.44	1108	#N/A	8.0	30.5	604		2.6	0.06	< 0.3	546	0.0126	0.0005	0.0024	0.0268	< 0.00002	< 0.00001	0.0758	0.000051	163	< 0.0005	0.000507	0.0031
5-Jan-11	3	500	475	7.44	805	#N/A	6.9	26.5	453		1.4	< 0.06	< 0.3	419	0.0138	0.0004	0.0018	0.0246	< 0.00002	< 0.00001	0.0562	0.000035	128	< 0.0005	0.000327	0.0015
12-Jan-11	4	500	475	7.41	709	#N/A	4.1	23.6	396		0.7	< 0.06	< 0.3	385	0.0141	0.0004	0.0014	0.0220	< 0.00002	< 0.00001	0.0499	0.000015	118	< 0.0005	0.000346	0.0018
19-Jan-11	5	500	480	7.34	728				370																	
26-Jan-11	6	500	480	7.33	675	#N/A	3.8	21.5	371		<1.0	< 0.06	< 0.3	344	0.0166	0.0004	0.0014	0.0192	< 0.00002	< 0.00001	0.0360	0.000038	109	< 0.0005	0.000334	0.0012
2-Feb-11	7	500	475	7.35	632				372																	
9-Feb-11	8	500	490	7.18	609	#N/A	3.9	20.9	336		< 1	< 0.06	< 0.3	346	0.0192	0.0003	0.0015	0.0212	< 0.00002	< 0.00001	0.0372	0.000016	114	0.0005	0.000565	0.0018
16-Feb-11	9	500	480	7.40	595				270																	
23-Feb-11	10	500	490	7.37	578	#N/A	3.6	21.5	292		< 0.2	0.06	< 0.3	294	0.0178	0.0003	0.0012	0.0196	< 0.00002	< 0.00001	0.0224	0.000034	98.1	0.0007	0.000382	0.0023
2-Mar-11	11	500	485	7.40	603				327																	
9-Mar-11	12	500	475	7.31	601	#N/A	3.0	20.2	281		< 0.2	< 0.06	< 0.3	280	0.0128	0.0002	0.0009	0.0141	< 0.00002	< 0.00001	0.0195	0.000015	94.2	< 0.0005	0.000402	0.0007
16-Mar-11	13	500	475	7.35	525				296																	
23-Mar-11	14	500	480	7.40	569	#N/A	3.1	20.2	274		< 0.2	< 0.06	< 0.3	278	0.0124	0.0003	0.0008	0.0111	< 0.00002	< 0.00001	0.0156	0.000010	95.9	< 0.0005	0.000422	0.0012
30-Mar-11	15	500	500	7.40	552				248																	
6-Apr-11	16	500	465	7.34	468	#N/A	4.4	21.3	193		< 0.2	< 0.06	< 0.3	210	0.0136	0.0004	0.0011	0.0115	< 0.00002	< 0.00001	0.0119	< 0.000003	73.5	< 0.0005	0.00030	0.0006
13-Apr-11	17	500	485	7.20	508				185																	
20-Apr-11	18	500	500	7.50	537	#N/A	7.0	26.3	217		< 0.2	< 0.06	< 0.3	250	0.0136	0.0002	0.0009	0.0108	< 0.00002	< 0.00001	0.0128	0.000011	88.8	< 0.0005	0.00057	0.0006
27-Apr-11	19	500	495	7.23	514				199																	
4-May-11	20	500	475	7.31	434	#N/A	4.4	17.2	172		< 0.2	< 0.06	< 0.3	190	0.0143	< 0.0002	0.0008	0.0111	< 0.00002	< 0.00001	0.0091	0.000008	67.6	< 0.0005	0.00033	0.0007
11-May-11	21	500	490	7.23	476				207																	
18-May-11	22	500	480	7.43	393	#N/A	2.8	15.4	154		< 0.2	< 0.06	< 0.3	177	0.0130	< 0.0002	0.0009	0.00949	< 0.00002	< 0.00001	0.0085	< 0.000003	63.7	< 0.0005	0.000267	0.0005
25-May-11	23	500	470	7.40	402				177																	
1-Jun-11	24	500	470	7.43	376	#N/A	4.9	15.8	141		< 0.2	< 0.06	< 0.3	160	0.0132	< 0.0002	0.0008	0.0099	< 0.00002	< 0.00001	0.0092	0.000010	58.0	< 0.0005	0.00028	0.0005
8-Jun-11	25	500	460	7.17	377				136																	
15-Jun-11	26	500	475	7.49	394				146																	
22-Jun-11	27	500	480	7.42	381				197																	
29-Jun-11	28	500	475	7.42	345	#N/A	3.2	14.5	145		< 0.2	< 0.06	< 0.3	150	0.0136	< 0.0002	0.0011	0.0099	< 0.00002	< 0.00001	0.0114	0.000014	53.7	< 0.0005	0.00019	0.0006
6-Jul-11	29	500	170	7.29	326				136																	
13-Jul-11	30	500	495	7.24	393				165																	
20-Jul-11	31	500	475	7.32	340				152																	
27-Jul-11	32	500	455	7.25	281	#N/A	2.5	13.2	111		< 0.2	< 0.06	< 0.3	100	0.0165	< 0.0002	0.0008	0.0098	< 0.00002	< 0.00001	0.0073	< 0.000003	36.9	< 0.0005	0.00022	0.0006
3-Aug-11	33	500	475	7.33	318				146																	
10-Aug-11	34	500	475	7.26	314				119																	
17-Aug-11	35	500	470	7.31	306				125																	
24-Aug-11	36	500	475	7.33	303	#N/A	5.8	15.1	118		< 0.2	< 0.06	< 0.3	135	0.0135	0.0002	0.0007	0.0110	< 0.00002	< 0.00001	0.0078	0.000016	49.6	0.0011	0.000149	0.0011
31-Aug-11	37	500	475	7.33	312				141																	
7-Sep-11	38	500	475	7.35	290	#N/A	4.3	13.6	125		< 0.2	< 0.06	< 0.3	122	0.0151	< 0.0002	0.0009	0.0098	< 0.00002	< 0.00001	0.0080	0.000005	45.0	0.0006	0.00013	0.0009
14-Sep-11	39	500	475	7.30	269	#N/A	4.2	12.7	125		< 0.2	< 0.06	< 0.3	120	0.0132	0.0002	0.0005	0.0095	< 0.00002	< 0.00001	0.0070	0.000013	44.8	0.0009	0.00016	0.0008
21-Sep-11	40	500	470	7.28	253	#N/A	4.8	14.3	102		< 0.2	< 0.06	< 0.3	113	0.0126	< 0.0002	0.0008	0.0107	< 0.00002	< 0.00001	0.0068	0.000009	41.5	0.0009	0.00012	0.0007
28-Sep-11	41	500	475	7.43	260				110																	
5-Oct-11	42	500	490	7.24	274				117																	
12-Oct-11	43	500	415	7.47	247				100																	
19-Oct-11	44	500	480	7.29	246	#N/A	2.8	13.1	99		< 0.2	< 0.06	< 0.3	107	0.0116	< 0.0002	0.0006	0.0089	< 0.00002	< 0.00001	0.0067	< 0.000003	39.6	0.0005	0.00011	0.0008
26-Oct-11	45	500	485	7.29	249				98																	
2-Nov-11	46	500	475	7.40	218				81																	
9-Nov-11	47	500	475	7.48	203				80																	
16-Nov-11	48	500	470	7.37	205	#N/A	3.5	14.4	77		< 0.2	< 0.06	< 0.3	84.5	0.0220	< 0.0002	0.0007	0.0087	< 0.00002	< 0.00001	0.0057	< 0.000003	31.3	< 0.0005	0.00010	0.0011
23-Nov-11	49	500	475	7.47	191				65																	
30-Nov-11	50	500	470	7.54	188				72																	
7-Dec-11	51	500	475	7.47	187				71																	
14-Dec-11	52	500	470	7.38	198	#N/A	4.3	16.1	74		< 0.2	< 0.06	< 0.3	78.3	0.0141	0.0003	0.0005	0.0073	< 0.00002	< 0.00001	0.0058	0.000009	29.0	0.0009	0.000125	0.0009
21-Dec-11	53	500	470	7.52	179				57																	
28-Dec-11	54	500	475	7.26	169				61																	
4-Jan-12	55	500	475	7.54	178				62																	
11-Jan-12	56	500	480	7.27	175	#N/A	3.3	16.7	65	< 1	< 0.2	< 0.06	< 0.3	68.4	0.0558	< 0.0002	0.0006	0.0074	< 0.00002	< 0.00001	0.0054	< 0.000003	25.2	< 0.0005	0.000096	0.0012
18-Jan-12	57	500	470	7.39	151				55																	
25-Jan-12	58	500	465	7.32	148				56																	
1-Feb-12	59	500	465	7.39	149				53																	
8-Feb-12	60	500	475	7.54	149	#N/A	4.7	18.3	50	< 0.5	< 0.2	< 0.06	< 0.3	55.9	0.0233	0.0002	0.0007	0.0068	< 0.00002	< 0.00001	0.0042	0.000008	20.5	< 0.0005	0.000093	0.0007
15-Feb-12	61	500	465	7.40	137				54																	
22-Feb-12	62	500	470	7.38	134				48																	
29-Feb-12	63	500	470	7.27	125				43																	
7-Mar-12	64	500	455	7.55	123	#N/A	6.1	16.5	42	< 0.5	< 0.2	< 0.06	< 0.3	50.1	0.0253	< 0.0002	0.0008	0.0080	< 0.00002	< 0.00001	0.0034	< 0.000003	18.4	< 0.0005	0.000059	0.0009
14-Mar-12	65	500	470	7.31	128				43																	
21-Mar-12	66	500	455	7.34	126				41																	
28-Mar-12	67	500	455	7.33	113				36																	
4-Apr-12	68	500	460	7.34	107	#N/A	2.8	15.8	37	1.5	< 0.2	< 0.06	< 0.3	41.8	0.0544	< 0.0002	0.0006	0.0082	< 0.00002	< 0.00001	0.0037	< 0.000003	15.4	< 0.0005	0.000049	0.0009
11-Apr-12	69	500	465	7.34	105				36																	
18-Apr-12	70	500	465	7.40	119				42																	
25-Apr-12	71	500	460	7.47	110				39																	
2-May-12	72	500	465	7.54	110	#N/A	5.7	16.4	34	1.6	< 0.2	< 0.06	< 0.3	44.1	0.0321	< 0.0002	0.0006	0.0080	< 0.00002	< 0.00001	0.0046	0.000004	16.2	< 0.0005	0.000047	0.0010
9-May-12	73	500	465	7.43	109				37																	
16-May-12	74	500	460	7.33	103				29																	
23-May-12	75	500	465	7.23	100				30																	
30-May-12	76	500	470	7.55	101	#N/A	5.1	15.8	27	0.7	< 0.2	< 0.06	< 0.3	37.0	0.0553	< 0.0002	0.0006	0.0069	< 0.00002	< 0.00001	0.0048	< 0.000003	13.5	< 0.0005	0.000060	0.0008
6-Jun-12	77	500	465	7.30	101				28																	
13-Jun-12	78	500	475	7.50	99				27																	
20-Jun-12	79	500	470	7.33	96				27																	
27-Jun-12	80	500	475	7.25	103	#N/A	4.6	14.2	29	3.3	< 0.2	< 0.06	< 0.3	40.3	0.0567	< 0.0002	0.0005	0.0121	< 0.00002	< 0.00001	0.0063	< 0.000003	14.9	< 0.0005	0.00004	0.0008
4-Jul-12	81	500	465	7.31	101				29																	
11-Jul-12	82	500	425	7.40	101				26																	
18-Jul-12	83	500	465	7.33	79				18																	
25-Jul-12	84	500	465	7.23	88	#N/A	3.3	15.0	20	< 0.5	< 0.2	< 0.06	< 0.3	33.5	0.0617	< 0.0002	0.0005	0.0127	< 0.00002	< 0.00001	0.0053	< 0.000003	12.2	< 0.0005	0.00004	0.0007
1-Aug-12	85	500	465	7.43	90				26																	
8-Aug-12	86	500	460	7.58	82				22																	
15-Aug-12	87	500	435	7.34	83				20																	
22-Aug-12	88	500	460	7.55	87	#N/A	4.4	15.6	24	2.0	< 0.2	< 0.06	< 0.3	33.4	0.0580	0.0003	0.0005	0.00891	< 0.00002	0.00002	0.0044	0.000010	12.2	< 0.0005	0.000078	0.0008
29-Aug-12	89	500	430	7.29	95				28																	
5-Sep-12	90	500	470	7.37	75				16																	
12-Sep-12	91	500	460	7.26	76				18																	
19-Sep-12	92	500	465	7.34	77	#N/A	4.4	15.9	21	< 0.5	< 0.2	< 0.06	< 0.3	28.9	0.0499	< 0.0002	0.0004	0.0102	< 0.00002	< 0.00001	0.0053	< 0.000003	10.4	< 0.0005	0.000036	< 0.0005
26-Sep-12	93	500	465	7.41	76				19																	
3-Oct-12	94	500	465	7.27	67				16																	
10-Oct-12	95	500	465	7.26	68				17																	
17-Oct-12	96	500	485	7.38	78	#N/A	3.4	16.7	20	0.6	< 0.2	< 0.06	< 0.3	33.7	0.0314	< 0.0002	0.0004	0.00929	< 0.00002	< 0.00001	0.0043	< 0.000003	11.4	< 0.0005	0.000064	0.0012
24-Oct-12	97	500	490	7.37	105				30																	
31-Oct-12	98	500	500	7.52	85				23																	
7-Nov-12	99	500	470	7.38	73				18																	

HC 2
Sample =Col-3 WR Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14-Nov-12	100	500	460	7.62	71	#N/A	8.7	21.9	16	< 0.5	< 0.2	< 0.06	< 0.3	27.8	0.0371	< 0.0002	0.0006	0.00907	< 0.00002	< 0.00001	0.0037	0.000055	9.90	< 0.0005	0.000114	0.0121
21-Nov-12	101	500	490	7.53	85				21																	
28-Nov-12	102	500	500	7.81	87				26																	
5-Dec-12	103	500	465	7.74	71				17																	
12-Dec-12	104	500	495	7.60	78	#N/A	4.2	15.1	24	< 0.5	< 0.2	< 0.06	< 0.3	30.4	0.0318	0.0002	0.0004	0.0118	< 0.00002	< 0.00001	0.0022	< 0.000003	10.9	< 0.0005	< 0.000002	0.0009
19-Dec-12	105	500	470	7.52	72				20																	
26-Dec-12	106	500	450	7.71	110				28																	
2-Jan-13	107	500	470	7.65	79				19																	
9-Jan-13	108	500	460	7.76	68	#N/A	5.2	20.9	14	0.8	< 0.2	< 0.06	< 0.3	28.2	0.0397	< 0.0002	0.0004	0.0125	< 0.00002	< 0.00001	0.0023	< 0.000003	10.1	< 0.0005	0.000036	0.0008
16-Jan-13	109	500	485	7.58	86				24																	
23-Jan-13	110	500	470	7.67	79				20																	
30-Jan-13	111	500	475	7.48	75				17																	
6-Feb-13	112	500	470	7.61	77	#N/A	4.9	15.6	18	< 0.5	< 0.2	< 0.06	< 0.3	28.7	0.0216	< 0.0002	0.0009	0.0101	< 0.00002	< 0.00001	0.0022	0.000010	10.2	< 0.0005	0.000075	0.0008
13-Feb-13	113	500	475	7.60	71				18																	
20-Feb-13	114	500	470	7.57	70				16																	
27-Feb-13	115	500	460	7.36	59				14																	
6-Mar-13	116	500	450	7.56	56	#N/A	4.6	15.7	11	< 0.5	< 0.2	< 0.06	< 0.3	21.6	0.0287	< 0.0002	0.0005	0.0100	< 0.00002	< 0.00001	0.0046	0.000008	7.62	< 0.0005	0.000228	0.0006
13-Mar-13	117	500	455	7.38	67				12																	
20-Mar-13	118	500	475	7.68	64				14																	
27-Mar-13	119	500	460	7.65	62				14																	
3-Apr-13	120	500	455	7.59	58	#N/A	4.7	15.5	9	< 0.5	< 0.2	< 0.06	< 0.3	23.6	0.0236	< 0.0002	0.0006	0.00974	< 0.00002	< 0.00001	0.0019	< 0.000003	8.39	< 0.0005	0.000171	0.0006
10-Apr-13	121	500	450	7.48	55				10																	
17-Apr-13	122	500	470	7.64	59				15																	
24-Apr-13	123	500	460	7.63	63				15																	
1-May-13	124	500	445	7.65	52	#N/A	5.1	16.6	11	< 0.5	< 0.2	< 0.06	< 0.3	19.6	0.0308	< 0.0002	0.0008	0.00954	< 0.00002	< 0.00001	0.0035	< 0.000003	6.88	< 0.0005	0.000124	0.0025
8-May-13	125	500	455	7.74	55				14																	
15-May-13	126	500	460	7.64	50				13																	
22-May-13	127	500	460	7.70	55				10																	
29-May-13	128	500	460	7.74	55	#N/A	5.1	20.3	10	1.8	< 0.2	< 0.06	< 0.3	22.1	0.0246	< 0.0002	0.0004	0.0116	< 0.00002	< 0.00001	0.0022	< 0.000003	7.69	< 0.0005	0.000032	0.0008
5-Jun-13	129	500	460	7.46	55				12																	
12-Jun-13	130	500	460	7.85	56				9																	
19-Jun-13	131	500	460	7.40	60				13																	
26-Jun-13	132	500	465	7.59	64	#N/A	3.1	16.6	10	< 0.5	< 0.2	< 0.06	< 0.3	25.5	0.0327	< 0.0002	0.0010	0.0137	< 0.00002	< 0.00001	< 0.0002	0.000005	8.98	< 0.0005	0.000044	0.0011
3-Jul-13	133	500	465	7.59	62				11																	
10-Jul-13	134	500	465	7.58	57				12																	
17-Jul-13	135	500	445	7.52	60				12																	
24-Jul-13	136	500	460	7.46	58	#N/A	6.5	17.9	12	< 0.5	< 0.2	< 0.06	< 0.3	22.6	0.0281	< 0.0002	0.0003	0.0114	< 0.00002	< 0.00001	0.0028	< 0.000003	7.88	< 0.0005	0.000034	0.0008
31-Jul-13	137	500	455	7.49	61				12																	
7-Aug-13	138	500	450	7.52	59				14																	
14-Aug-13	139	500	460	7.55	60				10																	
21-Aug-13	140	500	455	7.59	62	#N/A	5.5	21.5	10	< 0.5	< 0.2	< 0.06	< 0.3	23.9	0.0373	< 0.0002	0.0007	0.0148	< 0.00002	< 0.00001	0.0038	0.000008	8.41	< 0.0005	0.000049	0.0012
28-Aug-13	141	500	465	7.52	50				11																	
4-Sep-13	142	500	445	7.48	52				11																	
11-Sep-13	143	500	450	7.63	52				7																	
18-Sep-13	144	500	450	7.64	52	#N/A	4.3	16.7	9	< 0.5	< 0.2	< 0.06	< 0.3	20.2	0.0301	< 0.0002	0.0008	0.0122	< 0.00002	< 0.00001	0.0083	0.000023	7.05	< 0.0005	0.000049	0.0008
25-Sep-13	145	500	455	7.56	54				9																	
2-Oct-13	146	500	460	7.62	58				12																	
9-Oct-13	147	500	465	7.71	52				10																	
16-Oct-13	148	500	455	7.49	51	#N/A	1.8	14.9	7	< 0.5	< 0.2	< 0.06	< 0.3	21.4	0.0432	< 0.0002	0.0008	0.0137	< 0.00002	< 0.00001	0.0034	0.000054	7.45	0.0009	0.000080	0.0016
23-Oct-13	149	500	455	7.27	54				12																	
30-Oct-13	150	500	450	7.58	52				9																	
6-Nov-13	151	500	460	7.72	57				7																	
13-Nov-13	152	500	460	7.63	55	#N/A	4.0	15.5	9	< 0.5	< 0.2	< 0.06	< 0.3	21.3	0.0254	< 0.0002	0.0007	0.0131	< 0.00002	< 0.00001	0.0028	0.000003	7.34	< 0.0005	0.000047	0.0014
20-Nov-13	153	500	445	7.84	52				8																	
27-Nov-13	154	500	460	7.63	53				8																	
4-Dec-13	155	500	455	7.65	51				8																	
11-Dec-13	156	500	455	7.64	55	#N/A	1.6	16.2	7	0.8	< 0.2	< 0.06	< 0.3	22.1	0.0322	< 0.0002	0.0006	0.0150	< 0.00002	< 0.00001	0.0023	0.000037	7.68	< 0.0005	0.000067	0.0012
18-Dec-13	157	500	455	7.74	54				7																	
25-Dec-13	158	500	460	7.77	51				8																	
1-Jan-14	159	500	465	7.62	51				8																	
8-Jan-14	160	500	450	7.65	58	#N/A	1.3	15.3	6	< 0.5	< 0.2	< 0.06	< 0.3	22.7	0.0320	< 0.0002	0.0007	0.0133	< 0.00002	< 0.00001	0.0033	0.000003	7.81	< 0.0005	0.000037	0.0010
15-Jan-14	161	500	450	7.77	55				7																	
22-Jan-14	162	500	470	7.69	63				10																	
29-Jan-14	163	500	455	7.52	55				7																	
5-Feb-14	164	500	460	7.42	58	#N/A	2.3	17.4	11	1.4	< 0.2	< 0.06	< 0.3	23.6	0.0289	< 0.0002	0.0004	0.0135	< 0.00002	< 0.00001	0.0022	0.000003	8.12	< 0.0005	0.000045	0.0014
12-Feb-14	165	500	445	7.62	53				7																	
19-Feb-14	166	500	460	7.64	58				9																	
26-Feb-14	167	500	455	7.74	54				10																	
5-Mar-14	168	500	445	7.80	60	#N/A	3.8	24.0	8	< 0.5	< 0.2	< 0.06	< 0.3	24.8	0.0377	< 0.0002	0.0007	0.0146	< 0.00002	< 0.00001	0.0027	0.000005	8.50	< 0.0005	0.000066	0.0019
12-Mar-14	169	500	440	7.72	58				7																	
19-Mar-14	170	500	460	7.78	55																					
26-Mar-14	171	500	460	7.95	60																					
2-Apr-14	172	500	485	7.66	67	#N/A	3.5	22.9	10	1.4	< 0.2	< 0.06	< 0.3	28.2	0.0254	< 0.0002	0.0004	0.0182	< 0.00002	< 0.00001	0.0029	0.000062	9.78	< 0.0005	0.000042	0.0008
9-Apr-14	173	500	470	7.93	63																					
16-Apr-14	174	500	495	7.67	71																					
23-Apr-14	175	500	485	7.58	66																					
30-Apr-14	176	500	485	7.58	59	#N/A	5.9	18.6	11	0.6	< 0.2	< 0.06	< 0.3	25.7	0.0208	< 0.0002	0.0005	0.0182	< 0.000007	< 0.000007	0.0028	< 0.000004	8.95	< 0.00003	0.000039	0.00121
7-May-14	177	500	490	7.97	59																					
14-May-14	178	500	490	7.69	57																					
21-May-14	179	500	490	7.66	57																					
28-May-14	180	500	495	7.63	49	#N/A	3.6	27.2	8	< 0.5	< 0.2	< 0.06	< 0.3	24.2	0.0204	< 0.0002	0.0004	0.0178	< 0.000007	< 0.000007	0.0037	< 0.000003	8.42	0.00004	0.000178	0.00104
4-Jun-14	181	500	465	7.81	49																					
11-Jun-14	182	500	475	7.51	53																					
18-Jun-14	183	500	485	7.77	63																					
25-Jun-14	184	500	490	7.64	58	#N/A	6.1	23.0	7	0.7	< 0.2	< 0.06	< 0.3	23.5	0.0291	< 0.0002	0.0011	0.0168	0.000010	< 0.000007	0.0038	0.000017	8.15	0.00019	0.000468	0.00323
2-Jul-14	185	500	470	7.71	56																					
9-Jul-14	186	500	450	7.55	57																					
16-Jul-14	187	500	475	7.63	57																					
23-Jul-14	188	500	480	7.53	55	#N/A	2.7	16.6	7	< 0.5	< 0.2	< 0.06	< 0.3	22.9	0.0231	< 0.0002	0.0010	0.0152	< 0.000007	< 0.000007	0.0033	0.000003	7.94	< 0.00003	0.000031	0.00134
30-Jul-14	189	500	490	7.93	57																					
6-Aug-14	190	500	460	7.62	55																					
13-Aug-14	191	500	495	7.56	59																					
20-Aug-14	192	500	480	7.68	55	#N/A	1.9	17.5	9	< 0.5	< 0.2	< 0.06	< 0.3	23.5	0.0240	< 0.0002	0.0005	0.0153	< 0.000007	< 0.000007	0.0043	0.000054	8.15	< 0.00003	0.000053	0.00097
27-Aug-14	193	500	490	8.12	66																					
3-Sep-14	194	500	495	7.74	61																					

Mar 12/14 Change in analytical schedule

HC 2
Sample =Col-3 WR Composite

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
22-Dec-10	1	< 0.002	< 0.00002	0.002	45.7	0.0127	0.02	0.03586	0.0072	0.038	18.9	0.0032	2.63	< 0.00001	62.6	2.17	333	< 0.0002	0.00029	0.0003	0.000535	0.00658	0.002	0.00040
29-Dec-10	2	< 0.002	0.00005	0.003	33.9	0.0144	< 0.01	0.0832	0.0073	0.028	14.9	0.00290	2.11	< 0.00001	42.6	1.61	227	< 0.0002	0.00006	0.0002	0.00114	0.00638	0.002	0.00012
5-Jan-11	3	< 0.002	0.00003	0.002	24.4	0.0123	0.03	0.0799	0.0079	0.020	12.7	0.00143	1.64	< 0.00001	24.7	1.27	151	< 0.0002	0.00073	0.0001	0.000652	0.00572	0.003	0.00003
12-Jan-11	4	0.009	0.00002	0.002	22.2	0.0122	< 0.01	0.0481	0.0073	0.011	12.4	0.00115	1.61	< 0.00001	18.8	1.18	140	< 0.0002	0.00045	0.0002	0.000595	0.00510	0.001	0.00003
19-Jan-11	5																							
26-Jan-11	6	< 0.002	0.00014	0.002	17.1	0.0082	< 0.01	0.0358	0.0082	0.050	11.3	0.00076	1.50	< 0.00001	9.31	0.977	173	< 0.0002	0.00030	0.0002	0.000389	0.00447	0.006	0.00003
2-Feb-11	7																							
9-Feb-11	8	< 0.002	0.00087	0.002	14.7	0.0096	< 0.01	0.0355	0.0116	0.040	13.1	0.00087	1.84	< 0.00001	5.28	0.905	115	< 0.0002	0.00028	0.0003	0.000318	0.00422	< 0.001	< 0.00001
16-Feb-11	9																							
23-Feb-11	10	< 0.002	0.00292	0.002	11.9	0.0099	< 0.01	0.0351	0.0095	0.018	10.6	0.00059	1.46	< 0.00001	2.99	0.719	98.9	< 0.0002	0.00032	0.0002	0.000342	0.00291	0.018	< 0.00001
2-Mar-11	11																							
9-Mar-11	12	< 0.002	0.00122	0.002	10.4	0.0102	< 0.01	0.0393	0.0090	< 0.009	10.4	0.00030	1.38	< 0.00001	1.93	0.665	86.0	< 0.00002	0.00069	0.0001	0.000255	0.00264	0.002	< 0.00001
16-Mar-11	13																							
23-Mar-11	14	< 0.002	0.00023	0.001	9.33	0.0082	< 0.01	0.0395	0.0099	< 0.009	10.3	0.00048	1.38	< 0.00001	1.44	0.647	95.8	< 0.0002	0.00047	0.0001	0.000277	0.00255	< 0.001	< 0.00001
30-Mar-11	15																							
6-Apr-11	16	0.006	< 0.00002	0.001	7.36	0.0132	< 0.01	0.0358	0.0069	< 0.009	8.41	0.00027	1.21	< 0.00001	0.93	0.475	72.1	< 0.00002	0.00016	0.0001	0.00017	0.0025	< 0.001	< 0.00001
13-Apr-11	17																							
20-Apr-11	18	< 0.002	< 0.00002	0.001	7.01	0.0085	< 0.01	0.0441	0.0080	0.012	8.81	0.00082	1.28	< 0.00001	0.86	0.556	82.9	< 0.00002	0.00013	0.0002	0.00026	0.0023	0.002	< 0.00001
27-Apr-11	19																							
4-May-11	20	< 0.02	0.00003	< 0.001	5.05	0.0074	< 0.01	0.0365	0.0074	< 0.009	7.24	0.00005	1.08	< 0.00001	0.62	0.409	61.3	< 0.00002	0.00045	0.0002	0.00013	0.0022	0.001	< 0.00001
11-May-11	21																							
18-May-11	22	0.003	0.00004	< 0.001	4.30	0.0056	< 0.01	0.0311	0.0055	< 0.009	7.29	0.00048	1.25	< 0.00001	0.58	0.366	58.7	< 0.00002	0.00050	0.0002	0.000112	0.00244	0.002	< 0.00001
25-May-11	23																							
1-Jun-11	24	0.002	< 0.00002	< 0.001	3.85	0.0059	< 0.01	0.0295	0.0038	0.039	6.55	0.00025	1.15	< 0.00001	0.51	0.334	50.9	< 0.00002	0.00050	0.0002	0.00010	0.0024	0.002	0.00001
8-Jun-11	25																							
15-Jun-11	26																							
22-Jun-11	27																							
29-Jun-11	28	< 0.002	0.00027	< 0.001	3.14	0.0056	< 0.01	0.0294	0.0036	< 0.009	6.16	0.00041	1.53	< 0.00001	0.47	0.306	47.0	< 0.00002	0.00038	< 0.0001	0.00008	0.0023	0.002	< 0.00001
6-Jul-11	29																							
13-Jul-11	30																							
20-Jul-11	31																							
27-Jul-11	32	0.041	< 0.00002	< 0.001	2.13	0.0471	< 0.01	0.0275	0.0036	0.039	4.69	0.00064	0.83	< 0.00001	0.32	0.216	33.9	< 0.00002	0.00039	0.0007	0.00006	0.0023	0.001	< 0.00001
3-Aug-11	33																							
10-Aug-11	34																							
17-Aug-11	35																							
24-Aug-11	36	0.010	0.00007	< 0.001	2.75	0.0060	< 0.01	0.0283	0.0020	< 0.009	5.71	0.00054	1.10	< 0.00001	0.41	0.283	43.6	< 0.00002	0.00078	< 0.0001	0.000076	0.00241	0.004	< 0.00001
31-Aug-11	37																							
7-Sep-11	38	< 0.002	0.00009	< 0.001	2.35	0.0042	0.01	0.0278	0.0026	< 0.009	5.18	0.00051	0.94	< 0.00001	0.30	0.256	40.4	< 0.00002	0.00057	0.0003	0.00006	0.0023	0.012	< 0.00001
14-Sep-11	39	< 0.002	0.00009	< 0.001	2.40	0.0045	< 0.01	0.0279	0.0015	< 0.009	5.19	0.00009	0.97	< 0.00001	0.38	0.257	37.7	< 0.00002	0.00055	0.0002	0.00007	0.0023	0.003	< 0.00001
21-Sep-11	40	0.017	0.00004	< 0.001	2.19	0.0048	< 0.01	0.0261	0.0017	< 0.009	4.84	0.00046	0.94	< 0.00001	0.34	0.238	36.5	< 0.00002	0.00059	0.0007	0.00007	0.0022	0.002	< 0.00001
28-Sep-11	41																							
5-Oct-11	42																							
12-Oct-11	43																							
19-Oct-11	44	< 0.003	0.00009	< 0.001	1.96	0.0024	< 0.01	0.0228	0.0017	< 0.009	4.88	0.00055	0.92	< 0.00001	0.32	0.221	34.4	< 0.00002	0.00068	< 0.0001	0.00007	0.0021	0.002	< 0.00001
26-Oct-11	45																							
2-Nov-11	46																							
9-Nov-11	47																							
16-Nov-11	48	< 0.003	< 0.00002	< 0.001	1.51	0.0020	0.01	0.0246	0.0021	0.013	3.94	0.00045	0.85	< 0.00001	0.26	0.178	26.4	< 0.00002	0.00039	0.0002	0.00006	0.0021	0.002	< 0.00001
23-Nov-11	49																							
30-Nov-11	50																							
7-Dec-11	51																							
14-Dec-11	52	< 0.003	0.00010	< 0.001	1.44	0.0010	< 0.01	0.0234	0.0015	< 0.009	4.04	0.00027	0.89	< 0.00001	0.23	0.179	24.0	< 0.00002	0.00033	0.0008	0.000102	0.0017	0.003	0.00002
21-Dec-11	53																							
28-Dec-11	54																							
4-Jan-12	55																							
11-Jan-12	56	< 0.003	0.00003	< 0.001	1.34	0.0038	0.01	0.0230	0.0017	< 0.009	3.81	0.00047	0.79	< 0.00001	0.26	0.158	21.0	< 0.00002	0.00023	0.0003	0.000064	0.00211	0.002	< 0.00001
18-Jan-12	57																							
25-Jan-12	58																							
1-Feb-12	59																							
8-Feb-12	60	< 0.003	< 0.00002	< 0.001	1.13	0.0024	< 0.01	0.0258	0.0011	< 0.009	3.38	0.00030	0.69	< 0.00001	0.21	0.135	15.8	< 0.00002	0.00021	0.0002	0.000050	0.00186	0.001	< 0.00001
15-Feb-12	61																							
22-Feb-12	62																							
29-Feb-12	63																							
7-Mar-12	64	< 0.003	< 0.00002	< 0.001	0.987	0.0033	< 0.01	0.0260	0.0009	< 0.009	3.28	0.00040	0.75	< 0.00001	0.19	0.121	14.0	< 0.00002	0.00042	0.0002	0.000047	0.00208	0.003	< 0.00001
14-Mar-12	65																							
21-Mar-12	66																							
28-Mar-12	67																							
4-Apr-12	68	< 0.003	< 0.00002	< 0.001	0.830	0.0038	< 0.01	0.0259	0.0010	< 0.009	2.90	0.00040	0.66	< 0.00001	0.18	0.102	11.3	< 0.00002	0.00029	0.0002	0.000025	0.00180	0.006	< 0.00001
11-Apr-12	69																							
18-Apr-12	70																							
25-Apr-12	71																							
2-May-12	72	< 0.003	< 0.00002	< 0.001	0.871	0.0027	0.04	0.0269	0.0009	< 0.009	3.09	0.00015	0.68	< 0.00001	0.21	0.107	11.8	< 0.00002	0.00031	0.0002	0.000029	0.00207	< 0.001	< 0.00001
9-May-12	73																							
16-May-12	74																							
23-May-12	75																							
30-May-12	76	< 0.003	< 0.00002	< 0.001	0.772	0.0032	< 0.01	0.0278	0.0007	< 0.009	2.69	0.00018	0.66	< 0.00001	0.17	0.0974	9.81	< 0.00002	0.00102	0.0002	0.000029	0.00208	0.004	< 0.00001
6-Jun-12	77																							
13-Jun-12	78																							
20-Jun-12	79																							
27-Jun-12	80	0.003	< 0.00002	< 0.001	0.727	0.0027	0.01	0.0244	0.0007	< 0.009	2.59	0.00017	0.69	< 0.00001	0.17	0.105	10.9	< 0.00002	0.00046	0.0003	0.000028	0.00205	0.001	< 0.00001
4-Jul-12	81																							
11-Jul-12	82																							
18-Jul-12	83																							
25-Jul-12	84	< 0.003	< 0.00002	< 0.001	0.734	0.0036	< 0.01	0.0229	0.0006	< 0.009	2.73	0.00057	0.67	< 0.00001	0.20	0.0888	8.37	< 0.00002	0.00065	0.0004	0.000032	0.00215	0.002	< 0.00001
1-Aug-12	85																							
8-Aug-12	86																							
15-Aug-12	87																							
22-Aug-12	88	0.005	< 0.00002	< 0.001	0.742	0.0033	0.01	0.0248	0.0010	< 0.009	2.53	0.00032	0.59	< 0.00001	0.17	0.0904	8.49	< 0.00002	0.00043	0.0002	0.000026	0.00197	0.002	0.00001
29-Aug-12	89																							
5-Sep-12	90																							
12-Sep-12	91																							
19-Sep-12	92	< 0.003	< 0.00002	< 0.001	0.694	0.0030	0.02	0.0199	0.0004	< 0.009	2.48	0.00033	0.62	< 0.00001	0.16	0.0813	6.90	< 0.00002	0.00030	0.0003	0.000022	0.00221	< 0.001	< 0.00001
26-Sep-12	93																							
3-Oct-12	94																							
10-Oct-12	95																							
17-Oct-12	96	0.007	0.00002	< 0.001	1.26	0.0034	< 0.01	0.0212	0.0006	< 0.009	2.81	0.00025	0.69	< 0.00001	4.09	0.0860	7.46	< 0.00002	0.00070	0.0003	0.000033	0.00175	0.001	< 0.00001
24-Oct-12	97																							
31-Oct-12	98																							
7-Nov-12	99																							

HC 2
Sample =Col-3 WR Composite

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14-Nov-12	100	< 0.003	< 0.00002	< 0.001	0.743	0.0028	0.01	0.0181	0.0006	< 0.009	2.29	0.00023	0.53	< 0.00001	0.15	0.0750	6.23	< 0.00002	0.00026	0.0002	0.000122	0.00151	0.002	< 0.00001
21-Nov-12	101																							
28-Nov-12	102																							
5-Dec-12	103																							
12-Dec-12	104	< 0.003	< 0.00002	< 0.001	0.749	0.0069	< 0.01	0.0167	0.0006	< 0.009	2.30	0.00024	0.58	< 0.00001	0.13	0.0825	7.20	< 0.00002	0.00023	0.0002	0.000038	0.00188	< 0.001	< 0.00001
19-Dec-12	105																							
26-Dec-12	106																							
2-Jan-13	107																							
9-Jan-13	108	< 0.003	0.00005	< 0.001	0.710	0.0038	< 0.01	0.0145	0.0005	< 0.009	2.62	0.00026	0.55	< 0.00001	0.15	0.0723	5.01	< 0.00002	0.00025	0.0003	0.000325	0.00197	< 0.001	< 0.00001
16-Jan-13	109																							
23-Jan-13	110																							
30-Jan-13	111																							
6-Feb-13	112	0.004	< 0.00002	< 0.001	0.777	0.0028	< 0.01	0.0172	0.0004	< 0.009	2.65	0.00031	0.70	< 0.00001	0.13	0.0856	7.48	< 0.00002	0.00006	< 0.0001	0.000039	0.00186	0.007	< 0.00001
13-Feb-13	113																							
20-Feb-13	114																							
27-Feb-13	115																							
6-Mar-13	116	0.008	0.00004	< 0.001	0.634	0.0031	< 0.01	0.0155	0.0004	< 0.009	2.21	0.00022	0.52	< 0.00001	0.13	0.0615	4.20	< 0.00002	< 0.00001	0.0002	0.000019	0.00178	< 0.001	< 0.00001
13-Mar-13	117																							
20-Mar-13	118																							
27-Mar-13	119																							
3-Apr-13	120	< 0.003	0.00010	< 0.001	0.652	0.0028	< 0.01	0.0181	0.0003	< 0.009	2.31	< 0.00004	0.54	< 0.00001	0.17	0.0631	4.67	< 0.00002	0.00003	0.0001	0.000040	0.00187	< 0.001	< 0.00001
10-Apr-13	121																							
17-Apr-13	122																							
24-Apr-13	123																							
1-May-13	124	0.008	0.00003	< 0.001	0.584	0.0029	< 0.01	0.0156	0.0002	< 0.009	2.07	0.00020	0.49	< 0.00001	0.13	0.0537	3.43	< 0.00002	0.00054	0.0004	0.000008	0.00185	< 0.001	< 0.00001
8-May-13	125																							
15-May-13	126																							
22-May-13	127																							
29-May-13	128	0.005	< 0.00002	< 0.001	0.705	0.0037	< 0.01	0.0150	0.0003	< 0.009	2.37	0.00020	0.55	< 0.00001	0.14	0.0608	3.88	< 0.00002	0.00003	0.0002	0.000015	0.00174	0.001	< 0.00001
5-Jun-13	129																							
12-Jun-13	130																							
19-Jun-13	131																							
26-Jun-13	132	0.032	0.00011	< 0.001	0.753	0.0034	0.01	0.0142	0.0003	< 0.009	2.44	0.00030	0.63	< 0.00001	0.14	0.0689	4.55	< 0.00002	0.00010	0.0002	0.000015	0.00205	< 0.001	< 0.00001
3-Jul-13	133																							
10-Jul-13	134																							
17-Jul-13	135																							
24-Jul-13	136	< 0.003	< 0.00002	< 0.001	0.719	0.0026	< 0.01	0.0141	0.0004	< 0.009	2.30	0.00027	0.55	< 0.00001	0.14	0.0643	4.25	< 0.00002	0.00005	0.0001	0.000022	0.00173	< 0.001	< 0.00001
31-Jul-13	137																							
7-Aug-13	138																							
14-Aug-13	139																							
21-Aug-13	140	0.045	0.00002	< 0.001	0.712	0.0015	< 0.01	0.0139	< 0.0001	< 0.009	2.28	0.00029	0.61	< 0.00001	0.18	0.0634	3.67	< 0.00002	0.00015	0.0002	0.000035	0.00204	< 0.001	< 0.00001
28-Aug-13	141																							
4-Sep-13	142																							
11-Sep-13	143																							
18-Sep-13	144	< 0.003	0.00004	< 0.001	0.635	0.0030	< 0.01	0.0143	< 0.0001	< 0.009	2.02	0.00031	0.46	< 0.00001	0.16	0.0523	2.93	< 0.00002	0.00002	0.0001	0.000005	0.00160	< 0.001	< 0.00001
25-Sep-13	145																							
2-Oct-13	146																							
9-Oct-13	147																							
16-Oct-13	148	0.008	0.00002	< 0.001	0.689	0.0058	< 0.01	0.0146	0.0005	< 0.009	2.16	0.00028	0.60	< 0.00001	0.13	0.0553	3.28	< 0.00002	0.00010	0.0003	0.000021	0.00217	0.003	< 0.00001
23-Oct-13	149																							
30-Oct-13	150																							
6-Nov-13	151																							
13-Nov-13	152	0.007	< 0.00002	< 0.001	0.718	0.0031	< 0.01	0.0148	0.0004	< 0.009	2.23	0.00026	0.51	< 0.00001	0.21	0.0551	3.80	< 0.00002	0.00003	0.0001	0.000013	0.00169	< 0.001	< 0.00001
20-Nov-13	153																							
27-Nov-13	154																							
4-Dec-13	155																							
11-Dec-13	156	0.055	0.00003	< 0.001	0.714	0.0032	0.01	0.0143	0.0004	< 0.009	2.11	0.00023	0.54	< 0.00001	0.14	0.0539	3.18	< 0.00002	0.00005	0.0001	0.000028	0.00178	< 0.001	< 0.00001
18-Dec-13	157																							
25-Dec-13	158																							
1-Jan-14	159																							
8-Jan-14	160	0.008	< 0.00002	< 0.001	0.790	0.0024	< 0.01	0.0158	0.0004	< 0.009	2.32	0.00028	0.54	< 0.00001	0.14	0.0580	3.92	< 0.00002	0.00009	0.0003	0.000017	0.00171	< 0.001	< 0.00001
15-Jan-14	161																							
22-Jan-14	162																							
29-Jan-14	163																							
5-Feb-14	164	0.011	< 0.00002	< 0.001	0.800	0.0028	< 0.01	0.0167	0.0005	0.010	2.24	0.00020	0.57	0.00001	0.14	0.0636	3.77	< 0.00002	0.00008	0.0003	0.000019	0.00165	< 0.001	< 0.00001
12-Feb-14	165																							
19-Feb-14	166																							
26-Feb-14	167																							
5-Mar-14	168	0.024	< 0.00002	< 0.001	0.863	0.0027	< 0.01	0.0141	0.0006	< 0.009	2.57	0.00022	0.73	< 0.00001	0.15	0.0629	3.77	< 0.00002	0.00009	0.0004	0.000014	0.00187	< 0.001	< 0.00001
12-Mar-14	169																							
19-Mar-14	170																							
26-Mar-14	171																							
2-Apr-14	172	< 0.003	0.00005	< 0.001	0.910	0.0025	< 0.01	0.0134	0.0004	0.017	2.45	0.00024	0.64	< 0.00001	0.14	0.0751	4.48	< 0.00002	0.00010	0.0002	0.000024	0.00169	< 0.001	< 0.00001
9-Apr-14	173																							
16-Apr-14	174																							
23-Apr-14	175																							
30-Apr-14	176	0.008	< 0.00001	0.000234	0.824	0.0026	< 0.01	0.0123	0.0004	< 0.009	2.12	0.00019	0.59	0.000002	0.11	0.0703	3.95	0.000011	0.00017	0.00015	0.000126	0.00142	< 0.001	< 0.002
7-May-14	177																							
14-May-14	178																							
21-May-14	179																							
28-May-14	180	0.007	< 0.00001	0.000243	0.765	0.0024	< 0.01	0.0110	0.0003	< 0.009	1.97	0.00017	0.55	< 0.000002	0.12	0.0633	3.75	0.000008	0.00012	0.00006	0.000179	0.00130	< 0.001	< 0.002
4-Jun-14	181																							
11-Jun-14	182																							
18-Jun-14	183																							
25-Jun-14	184	< 0.002	0.00002	0.000234	0.762	0.0024	< 0.01	0.0126	0.0009	< 0.009	1.96	0.00022	0.52	< 0.000002	0.12	0.0607	3.46	0.000013	0.00014	0.00012	0.000110	0.00148	0.005	< 0.002
2-Jul-14	185																							
9-Jul-14	186																							
16-Jul-14	187																							
23-Jul-14	188	0.005	< 0.00001	0.000254	0.760	0.0023	< 0.01	0.0116	0.0004	< 0.009	2.07	0.00034	0.57	0.000005	0.19	0.0617	3.37	0.000012	0.00007	0.00012	0.000017	0.00148	< 0.001	< 0.002
30-Jul-14	189																							
6-Aug-14	190																							
13-Aug-14	191																							
20-Aug-14	192	< 0.002	0.00001	0.000240	0.766	0.0026	< 0.01	0.0114	0.0003	< 0.009	2.03	0.00058	0.55	< 0.000002	0.10	0.0612	3.41	0.000010	0.00001	0.00009	0.000022	0.00145	0.001	< 0.002
27-Aug-14	193																							
3-Sep-14	194																							

Mar 12/14 Change in analytica

HC 3
Sample = Col-2 WR Composite NP Removed

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
12-Jan-11	1	500	410	7.22	20	#N/A	2.6	5.5	3		0.7	< 0.06	< 0.3	1.4	0.0940	< 0.0002	0.0005	0.00236	< 0.00002	< 0.00001	0.0176	< 0.000003	0.33	< 0.0005	0.000036	0.0034
19-Jan-11	2	500	470	7.41	16	#N/A	2.6	2.9	5		0.3	0.06	< 0.3	0.84	0.128	0.0012	0.0009	0.00257	< 0.00002	< 0.00001	0.0124	0.000168	0.10	< 0.0005	0.000129	0.0019
26-Jan-11	3	500	465	7.52	24	#N/A	2.6	4.1	8		< 1	< 0.06	< 0.3	0.78	0.0730	< 0.0002	0.0006	0.00218	< 0.00002	< 0.00001	0.0140	< 0.000003	0.16	< 0.0005	0.000042	0.0028
2-Feb-11	4	500	505	7.40	20	#N/A	2.2	4.2	8		< 1	< 0.06	< 0.3	0.58	0.0647	< 0.0002	0.0005	0.00177	< 0.00002	< 0.00001	0.0095	0.000005	0.08	< 0.0005	0.000036	0.0048
9-Feb-11	5	500	500	6.98	17	#N/A	2.3	1.7	3																	
16-Feb-11	6	500	505	7.29	20	#N/A	1.7	2.9	6		< 0.2	< 0.06	< 0.3	< 0.05	0.0061	< 0.0002	0.0007	0.00064	< 0.00002	< 0.00001	0.0053	0.000025	< 0.02	< 0.0005	0.000034	0.0013
23-Feb-11	7	500	490	7.51	18				9																	
2-Mar-11	8	500	475	7.23	26	#N/A	1.9	3.7	9		0.3	< 0.06	< 0.3	0.65	0.114	0.0003	0.0005	0.00283	< 0.00002	< 0.00001	0.0050	< 0.000003	0.06	< 0.0005	0.000059	0.0020
9-Mar-11	9	500	520	7.25	21				9																	
16-Mar-11	10	500	475	7.41	22	#N/A	2.2	2.8	6		< 0.2	< 0.06	< 0.3	0.15	0.0190	< 0.0002	0.0003	0.00138	< 0.00002	< 0.00001	0.0026	< 0.000003	0.03	0.0007	0.000033	0.0018
23-Mar-11	11	500	480	7.57	22				6																	
30-Mar-11	12	500	475	7.61	22	#N/A	2.6	2.9	6		< 0.2	< 0.06	< 0.3	0.14	0.0024	< 0.0002	0.0008	0.0022	< 0.00002	< 0.00001	0.0027	0.000042	0.04	< 0.0005	0.00013	0.0032
6-Apr-11	13	500	480	7.70	23				8																	
13-Apr-11	14	500	475	7.19	24	#N/A	2.1	2.9	7		< 0.2	< 0.06	< 0.3	0.54	0.0035	< 0.0002	< 0.0002	0.0063	< 0.00002	< 0.00001	0.0022	< 0.000003	0.16	< 0.0005	0.00006	0.0007
20-Apr-11	15	500	480	8.14	26				8																	
27-Apr-11	16	500	475	6.90	29	#N/A	2.0	2.5	9		< 0.2	< 0.06	< 0.3	0.38	0.0059	0.0002	< 0.0002	0.0058	< 0.00002	< 0.00001	0.0031	< 0.000003	0.09	< 0.0005	0.00002	0.0010
4-May-11	17	500	480	7.49	27				9																	
11-May-11	18	500	470	7.20	29	#N/A	2.2	2.8	10		< 0.2	< 0.06	< 0.3	0.52	0.0332	< 0.0002	0.0004	0.00591	< 0.00002	< 0.00001	0.0040	0.000005	0.15	< 0.0005	0.000246	0.0446
18-May-11	19	500	460	7.41	29				10																	
25-May-11	20	500	450	7.53	28	#N/A	3.0	2.9	9		< 0.2	< 0.06	< 0.3	1.2	0.0201	0.0012	0.0005	0.00653	< 0.00002	0.00001	0.0025	< 0.000003	0.37	< 0.0005	0.000120	0.0012
1-Jun-11	21	500	450	7.70	22				7																	
8-Jun-11	22	500	475	7.41	26	#N/A	2.1	1.7	8		< 0.2	< 0.06	< 0.3	1.55	0.0214	0.0012	0.0011	0.0071	< 0.00002	< 0.00001	0.0032	0.000021	0.50	0.0006	0.00017	0.0018
15-Jun-11	23	500	465	7.62	27				8																	
22-Jun-11	24	500	465	7.16	26	#N/A	2.5	3.0	9		< 0.2	< 0.06	< 0.3	0.97	0.0043	< 0.0002	0.0030	0.0086	< 0.00002	< 0.00001	0.0044	0.000032	0.24	< 0.0005	0.00022	0.0071
29-Jun-11	25	500	470	7.35	27				10																	
6-Jul-11	26	500	460	7.25	24				9																	
13-Jul-11	27	500	500	7.47	34				10																	
20-Jul-11	28	500	480	7.11	28	#N/A	2.1	1.4	9		< 0.2	< 0.06	< 0.3	2.09	0.0162	< 0.0002	< 0.0002	0.0129	< 0.00002	< 0.00001	0.0032	< 0.000003	0.52	< 0.0005	0.00037	0.0033
27-Jul-11	29	500	445	7.09	32				10																	
3-Aug-11	30	500	475	7.73	21				6																	
10-Aug-11	31	500	470	7.61	21				6																	
17-Aug-11	32	500	465	7.17	22	#N/A	2.8	2.7	6		< 0.2	< 0.06	< 0.3	2.13	0.0060	< 0.0002	0.0003	0.0127	< 0.00002	< 0.00001	0.0032	< 0.000003	0.47	0.0014	0.00039	0.0044
24-Aug-11	33	500	465	7.65	22				5																	
31-Aug-11	34	500	475	7.69	24				8																	
7-Sep-11	35	500	470	7.24	24				10																	
14-Sep-11	36	500	470	6.98	24	#N/A	3.2	2.1	9		< 0.2	< 0.06	< 0.3	3.51	0.0061	< 0.0002	< 0.0002	0.0152	< 0.00002	< 0.00001	0.0030	< 0.000003	0.87	0.0009	0.00073	0.0060
21-Sep-11	37	500	455	7.46	22				7																	
28-Sep-11	38	500	470	7.69	22	#N/A	4.1	3.1	7		< 0.2	< 0.06	< 0.3	3.11	0.0038	< 0.0002	< 0.0002	0.01688	< 0.00002	< 0.00001	0.0006	0.000003	0.76	0.0008	0.000710	0.0059
5-Oct-11	39	500	495	7.10	22	#N/A	3.3	2.3	7		< 0.2	< 0.06	< 0.3	3.38	0.0035	< 0.0002	0.0004	0.0133	< 0.00002	< 0.00001	0.0039	0.000012	0.81	0.0007	0.00082	0.0065
12-Oct-11	40	500	465	7.80	19	#N/A	5.1	3.7	6		< 0.2	< 0.06	< 0.3	3.20	0.0033	< 0.0002	< 0.0002	0.0102	< 0.00002	< 0.00001	0.0037	< 0.000003	0.79	0.0011	0.00068	0.0063
19-Oct-11	41	500	470	6.69	19				6																	
26-Oct-11	42	500	475	7.03	18				6																	
2-Nov-11	43	500	470	7.60	17				6																	
9-Nov-11	44	500	475	7.66	19	#N/A	4.6	3.1	6		< 0.2	< 0.06	< 0.3	3.80	0.0093	< 0.0002	< 0.0002	0.0137	< 0.00002	0.00004	0.0030	< 0.000003	0.93	< 0.0005	0.00082	0.0071
16-Nov-11	45	500	470	7.08	18				5																	
23-Nov-11	46	500	465	7.80	17				4																	
30-Nov-11	47	500	470	7.73	17				7																	
7-Dec-11	48	500	475	7.69	16	#N/A	4.2	2.6	4		< 0.2	< 0.06	< 0.3	3.26	0.0153	< 0.0002	0.0009	0.0121	< 0.00002	< 0.00001	0.0012	0.000013	0.80	< 0.0005	0.00085	0.0074
14-Dec-11	49	500	465	7.43	16				4																	
21-Dec-11	50	500	480	7.67	17				4																	
28-Dec-11	51	500	460	7.04	15				4																	
4-Jan-12	52	500	465	7.72	15	#N/A	4.6	3.6	3	< 1	< 0.2	< 0.06	< 0.3	3.54	0.0413	< 0.0002	0.0002	0.0122	< 0.00002	< 0.00001	0.0103	0.000025	0.83	< 0.0005	0.00107	0.0093
11-Jan-12	53	500	465	6.64	16				4																	
18-Jan-12	54	500	465	6.96	15				5																	
25-Jan-12	55	500	465	6.78	15				5																	
1-Feb-12	56	500	460	7.23	15	#N/A	3.3	2.6	5	< 0.5	< 0.2	< 0.06	< 0.3	3.84	0.0266	< 0.0002	0.0002	0.0126	< 0.00002	< 0.00001	0.0021	< 0.000003	0.91	< 0.0005	0.00100	0.0068
8-Feb-12	57	500	465	7.74	15				4																	
15-Feb-12	58	500	465	7.46	16				7																	
22-Feb-12	59	500	465	7.13	16				6																	
29-Feb-12	60	500	460	6.63	16	#N/A	2.7	1.9	5	< 0.5	< 0.2	< 0.06	< 0.3	4.23	0.0162	< 0.0002	< 0.0002	0.0101	< 0.00002	< 0.00001	0.0016	0.000004	0.98	< 0.0005	0.00112	0.0090
7-Mar-12	61	500	460	7.70	15				6																	
14-Mar-12	62	500	455	6.69	15				6																	
21-Mar-12	63	500	465	7.10	15				5																	
28-Mar-12	64	500	460	7.12	20	#N/A	2.3	1.7	5	< 0.5	< 0.2	< 0.06	< 0.3	4.31	0.0253	< 0.0002	0.0002	0.0096	< 0.00002	< 0.00001	0.0019	0.000003	1.01	< 0.0005	0.00112	0.0079
4-Apr-12	65	500	465	6.77	16				6																	
11-Apr-12	66	500	465	6.65	16				7																	
18-Apr-12	67	500	455	7.23	15				6																	
25-Apr-12	68	500	465	7.23	16	#N/A	3.2	2.1	6	< 0.5	< 0.2	< 0.06	< 0.3	5.01	0.0310	0.0003	0.0002	0.0125	< 0.00002	< 0.00001	0.0032	< 0.000003	1.22	< 0.0005	0.00153	0.0096
2-May-12	69	500	470	6.79	16				9																	
9-May-12	70	500	460	6.91	17				6																	
16-May-12	71	500	460	6.48	15				5																	
23-May-12	72	500	460	6.67	15	#N/A	3.0	1.7	5	1.3	< 0.2	< 0.06	< 0.3	4.78	0.0498	< 0.0002	0.0003	0.0102	< 0.00002	< 0.00001	0.0019	< 0.000003	1.14	< 0.0005	0.00145	0.0074
30-May-12	73	500	460	7.52	12				4																	
6-Jun-12	74	500	475	6.82	15				6																	
13-Jun-12	75	500	475	7.40	16				6																	
20-Jun-12	76	500	465	6.73	14	#N/A	3.3	2.2	4	< 0.5	< 0.2	< 0.06	< 0.3	4.60	0.0319	< 0.0002	< 0.0002	0.0093	< 0.00002	< 0.00001	0.0015	< 0.000003	1.07	< 0.0005	0.00142	0.0095
27-Jun-12	77	500	470	7.06	15				5																	
4-Jul-12	78	500	460	6.37	15				4																	
11-Jul-12	79	500	425	6.60	19				7																	
18-Jul-12	80	500	475	6.51	14	#N/A	3.6	1.7	6	< 0.5	< 2	< 0.06	< 0.3	4.43	0.0299	< 0.0002	< 0.0002	0.0127	< 0.00002	< 0.00001	0.0033	< 0.000003	1.02	< 0.0005	0.00127	0.0080
25-Jul-12	81	500	455	6.41	15				4																	
1-Aug-12	82	500	470	6.85	17				5																	
8-Aug-12	83	500	465	7.39	17				6																	
15-Aug-12	84	500	435	6.53	18	#N/A	2.8	1.9	5	< 0.5	< 0.2	< 0.06	< 0.3	5.52	0.0440	0.0003	0.0005	0.0121	< 0.00002	< 0.00001	0.0036	< 0.000003	1.29	0.0006	0.00168	0.0094
22-Aug-12	85	500	470	7.05	19				8																	
29-Aug-12	86	500	435	6.51	20				7																	
5-Sep-12	87	500	460	6.90	14				6																	
12-Sep-12	88	500	460	6.53	12	#N/A	3.0	1.6	6	< 0.5	< 0.2	< 0.06	< 0.3	4.40	0.0179	0.0016	0.0077	0.00958	< 0.00002	< 0.00001	0.0021	0.000008	1.01	< 0.0005	0.00124	0.0090
19-Sep-12	89	500	450	7.12	14				7																	
26-Sep-12	90	500	465	6.83	23				7																	
3-Oct-12	91	500	455	6.66	11				4																	
10-Oct-12	92	500	460	6.79	13	#N/A	5.2	1.8	6	< 0.5	< 0.2	< 0.06	< 0.3	4.03	0.0349	< 0.0002	0.0004	0.00835	0.00002	0.00002	0.0020	0.000026	0.94	< 0.0005	0.00123	0.0076
17-Oct-12	93	500	490	6.69	15				6																	
24-Oct-12	94	500	475	6.76	14				5																	

HC 3
Sample = Col-2 WR Composite NP Removed

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
31-Oct-12	95	500	490	7.29	15				6																	
7-Nov-12	96	500	465	6.91	12	#N/A	4.6	2.1	5	< 0.5	< 0.2	< 0.06	< 0.3	4.5	0.0139	< 0.0002	< 0.0002	0.0101	< 0.00002	< 0.00001	0.0051	< 0.000003	1.05	< 0.0005	0.00134	0.0065
14-Nov-12	97	500	465	7.00	10				5																	
21-Nov-12	98	500	490	7.38	14				5																	
28-Nov-12	99	500	500	7.12	15				7																	
5-Dec-12	100	500	465	7.61	11	#N/A	5.0	3.5	5	1.2	< 0.2	< 0.06	< 0.3	4.4	0.0132	< 0.0002	< 0.0002	0.00945	< 0.00002	< 0.00001	0.0009	< 0.000003	1.01	< 0.0005	0.00133	0.0075
12-Dec-12	101	500	465	7.36	8				4																	
19-Dec-12	102	500	440	7.09	10				2																	
26-Dec-12	103	500	430	7.83	12				3																	
2-Jan-13	104	500	465	7.47	7	#N/A	3.8	2.1	3	0.7	< 0.2	< 0.06	< 0.3	3.11	0.0261	< 0.0002	< 0.0002	0.00902	< 0.00002	< 0.00001	0.0008	< 0.000003	0.72	< 0.0005	0.000832	0.0046
9-Jan-13	105	500	460	7.84	9				3																	
16-Jan-13	106	500	460	7.12	11				5																	
23-Jan-13	107	500	455	7.81	10				6																	
30-Jan-13	108	500	460	6.77	9	#N/A	3.2	1.5	4	< 0.5	< 0.2	< 0.06	< 0.3	3.71	0.0124	< 0.0002	< 0.0002	0.00939	< 0.00002	< 0.00001	0.0013	0.000016	0.84	0.0007	0.00252	0.0044
6-Feb-13	109	500	465	7.71	9				4																	
13-Feb-13	110	500	460	7.56	11				5																	
20-Feb-13	111	500	460	7.60	10				4																	
27-Feb-13	112	500	465	7.00	10	#N/A	3.9	1.9	5	< 0.5	< 0.2	< 0.06	< 0.3	3.67	0.0079	< 0.0002	0.0004	0.00923	< 0.00002	< 0.00001	0.0013	0.000007	0.85	< 0.0005	0.00120	0.0068
6-Mar-13	113	500	460	7.33	9				4																	
13-Mar-13	114	500	460	6.71	11				4																	
20-Mar-13	115	500	460	7.60	10				5																	
27-Mar-13	116	500	460	7.46	11	#N/A	4.6	2.6	7	0.5	< 0.2	< 0.06	< 0.3	4.07	0.0121	< 0.0002	0.0005	0.00902	< 0.00002	< 0.00001	0.0031	< 0.000003	0.99	< 0.0005	0.00252	0.0050
3-Apr-13	117	500	455	7.49	10				3																	
10-Apr-13	118	500	455	6.91	10				6																	
17-Apr-13	119	500	460	7.45	10				7																	
24-Apr-13	120	500	455	7.33	10	#N/A	4.0	2.4	8	< 0.5	< 0.2	< 0.06	< 0.3	3.37	0.0107	< 0.0002	< 0.0002	0.00992	< 0.00002	< 0.00001	0.0029	0.000003	0.73	< 0.0005	0.00116	0.0072
1-May-13	121	500	450	7.54	9				6																	
8-May-13	122	500	455	7.77	10				8																	
15-May-13	123	500	450	7.66	8				5																	
22-May-13	124	500	465	7.51	7	#N/A	4.8	2.2	5	< 0.5	< 0.2	< 0.06	< 0.3	3.17	0.0074	< 0.0002	0.0003	0.00871	< 0.00002	< 0.00001	0.0030	< 0.000003	0.72	< 0.0005	0.000961	0.0046
29-May-13	125	500	455	7.69	11				4																	
5-Jun-13	126	500	455	7.76	17				7																	
12-Jun-13	127	500	460	7.87	9				4																	
19-Jun-13	128	500	470	7.15	8	#N/A	4.0	1.9	5	< 0.5	< 0.2	< 0.06	< 0.3	2.90	0.0147	< 0.0002	0.0002	0.00805	< 0.00002	< 0.00001	0.0035	< 0.000003	0.65	< 0.0005	0.000738	0.0050
26-Jun-13	129	500	520	6.80	9				4																	
3-Jul-13	130	500	520	6.99	10				4																	
10-Jul-13	131	500	495	7.57	9				6																	
17-Jul-13	132	500	440	6.73	12	#N/A	3.5	1.5	6	< 0.5	< 0.2	< 0.06	< 0.3	3.66	0.0128	< 0.0002	0.0010	0.0141	< 0.00002	< 0.00001	0.0015	0.000030	0.81	< 0.0005	0.00143	0.0063
24-Jul-13	133	500	465	7.20	7				5																	
31-Jul-13	134	500	455	6.89	8				5																	
7-Aug-13	135	500	450	7.27	8				4																	
14-Aug-13	136	500	460	6.70	9	#N/A	3.2	1.7	4	< 0.5	< 0.2	< 0.06	< 0.3	3.83	0.0135	< 0.0002	< 0.0002	0.00898	0.00006	< 0.00001	0.0023	0.000050	0.86	0.0008	0.00259	0.0068
21-Aug-13	137	500	455	7.60	8				4																	
28-Aug-13	138	500	460	6.91	6				6																	
4-Sep-13	139	500	445	7.10	8				5																	
11-Sep-13	140	500	455	6.84	7	#N/A	3.0	1.8	3	0.8	< 0.2	< 0.06	< 0.3	3.34	0.0424	< 0.0002	0.0004	0.00894	< 0.00002	< 0.00001	0.0024	0.000008	0.78	< 0.0005	0.00125	0.0103
18-Sep-13	141	500	460	7.49	9				5																	
25-Sep-13	142	500	455	6.71	6				3																	
2-Oct-13	143	500	495	7.23	8				4																	
9-Oct-13	144	500	460	7.39	9	#N/A	3.0	1.8	6	< 0.5	< 0.2	< 0.06	< 0.3	4.35	0.0033	< 0.0002	0.0003	0.00979	< 0.00002	< 0.00001	0.0051	0.000741	1.05	< 0.0005	0.00358	0.0051
16-Oct-13	145	500	460	6.21	9				4																	
23-Oct-13	146	500	450	6.05	11				7																	
30-Oct-13	147	500	445	6.33	10				5																	
6-Nov-13	148	500	465	6.73	10	#N/A	1.7	1.3	4	< 0.5	< 0.2	< 0.06	< 0.3	3.59	0.0140	0.0007	0.0035	0.00803	< 0.00002	< 0.00001	0.0017	0.000006	0.85	< 0.0005	0.00111	0.0051
13-Nov-13	149	500	455	7.40	8				6																	
20-Nov-13	150	500	445	6.61	10				5																	
27-Nov-13	151	500	455	6.91	9				4																	
4-Dec-13	152	500	460	6.41	7	#N/A	2.1	1.4	3	< 0.5	< 0.2	< 0.06	< 0.3	3.37	0.0286	< 0.0002	< 0.0002	0.0083	< 0.00002	< 0.00001	0.0014	0.000007	0.76	< 0.0005	0.00108	0.0051
11-Dec-13	153	500	445	6.44	9				4																	
18-Dec-13	154	500	455	7.01	9				4																	
25-Dec-13	155	500	460	7.32	7				5																	
1-Jan-14	156	500	455	6.67	8	#N/A	2.0	1.4	3	1.3	< 0.2	< 0.06	< 0.3	3.16	0.0119	< 0.0002	< 0.0002	0.0076	< 0.00002	< 0.00001	0.0017	0.000005	0.68	< 0.0005	0.0014	0.0054
8-Jan-14	157	500	455	6.32	10				3																	
15-Jan-14	158	500	450	7.63	10				5																	
22-Jan-14	159	500	450	6.74	8				5																	
29-Jan-14	160	500	445	6.53	9	#N/A	2.3	1.4	3	0.6	< 0.2	< 0.06	< 0.3	3.2	0.0199	< 0.0002	< 0.0002	0.0072	< 0.00002	< 0.00001	0.0017	< 0.000003	0.70	< 0.0005	0.00102	0.0037
5-Feb-14	161	500	450	7.11	9				5																	
12-Feb-14	162	500	450	6.62	7				4																	
19-Feb-14	163	500	445	7.05	11				5																	
26-Feb-14	164	500	440	6.91	6	#N/A	3.5	2.6	6	< 0.5	< 0.2	< 0.06	< 0.3	3.53	0.0099	< 0.0002	< 0.0002	0.0088	< 0.00002	< 0.00001	0.0020	0.000017	0.81	< 0.0005	0.00106	0.0053
5-Mar-14	165	500	450	7.73	5				5																	
12-Mar-14	166	500	445	6.90	8				5																	
19-Mar-14	167	500	430	7.03	9																					
26-Mar-14	168	500	470	7.43	6	#N/A	2.2	2.2	6	1.2	< 0.2	< 0.06	< 0.3	2.4	0.0110	< 0.0002	< 0.0002	0.00636	< 0.00002	< 0.00001	< 0.0002	0.000038	0.54	< 0.0005	0.000700	0.0031
2-Apr-14	169	500	470	7.60	9																					
9-Apr-14	170	500	470	7.50	9																					
16-Apr-14	171	500	480	7.65	11																					
23-Apr-14	172	500	480	7.30	14	#N/A	3.0	1.8	6	< 0.5	< 0.2	< 0.06	< 0.3	5.5	0.0112	< 0.0002	< 0.0002	0.0103	< 0.000007	< 0.000007	0.0035	0.000010	1.28	0.00013	0.00214	0.00923
30-Apr-14	173	500	475	7.65	8																					
7-May-14	174	500	475	7.49	12																					
14-May-14	175	500	480	7.70	12																					
21-May-14	176	500	500	7.61	13	#N/A	5.6	3.5	6	< 0.5	< 0.2	< 0.06	< 0.3	4.8	0.0024	< 0.0002	< 0.0002	0.00787	< 0.000007	0.000149	0.0015	< 0.000003	1.12	< 0.00003	0.00130	0.00524
28-May-14	177	500	485	7.28	12																					
4-Jun-14	178	500	450	7.52	15																					
11-Jun-14	179	500	480	7.45	10																					
18-Jun-14	180	500	480	7.47	11	#N/A	3.8	2.0	6	0.9	< 0.2	< 0.06	< 0.3	3.9	0.0045	< 0.0002	< 0.0002	0.00761	0.000007	< 0.000007	0.0026	0.000006	0.88	0.00006	0.00172	0.00500
25-Jun-14	181	500	485	7.78	10																					
2-Jul-14	182	500	470	7.73	9																					
9-Jul-14	183	500	460	7.01	9																					
16-Jul-14	184	500	490	7.12	7	#N/A	2.4	2.3	4	2.2	< 0.2	< 0.06	< 0.3	3.8	0.0039	< 0.0002	< 0.0002	0.00813	0.000009	< 0.000007	0.0021	0.000010	0.91	< 0.00003	0.00137	0.00488
23-Jul-14	185	500	475	6.97	9																					
30-Jul-14	186	500	475	7.04	13																					
6-Aug-14	187	500	490	6.90	10																					
13-Aug-14	188	500	485	6.80	10	#N/A	3.3	2.5	4	< 0.5	< 0.2	< 0.06	< 0.3	3.7	0.0025	< 0.0002	< 0.0002	0.0064	< 0.000007	< 0.000007	0.0037	< 0.000003	0.87	< 0.00003	0.000885	0.00343
20-Aug-14	189	500	475	6.81	8																					
27-Aug-14	190	500	485	7.66	13																					
3-Sep-14	191	500	480	7.69	13																					

Mar 12/14 Change in analytical schedule
Jul 16/14 Fe=0.309, repeat=<0.002

HC 3
Sample = Col-2 WR Composite NP Removed

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
12-Jan-11	1	0.109	0.00009	< 0.001	0.141	0.0011	< 0.01	0.00128	0.0003	0.076	0.176	0.00043	2.16	< 0.00001	4.59	0.0030	1.30	< 0.0002	0.00054	0.0026	0.000017	0.00287	< 0.001	0.00004
19-Jan-11	2	0.172	0.00021	< 0.001	0.144	0.0021	< 0.01	0.00090	0.0005	0.075	0.113	0.00043	2.02	< 0.00001	3.46	0.0006	1.97	< 0.0002	0.00025	0.0041	0.000078	0.00281	0.023	0.00005
26-Jan-11	3	0.086	0.00039	< 0.001	0.094	< 0.0002	0.02	0.00135	0.0003	0.080	0.155	0.00081	3.01	< 0.00001	4.82	0.0009	4.68	< 0.0002	0.00023	0.0022	0.000020	0.00314	0.004	0.00004
2-Feb-11	4	0.095	0.00370	< 0.001	0.094	0.0004	< 0.01	0.00075	0.0002	0.090	0.177	0.00057	3.28	< 0.00001	5.38	0.0026	4.64	< 0.0002	0.00066	0.0017	0.000006	0.00299	0.003	0.00003
9-Feb-11	5																							
16-Feb-11	6	0.006	0.00023	< 0.001	< 0.001	0.0007	< 0.01	0.00025	< 0.0001	< 0.009	0.111	0.00059	1.60	< 0.00001	3.96	< 0.0001	2.30	< 0.0002	0.00003	0.0002	0.000001	0.00204	0.001	< 0.00001
23-Feb-11	7																							
2-Mar-11	8	0.132	0.00264	< 0.001	0.119	0.0012	0.01	0.00197	0.0003	0.027	0.159	0.00041	2.33	< 0.00001	4.70	0.0005	2.73	< 0.0002	0.00030	0.0036	0.000015	0.00300	0.004	0.00003
9-Mar-11	9																							
16-Mar-11	10	0.026	0.00152	< 0.001	0.022	< 0.0002	< 0.01	0.00018	< 0.0001	< 0.009	0.141	0.00046	1.29	< 0.00001	3.66	0.0001	2.34	< 0.0002	0.00031	0.0007	< 0.000001	0.00151	0.002	< 0.00001
23-Mar-11	11																							
30-Mar-11	12	0.003	0.00014	< 0.001	0.013	< 0.0002	< 0.01	0.00060	0.0004	0.043	0.154	0.00046	1.23	< 0.00001	3.83	0.0001	2.78	< 0.00002	0.00014	0.0003	0.00002	0.0011	0.006	0.00001
6-Apr-11	13																							
13-Apr-11	14	< 0.002	0.00003	< 0.001	0.037	0.0011	< 0.01	0.00029	< 0.0001	0.015	0.163	0.00051	1.18	< 0.00001	3.99	0.0008	2.87	0.00003	0.00013	0.0002	0.00001	0.0013	< 0.001	< 0.00001
20-Apr-11	15																							
27-Apr-11	16	0.004	0.00003	< 0.001	0.037	0.0004	0.73	0.0116	0.0001	< 0.009	0.201	0.00065	1.36	< 0.00001	4.88	0.0005	3.49	< 0.00002	0.00006	0.0005	< 0.000001	0.0011	0.003	< 0.00001
4-May-11	17																							
11-May-11	18	0.005	0.00007	< 0.001	0.039	0.0011	< 0.01	0.0003	0.0002	< 0.009	0.231	0.00006	1.34	< 0.00001	4.46	0.0009	3.40	< 0.0002	0.00037	0.0003	0.000109	0.00101	0.003	< 0.00001
18-May-11	19																							
25-May-11	20	0.023	0.00004	< 0.001	0.058	0.0013	< 0.01	0.0004	0.0002	0.031	0.249	0.00107	1.24	< 0.00001	4.41	0.0011	6.57	< 0.0002	0.00128	0.0008	0.000001	0.00107	0.003	0.00002
1-Jun-11	21																							
8-Jun-11	22	0.016	0.00013	< 0.001	0.075	0.0016	< 0.01	0.00058	0.0004	0.040	0.225	0.00049	1.31	< 0.00001	3.77	0.0017	6.60	< 0.00002	0.00198	0.0008	0.00002	0.0011	0.007	0.00004
15-Jun-11	23																							
22-Jun-11	24	0.003	0.00006	0.003	0.088	0.0012	0.01	0.00263	0.0004	< 0.009	0.273	0.00110	1.12	< 0.00001	3.93	0.0011	3.12	< 0.00002	0.00172	0.0009	0.00011	0.0009	0.005	0.00002
29-Jun-11	25																							
6-Jul-11	26																							
13-Jul-11	27																							
20-Jul-11	28	0.016	< 0.00002	< 0.001	0.190	0.0033	< 0.01	0.00022	0.0004	< 0.009	0.344	0.00036	1.36	< 0.00001	4.25	0.0023	3.75	< 0.00002	0.00019	0.0005	< 0.000001	0.0008	0.002	0.00001
27-Jul-11	29																							
3-Aug-11	30																							
10-Aug-11	31																							
17-Aug-11	32	0.008	0.00004	< 0.001	0.232	0.0028	< 0.01	0.00013	< 0.0001	< 0.009	0.334	< 0.00004	0.95	< 0.00001	3.12	0.0023	2.67	< 0.00002	0.00118	0.0002	< 0.000001	0.0008	0.002	< 0.00001
24-Aug-11	33																							
31-Aug-11	34																							
7-Sep-11	35																							
14-Sep-11	36	0.006	0.00009	< 0.001	0.327	0.0050	< 0.01	0.00070	0.0001	< 0.009	0.414	0.00026	1.04	< 0.00001	2.79	0.0038	3.06	< 0.00002	0.00018	0.0004	< 0.000001	0.0006	0.002	< 0.00001
21-Sep-11	37																							
28-Sep-11	38	0.003	0.00015	< 0.001	0.295	0.0046	< 0.01	0.0021	0.0004	< 0.009	0.397	0.00013	1.01	< 0.00001	2.19	0.0033	2.74	< 0.00002	0.00017	0.0001	0.000046	0.00053	0.004	< 0.00001
5-Oct-11	39	< 0.002	0.00024	< 0.001	0.332	0.0053	< 0.01	0.00012	0.0003	< 0.009	0.392	0.00016	1.17	0.00002	2.17	0.0035	2.72	< 0.00002	0.00007	0.0002	0.000001	0.0006	0.004	< 0.00001
12-Oct-11	40	0.004	0.00005	< 0.001	0.300	0.0041	< 0.01	0.00453	0.0003	< 0.009	0.393	0.00006	1.00	< 0.00001	2.05	0.0032	2.48	< 0.00002	0.00014	0.0001	< 0.000001	0.0006	0.003	< 0.00001
19-Oct-11	41																							
26-Oct-11	42																							
2-Nov-11	43																							
9-Nov-11	44	< 0.003	0.00003	< 0.001	0.358	0.0069	< 0.01	0.00023	0.0004	< 0.009	0.376	0.00024	0.88	< 0.00001	1.61	0.0038	2.25	< 0.00002	0.00010	0.0004	0.00000	0.00058	0.002	< 0.00001
16-Nov-11	45																							
23-Nov-11	46																							
30-Nov-11	47																							
7-Dec-11	48	0.004	0.00004	< 0.001	0.306	0.0046	< 0.01	0.00007	0.0003	< 0.009	0.346	0.00020	0.83	0.00004	1.14	0.0034	1.88	< 0.00002	0.00003	0.0011	0.00001	0.00086	0.002	< 0.00001
14-Dec-11	49																							
21-Dec-11	50																							
28-Dec-11	51																							
4-Jan-12	52	0.006	0.00011	< 0.001	0.358	0.0051	< 0.01	0.00014	0.0006	< 0.009	0.358	0.00049	0.81	< 0.00001	0.96	0.0038	1.80	< 0.00002	0.00018	0.0005	0.000004	0.00075	0.003	< 0.00001
11-Jan-12	53																							
18-Jan-12	54																							
25-Jan-12	55																							
1-Feb-12	56	0.006	0.00003	< 0.001	0.380	0.0053	< 0.01	0.00030	0.0005	< 0.009	0.383	0.00012	0.84	< 0.00001	0.84	0.0039	1.82	< 0.00002	0.00003	0.0003	0.000002	0.00074	0.002	< 0.00001
8-Feb-12	57																							
15-Feb-12	58																							
22-Feb-12	59																							
29-Feb-12	60	0.007	0.00028	< 0.001	0.434	0.0061	< 0.01	0.00006	0.0003	< 0.009	0.344	0.00014	0.77	< 0.00001	0.69	0.0044	1.79	< 0.00002	0.00004	0.0003	0.000006	0.00051	0.004	< 0.00001
7-Mar-12	61																							
14-Mar-12	62																							
21-Mar-12	63																							
28-Mar-12	64	0.006	< 0.00002	< 0.001	0.433	0.0036	< 0.01	0.00034	0.0004	< 0.009	0.362	0.00015	0.80	< 0.00001	0.57	0.0046	1.69	< 0.00002	0.00014	0.0002	0.000002	0.00049	< 0.001	< 0.00001
4-Apr-12	65																							
11-Apr-12	66																							
18-Apr-12	67																							
25-Apr-12	68	0.005	0.00011	< 0.001	0.477	0.0064	0.01	0.00499	0.0005	< 0.009	0.360	0.00020	0.83	< 0.00001	0.49	0.0052	1.88	< 0.00002	0.00010	0.0004	0.000015	0.00063	0.003	< 0.00001
2-May-12	69																							
9-May-12	70																							
16-May-12	71																							
23-May-12	72	< 0.003	< 0.00002	< 0.001	0.468	0.0064	0.01	0.00007	0.0005	< 0.009	0.345	0.00021	0.78	< 0.00001	0.38	0.0046	1.89	< 0.00002	0.00009	0.0002	0.000007	0.00074	0.002	< 0.00001
30-May-12	73																							
6-Jun-12	74																							
13-Jun-12	75																							
20-Jun-12	76	0.005	0.00003	< 0.001	0.467	0.0063	< 0.01	0.00005	0.0005	< 0.009	0.336	0.00026	0.79	< 0.00001	0.36	0.0048	1.71	< 0.00002	0.00032	0.0001	0.000001	0.00054	0.003	< 0.00001
27-Jun-12	77																							
4-Jul-12	78																							
11-Jul-12	79																							
18-Jul-12	80	0.004	0.00164	< 0.001	0.455	0.0061	0.02	0.00012	0.0004	< 0.009	0.370	0.00008	0.86	< 0.00001	0.33	0.0047	1.71	< 0.00002	0.00009	0.0002	0.000041	0.00063	0.001	< 0.00001
25-Jul-12	81																							
1-Aug-12	82																							
8-Aug-12	83																							
15-Aug-12	84	0.007	0.00005	< 0.001	0.561	0.0073	< 0.01	0.00089	0.0005	< 0.009	0.366	< 0.00004	11.5	< 0.00001	0.30	0.0062	2.08	< 0.00002	0.00051	0.0003	0.000058	0.00087	0.003	< 0.00001
22-Aug-12	85																							
29-Aug-12	86																							
5-Sep-12	87																							
12-Sep-12	88	< 0.003	0.00073	< 0.001	0.454	0.0058	0.01	0.00024	0.0004	< 0.009	0.332	0.00014	1.44	< 0.00001	0.27	0.0047	1.66	< 0.00002	0.00071	0.0002	0.000010	0.00053	0.002	0.00040
19-Sep-12	89																							
26-Sep-12	90																							
3-Oct-12	91																							
10-Oct-12	92	< 0.003	0.00012	< 0.001	0.405	0.0054	< 0.01	0.00012	0.0004	< 0.009	0.294	0.00011	0.68	0.00001	0.22	0.0044	1.49	< 0.00002	0.00020	0.0005	0.000035	0.00057	0.002	0.00001
17-Oct-12	93																							
24-Oct-12	94																							

HC 3
Sample = Col-2 WR Composite NP Removed

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
31-Oct-12	95																							
7-Nov-12	96	0.005	0.00035	< 0.001	0.457	0.0055	< 0.01	0.00006	0.0003	< 0.009	0.276	0.00012	0.60	< 0.00001	0.18	0.0048	1.57	< 0.00002	0.00025	0.0002	0.000007	0.00044	0.002	< 0.00001
14-Nov-12	97																							
21-Nov-12	98																							
28-Nov-12	99																							
5-Dec-12	100	0.004	< 0.00002	< 0.001	0.452	0.0054	< 0.01	0.00013	0.0003	< 0.009	0.286	0.00009	0.64	< 0.00001	0.21	0.0046	1.59	< 0.00002	0.00020	0.0006	0.000002	0.00066	0.002	< 0.00001
12-Dec-12	101																							
19-Dec-12	102																							
26-Dec-12	103																							
2-Jan-13	104	0.009	0.00002	< 0.001	0.321	0.0042	0.01	0.00010	0.0004	< 0.009	0.250	0.00011	0.52	< 0.00001	0.19	0.0033	1.04	< 0.00002	0.00054	0.0003	0.000008	0.00062	0.002	< 0.00001
9-Jan-13	105																							
16-Jan-13	106																							
23-Jan-13	107																							
30-Jan-13	108	0.006	< 0.00002	< 0.001	0.391	0.0043	< 0.01	0.00013	0.0003	< 0.009	0.283	0.00013	0.65	< 0.00001	0.25	0.0040	1.43	< 0.00002	< 0.00001	0.0003	0.000045	0.00036	< 0.001	< 0.00001
6-Feb-13	109																							
13-Feb-13	110																							
20-Feb-13	111																							
27-Feb-13	112	0.005	0.00008	< 0.001	0.379	0.0048	< 0.01	0.00007	0.0003	0.016	0.251	0.00017	0.60	< 0.00001	0.18	0.0040	1.28	< 0.00002	0.00001	0.0001	< 0.000001	0.00036	0.002	< 0.00001
6-Mar-13	113																							
13-Mar-13	114																							
20-Mar-13	115																							
27-Mar-13	116	0.006	0.00003	< 0.001	0.391	0.0043	< 0.01	0.00010	0.0003	< 0.009	0.270	0.00018	0.58	< 0.00001	0.30	0.0038	1.48	< 0.00002	0.00005	0.0002	0.000303	0.00041	< 0.001	< 0.00001
3-Apr-13	117																							
10-Apr-13	118																							
17-Apr-13	119																							
24-Apr-13	120	0.017	< 0.00002	< 0.001	0.374	0.0048	< 0.01	0.00016	0.0003	< 0.009	0.229	0.00009	0.50	< 0.00001	0.16	0.0037	1.24	< 0.00002	0.00013	0.0003	0.000016	0.00046	0.002	< 0.00001
1-May-13	121																							
8-May-13	122																							
15-May-13	123																							
22-May-13	124	0.003	< 0.00002	< 0.001	0.334	0.0040	< 0.01	0.00072	0.0002	< 0.009	0.209	0.00010	0.63	< 0.00001	0.12	0.0033	1.11	< 0.00002	0.00050	0.0001	0.000016	0.00040	< 0.001	< 0.00001
29-May-13	125																							
5-Jun-13	126																							
12-Jun-13	127																							
19-Jun-13	128	0.008	0.00003	< 0.001	0.310	0.0039	< 0.01	0.00005	0.0002	< 0.009	0.221	0.00012	0.59	< 0.00001	0.14	0.0032	0.98	< 0.00002	0.00009	0.0004	< 0.000001	0.00033	0.001	< 0.00001
26-Jun-13	129																							
3-Jul-13	130																							
10-Jul-13	131																							
17-Jul-13	132	0.005	0.00002	< 0.001	0.398	0.0060	< 0.01	0.00007	0.0005	0.009	0.221	0.00016	0.50	< 0.00001	0.15	0.0046	1.32	< 0.00002	0.00009	0.0003	0.000007	0.00041	0.003	< 0.00001
24-Jul-13	133																							
31-Jul-13	134																							
7-Aug-13	135																							
14-Aug-13	136	0.046	0.00009	< 0.001	0.406	0.0063	< 0.01	0.00006	0.0008	< 0.009	0.245	0.00013	0.51	< 0.00001	0.15	0.0036	1.48	< 0.00002	0.00016	0.0003	0.000180	0.00032	0.001	< 0.00001
21-Aug-13	137																							
28-Aug-13	138																							
4-Sep-13	139																							
11-Sep-13	140	0.024	0.00003	< 0.001	0.381	0.0053	< 0.01	0.00010	0.0003	< 0.009	0.206	0.00013	0.53	< 0.00001	0.13	0.0038	1.26	< 0.00002	0.00016	0.0001	0.000016	0.00036	0.002	< 0.00001
18-Sep-13	141																							
25-Sep-13	142																							
2-Oct-13	143																							
9-Oct-13	144	< 0.003	0.0123	< 0.001	0.417	0.0100	< 0.01	0.00006	0.0016	< 0.009	0.218	0.00014	0.56	< 0.00001	0.14	0.0041	1.52	0.00013	0.00031	< 0.0001	0.000004	0.00029	0.177	< 0.00001
16-Oct-13	145																							
23-Oct-13	146																							
30-Oct-13	147																							
6-Nov-13	148	0.006	0.00005	< 0.001	0.356	0.0047	< 0.01	0.00073	0.0002	< 0.009	0.214	0.00036	0.60	< 0.00001	0.16	0.0038	1.21	< 0.00002	0.00019	0.0002	0.000005	0.00043	< 0.001	< 0.00001
13-Nov-13	149																							
20-Nov-13	150																							
27-Nov-13	151																							
4-Dec-13	152	0.010	0.00003	< 0.001	0.362	0.0044	< 0.01	0.00028	0.0003	< 0.009	0.231	0.00013	0.52	< 0.00001	0.15	0.0034	1.07	< 0.00002	0.00008	0.0007	0.000002	0.00043	< 0.001	0.00001
11-Dec-13	153																							
18-Dec-13	154																							
25-Dec-13	155																							
1-Jan-14	156	0.004	< 0.00002	< 0.001	0.356	0.0043	< 0.01	0.00104	0.0006	< 0.009	0.214	0.00014	0.42	< 0.00001	0.24	0.0041	1.13	< 0.00002	0.00004	0.0002	< 0.000001	0.00034	0.001	< 0.00001
8-Jan-14	157																							
15-Jan-14	158																							
22-Jan-14	159																							
29-Jan-14	160	0.014	< 0.00002	< 0.001	0.362	0.0042	< 0.01	0.00053	0.0002	< 0.009	0.179	0.00018	0.49	< 0.00001	0.15	0.0031	1.12	< 0.00002	0.0000	0.0002	< 0.000001	< 0.00003	< 0.001	< 0.00001
5-Feb-14	161																							
12-Feb-14	162																							
19-Feb-14	163																							
26-Feb-14	164	0.284	< 0.00002	< 0.001	0.367	0.0056	< 0.01	0.00006	0.0002	0.012	0.231	0.00008	0.56	< 0.00001	0.14	0.0035	1.49	< 0.00002	0.00009	0.0002	0.000019	0.00031	0.003	< 0.00001
5-Mar-14	165																							
12-Mar-14	166																							
19-Mar-14	167																							
26-Mar-14	168	0.008	< 0.00002	< 0.001	0.251	0.0028	< 0.01	0.00025	< 0.0001	< 0.009	0.186	0.00008	0.54	< 0.00001	0.11	0.0028	0.83	< 0.00002	0.00022	0.0004	0.000001	0.00047	0.002	< 0.00001
2-Apr-14	169																							
9-Apr-14	170																							
16-Apr-14	171																							
23-Apr-14	172	< 0.002	0.00004	0.000129	0.555	0.0122	< 0.01	0.00007	0.0013	< 0.009	0.239	0.00011	0.61	< 0.000002	0.13	0.0062	1.80	< 0.000005	0.00004	0.00007	0.000013	0.00058	0.005	< 0.002
30-Apr-14	173																							
7-May-14	174																							
14-May-14	175																							
21-May-14	176	< 0.002	0.00004	0.000045	0.494	0.0048	< 0.01	0.00300	0.0002	< 0.009	0.203	0.00010	0.62	< 0.000002	0.10	0.0048	1.57	< 0.000005	0.00038	0.00010	0.000012	0.00035	< 0.001	< 0.002
28-May-14	177																							
4-Jun-14	178																							
11-Jun-14	179																							
18-Jun-14	180	0.006	0.00001	0.000209	0.409	0.0113	< 0.01	0.00004	0.0013	< 0.009	0.188	0.00008	0.59	0.000019	0.09	0.0042	1.20	< 0.000005	0.00010	< 0.00005	0.000005	0.00036	0.003	< 0.002
25-Jun-14	181																							
2-Jul-14	182																							
9-Jul-14	183																							
16-Jul-14	184	< 0.002	0.00001	0.000097	0.374	0.0050	< 0.01	0.00009	0.0010	< 0.009	0.177	0.00006	0.49	0.000017	0.10	0.0038	1.50	0.000011	0.00009	0.00007	0.000013	0.00035	< 0.001	< 0.002
23-Jul-14	185																							
30-Jul-14	186																							
6-Aug-14	187																							
13-Aug-14	188	< 0.002	0.00031	0.000052	0.364	0.0034	0.01	0.00096	0.0001	< 0.009	0.180	0.00011	0.52	< 0.000002	0.14	0.0037	1.12	< 0.000005	0.00001	< 0.00005	0.000738	0.00022	0.001	< 0.002
20-Aug-14	189																							
27-Aug-14	190																							
3-Sep-14	191																							

Mar 12/14 Change in analytica
Jul 16/14 Fe=0.309, repeat=<0

HC 4
Sample = Col-3 WR Composite NP Removed

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
9-Mar-11	1	500	385	6.55	55	#N/A	2.3	3.8	20		0.5	< 0.06	< 0.3	6.10	0.0118	< 0.0002	0.0003	0.0617	< 0.00002	< 0.00001	0.0129	0.000015	1.85	0.0009	0.00128	0.0024
16-Mar-11	2	500	480	6.21	72	#N/A	2.9	1.1	31		0.2	< 0.06	< 0.3	11.6	0.0036	< 0.0002	0.0003	0.0589	< 0.00002	< 0.00001	0.0109	0.000024	3.57	0.0007	0.00296	0.0056
23-Mar-11	3	500	470	6.23	107	#N/A	2.8	1.2	42		< 0.2	< 0.06	< 0.3	25.1	0.0017	< 0.0002	0.0002	0.0493	< 0.00002	< 0.00001	0.0117	0.000034	7.77	< 0.0005	0.00741	0.0113
30-Mar-11	4	500	475	6.33	138	#N/A	4.2	1.3	56		< 0.2	< 0.06	< 0.3	38.0	0.0018	< 0.0002	< 0.0002	0.0432	< 0.00002	< 0.00001	0.0132	0.000050	11.8	< 0.0005	0.0124	0.0237
6-Apr-11	5	500	465	6.29	143				53																	
13-Apr-11	6	500	475	6.01	159	#N/A	3.1	1.1	59		< 0.2	< 0.06	< 0.3	49.3	0.0019	< 0.0002	< 0.0002	0.0328	< 0.00002	< 0.00001	0.0144	0.000071	15.2	< 0.0005	0.0190	0.0640
20-Apr-11	7	500	470	6.47	173				60																	
27-Apr-11	8	500	475	5.69	215	#N/A	3.4	1.1	84		< 0.2	< 0.06	< 0.3	72.9	0.0052	< 0.0002	< 0.0002	0.0525	< 0.00002	< 0.00001	0.0213	0.000122	22.1	< 0.0005	0.0381	0.254
4-May-11	9	500	470	5.94	190				79																	
11-May-11	10	500	445	5.82	189	#N/A	4.1	1.0	79		< 0.2	< 0.06	< 0.3	61.1	0.0139	< 0.0002	< 0.0002	0.03552	< 0.00002	< 0.00001	0.0192	0.000098	19.1	< 0.0005	0.0359	0.327
18-May-11	11	500	430	5.96	193				82																	
25-May-11	12	500	420	6.01	165	#N/A	4.8	1.3	68		< 0.2	< 0.06	< 0.3	57.0	0.0047	0.0005	0.0003	0.0388	< 0.00002	< 0.00001	0.0169	0.000085	18.2	< 0.0005	0.0323	0.293
1-Jun-11	13	500	450	6.21	112				42																	
8-Jun-11	14	500	450	6.01	153	#N/A	2.9	0.8	61		< 0.2	< 0.06	< 0.3	52.2	0.0064	0.0005	< 0.0002	0.0417	< 0.00002	< 0.00001	0.0161	0.000069	17.1	< 0.0005	0.0259	0.241
15-Jun-11	15	500	450	6.03	198				74																	
22-Jun-11	16	500	450	6.01	121	#N/A	2.8	0.9	58		< 0.2	< 0.06	< 0.3	41.1	0.0044	0.0002	< 0.0002	0.0379	< 0.00002	0.00004	0.0153	0.000046	12.8	< 0.0005	0.0244	0.243
29-Jun-11	17	500	460	6.02	216				92																	
6-Jul-11	18	500	445	5.80	199	#N/A	4.9	1.2	83		< 0.2	< 0.06	< 0.3	76.0	0.0103	< 0.0002	< 0.0002	0.0385	< 0.00002	< 0.00001	0.0241	0.000097	24.3	< 0.0005	0.0448	0.615
13-Jul-11	19	500	485	6.10	115				43																	
20-Jul-11	20	500	460	5.73	146	#N/A	3.2	0.8	63		< 0.2	< 0.06	< 0.3	55.6	0.0076	< 0.0002	< 0.0002	0.0316	< 0.00002	< 0.00001	0.0178	0.000068	16.3	< 0.0005	0.0433	0.522
27-Jul-11	21	500	425	5.55	358				163																	
3-Aug-11	22	500	455	6.01	153	#N/A			55																	
10-Aug-11	23	500	455	6.09	112				142																	
17-Aug-11	24	500	455	5.90	126	#N/A	4.4	1.2	48		< 0.2	< 0.06	< 0.3	42.3	0.0076	< 0.0002	0.0003	0.0259	< 0.00002	< 0.00001	0.0175	0.000057	11.6	0.0011	0.0392	0.553
24-Aug-11	25	500	455	5.95	155				60																	
31-Aug-11	26	500	455	5.88	171	#N/A			78																	
7-Sep-11	27	500	480	5.89	152				72																	
14-Sep-11	28	500	460	5.80	174	#N/A	5.4	0.8	80		< 0.2	< 0.06	< 0.3	67.9	0.0232	< 0.0002	< 0.0002	0.0188	0.00003	< 0.00001	0.0196	0.000094	18.0	0.0013	0.0761	1.26
21-Sep-11	29	500	465	5.72	186				86																	
28-Sep-11	30	500	445	5.79	200				85																	
5-Oct-11	31	500	480	5.60	181				78																	
12-Oct-11	32	500	460	5.84	191	#N/A	9.8	2.1	84		< 0.2	0.06	< 0.3	75.9	0.0439	< 0.0002	0.0003	0.0146	0.00004	< 0.00001	0.0192	0.000098	18.7	0.0008	0.0987	1.86
19-Oct-11	33	500	460	5.65	187				82																	
26-Oct-11	34	500	450	5.61	179				78																	
2-Nov-11	35	500	455	5.69	185				86																	
9-Nov-11	36	500	450	5.71	183	#N/A	7.6	1.6	79		< 0.2	< 0.06	< 0.3	66.4	0.0621	< 0.0002	0.0004	0.0201	0.00006	< 0.00001	0.0147	0.000107	16.0	< 0.0005	0.103	2.01
16-Nov-11	37	500	455	5.64	192				86																	
23-Nov-11	38	500	455	5.68	189	#N/A	8.8	1.7	76		< 0.2	< 0.06	< 0.3	67.9	0.0851	< 0.0002	< 0.0002	0.0167	0.00007	< 0.00001	0.0139	0.000099	16.1	< 0.0005	0.109	2.14
30-Nov-11	39	500	465	5.70	178	#N/A	9.1	1.9	79		< 0.2	< 0.06	< 0.3	64.5	0.0870	< 0.0002	0.0003	0.0153	0.00007	< 0.00001	0.0163	0.000102	14.8	< 0.0005	0.107	2.08
7-Dec-11	40	500	465	5.69	142	#N/A	7.5	1.2	57		< 0.2	< 0.06	< 0.3	50.3	0.0549	0.0097	0.0036	0.0156	0.00006	< 0.00001	0.0117	0.000187	11.7	0.0011	0.0840	1.56
14-Dec-11	41	500	465	5.54	192				87																	
21-Dec-11	42	500	450	5.57	195				83																	
28-Dec-11	43	500	460	5.62	194				87																	
4-Jan-12	44	500	455	5.63	184	#N/A	7.7	1.6	76	< 1	< 0.2	< 0.06	< 0.3	63.6	0.128	< 0.0002	0.0003	0.0210	0.00008	< 0.00001	0.0137	0.000089	14.4	< 0.0005	0.109	2.08
11-Jan-12	45	500	460	5.57	174				74																	
18-Jan-12	46	500	445	5.54	148				62																	
25-Jan-12	47	500	465	5.47	185				78																	
1-Feb-12	48	500	440	5.49	165	#N/A	6.0	0.9	69	< 0.5	< 0.2	< 0.06	< 0.3	57.1	0.109	< 0.0002	0.0003	0.0160	0.00007	< 0.00001	0.0107	0.000088	13.3	< 0.0005	0.109	1.78
8-Feb-12	49	500	460	5.54	182				80																	
15-Feb-12	50	500	450	5.62	156				71																	
22-Feb-12	51	500	450	5.56	175				77																	
29-Feb-12	52	500	455	5.77	180	#N/A	5.5	1.3	77	0.5	< 0.2	< 0.06	< 0.3	68.3	0.0985	< 0.0002	< 0.0002	0.0129	0.00007	< 0.00001	0.0089	0.000095	17.0	< 0.0005	0.0950	1.75
7-Mar-12	53	500	460	5.71	192				87																	
14-Mar-12	54	500	460	5.48	164				75																	
21-Mar-12	55	500	460	5.50	172				75																	
28-Mar-12	56	500	470	5.47	213	#N/A	7.8	1.0	92	< 0.5	< 0.2	< 0.06	< 0.3	78.5	0.193	< 0.0002	< 0.0002	0.0110	0.00009	< 0.00001	0.0097	0.000106	18.6	< 0.0005	0.108	2.17
4-Apr-12	57	500	450	5.52	139				63																	
11-Apr-12	58	500	460	5.42	168				85																	
18-Apr-12	59	500	460	5.42	194				90																	
25-Apr-12	60	500	460	5.53	154	#N/A	6.8	1.2	61	< 0.5	< 0.2	< 0.06	< 0.3	55.5	0.120	< 0.0002	< 0.0002	0.0126	0.00007	< 0.00001	0.0071	0.000047	12.8	< 0.0005	0.0845	1.60
2-May-12	61	500	455	5.67	148				57																	
9-May-12	62	500	465	5.40	165				59																	
16-May-12	63	500	460	5.23	200				80																	
23-May-12	64	500	455	5.36	159	#N/A	5.8	0.6	59	1.0	< 0.2	< 0.06	< 0.3	55.7	0.155	< 0.0002	0.0003	0.0139	0.00008	< 0.00001	0.0065	0.000058	13.2	< 0.0005	0.0857	1.46
30-May-12	65	500	450	5.63	161				52																	
6-Jun-12	66	500	460	5.45	172				66																	
13-Jun-12	67	500	470	5.52	186				70																	
20-Jun-12	68	500	470	5.44	182	#N/A	7.0	1.0	76	< 0.5	< 0.2	0.06	< 0.3	67.2	0.177	< 0.0002	< 0.0002	0.0098	0.00009	< 0.00001	0.0069	0.000069	16.2	< 0.0005	0.0949	1.67
27-Jun-12	69	500	465	5.46	149				56																	
4-Jul-12	70	500	455	5.42	159				60																	
11-Jul-12	71	500	415	5.28	192				80																	
18-Jul-12	72	500	465	5.29	180	#N/A	7.1	0.7	74	< 0.5	< 0.2	0.06	< 0.3	66.1	0.164	< 0.0002	0.0004	0.0107	0.00012	< 0.00001	0.0085	0.000089	16.2	< 0.0005	0.0896	1.59
25-Jul-12	73	500	470	5.31	151				62																	
1-Aug-12	74	500	470	5.67	173				73																	
8-Aug-12	75	500	460	5.55	170				77																	
15-Aug-12	76	500	440	5.36	176	#N/A	6.8	0.8	73	< 0.5	< 0.2	< 0.06	< 0.3	60.4	0.179	< 0.0002	0.0003	0.0107	0.00010	< 0.00001	0.0071	0.000088	14.0	< 0.0005	0.0959	1.54
22-Aug-12	77	500	465	5.37	164				70																	
29-Aug-12	78	500	440	5.19	203				84																	
5-Sep-12	79	500	465	5.35	176				64																	
12-Sep-12	80	500	465	5.43	131	#N/A	5.6	0.6	49	< 0.5	< 0.2	< 0.06	< 0.3	42.6	0.105	0.0005	0.0028	0.0137	0.00007	< 0.00001	0.0055	0.000068	9.82	< 0.0005	0.0660	1.03
19-Sep-12	81	500	460	5.56	111				45																	
26-Sep-12	82	500	465	5.37	176				58																	
3-Oct-12	83	500	465	5.13	133				56																	
10-Oct-12	84	500	460	5.20	178	#N/A	9.7	0.5	75	< 0.5	< 0.2	0.08	< 0.3	60.5	0.191	< 0.0002	0.0003	0.0179	0.00010	< 0.00001	0.0061	0.000101	13.3	< 0.0005	0.109	1.57
17-Oct-12	85	500	485	5.36	89				34																	
24-Oct-12	86	500	475	5.36	126				50																	
31-Oct-12	87	500	480	5.48	123				52																	
7-Nov-12	88	500	475	5.39	110	#N/A	8.0	1.0	41	< 0.5	< 0.2	< 0.06	< 0.3	41.7	0.109	< 0.0002	< 0.0002	0.0123	0.00006	< 0.00001	0.0056	0.000075	9.24	< 0.0005	0.0714	0.949
14-Nov-12	89	500	470	5.88	97				33																	
21-Nov-12	90	500	485	5.51	81				26																	
28-Nov-12	91	500	490	5.81	146				60																	
5-Dec-12	92	500	485	6.00	126	#N/A	9.35	2.0	51	0.9	< 0.2	0.06	< 0.3	44.1	0.141	< 0.0002	0.0003	0.0130	0.00008	< 0.00001	0.0034	0.000074	9.87	< 0.0005	0.0766	1.07
12-Dec-12	93	500	480	5.57	118				50																	
19-Dec-12	94	500	480	5.54	76				30																	

HC 4
Sample = Col-3 WR Composite NP Removed

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3												
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
26-Dec-12	95	500	450	5.64	103				42																	
2-Jan-13	96	500	465	5.43	99	#N/A	6.1	0.9	40	< 0.5	< 0.2	< 0.06	< 0.3	32.5	0.0925	< 0.0002	< 0.0002	0.0152	0.00005	< 0.00001	0.0028	0.000084	7.37	< 0.0005	0.0538	0.734
9-Jan-13	97	500	460	5.78	97				37																	
16-Jan-13	98	500	465	5.36	104				46																	
23-Jan-13	99	500	450	5.67	98				41																	
30-Jan-13	100	500	455	5.34	85	#N/A	5.6	0.6	32	< 0.5	< 0.2	< 0.06	< 0.3	28.6	0.0677	< 0.0002	< 0.0002	0.0172	0.00005	< 0.00001	0.0032	0.000135	6.38	< 0.0005	0.0512	0.691
6-Feb-13	101	500	455	5.68	87				36																	
13-Feb-13	102	500	460	5.66	93				43																	
20-Feb-13	103	500	460	5.74	68				26																	
27-Feb-13	104	500	460	5.10	105	#N/A	6.3	0.4	44	< 0.5	< 0.2	< 0.06	< 0.3	36.8	0.0928	< 0.0002	0.0003	0.0153	0.00006	< 0.00001	0.0031	0.000064	8.05	< 0.0005	0.0684	0.930
6-Mar-13	105	500	460	5.69	85				30																	
13-Mar-13	106	500	465	5.01	80				29																	
20-Mar-13	107	500	475	5.38	79				31																	
27-Mar-13	108	500	460	4.99	89	#N/A	8.2	1.3	36	0.7	< 0.2	< 0.06	< 0.3	29.3	0.0710	< 0.0002	0.0005	0.0128	0.00005	< 0.00001	0.0033	0.000045	6.47	< 0.0005	0.0513	0.699
3-Apr-13	109	500	455	5.10	85				30																	
10-Apr-13	110	500	450	4.90	86				38																	
17-Apr-13	111	500	460	5.12	88				43																	
24-Apr-13	112	500	455	5.10	86	#N/A	7.1	0.5	39	< 0.5	< 0.2	< 0.06	< 0.3	27.4	0.0663	< 0.0002	0.0003	0.0135	0.00005	< 0.00001	0.0038	0.000047	5.82	< 0.0005	0.0585	0.739
1-May-13	113	500	450	5.14	98				50																	
8-May-13	114	500	465	5.32	85				44																	
15-May-13	115	500	455	5.22	84				41																	
22-May-13	116	500	465	5.29	68	#N/A	7.8	0.6	33	< 0.5	< 0.2	< 0.06	< 0.3	22.8	0.0543	< 0.0002	< 0.0002	0.0176	0.00003	< 0.00001	0.0034	0.000040	5.03	< 0.0005	0.0381	0.470
29-May-13	117	500	465	5.38	77				35																	
5-Jun-13	118	500	455	5.57	77				33																	
12-Jun-13	119	500	450	5.67	88				34																	
19-Jun-13	120	500	485	5.35	70	#N/A	6.5	0.6	30	< 0.5	< 0.2	< 0.06	< 0.3	22.0	0.0617	< 0.0002	< 0.0002	0.0151	0.00002	< 0.00001	0.0039	0.000035	4.72	< 0.0005	0.0402	0.528
26-Jun-13	121	500	470	5.42	73				32																	
3-Jul-13	122	500	475	5.56	68				28																	
10-Jul-13	123	500	455	5.62	77				35																	
17-Jul-13	124	500	440	5.26	92	#N/A	5.6	1.4	43	< 0.5	< 0.2	< 0.06	< 0.3	30.2	0.0584	< 0.0002	0.0012	0.0180	0.00004	< 0.00001	0.0025	0.000067	6.56	< 0.0005	0.0544	0.623
24-Jul-13	125	500	465	5.67	75				31																	
31-Jul-13	126	500	445	5.49	75				29																	
7-Aug-13	127	500	460	5.53	92				36																	
14-Aug-13	128	500	455	5.43	67	#N/A	5.4	0.7	26	< 0.5	< 0.2	< 0.06	< 0.3	21.7	0.0454	< 0.0002	< 0.0002	0.0149	0.00004	< 0.00001	0.0032	0.000038	4.78	0.0083	0.0341	0.431
21-Aug-13	129	500	445	5.33	117				45																	
28-Aug-13	130	500	470	5.57	54				23																	
4-Sep-13	131	500	435	5.45	73				29																	
11-Sep-13	132	500	450	5.39	78	#N/A	5.7	0.7	32	1.1	< 0.2	< 0.06	< 0.3	26.1	0.0582	< 0.0002	< 0.0002	0.0199	0.00004	< 0.00001	0.0034	0.000047	6.15	< 0.0005	0.0440	0.509
18-Sep-13	133	500	455	5.60	75				30																	
25-Sep-13	134	500	455	5.00	111				46																	
2-Oct-13	135	500	450	5.14	98				38																	
9-Oct-13	136	500	455	5.33	88	#N/A	6.5	0.7	35	0.7	< 0.2	0.07	< 0.3	28.8	0.0655	< 0.0002	< 0.0002	0.0353	0.00005	< 0.00001	0.0054	0.000135	6.38	< 0.0005	0.0485	0.539
16-Oct-13	137	500	450	5.11	80				32																	
23-Oct-13	138	500	455	4.91	100				43																	
30-Oct-13	139	500	455	5.06	83				30																	
6-Nov-13	140	500	445	5.11	77	#N/A	4.5	0.1	23	< 0.5	< 0.2	0.06	< 0.3	23.9	0.0645	< 0.0002	0.0002	0.0472	0.00004	< 0.00001	0.0025	0.000036	5.33	< 0.0005	0.0422	0.434
13-Nov-13	141	500	465	5.56	61				19																	
20-Nov-13	142	500	450	5.33	96				35																	
27-Nov-13	143	500	460	5.06	70				22																	
4-Dec-13	144	500	445	5.32	81	#N/A	4.6	0.2	27	< 0.5	< 0.2	< 0.06	< 0.3	27.2	0.0737	< 0.0002	< 0.0002	0.0396	0.00005	< 0.00001	0.0024	0.000042	6.15	< 0.0005	0.0473	0.507
11-Dec-13	145	500	450	5.25	69				26																	
18-Dec-13	146	500	450	5.20	104				39																	
25-Dec-13	147	500	460	5.45	77				28																	
1-Jan-14	148	500	450	5.31	80	#N/A	4.6	0.3	32	1.3	< 0.2	0.07	< 0.3	26.6	0.0629	< 0.0002	< 0.0002	0.0454	0.00004	< 0.00001	0.0062	0.000041	5.71	< 0.0005	0.0473	0.511
8-Jan-14	149	500	460	5.25	78				23																	
15-Jan-14	150	500	450	5.53	83				24																	
22-Jan-14	151	500	460	5.32	99				34																	
29-Jan-14	152	500	445	5.32	73	#N/A	5.1	0.2	25	< 0.5	< 0.2	0.07	< 0.3	25.0	0.0603	< 0.0002	< 0.0002	0.0379	0.00002	< 0.00001	0.0028	0.000032	5.69	< 0.0005	0.0423	0.440
5-Feb-14	153	500	455	5.36	80				27																	
12-Feb-14	154	500	450	5.36	85				32																	
19-Feb-14	155	500	450	5.42	63				19																	
26-Feb-14	156	500	450	5.69	61	#N/A	5.9	1.1	22	< 0.5	< 0.2	< 0.06	< 0.3	21.4	0.0501	< 0.0002	< 0.0002	0.0332	0.00003	< 0.00001	0.0024	0.000034	4.91	< 0.0005	0.0329	0.345
5-Mar-14	157	500	450	5.73	67				21																	
12-Mar-14	158	500	460	5.49	66				22																	
19-Mar-14	159	500	450	5.58	74																					
26-Mar-14	160	500	440	5.49	90	#N/A	5.3	0.9	30	1.3	< 0.2	0.09	< 0.3	30.0	0.0790	< 0.0002	< 0.0002	0.0434	0.00005	< 0.00001	0.0025	0.000086	6.85	< 0.0005	0.0533	0.566
2-Apr-14	161	500	440	5.42	76																					
9-Apr-14	162	500	445	5.73	64																					
16-Apr-14	163	500	480	5.58	79																					
23-Apr-14	164	500	455	5.67	65	#N/A	5.3	0.9	22	< 0.5	< 0.2	< 0.06	< 0.3	21.6	0.0596	< 0.0002	< 0.0002	0.0395	0.000035	< 0.000007	0.0040	0.000036	5.01	0.00005	0.0388	0.382
30-Apr-14	165	500	465	5.81	58																					
7-May-14	166	500	480	5.86	65																					
14-May-14	167	500	470	5.89	58																					
21-May-14	168	500	480	5.81	70	#N/A	8.5	2.0	28	< 0.5	< 0.2	< 0.06	< 0.3	25.4	0.0720	< 0.0002	< 0.0002	0.0432	0.000036	0.000121	0.0027	0.000040	5.91	< 0.00003	0.0449	0.432
28-May-14	169	500	460	5.61	71																					
4-Jun-14	170	500	450	5.86	69																					
11-Jun-14	171	500	460	5.63	76																					
18-Jun-14	172	500	455	5.99	51	#N/A	5.8	1.2	17	< 0.5	< 0.2	< 0.06	< 0.3	16.3	0.0428	< 0.0002	0.0003	0.0244	0.000033	< 0.000007	0.0066	0.000023	3.84	< 0.00003	0.0289	0.286
25-Jun-14	173	500	455	6.01	70																					
2-Jul-14	174	500	445	5.81	85																					
9-Jul-14	175	500	440	5.51	73																					
16-Jul-14	176	500	455	5.70	60	#N/A	4.3	1.6	19	1.7	< 0.2	< 0.06	< 0.3	18.9	0.0507	< 0.0002	< 0.0002	0.0245	0.000035	< 0.000007	0.0026	0.000034	4.44	< 0.00003	0.0368	0.336
23-Jul-14	177	500	455	5.66	64																					
30-Jul-14	178	500	450	5.63	62																					
6-Aug-14	179	500	450	5.61	68																					
13-Aug-14	180	500	460	5.57	75	#N/A	4.7	1.3	23	< 0.5	< 0.2	0.06	< 0.3	24.2	0.0745	< 0.0002	< 0.0002	0.0266	0.000044	< 0.000007	0.0038	0.000039	5.59	< 0.00003	0.0450	0.440
20-Aug-14	181	500	445	5.39	89																					
27-Aug-14	182	500	450	5.61	93																					
3-Sep-14	183	500	435	5.87	72																					

Mar 12/14 Change in analytical schedule
Jul 16/14 Fe 0.219. Repeat = <0.002. Accepted.

HC 4
Sample = Col-3 WR Composite NP Removed

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
9-Mar-11	1	0.011	0.00283	< 0.001	0.358	0.0066	0.01	0.00155	0.0065	0.040	2.38	< 0.00004	1.49	< 0.00001	5.86	0.0198	5.48	< 0.00002	0.00056	0.0004	0.000004	0.00094	0.004	0.00001
16-Mar-11	2	0.007	0.00209	< 0.001	0.659	0.0117	< 0.01	0.00063	0.0136	0.023	2.40	0.00112	1.35	< 0.00001	5.06	0.0365	8.26	< 0.0002	0.00097	0.0002	< 0.000001	0.00057	0.005	< 0.00001
23-Mar-11	3	0.003	0.00417	< 0.001	1.39	0.0239	< 0.01	0.00130	0.0318	< 0.009	2.98	0.00119	1.16	< 0.00001	5.13	0.0742	13.6	< 0.0002	0.00127	0.0001	0.000004	0.00047	0.006	< 0.00001
30-Mar-11	4	0.008	0.00004	< 0.001	2.10	0.0373	< 0.01	0.00034	0.0486	< 0.009	3.66	0.00154	1.27	< 0.00001	5.21	0.112	18.1	< 0.00002	0.00113	0.0002	0.00000	0.0003	0.008	< 0.00001
6-Apr-11	5																							
13-Apr-11	6	0.003	0.00002	< 0.001	2.75	0.0521	< 0.01	0.00018	0.0702	< 0.009	3.96	0.00139	1.31	< 0.00001	4.16	0.132	21.6	0.00002	0.00046	0.0001	0.00000	0.0002	0.013	< 0.00001
20-Apr-11	7																							
27-Apr-11	8	0.013	0.00025	0.001	4.31	0.0803	0.01	0.00246	0.112	0.018	5.32	0.00152	1.78	< 0.00001	3.91	0.196	29.5	< 0.00002	0.00035	0.0003	0.00000	0.0001	0.021	< 0.00001
4-May-11	9																							
11-May-11	10	0.010	0.00014	0.001	3.26	0.0636	< 0.01	0.0001	0.0991	< 0.009	4.21	0.00063	1.29	< 0.00001	2.44	0.163	24.6	< 0.0002	0.00046	0.0010	0.000034	< 0.00003	0.022	< 0.00001
18-May-11	11																							
25-May-11	12	0.009	0.00003	0.001	2.81	0.0546	< 0.01	0.0002	0.0863	< 0.009	3.56	0.00147	0.93	< 0.00001	1.88	0.150	22.2	< 0.0002	0.00068	0.0002	< 0.000001	0.00010	0.018	< 0.00001
1-Jun-11	13																							
8-Jun-11	14	0.006	0.00010	0.001	2.32	0.0441	< 0.01	0.00029	0.0758	0.041	3.17	0.00104	1.08	< 0.00001	1.22	0.145	20.7	< 0.00002	0.00090	0.0002	0.00001	0.0001	0.022	0.00001
15-Jun-11	15																							
22-Jun-11	16	0.007	0.00003	0.001	2.21	0.0409	0.01	0.00012	0.0703	< 0.009	2.90	0.00090	0.84	< 0.00001	0.93	0.109	15.8	< 0.00002	0.00044	0.0001	0.00000	0.0001	0.013	< 0.00001
29-Jun-11	17																							
6-Jul-11	18	0.091	0.00004	0.002	3.71	0.0690	0.01	0.00024	0.117	< 0.009	3.88	0.00114	1.18	< 0.00001	1.20	0.198	28.4	< 0.00002	0.00022	0.0006	0.00000	0.0001	0.022	< 0.00001
13-Jul-11	19																							
20-Jul-11	20	0.006	0.00003	0.002	3.64	0.0663	0.01	0.00015	0.0969	< 0.009	3.49	0.00064	1.30	< 0.00001	1.00	0.134	20.8	< 0.00002	0.00016	0.0002	0.00000	0.0001	0.019	< 0.00001
27-Jul-11	21																							
3-Aug-11	22																							
10-Aug-11	23																							
17-Aug-11	24	0.006	0.00007	0.002	3.24	0.0522	0.01	0.00012	0.0885	< 0.009	3.10	0.00043	0.89	< 0.00001	3.10	0.0958	17.8	< 0.00002	0.00041	0.0002	0.00001	0.0001	0.017	< 0.00001
24-Aug-11	25																							
31-Aug-11	26																							
7-Sep-11	27																							
14-Sep-11	28	0.011	0.00072	0.003	5.60	0.0952	< 0.01	0.00032	0.154	< 0.009	3.81	0.00047	1.14	< 0.00001	0.69	0.144	24.1	< 0.00002	0.00015	0.0002	0.00002	0.0001	0.028	0.00001
21-Sep-11	29																							
28-Sep-11	30																							
5-Oct-11	31																							
12-Oct-11	32	0.007	0.00040	0.003	7.12	0.117	< 0.01	0.00157	0.178	< 0.009	4.48	0.00043	1.38	< 0.00001	0.64	0.152	29.0	< 0.00002	0.00009	0.0001	< 0.000001	< 0.00003	0.033	0.00001
19-Oct-11	33																							
26-Oct-11	34																							
2-Nov-11	35																							
9-Nov-11	36	< 0.003	0.00026	0.003	6.40	0.102	0.01	0.00014	0.174	< 0.009	4.10	0.00044	1.13	< 0.00001	0.49	0.129	24.7	< 0.00002	0.00006	0.0003	0.00004	0.00011	0.031	< 0.00001
16-Nov-11	37																							
23-Nov-11	38	0.008	0.00016	0.004	6.74	0.107	0.01	0.00014	0.178	< 0.009	4.40	0.00046	1.33	< 0.00001	0.47	0.130	25.3	< 0.00002	0.00007	0.0005	0.000048	0.00004	0.029	< 0.00001
30-Nov-11	39	0.011	0.00009	0.004	6.66	0.105	0.01	0.00018	0.171	< 0.009	4.23	0.00052	1.68	< 0.00001	0.44	0.115	24.1	< 0.00002	0.00012	0.0002	0.000037	0.00004	0.028	< 0.00001
7-Dec-11	40	0.005	0.00037	0.003	5.08	0.0767	0.01	0.00072	0.129	< 0.009	3.44	0.00045	1.47	0.00002	0.37	0.0921	19.7	< 0.00002	0.00016	0.0002	0.00007	< 0.00003	0.037	< 0.00001
14-Dec-11	41																							
21-Dec-11	42																							
28-Dec-11	43																							
4-Jan-12	44	0.009	0.00023	0.004	6.73	0.0950	< 0.01	0.00464	0.166	0.015	4.53	0.00020	1.72	< 0.00001	0.42	0.111	24.3	0.00002	0.00033	0.0007	0.000061	0.00057	0.029	< 0.00001
11-Jan-12	45																							
18-Jan-12	46																							
25-Jan-12	47																							
1-Feb-12	48	0.009	0.00020	0.059	5.78	0.0816	< 0.01	0.00062	0.161	< 0.009	4.18	0.00035	1.81	< 0.00001	0.33	0.0934	22.5	< 0.00002	0.00009	0.0007	0.000047	0.00032	0.024	< 0.00001
8-Feb-12	49																							
15-Feb-12	50																							
22-Feb-12	51																							
29-Feb-12	52	0.006	0.00279	0.003	6.28	0.0835	< 0.01	0.00037	0.134	< 0.009	3.73	0.00040	1.84	< 0.00001	0.32	0.113	24.1	0.00002	0.00056	0.0003	0.000052	0.00021	0.023	< 0.00001
7-Mar-12	53																							
14-Mar-12	54																							
21-Mar-12	55																							
28-Mar-12	56	0.022	0.00006	0.003	7.81	0.101	0.01	0.00019	0.165	< 0.009	4.51	0.00044	2.45	< 0.00001	0.33	0.124	29.2	0.00002	0.00004	0.0001	0.000054	0.00012	0.022	< 0.00001
4-Apr-12	57																							
11-Apr-12	58																							
18-Apr-12	59																							
25-Apr-12	60	0.007	0.00072	0.003	5.70	0.0751	0.01	0.00092	0.122	< 0.009	3.41	0.00020	2.03	< 0.00001	0.26	0.0911	20.7	< 0.00002	0.00008	0.0001	0.000044	0.00025	0.019	< 0.00001
2-May-12	61																							
9-May-12	62																							
16-May-12	63																							
23-May-12	64	0.005	0.00047	0.003	5.54	0.0732	0.02	0.00012	0.121	< 0.009	3.24	0.00044	2.17	< 0.00001	0.23	0.0895	22.1	0.00003	0.00010	0.0002	0.000050	0.00042	0.015	< 0.00001
30-May-12	65																							
6-Jun-12	66																							
13-Jun-12	67																							
20-Jun-12	68	0.010	0.00010	0.003	6.47	0.0855	< 0.01	0.00014	0.151	< 0.009	3.70	0.00062	2.87	< 0.00001	0.29	0.107	25.3	0.00002	0.00006	0.0001	0.000049	0.00023	0.020	< 0.00001
27-Jun-12	69																							
4-Jul-12	70																							
11-Jul-12	71																							
18-Jul-12	72	0.008	0.0211	0.003	6.25	0.0784	0.01	0.00015	0.134	< 0.009	4.29	0.00069	3.58	< 0.00001	0.31	0.104	25.2	0.00002	0.00008	0.0002	0.000059	0.00022	0.014	< 0.00001
25-Jul-12	73																							
1-Aug-12	74																							
8-Aug-12	75																							
15-Aug-12	76	0.007	0.00010	0.003	6.16	0.0756	< 0.01	0.00040	0.136	< 0.009	3.53	0.00050	7.75	< 0.00001	0.27	0.0965	23.1	0.00003	0.00057	0.0003	0.000064	0.00044	0.014	< 0.00001
22-Aug-12	77																							
29-Aug-12	78																							
5-Sep-12	79																							
12-Sep-12	80	< 0.003	0.00023	0.002	4.39	0.0533	< 0.01	0.00025	0.0949	< 0.009	2.95	0.00046	3.78	< 0.00001	0.22	0.0689	17.0	0.00002	0.00033	0.0004	0.000037	0.00021	0.010	0.00004
19-Sep-12	81																							
26-Sep-12	82																							
3-Oct-12	83																							
10-Oct-12	84	0.005	0.00011	0.003	6.65	0.0788	< 0.01	0.00015	0.151	< 0.009	4.14	0.00061	4.57	< 0.00001	0.30	0.0934	23.4	0.00003	0.00020	0.0006	0.000057	0.00027	0.014	< 0.00001
17-Oct-12	85																							
24-Oct-12	86																							
31-Oct-12	87																							
7-Nov-12	88	0.004	0.00050	0.001	4.52	0.0537	0.01	0.00019	0.100	< 0.009	2.72	0.00037	3.52	< 0.00001	0.16	0.0655	15.9	0.00002	0.00012	0.0002	0.000037	0.00014	0.010	< 0.00001
14-Nov-12	89																							
21-Nov-12	90																							
28-Nov-12	91																							
5-Dec-12	92	0.006	0.00011	0.002	4.72	0.0564	0.01	0.00019	0.117	< 0.009	2.83	0.00042	3.66	0.00001	0.19	0.0686	17.0	0.00003	0.00016	0.0003	0.000028	0.00014	0.009	< 0.00001
12-Dec-12	93																							
19-Dec-12	94																							

HC 4
Sample = Col-3 WR Composite NP Removed

Date	Cycle No.	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
26-Dec-12	95																							
2-Jan-13	96	< 0.003	0.00021	0.001	3.42	0.0395	< 0.01	0.00020	0.0839	< 0.009	2.39	0.00040	2.19	0.00002	0.19	0.0505	12.5	0.00002	0.00018	0.0001	0.000027	0.00020	0.008	< 0.00001
9-Jan-13	97																							
16-Jan-13	98																							
23-Jan-13	99																							
30-Jan-13	100	0.003	0.00012	0.001	3.07	0.0359	< 0.01	0.00018	0.0707	< 0.009	2.12	0.00044	2.53	< 0.00001	0.21	0.0451	11.9	< 0.00002	0.00003	< 0.0001	0.000032	0.00007	0.007	0.00004
6-Feb-13	101																							
13-Feb-13	102																							
20-Feb-13	103																							
27-Feb-13	104	0.004	0.00008	0.001	4.05	0.0476	< 0.01	0.00012	0.0986	< 0.009	2.60	0.00074	3.08	< 0.00001	0.22	0.0551	14.3	< 0.00002	< 0.00001	0.0001	0.000014	< 0.00003	0.013	< 0.00001
6-Mar-13	105																							
13-Mar-13	106																							
20-Mar-13	107																							
27-Mar-13	108	0.003	0.00010	0.001	3.19	0.0355	< 0.01	0.00285	0.0774	< 0.009	1.94	0.00046	2.30	< 0.00001	0.19	0.0432	11.3	< 0.00002	0.00007	< 0.0001	0.000078	< 0.00003	0.006	< 0.00001
3-Apr-13	109																							
10-Apr-13	110																							
17-Apr-13	111																							
24-Apr-13	112	< 0.003	< 0.00002	0.001	3.12	0.0369	< 0.01	0.00018	0.0857	0.009	1.96	0.00046	2.45	0.00001	0.15	0.0428	11.0	< 0.00002	0.00004	< 0.0001	0.000017	0.00006	0.006	< 0.00001
1-May-13	113																							
8-May-13	114																							
15-May-13	115																							
22-May-13	116	< 0.003	0.00010	< 0.001	2.49	0.0297	< 0.01	0.00028	0.0639	0.018	1.60	0.00043	2.52	< 0.00001	0.12	0.0348	8.90	< 0.00002	0.00006	< 0.0001	0.000015	0.00005	0.005	< 0.00001
29-May-13	117																							
5-Jun-13	118																							
12-Jun-13	119																							
19-Jun-13	120	< 0.003	< 0.00002	< 0.001	2.48	0.0296	< 0.01	0.00015	0.0668	< 0.009	1.62	0.00054	2.53	< 0.00001	0.15	0.0345	8.58	< 0.00002	0.00004	0.0001	0.000005	0.00009	0.004	< 0.00001
26-Jun-13	121																							
3-Jul-13	122																							
10-Jul-13	123																							
17-Jul-13	124	0.003	0.00006	< 0.001	3.35	0.0406	< 0.01	0.00018	0.0893	< 0.009	1.79	0.00069	2.79	< 0.00001	0.18	0.0517	11.7	< 0.00002	0.00004	< 0.0001	0.000018	0.00004	0.007	< 0.00001
24-Jul-13	125																							
31-Jul-13	126																							
7-Aug-13	127																							
14-Aug-13	128	0.005	0.00006	< 0.001	2.38	0.0268	< 0.01	0.00020	0.0620	< 0.009	1.66	0.00049	2.33	< 0.00001	0.15	0.0319	8.93	< 0.00002	0.00014	0.0001	0.000023	< 0.00003	0.005	< 0.00001
21-Aug-13	129																							
28-Aug-13	130																							
4-Sep-13	131																							
11-Sep-13	132	0.022	0.00003	< 0.001	2.94	0.0352	< 0.01	0.00021	0.0772	0.011	1.87	0.00065	2.96	< 0.00001	0.18	0.0431	10.4	< 0.00002	0.00004	< 0.0001	0.000012	0.00005	0.007	< 0.00001
18-Sep-13	133																							
25-Sep-13	134																							
2-Oct-13	135																							
9-Oct-13	136	< 0.003	0.00171	0.001	3.12	0.0370	< 0.01	0.00015	0.0883	< 0.009	2.35	0.00079	4.29	< 0.00001	0.21	0.0457	11.2	0.00003	0.00005	< 0.0001	0.000008	< 0.00003	0.025	< 0.00001
16-Oct-13	137																							
23-Oct-13	138																							
30-Oct-13	139																							
6-Nov-13	140	< 0.003	0.00003	< 0.001	2.57	0.0301	< 0.01	0.00021	0.0748	< 0.009	2.00	0.00058	3.41	< 0.00001	0.19	0.0398	9.17	0.00002	0.00009	0.0002	0.000016	0.00007	0.004	< 0.00001
13-Nov-13	141																							
20-Nov-13	142																							
27-Nov-13	143																							
4-Dec-13	144	< 0.003	< 0.00002	< 0.001	2.88	0.0334	< 0.01	0.00032	0.0885	< 0.009	1.97	0.00072	2.91	< 0.00001	0.15	0.0441	10.7	< 0.00002	0.00008	0.0002	0.000006	0.00003	0.005	0.00001
11-Dec-13	145																							
18-Dec-13	146																							
25-Dec-13	147																							
1-Jan-14	148	< 0.003	< 0.00002	< 0.001	2.99	0.0330	< 0.01	0.00049	0.0854	< 0.009	2.35	0.00084	3.80	< 0.00001	0.23	0.0447	10.4	< 0.00002	0.00004	0.0002	0.000006	0.00007	0.005	< 0.00001
8-Jan-14	149																							
15-Jan-14	150																							
22-Jan-14	151																							
29-Jan-14	152	0.005	0.00002	< 0.001	2.61	0.0295	< 0.01	0.00048	0.0818	< 0.009	1.92	0.00050	3.54	< 0.00001	0.18	0.0397	10.0	< 0.00002	0.0001	< 0.0001	< 0.000001	< 0.00003	0.005	< 0.00001
5-Feb-14	153																							
12-Feb-14	154																							
19-Feb-14	155																							
26-Feb-14	156	0.378	0.00004	< 0.001	2.22	0.0264	< 0.01	0.00020	0.0603	< 0.009	1.55	0.00048	3.21	< 0.00001	0.15	0.0338	8.68	< 0.00002	0.00006	< 0.0001	0.000011	< 0.00003	0.004	< 0.00001
5-Mar-14	157																							
12-Mar-14	158																							
19-Mar-14	159																							
26-Mar-14	160	< 0.003	0.00003	< 0.001	3.12	0.0355	< 0.01	0.00022	0.0932	< 0.009	2.16	0.00075	3.86	0.00002	0.24	0.0496	11.6	< 0.00002	0.00005	0.0004	0.000007	0.00004	0.005	< 0.00001
2-Apr-14	161																							
9-Apr-14	162																							
16-Apr-14	163																							
23-Apr-14	164	< 0.002	0.00013	0.000664	2.21	0.0267	< 0.01	0.00025	0.0680	< 0.009	1.52	0.00035	3.34	0.000008	0.18	0.0347	8.56	0.000016	0.00007	0.00012	0.000012	0.00013	0.008	< 0.002
30-Apr-14	165																							
7-May-14	166																							
14-May-14	167																							
21-May-14	168	< 0.002	0.00004	0.000633	2.59	0.0294	< 0.01	0.00103	0.0842	< 0.009	1.52	0.00063	3.12	0.000006	0.15	0.0419	9.55	0.000014	0.00015	0.00031	0.000014	0.00003	0.004	< 0.002
28-May-14	169																							
4-Jun-14	170																							
11-Jun-14	171																							
18-Jun-14	172	< 0.002	0.00002	0.000626	1.63	0.0206	< 0.01	0.00021	0.0550	< 0.009	1.02	0.00040	2.19	0.000005	0.11	0.0260	6.52	0.000010	0.00008	0.00008	0.000006	0.00004	0.004	< 0.002
25-Jun-14	173																							
2-Jul-14	174																							
9-Jul-14	175																							
16-Jul-14	176	< 0.002	0.00003	0.000623	1.91	0.0226	< 0.01	0.00025	0.0698	< 0.009	1.23	0.00045	2.34	0.000022	0.14	0.0301	7.29	0.000017	0.00009	0.00009	0.000010	0.00004	0.004	< 0.002
23-Jul-14	177																							
30-Jul-14	178																							
6-Aug-14	179																							
13-Aug-14	180	< 0.002	0.00004	0.000729	2.48	0.0276	< 0.01	0.00046	0.0848	0.010	1.52	0.00073	2.74	0.000004	0.19	0.0382	8.95	0.000010	0.00005	0.00011	0.000149	< 0.00001	0.005	< 0.002
20-Aug-14	181																							
27-Aug-14	182																							
3-Sep-14	183																							

Mar 12/14 Change in analytica
Jul 16/14 Fe 0.219. Repeat = <

HC 5
Sample = Col-2 AC-WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Feb-12	1	500	370	7.42	51	#N/A	3.8	11.1	4	10.4	1.8	< 0.06	< 0.3	17.2	0.0215	0.0002	0.0005	0.188	< 0.00002	< 0.00001	0.0267	0.000006	5.92	< 0.0005	0.000109	0.0010	0.008	0.00003	< 0.001	0.599	0.0111	< 0.01	0.00153	0.0002	< 0.009	1.86	0.00066	2.13	< 0.00001	1.04	0.0235	1.65	< 0.00002	0.00012	0.0003	0.000004	0.00129	0.003	< 0.00001
15-Feb-12	2	500	495	7.43	30	#N/A	4.2	4.7	8	1.8	1.5	< 0.06	< 0.3	9.53	0.0135	< 0.0002	0.0008	0.0655	< 0.00002	< 0.00001	0.0175	0.000025	3.21	< 0.0005	0.000084	0.0014	0.004	0.00005	< 0.001	0.365	0.0060	< 0.01	0.00166	0.0003	< 0.009	0.935	0.00011	2.15	< 0.00001	0.78	0.0124	2.49	< 0.00002	0.00014	0.0003	0.000141	0.00324	0.003	< 0.00001
22-Feb-12	3	500	475	7.18	29	#N/A	3.7	3.3	9	< 0.5	0.5	< 0.06	< 0.3	8.82	0.0193	< 0.0002	0.0009	0.0463	< 0.00002	< 0.00001	0.0112	< 0.000003	2.95	< 0.0005	0.000051	0.0006	0.006	0.00002	< 0.001	0.354	0.0043	< 0.01	0.00125	0.0002	< 0.009	0.813	0.00004	1.92	< 0.00001	0.80	0.0115	2.75	< 0.00002	0.00018	0.0003	< 0.000001	0.00328	0.002	< 0.00001
29-Feb-12	4	500	480	7.01	31	#N/A	3.4	3.5	11	0.8	0.3	< 0.06	< 0.3	10.0	0.0183	< 0.0002	< 0.0002	0.0405	< 0.00002	< 0.00001	0.0095	< 0.000003	3.31	< 0.0005	0.000121	0.0022	0.008	0.00003	< 0.001	0.418	0.0044	< 0.01	0.00113	0.0001	< 0.009	0.826	< 0.00004	2.01	< 0.00001	0.81	0.0132	3.13	< 0.00002	0.00018	0.0003	0.000006	0.00339	0.003	< 0.00001
7-Mar-12	5	500	500	7.56	38				11																																								
14-Mar-12	6	500	485	7.01	49	#N/A	3.5	2.9	18	< 0.5	< 0.2	< 0.06	< 0.3	16.8	0.0038	< 0.0002	0.0004	0.0427	< 0.00002	0.00002	0.0084	< 0.000003	5.55	< 0.0005	0.000220	0.0007	0.003	0.00002	< 0.001	0.707	0.0068	< 0.01	0.0007	0.0002	0.010	0.993	0.00004	2.21	< 0.00001	0.90	0.0212	5.91	< 0.00002	0.00043	0.0001	0.000058	0.00267	0.001	0.00004
21-Mar-12	7	500	475	7.14	54				19																																							
28-Mar-12	8	500	485	6.92	56	#N/A	3.3	2.9	21	< 0.5	< 0.2	< 0.06	< 0.3	19.9	0.0290	< 0.0002	0.0005	0.0266	< 0.00002	< 0.00001	0.0078	0.000004	6.55	< 0.0005	0.000129	0.0101	0.006	0.00003	< 0.001	0.871	0.0052	< 0.01	0.00047	0.0005	< 0.009	1.10	0.00008	2.25	< 0.00001	0.92	0.0244	6.80	< 0.00002	0.00017	0.0003	0.000006	0.00289	0.003	< 0.00001
4-Apr-12	9	500	475	6.88	54				20																																							
11-Apr-12	10	500	475	6.94	56	#N/A	2.8	2.8	23	< 0.5	0.2	< 0.06	< 0.3	19.5	0.0566	< 0.0002	0.0003	0.0200	< 0.00002	< 0.00001	0.0066	< 0.000003	6.37	< 0.0005	0.000341	0.0361	0.005	0.00002	< 0.001	0.878	0.0072	0.03	0.00046	0.0005	< 0.009	1.04	0.00315	2.15	< 0.00001	0.85	0.0234	6.96	< 0.00002	0.00009	0.0005	0.000078	0.00261	0.002	< 0.00001
18-Apr-12	11	500	490	7.23	52				21																																							
25-Apr-12	12	500	490	7.25	46	#N/A	3.6	3.5	18	< 0.5	0.2	< 0.06	< 0.3	16.1	0.0310	< 0.0002	< 0.0002	0.0212	< 0.00002	< 0.00001	0.0056	< 0.000003	5.19	< 0.0005	0.000616	0.0051	0.010	0.00009	< 0.001	0.756	0.0064	0.02	0.00061	0.0009	< 0.009	0.955	0.00009	2.10	< 0.00001	0.72	0.0197	5.35	< 0.00002	0.00009	0.0003	0.000006	0.00278	0.005	< 0.00001
2-May-12	13	500	485	6.80	41				14																																							
9-May-12	14	500	490	7.01	38	#N/A	3.5	2.9	10	< 0.5	0.3	< 0.06	< 0.3	12.5	0.0171	< 0.0002	0.0006	0.0174	< 0.00002	< 0.00001	0.0055	< 0.000003	4.02	< 0.0005	0.000113	0.0007	0.006	< 0.00002	< 0.001	0.598	0.0050	0.01	0.00052	0.0001	< 0.009	0.824	0.00013	1.80	< 0.00001	0.59	0.0155	3.97	< 0.00002	0.00008	0.0003	0.000004	0.00252	0.001	< 0.00001
16-May-12	15	500	480	6.88	36				11																																							
23-May-12	16	500	470	6.84	35	#N/A	2.9	3.0	11	0.6	0.4	< 0.06	< 0.3	12.4	0.0569	< 0.0002	0.0005	0.0173	< 0.00002	< 0.00001	0.0041	< 0.000003	4.00	< 0.0005	0.00060	0.0009	0.006	< 0.00002	< 0.001	0.590	0.0051	0.02	0.00036	0.0009	< 0.009	0.780	0.00019	1.76	< 0.00001	0.51	0.0152	4.16	< 0.00002	0.00006	0.0005	0.000002	0.00281	0.003	< 0.00001
30-May-12	17	500	445	7.35	35				9																																							
6-Jun-12	18	500	450	7.05	36	#N/A	3.8	3.6	9	0.5	1.1	< 0.06	< 0.3	12.3	0.0541	< 0.0002	< 0.0002	0.0162	< 0.00002	< 0.00001	0.0055	< 0.000003	3.95	< 0.0005	0.000193	0.0014	0.012	< 0.00002	< 0.001	0.603	0.0057	0.01	0.00082	< 0.0001	< 0.009	0.708	0.00020	1.79	< 0.00001	0.63	0.0157	3.76	< 0.00002	0.00009	0.0005	0.000002	0.00276	0.002	< 0.00001
13-Jun-12	19	500	460	7.41	32				7																																							
20-Jun-12	20	500	445	6.96	30	#N/A	3.7	3.2	8	< 0.5	0.9	< 0.06	< 0.3	11.3	0.122	< 0.0002	0.0003	0.0177	< 0.00002	< 0.00001	0.0033	< 0.000003	3.44	< 0.0005	0.000962	0.0036	0.118	< 0.00002	< 0.001	0.654	0.0063	< 0.01	0.00031	0.0014	< 0.009	0.736	0.00020	2.07	< 0.00001	0.52	0.0141	3.14	< 0.00002	0.00003	0.0038	0.000001	0.00341	0.003	0.00001
27-Jun-12	21	500	475	7.21	26				7																																							
4-Jul-12	22	500	465	6.73	28				8																																							
11-Jul-12	23	500	455	6.78	28				8																																							
18-Jul-12	24	500	470	6.84	25	#N/A	3.1	2.9	10	< 0.5	0.3	< 0.06	< 0.3	8.89	0.0418	< 0.0002	0.0005	0.0130	< 0.00002	< 0.00001	0.0042	< 0.000003	2.79	< 0.0005	0.00023	0.0031	0.005	0.00006	< 0.001	0.467	0.0037	0.01	0.00031	0.0002	< 0.009	0.595	0.00017	1.47	< 0.00001	0.44	0.0119	2.72	< 0.00002	0.00015	0.0003	0.000034	0.00280	0.002	< 0.00001
25-Jul-12	25	500	460	6.63	27				7																																							
1-Aug-12	26	500	465	7.02	27				7																																							
8-Aug-12	27	500	435	7.45	26				7																																							
15-Aug-12	28	500	465	6.97	28	#N/A	3.5	3.3	8	0.6	0.3	< 0.06	< 0.3	9.18	0.0489	< 0.0002	0.0008	0.0118	< 0.00002	< 0.00001	0.0042	< 0.000003	2.85	< 0.0005	0.000761	0.0009	0.006	< 0.00002	< 0.001	0.502	0.0037	< 0.01	0.00043	0.0001	< 0.009	0.589	0.00013	4.11	< 0.00001	0.43	0.0121	2.87	< 0.00002	0.00026	0.0004	0.000009	0.00256	0.002	< 0.00001
22-Aug-12	29	500	465	7.29	29				10																																							
29-Aug-12	30	500	470	6.92	26				8																																							
5-Sep-12	31	500	465	7.18	25				7																																							
12-Sep-12	32	500	495	6.83	25	#N/A	3.1	3.3	7	< 0.5	0.3	< 0.06	< 0.3	8.99	0.0165	0.0002	0.0011	0.0128	< 0.00002	< 0.00001	0.0034	0.000006	2.74	< 0.0005	0.000516	0.0082	< 0.003	< 0.00002	< 0.001	0.520	0.0038	0.02	0.00042	0.0007	< 0.009	0.594	0.00026	1.82	< 0.00001	0.43	0.0120	2.80	< 0.00002	0.00023	0.0002	0.000001	0.00249	0.001	0.00001
19-Sep-12	33	500	495	7.26	27				11																																							
26-Sep-12	34	500	475	7.23	23				9																																							
3-Oct-12	35	500	460	6.91	21				5																																							
10-Oct-12	36	500	460	7.21	22	#N/A	5.3	3.6	7	< 0.5	< 0.2	< 0.06	< 0.3	7.72	0.0414	< 0.0002	0.0003	0.0111	< 0.00002	< 0.00001	0.0026	< 0.000003	2.37	< 0.0005	0.000287	0.0017	0.014	< 0.00002	< 0.001	0.438	0.0032	< 0.01	0.00035	0.0005	< 0.009	0.510	0.00007	1.26	< 0.00001	0.33	0.0107	2.26	< 0.00002	0.00027	0.0007	0.000003	0.00224	0.002	< 0.00001
17-Oct-12	37	500	460	7.03	21				7																																							
24-Oct-12	38	500	465	7.08	22	#N/A	3.9	4.0	6	< 0.5	< 0.2	< 0.06	< 0.3	7.1	0.0589	< 0.0002	0.0005	0.0104	< 0.00002	< 0.00001	0.0027	0.000005	2.16	< 0.0005	0.000084	0.0015	0.005	0.00002	< 0.001	0.406	0.0025	< 0.01	0.00030	0.0001	< 0.009	0.460	0.00026	1.22	< 0.00001	0.31	0.0095	2.00	< 0.00002	0.00038	0.0002	< 0.000001	0.00206	0.002	< 0.00001
31-Oct-12	39	500	455	7.37	23	#N/A	4.9	4.7	7	< 0.5	0.2	< 0.06	< 0.3	8.64	0.0373	< 0.0002	0.0004	0.0126	< 0.00002	< 0.00001	0.0039	0.000011	2.63	< 0.0005	0.000090	0.0019	0.012	< 0.00002	< 0.001	0.504	0.0038	0.01	0.00232	0.0001	< 0.009	0.537	0.00025	1.48	< 0.00001	0.42	0.0118	2.34	< 0.00002	0.00017	0.0004	0.000002	0.00208	0.001	< 0.00001
7-Nov-12	40	500	435	7.29	22	#N/A	4.9	4.3	6	< 0.5	< 0.2	< 0.06	< 0.3	9.0	0.0344	< 0.0002	0.0002	0.0125	< 0.00002	< 0.00001	0.0032	0.000010	2.76	< 0.0005	0.000354	0.0052	0.020	0.00055	< 0.001	0.513	0.0035	0.01	0.00034	0.0004	< 0.009	0.509	0.00021	1.36	< 0.00001	0.37	0.0124	2.39	< 0.00002	0.00017	0.0008	0.000023	0.00234	0.003	< 0.00001
14-Nov-12	41	500	455	7.34	20				6																																							
21-Nov-12	42	500	500	7.41	23				6																																							
28-Nov-12	43	500	500	7.77	20				8																																							
5-Dec-12	44	500	490	7.95	16	#N/A	5.6	5.7	5	2.7	< 0.2	< 0.06	< 0.3	6.4	0.0591	< 0.0002	0.0003	0.0144	< 0.00002	< 0.00001	0.0028	0.000005	1.92	< 0.0005	0.000582	0.0051	0.042	0.00003	< 0.001	0.387	0.0026	0.01	0.00034	0.0003	< 0.009	0.440	0.00017	1.16	< 0.00001	0.25	0.0093	1.65	< 0.00002	0.00015	0.0014	0.000005	0.00194	0.001	0.00001
12-Dec-12	45	500	475	7.39	14				4																																							
19-Dec-12	46	500	460	7.27	16				3																																							
26-Dec-12	47	500	445	7.66	19				4																																							
2-Jan-13	48	500	455	7.29	15	#N/A	4.2	4.3	2	< 0.5	< 0.2	< 0.06	< 0.3	5.94	0.0589	< 0.0002	0.0005	0.0127	< 0.00002	< 0.00001	0.0026	< 0.000003	1.78	< 0.0005	0.000119	0.0016	0.038	< 0.00002	< 0.001	0.365	0.0030	< 0.01	0.00029	0.0007	< 0.009	0.450	0.00018	1.31	< 0.00001	0.31	0.0085	1.49	< 0.00002	0.00021	0.0017	0.000003	0.00241	0.001	0.00001
9-Jan-13	49	500	470	7.74	17				5																																							
16-Jan-13	50	500	495	7.20	20				5																																							
23-Jan-13	51	500	470	7.60	16				7																																							
30-Jan-13	52	500	475	6.95	15	#N/A	3.5	3.7	5	< 0.5	< 0.2	< 0.06	< 0.3	6.19	0.0287	< 0.0002	< 0.0002	0.0112	< 0.00002	< 0.00001	0.0030	0.000004	1.85	< 0.0005	0.000557	0.0057	0.017	0.00005	< 0.001	0.380	0.0022	< 0.01	0.00024	0.0006	< 0.009	0.420	0.00023	1.25	< 0.00001	0.30	0.0092	1.75	< 0.00002	0.00003	0.0007	0.000012	0.00168	0.001	< 0.00001
6-Feb-13	53	500	465	7.55	19				5																																							
13-Feb-13	54	500	465	7.50	19				7																																							
20-Feb-13	55	500	465	7.46	20				8																																							
27-Feb-13	56	500	450	7.05	22	#N/A	3.6	5.9	6	< 0.5	< 0.2	< 0.06	< 0.3	7.61	0.0332	< 0.0002	0.0006	0.0150	< 0.00002	< 0.00001	0.0029	< 0.000003	2.30	< 0.0005	0.000287	0.0043	0.022	0.00005	< 0.001	0.455	0.0034	< 0.01	0.00032	0.0003	0.014	0.466	0.00028	1.59	< 0.00001	0.36	0.0114	1.96	< 0.00002	0.00003	0.0009	< 0.000001	0.00225	0.002	< 0.00001
6-Mar-13	57	500	495	7.44	26				5																																							
13-Mar-13	58	500	490	6.89	18				5																																							
20-Mar-13	59	500	465	7.62	18				5																																							
27-Mar-13	60	500	440	7.44	18	#N/A	4.4	5.5	7	0.5	< 0.2	< 0.06	< 0.3	6.08	0.0239	< 0.0002	0.0007	0.0131	< 0.00002	< 0.00001	0.0030	< 0.000003	1.84	< 0.0005	0.000446	0.0041	0.014	< 0.00002	< 0.001	0.363	0.0021	< 0.01	0.00102	0.0006	< 0.009	0.420	0.00016	1.19	< 0.00001	0.27	0.0088	1.53	< 0.00002	0.00003	0.0004	0.000010	0.00168	0.001	< 0.00001
3-Apr-13	61	500	485	7.56	19				3																																							
10-Apr-13	62	500	460	7.17	23				4																																							
17-Apr-13	63	500	470	7.53	16				7																																							
24-Apr-13	64	500	450	7.41	19	#N/A	4.0	4.4	8	< 0.5	< 0.2	< 0.06	< 0.3	6.42	0.0091	< 0.0002	0.0002	0.0157	< 0.00002	< 0.00001	0.0040	0.000008	1.92	< 0.0005	0.000112	0.0020	0.005	< 0.00002	< 0.001	0.398	0.0023	< 0.01	0.00032	0.0001	< 0.009	0.408	0.00023	1.21	< 0.00001	0.24	0.0097	1.69	< 0.00002	0.00006	0.0002	0.000003	0.00146	< 0.001	< 0.00001

HC 5
Sample = Col-2 AC-WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1-May-13	65	500	455	7.68	19				7																																							
8-May-13	66	500	450	7.72	19				9																																							
15-May-13	67	500	455	7.63	17				7																																							
22-May-13	68	500	465	7.54	14	#N/A	4.8	4.4	5	< 0.5	< 0.2	< 0.06	< 0.3	6.15	0.0662	< 0.0002	< 0.0002	0.0138	< 0.00002	< 0.00001	0.0041	< 0.000003	1.83	< 0.0005	0.000078	0.0025	0.046	< 0.00002	< 0.001	0.384	0.0024	< 0.01	0.00034	< 0.0001	< 0.009	0.393	0.00017	1.36	< 0.00001	0.23	0.0086	1.41	< 0.00002	0.00007	0.0019	0.000002	0.00197	< 0.001	< 0.00001
29-May-13	69	500	460	7.64	20				6																																							
5-Jun-13	70	500	460	7.23	17				6																																							
12-Jun-13	71	500	465	7.77	16				4																																							
19-Jun-13	72	500	455	7.09	16	#N/A	3.9	3.9	7	< 0.5	< 0.2	< 0.06	< 0.3	6.08	0.0231	< 0.0002	0.0005	0.0133	< 0.00002	< 0.00001	0.0045	< 0.000003	1.81	< 0.0005	< 0.000002	0.0012	0.012	< 0.00002	< 0.001	0.380	0.0025	< 0.01	0.00026	0.0001	< 0.009	0.444	0.00024	1.38	< 0.00001	0.24	0.0093	1.42	< 0.00002	0.00008	0.0006	< 0.000001	0.00149	< 0.001	< 0.00001
26-Jun-13	73	500	455	7.11	15				5																																							
3-Jul-13	74	500	450	7.13	17				5																																							
10-Jul-13	75	500	460	7.63	14				7																																							
17-Jul-13	76	500	450	6.93	16	#N/A	3.4	3.4	7	< 0.5	< 0.2	< 0.06	< 0.3	5.50	0.0262	< 0.0002	0.0011	0.0139	< 0.00002	< 0.00001	0.0031	0.000005	1.62	< 0.0005	0.000317	0.0029	0.014	< 0.00002	< 0.001	0.354	0.0020	< 0.01	0.00029	0.0002	< 0.009	0.329	0.00024	1.03	< 0.00001	0.22	0.0096	1.32	< 0.00002	0.00007	0.0008	0.000002	0.00136	< 0.001	< 0.00001
24-Jul-13	77	500	450	7.22	14				5																																							
31-Jul-13	78	500	455	7.09	15				6																																							
7-Aug-13	79	500	450	7.36	17				8																																							
14-Aug-13	80	500	455	6.96	16	#N/A	3.6	3.6	5	< 0.5	< 0.2	< 0.06	< 0.3	6.57	0.0087	< 0.0002	< 0.0002	0.0139	< 0.00002	< 0.00001	0.0047	0.000009	1.97	< 0.0005	0.000227	0.0050	0.009	0.00003	< 0.001	0.400	0.0021	< 0.01	0.00029	0.0003	< 0.009	0.391	0.00023	1.24	< 0.00001	0.25	0.0089	1.56	< 0.00002	0.00006	< 0.0001	0.000007	0.00129	0.001	< 0.00001
21-Aug-13	81	500	450	7.49	19				5																																							
28-Aug-13	82	500	460	6.96	11				7																																							
4-Sep-13	83	500	455	7.25	17				7																																							
11-Sep-13	84	500	450	7.10	16	#N/A	3.1	4.3	5	< 0.5	< 0.2	< 0.06	< 0.3	6.46	0.0377	< 0.0002	< 0.0002	0.0149	< 0.00002	< 0.00001	0.0036	0.000004	1.98	< 0.0005	0.000324	0.0053	0.030	< 0.00002	< 0.001	0.416	0.0022	< 0.01	0.00030	0.0005	0.012	0.387	0.00024	1.26	< 0.00001	0.21	0.0100	1.48	< 0.00002	0.00004	0.0011	0.000002	0.00152	< 0.001	< 0.00001
18-Sep-13	85	500	445	7.50	15				6																																							
25-Sep-13	86	500	440	6.92	16				5																																							
2-Oct-13	87	500	440	7.18	14				5																																							
9-Oct-13	88	500	455	7.51	13	#N/A	3.3	3.7	6	< 0.5	< 0.2	< 0.06	< 0.3	5.53	0.0073	< 0.0002	0.0003	0.0133	< 0.00002	< 0.00001	0.0056	0.000024	1.66	< 0.0005	0.000589	0.0062	< 0.003	0.00147	< 0.001	0.336	0.0018	< 0.01	0.00026	0.0009	0.011	0.288	0.00017	0.95	< 0.00001	0.18	0.0082	1.27	< 0.00002	0.00003	< 0.0001	0.000005	0.00097	0.006	< 0.00001
16-Oct-13	89	500	455	6.89	13				4																																							
23-Oct-13	90	500	455	6.72	16				7																																							
30-Oct-13	91	500	450	7.05	16				6																																							
6-Nov-13	92	500	470	7.10	15	#N/A	1.8	3.1	4	< 0.5	< 0.2	< 0.06	< 0.3	5.32	0.0111	< 0.0002	0.0003	0.0124	< 0.00002	< 0.00001	0.0039	< 0.000003	1.58	< 0.0005	0.000275	0.0040	0.004	0.00008	< 0.001	0.333	0.0016	< 0.01	0.00032	0.0003	< 0.009	0.290	0.00013	0.92	< 0.00001	0.23	0.0079	1.21	< 0.00002	0.00009	0.0002	0.000028	0.00107	< 0.001	< 0.00001
13-Nov-13	93	500	445	7.53	17				7																																							
20-Nov-13	94	500	445	7.31	15				5																																							
27-Nov-13	95	500	455	7.51	20				6																																							
4-Dec-13	96	500	450	7.17	15	#N/A	1.8	4.0	4	< 0.5	< 0.2	< 0.06	< 0.3	6.78	0.0141	< 0.0002	0.0003	0.0155	< 0.00002	< 0.00001	0.0022	0.000003	2.03	< 0.0005	0.000340	0.0013	0.006	< 0.00002	< 0.001	0.414	0.0015	< 0.01	0.00042	0.0006	< 0.009	0.403	0.00025	1.23	< 0.00001	0.24	0.0097	1.39	< 0.00002	0.00007	0.0003	< 0.000001	0.00151	< 0.001	< 0.00001
11-Dec-13	97	500	465	7.05	18				5																																							
18-Dec-13	98	500	445	7.40	17				9																																							
25-Dec-13	99	500	460	7.54	16				6																																							
1-Jan-14	100	500	440	7.11	16	#N/A	1.9	3.4	6	1.2	< 0.2	< 0.06	< 0.3	6.08	0.0166	< 0.0002	0.0002	0.0143	< 0.00002	< 0.00001	0.0037	< 0.000003	1.78	< 0.0005	0.0000	0.0013	0.010	< 0.00002	< 0.001	0.399	0.0015	< 0.01	0.00035	< 0.0001	< 0.009	0.375	0.00024	1.19	< 0.00001	0.22	0.0093	1.37	< 0.00002	0.00004	0.0006	0.000002	0.00123	< 0.001	0.00003
8-Jan-14	101	500	465	7.05	16				3																																							
15-Jan-14	102	500	460	7.48	16				5																																							
22-Jan-14	103	500	460	7.25	13				5																																							
29-Jan-14	104	500	440	7.10	19	#N/A	2.3	4.4	4	1.5	< 0.2	< 0.06	< 0.3	7.4	0.0135	< 0.0002	< 0.0002	0.0161	< 0.00002	< 0.00001	0.0029	< 0.000003	2.20	< 0.0005	0.000152	0.0023	0.013	< 0.00002	< 0.001	0.457	0.0014	< 0.01	0.00056	0.0004	< 0.009	0.412	0.00019	1.52	< 0.00001	0.26	0.0105	1.58	< 0.00002	0.0001	< 0.0001	0.000004	0.00095	0.001	< 0.00001
5-Feb-14	105	500	455	7.33	20				6																																							
12-Feb-14	106	500	460	7.05	12				4																																							
19-Feb-14	107	500	450	7.32	16				5																																							
26-Feb-14	108	500	445	7.21	12	#N/A	3.8	5.0	7	< 0.5	< 0.2	< 0.06	< 0.3	6.11	0.0211	< 0.0002	0.0005	0.0158	< 0.00002	< 0.00001	0.0020	< 0.000003	1.82	< 0.0005	0.000125	0.0017	0.021	< 0.00002	< 0.001	0.382	0.0012	< 0.01	0.00033	0.0001	< 0.009	0.322	0.00017	1.15	< 0.00001	0.23	0.0088	1.17	< 0.00002	0.00006	0.0004	0.000002	0.00101	< 0.001	< 0.00001
5-Mar-14	109	500	440	7.31	13				5																																							
12-Mar-14	110	500	450	7.27	12	#N/A	2.2	3.8	5	< 0.5	< 0.2	< 0.06	< 0.3	5.35	0.0497	< 0.0002	< 0.0002	0.0137	< 0.00002	< 0.00001	0.0029	< 0.000003	1.57	< 0.0005	0.000077	0.0021	0.036	< 0.00002	< 0.001	0.346	0.0014	< 0.01	0.00125	0.0001	< 0.009	0.304	0.00015	0.98	< 0.00001	0.17	0.0080	1.09	< 0.00002	0.00005	0.0014	0.000005	0.00107	0.001	0.00001
19-Mar-14	111	500	445	7.41	15	#N/A	4.0	5.0	6	< 0.5	< 0.2	< 0.06	< 0.3	6.07	0.0387	< 0.0002	< 0.0002	0.0151	< 0.00002	0.00005	0.0032	< 0.000003	1.79	< 0.0005	0.000045	0.0018	0.023	< 0.00002	< 0.001	0.388	0.0012	< 0.01	0.00038	< 0.0001	< 0.009	0.339	0.00019	1.13	< 0.00001	0.21	0.0089	1.30	< 0.00002	0.00003	0.0009	< 0.000001	0.00101	< 0.001	< 0.00001
26-Mar-14	112	500	455	7.36	17	#N/A	2.7	4.5	5	3.5	< 0.2	< 0.06	< 0.3	6.6	0.0484	< 0.0002	0.0002	0.0177	< 0.00002	< 0.00001	0.0027	0.000039	1.94	< 0.0005	0.000212	0.0025	0.030	< 0.00002	< 0.001	0.419	0.0011	< 0.01	0.00041	0.0001	< 0.009	0.388	0.00020	1.41	< 0.00001	0.24	0.0100	1.40	< 0.00002	0.00007	0.0012	0.000001	0.00145	< 0.001	0.00001

Cell Terminated

Mar 12/14 Change in analytical schedule

HC 6

Sample = Col 2 Sul-WR

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Feb-12	1	500	365	7.58	53	#N/A	4.0	22.0	4	0.9	2.3	< 0.06	< 0.3	20.9	0.0436	0.0002	0.0006	0.129	< 0.00002	< 0.00001	0.0093	< 0.000003	8.03	< 0.0005	0.000027	0.0013	0.004	0.00011	< 0.001	0.201	0.0057	< 0.01	0.00132	0.0002	0.060	0.883	< 0.00004	0.92	< 0.00001	0.45	0.0230	1.70	< 0.00002	0.00008	0.0003	0.000030	0.00305	0.002	< 0.00001
15-Feb-12	2	500	480	7.43	63	#N/A	4.5	15.8	14	1.8	1.6	< 0.06	< 0.3	25.7	0.0559	< 0.0002	0.0007	0.0971	< 0.00002	0.00001	0.0086	0.000012	9.77	< 0.0005	0.000022	0.0005	< 0.003	0.00004	< 0.001	0.308	0.0037	< 0.01	0.00161	0.0003	0.061	0.860	< 0.00004	1.14	< 0.00001	0.59	0.0285	4.00	< 0.00002	0.00014	0.0003	0.000062	0.00426	0.001	0.00045
22-Feb-12	3	500	475	7.38	58	#N/A	3.4	15.0	11	< 0.5	0.4	< 0.06	< 0.3	23.7	0.0551	0.0002	0.0015	0.0771	< 0.00002	< 0.00001	0.0064	< 0.000003	8.98	< 0.0005	0.000025	0.0005	< 0.003	< 0.00002	< 0.001	0.309	0.0009	< 0.01	0.00111	0.0002	0.064	0.846	0.00007	1.00	< 0.00001	0.63	0.0271	4.14	< 0.00002	0.00021	0.0003	0.000069	0.00382	0.002	< 0.00001
29-Feb-12	4	500	480	7.21	46	#N/A	2.9	12.1	12	1.4	< 0.2	< 0.06	< 0.3	18.9	0.0472	0.0005	0.0003	0.0586	< 0.00002	< 0.00001	0.0060	0.000003	7.11	< 0.0005	0.000041	0.0010	0.005	0.00004	< 0.001	0.271	0.0003	< 0.01	0.00072	< 0.0001	0.064	0.705	< 0.00004	1.25	< 0.00001	0.52	0.0214	3.11	< 0.00002	0.00027	0.0002	0.000066	0.00408	0.002	< 0.00001
7-Mar-12	5	500	500	7.56	47				10																																								
14-Mar-12	6	500	520	7.17	57	#N/A	3.3	12.0	15	< 0.5	< 0.2	< 0.06	< 0.3	23.7	0.0340	0.0002	0.0005	0.0526	< 0.00002	< 0.00001	0.0058	< 0.000003	8.89	< 0.0005	0.000061	0.0005	0.003	0.00002	< 0.001	0.364	0.0020	< 0.01	0.0006	0.0001	0.049	0.852	< 0.00004	1.25	< 0.00001	0.62	0.0278	4.94	< 0.00002	0.00041	< 0.0001	0.000101	0.00367	< 0.001	< 0.00001
21-Mar-12	7	500	515	7.30	61				17																																							
28-Mar-12	8	500	500	7.05	72	#N/A	3.1	12.0	23	0.9	0.2	< 0.06	< 0.3	29.4	0.0369	< 0.0002	0.0005	0.0438	< 0.00002	< 0.00001	0.0048	0.000003	11.0	< 0.0005	0.000047	0.0009	< 0.003	< 0.00002	< 0.001	0.482	< 0.0002	0.01	0.00058	0.0001	0.028	0.863	< 0.00004	1.14	< 0.00001	0.60	0.0334	7.25	< 0.00002	0.00008	0.0001	0.000045	0.00300	< 0.001	< 0.00001
4-Apr-12	9	500	475	7.18	66				20																																							
11-Apr-12	10	500	490	7.23	60	#N/A	2.5	10.4	20	< 0.5	0.3	< 0.06	< 0.3	24.5	0.0615	< 0.0002	0.0006	0.0285	< 0.00002	< 0.00001	0.0040	< 0.000003	9.11	< 0.0005	0.000083	0.0112	< 0.003	< 0.00002	< 0.001	0.422	0.0021	0.02	0.00081	0.0002	0.031	0.823	0.00229	1.13	< 0.00001	0.52	0.0275	5.97	< 0.00002	0.00010	0.0003	0.000074	0.00332	0.001	< 0.00001
18-Apr-12	11	500	490	7.34	57				18																																							
25-Apr-12	12	500	485	7.40	52	#N/A	3.9	11.0	13	< 0.5	0.4	< 0.06	< 0.3	21.5	0.0581	< 0.0002	0.0005	0.0281	< 0.00002	0.00007	0.0038	< 0.000003	7.97	< 0.0005	0.000099	0.0022	0.005	0.00055	< 0.001	0.380	0.0013	0.01	0.00084	0.0002	0.029	0.804	0.00004	1.12	< 0.00001	0.47	0.0244	4.44	< 0.00002	0.00005	0.0003	0.000063	0.00382	0.005	< 0.00001
2-May-12	13	500	470	7.29	48				11																																							
9-May-12	14	500	485	7.33	48	#N/A	3.2	10.9	9	< 0.5	0.3	< 0.06	< 0.3	22.2	0.0501	< 0.0002	0.0006	0.0216	< 0.00002	< 0.00001	0.0039	< 0.000003	8.27	< 0.0005	0.000019	0.0007	0.005	0.00004	< 0.001	0.377	0.0015	< 0.01	0.00085	< 0.0001	0.039	0.780	0.00008	1.05	< 0.00001	0.44	0.0233	3.44	< 0.00002	0.00006	0.0004	0.000059	0.00382	0.002	< 0.00001
16-May-12	15	500	480	7.21	45				10																																							
23-May-12	16	500	500	7.14	48	#N/A	3.3	11.2	9	< 0.5	0.3	< 0.06	< 0.3	19.8	0.0691	< 0.0002	0.0006	0.0260	< 0.00002	< 0.00001	0.0037	< 0.000003	7.31	< 0.0005	0.00017	< 0.0005	< 0.003	< 0.00002	< 0.001	0.375	0.0019	0.02	0.00077	0.0005	0.040	0.807	0.00010	1.19	< 0.00001	0.40	0.0239	3.87	< 0.00002	0.00006	0.0002	0.000079	0.00420	0.002	< 0.00001
30-May-12	17	500	475	7.54	44				7																																							
6-Jun-12	18	500	505	7.20	42	#N/A	3.4	10.9	6	< 0.5	0.5	< 0.06	< 0.3	17.9	0.0559	< 0.0002	0.0004	0.0268	< 0.00002	< 0.00001	0.0048	< 0.000003	6.59	< 0.0005	0.000031	0.0007	< 0.003	< 0.00002	< 0.001	0.349	0.0018	0.01	0.00089	< 0.0001	0.038	0.714	0.00007	1.19	< 0.00001	0.40	0.0226	3.27	< 0.00002	0.00007	0.0002	0.000049	0.00376	0.001	< 0.00001
13-Jun-12	19	500	475	7.44	42				7																																							
20-Jun-12	20	500	500	7.24	42	#N/A	3.5	12.0	7	< 0.5	0.3	< 0.06	< 0.3	17.8	0.0626	< 0.0002	0.0006	0.0250	< 0.00002	< 0.00001	0.0029	< 0.000003	6.56	< 0.0005	0.000247	0.0044	< 0.003	< 0.00002	< 0.001	0.352	0.0016	< 0.01	0.00064	0.0005	0.039	0.755	0.00019	1.18	< 0.00001	0.35	0.0225	2.97	< 0.00002	0.00006	0.0001	0.000070	0.00402	0.005	< 0.00001
27-Jun-12	21	500	500	7.25	43				7																																							
4-Jul-12	22	500	495	7.12	44				9																																							
11-Jul-12	23	500	490	7.21	45				8																																							
18-Jul-12	24	500	505	7.18	44	#N/A	3.2	11.7	10	< 0.5	0.2	< 0.06	< 0.3	18.5	0.0766	< 0.0002	0.0008	0.0293	< 0.00002	< 0.00001	0.0036	< 0.000003	6.81	< 0.0005	0.00009	0.0012	< 0.003	0.00012	< 0.001	0.374	0.0017	< 0.01	0.00073	0.0004	0.042	0.798	0.00026	1.33	0.00003	0.38	0.0243	3.37	< 0.00002	0.00014	0.0006	0.000082	0.00475	0.001	< 0.00001
25-Jul-12	25	500	485	7.09	44				5																																							
1-Aug-12	26	500	500	7.30	43				7																																							
8-Aug-12	27	500	495	7.44	43				9																																							
15-Aug-12	28	500	495	7.24	43	#N/A	3.0	11.2	8	< 0.5	0.3	< 0.06	< 0.3	16.8	0.0702	< 0.0002	0.0004	0.0299	< 0.00002	< 0.00001	0.0037	< 0.000003	6.14	< 0.0005	0.000237	0.0038	0.003	< 0.00002	< 0.001	0.352	0.0015	< 0.01	0.00083	0.0004	0.034	0.713	0.00010	2.96	< 0.00001	0.33	0.0226	2.98	< 0.00002	0.00019	0.0002	0.000063	0.00419	0.001	< 0.00001
22-Aug-12	29	500	500	7.41	42				9																																							
29-Aug-12	30	500	495	7.13	38				6																																							
5-Sep-12	31	500	495	7.23	37				7																																							
12-Sep-12	32	500	495	7.12	36	#N/A	3.1	10.7	7	< 0.5	0.3	< 0.06	< 0.3	15.3	0.0523	< 0.0002	0.0007	0.0286	< 0.00002	< 0.00001	0.0029	< 0.000003	5.60	< 0.0005	0.000149	0.0028	< 0.003	< 0.00002	< 0.001	0.318	0.0013	0.01	0.00073	0.0003	0.030	0.638	0.00029	1.36	< 0.00001	0.31	0.0204	2.50	< 0.00002	0.00017	0.0001	0.000069	0.00378	0.001	< 0.00001
19-Sep-12	33	500	495	7.28	39				9																																							
26-Sep-12	34	500	470	7.23	33				8																																							
3-Oct-12	35	500	470	7.15	30				5																																							
10-Oct-12	36	500	465	7.17	33	#N/A	5.2	10.8	7	< 0.5	0.4	< 0.06	< 0.3	13.3	0.0536	< 0.0002	0.0004	0.0234	< 0.00002	< 0.00001	0.0023	< 0.000003	4.86	< 0.0005	0.000036	0.0010	< 0.003	< 0.00002	< 0.001	0.293	0.0016	< 0.01	0.00058	< 0.0001	0.016	0.561	0.00013	0.95	< 0.00001	0.26	0.0181	1.90	< 0.00002	0.00013	0.0002	0.000060	0.00307	< 0.001	< 0.00001
17-Oct-12	37	500	465	7.27	31				6																																							
24-Oct-12	38	500	465	7.12	33	#N/A	3.9	11.3	6	< 0.5	0.3	< 0.06	< 0.3	12.8	0.0617	< 0.0002	0.0005	0.0232	< 0.00002	< 0.00001	0.0024	0.000003	4.66	< 0.0005	0.000038	0.0009	< 0.003	< 0.00002	< 0.001	0.289	0.0012	0.01	0.00088	0.0002	0.022	0.528	0.00017	0.95	< 0.00001	0.23	0.0171	1.73	< 0.00002	0.00012	0.0003	0.000067	0.00286	< 0.001	< 0.00001
31-Oct-12	39	500	445	7.45	33	#N/A	4.8	13.5	6	< 0.5	0.4	< 0.06	< 0.3	14.3	0.0609	< 0.0002	0.0003	0.0244	< 0.00002	< 0.00001	0.0031	< 0.000003	5.19	< 0.0005	0.000027	0.0010	0.007	< 0.00002	< 0.001	0.328	0.0016	0.01	0.00111	< 0.0001	0.024	0.594	0.00015	1.08	< 0.00001	0.28	0.0193	1.80	< 0.00002	0.00010	0.0003	0.000053	0.00336	< 0.001	< 0.00001
7-Nov-12	40	500	460	7.30	32	#N/A	4.7	12.4	5	< 0.5	0.3	< 0.06	< 0.3	14.5	0.0382	< 0.0002	0.0004	0.0217	< 0.00002	< 0.00001	0.0035	< 0.000003	5.28	< 0.0005	0.000128	0.0024	< 0.003	0.00025	< 0.001	0.328	0.0014	< 0.01	0.00056	0.0004	0.019	0.551	0.00017	0.94	< 0.00001	0.24	0.0199	1.80	< 0.00002	0.00023	0.0003	0.000058	0.00335	0.002	< 0.00001
14-Nov-12	41	500	440	7.54	31				5																																							
21-Nov-12	42	500	495	7.44	34				6																																							
28-Nov-12	43	500	490	7.72	36				8																																							
5-Dec-12	44	500	475	7.68	30	#N/A	6.6	14.0	5	1.4	< 0.2	< 0.06	< 0.3	13.9	0.0492	< 0.0002	0.0004	0.0256	< 0.00002	< 0.00001	0.0026	< 0.000003	5.05	0.0016	0.000104	0.0027	< 0.003	< 0.00002	< 0.001	0.324	0.0010	< 0.01	0.00058	0.0001	0.018	0.538	0.00012	0.96	< 0.00001	0.23	0.0190	1.72	< 0.00002	0.00054	0.0002	0.000067	0.00333	< 0.001	< 0.00001
12-Dec-12	45	500	470	7.46	28				5																																							
19-Dec-12	46	500	475	7.43	28				3																																							
26-Dec-12	47	500	465	7.62	30				3																																							
2-Jan-13	48	500	450	7.42	28	#N/A	4.0	11.8	2	< 0.5	< 0.2	< 0.06	< 0.3	11.7	0.0681	< 0.0002	0.0003	0.0237	< 0.00002	< 0.00001	0.0022	< 0.000003	4.22	< 0.0005	0.000077	0.0012	0.009	< 0.00002	< 0.001	0.287	0.0013	< 0.01	0.00048	0.0002	0.030	0.510	0.00013	0.92	< 0.00001	0.24	0.0164	1.39	< 0.00002	0.00015	0.0006	0.000055	0.00331	0.004	< 0.00001
9-Jan-13	49	500	465	7.67	30				4																																							
16-Jan-13	50	500	495	7.32	30				4																																							
23-Jan-13	51	500	490	7.53	33				7																																							
30-Jan-13	52	500	485	7.23	31	#N/A	3.4	11.6	6	< 0.5	< 0.2	< 0.06	< 0.3	13.8	0.0577	< 0.0002	0.0003	0.0232	< 0.00002	< 0.00001	0.0030	< 0.000003	4.98	< 0.0005	0.000164	0.0020	0.010	< 0.00002	< 0.001	0.329	0.0005	< 0.01	0.00048	0.0002	0.011	0.526	0.00016	0.97	< 0.00001	0.26	0.0196	1.86	< 0.00002	0.00015	0.0004	0.000063	0.00313	< 0.001	< 0.00001
6-Feb-13	53	500	465	7.52	32				5																																							
13-Feb-13	54	500	480	7.46	32				6																																							
20-Feb-13	55	500	455	7.55	33				5																																							
27-Feb-13	56	500	480	7.34	33	#N/A	3.9	15.0	7	< 0.5	< 0.2	< 0.06	< 0.3	14.9	0.0515	< 0.0002	0.0006	0.0273	< 0.00002	< 0.00001	0.0027	< 0.000003	5.39	< 0.0005	0.000212	0.0033	0.005	0.00004	< 0.001	0.348	0.0013	< 0.01	0.00050	0.0002	0.020	0.528	0.00020	1.12	< 0.00001	0.26	0.0210	1.72	< 0.00002	< 0.00001	0.0004	0.000067	0.00356	0.002	< 0.00001
6-Mar-13	57	500	495	7.52	38				4																																							
13-Mar-13	58	500	495	7.22	36				4																																							
20-Mar-13	59	500	485	7.61	28				5																																							
27-Mar-13	60	500	460	7.51	30	#N/A	4.7	13.3	7	< 0.5	< 0.2	< 0.06	< 0.3	12.6	0.0531	< 0.0002	0.0006	0.0228	< 0.00002	< 0.00001	0.0030	0.000079	4.58	< 0.0005	0.000190	0.0012	0.006	< 0.00002	< 0.001	0.292	0.0007	< 0.01	0.00080	0.0002	0.017	0.474	0.00011	0.93	< 0.00001	0.20	0.0169	1.35	< 0.00002	0.00006	0.0001	0.000052	0.00277	< 0.001	< 0.00001
3-Apr-13	61	500	475	7.47	34				2																																							
10-Apr-13	62	500	485	7.34	32				5																																							
17-Apr-13	63	500	480	7.48	33				7																																							
24-Apr-13	64	500	465	7.22	31	#N/A	3.5	12.6	8	< 0.5	< 0.2	< 0.06	< 0.3	12.7	0.0445	< 0.0002	0.0004	0.0250	< 0.00002	< 0.00001	0.0037	< 0.000003	4.56	< 0.0005	0.000025	0.0008	0.004	< 0.00002	< 0.001	0.314	0.0011	< 0.01	0.00052	< 0.0001	0.023	0.463	0.00014	0.93	< 0.00001	0.18	0.0186	1.34	< 0.00002	0.00007	0.0001	0.000064	0.00316	< 0.001	< 0.00001
1-May-13	65	500	460	7.59	29				6																																							
8-May-13	66	500	465	7.56	32				8																																							
15-May-13	67	500	460	7.49	24				6																																							
22-May-13	68	500	455	7.48	25	#N/A	4.4	12.6	5	< 0.5	< 0.2	< 0.06	< 0.3	11.9	0.0615	< 0.0002	0.0002	0.0221	< 0.00002	< 0.00001	0.0040	< 0.000003	4.30	< 0.0005	0.000018	0.0008	0.010	< 0.00002	< 0.001	0.283	0.0008	< 0.01	0.00049	< 0.0001	0.023	0.415	0.00014	0.90	< 0.00001	0.18	0.0161	1.13	< 0.00002	0.00005	0.0004	0.000048	0.00289	< 0.001	< 0.00001
29-May-13	69	500	460	7.58	30				5																																							
5-Jun-13	70	500	460	7.31	34				5																																							
12-Jun-13	71	500	445	7.57	28				4																																							
19-Jun-13	72	500	455	7.34	33	#N/A	4.1	12.9	7	< 0.5	< 0.2	< 0.06	< 0.3	14.4	0.0718	< 0.0002	0.0004	0.0271	< 0.00002	< 0.00001	0.0049	< 0.000003	5.16	< 0.0005	< 0.0000002	0.0010	0.005	< 0.00002	< 0.001	0.356	0.0009	< 0.01	0.00052	< 0.0001	0.022	0.519	0.00019	1.05	< 0.00001	0.26	0.0209	1.35	< 0.00002	0.00009	0.0003	0.000065	0.00281	< 0.001	< 0.00001
26-Jun-13	73	500	445	7.33	34				4																																							
3-Jul-13	74	500	475	7.31	35				4																																							
10-Jul-13	75	500	450	7.39	26				5																																							
17-Jul-13	76	500	450	7.19	29	#N/A	3.5	11.0	6	< 0.5	< 0.2	< 0.06	< 0.3	12.2	0.0400	< 0.0002	0.0010	0.0238	< 0.00002	< 0.00001	0.0033	0.000004	4.38	< 0.0005	0.000220	0.0017	< 0.003	< 0.00002	< 0.001	0.300	0.0005	< 0.01	0.00053	0.0002	< 0.009	0.397	0.00016	0.82	< 0.00001	0.16	0.0199	1.14	< 0.00002	0.00004	0.0001	0.000056	0.00253	< 0.001	< 0.00001
24-Jul-13	77	500	445	7.32	29				6																																							
31-Jul-13	78	500	480	7.28	34				5																																							
7-Aug-13	79	500	460	7.35	29				5																																							
14-Aug-13	80	500	450	7.24	29	#N/A	3.7	11.2	4	< 0.5	< 0.2	< 0.06	< 0.3	13.7	0.0546	< 0.0002	0.0003	0.0251	< 0.00002	< 0.00001	0.0046	< 0.000003	4.96	< 0.0005	0.000061	0.0019	0.005	< 0.00002	< 0.001	0.333	0.0004	< 0.01	0.00051	0.0002	0.017	0.447	0.00015	0.95	< 0.00001	0.21	0.0183	1.22	< 0.00002	0.00008	0.0001	0.000056	0.00281	< 0.001	< 0.00001
21-Aug-13	81	500	445	7.45	30				5																																							
28-Aug-13	82	500	440	7.30	28				6																																							
4-Sep-13	83	500	450	7.38	32				6																																							
11-Sep-13	84	500	460	7.27	31	#N/A	3.0	13.8	4	< 0.5	< 0.2	< 0.06	< 0.3	16.2	0.0657	< 0.0002	0.0003	0.0282	< 0.00002	< 0.00001	0.0053	< 0.000003	5.95	< 0.0005	0.000065	0.0016	0.012	< 0.00002	< 0.001	0.398	0.0010	< 0.01	0.00055	0.0002	0.020	0.547	0.00018	1.19	< 0.00001	0.19	0.0230	1.37	< 0.00002	0.00005	0.0005	0.000071	0.00334	< 0.001	< 0.00001
18-Sep-13	85	500	450	7.50	25				6																																							
25-Sep-13	86	500	445	7.26	26				4																																							
2-Oct-13	87	500	480	7.44	42				5																																							
9-Oct-13	88	500	475	7.47	25	#N/A	3.3	10.9	5	0.7	< 0.2	< 0.06	< 0.3	12.1	0.0399	< 0.0002	0.0005	0.0229	< 0.00002	< 0.00001	0.0065	0.000005	4.39	< 0.0005	0.000105	0.0011	< 0.003	0.00052	< 0.001	0.286	0.0008	< 0.01	0.00043	0.0002	0.013	0.350	0.00015	0.78	< 0.00001	0.14	0.0169	1.12	< 0.00002	0.00002	< 0.0001	0.000048	0.00199	0.002	< 0.00001
16-Oct-13	89	500	450	7.22	23				4																																							
23-Oct-13	90	500	455	7.01	27				7																																							
30-Oct-13	91	500	455	7.34	29				5																																							
6-Nov-13	92	500	460	7.41	27	#N/A	1.6	9.7	5	< 0.5	< 0.2	< 0.06	< 0.3	11.7	0.0534	< 0.0002	0.0004	0.0224	< 0.00002	< 0.00001	0.0044	0.000010	4.21

HC 7
Sample = Column 10 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18-Jun-14	0	500	435	8.04	175	#N/A	3.9	37.1	31	16.2	1.8	< 0.06	< 0.3	21.6	0.0203	0.0012	0.142	0.0263	< 0.000007	< 0.000007	0.0745	< 0.000003	5.26	0.00065	0.000362	0.00324	0.008	< 0.00001	0.00124	2.04	0.0016	0.01	0.00237	0.0043	0.023	13.8	0.00081	2.75	< 0.000002	20.3	0.0752	11.8	0.000014	0.00012	0.00028	< 0.000002	0.00289	< 0.001	< 0.002
25-Jun-14	1	500	520	8.12	190	#N/A	5.9	37.4	39	7.5	1.6	< 0.06	< 0.3	26.5	0.0096	0.0024	0.184	0.0284	< 0.000007	< 0.000007	0.0716	0.000039	5.87	0.00013	0.000197	0.00153	0.002	< 0.00001	0.00114	2.88	0.0016	< 0.01	0.00323	0.0049	< 0.009	13.2	0.00092	2.19	< 0.000002	18.8	0.0842	14.2	0.000014	0.00015	0.00010	0.000030	0.00202	0.003	< 0.002
2-Jul-14	2	500	490	7.97	109	#N/A	3.6	33.2	15	2.0	0.3	< 0.06	< 0.3	13.9	0.0081	0.0020	0.185	0.0208	< 0.000007	< 0.000007	0.0692	< 0.000003	3.17	< 0.00003	0.000031	0.00042	< 0.002	< 0.00001	0.000904	1.45	0.0005	0.01	0.00140	0.0022	< 0.009	9.64	0.00037	2.06	0.000005	10.7	0.0475	6.33	0.000006	0.00037	0.00008	0.000007	0.00240	< 0.001	< 0.002
9-Jul-14	3	500	475	7.82	89	#N/A	1.5	31.8	7	4.0	< 0.2	< 0.06	< 0.3	11.1	0.0172	0.0018	0.163	0.0244	< 0.000007	< 0.000007	0.0623	< 0.000003	2.62	0.00018	0.000068	0.00075	0.014	0.00002	0.000816	1.11	0.0009	< 0.01	0.00253	0.0019	< 0.009	9.21	0.00022	2.16	< 0.000002	8.01	0.0377	3.33	< 0.000005	0.00022	0.00038	0.000011	0.00242	< 0.001	< 0.002
16-Jul-14	4	500	445	8.44	79				6																																								
23-Jul-14	5	500	465	8.06	68	#N/A	1.8	28.5	6	1.1	< 0.2	< 0.06	< 0.3	11.0	0.0070	0.0015	0.151	0.0252	< 0.000007	< 0.000007	0.0486	< 0.000003	2.57	< 0.00003	0.000029	0.00084	< 0.002	< 0.00001	0.000721	1.11	0.0003	< 0.01	0.00098	< 0.0001	< 0.009	8.11	0.00017	1.83	0.000002	4.68	0.0408	2.18	0.000009	0.00009	< 0.00005	0.000002	0.00207	< 0.001	< 0.002
30-Jul-14	6	500	460	7.86	62				7																																								
6-Aug-14	7	500	475	8.02	58	#N/A	1.3	23.4	5	0.6	< 0.2	< 0.06	< 0.3	10.7	0.0139	0.0012	0.124	0.0213	< 0.000007	< 0.000007	0.0399	< 0.000003	2.44	< 0.00003	0.000038	0.00035	0.006	< 0.00001	0.000615	1.12	0.0004	< 0.01	0.00166	0.0006	< 0.009	7.16	0.00018	1.67	< 0.000002	3.19	0.0400	1.89	< 0.000005	0.00004	0.00010	0.000004	0.00176	< 0.001	< 0.002
13-Aug-14	8	500	480	7.89	50				5																																								
20-Aug-14	9	500	450	7.94	48	#N/A	1.4	22.6	4	< 0.5	< 0.2	< 0.06	< 0.3	9.4	0.0137	0.0009	0.128	0.0184	< 0.000007	< 0.000007	0.0361	0.000140	2.13	0.00007	0.000067	0.00056	0.006	0.00002	0.000639	0.994	0.0009	< 0.01	0.00047	0.0009	0.019	7.29	0.00037	1.55	< 0.000002	2.38	0.0352	1.19	0.000006	< 0.00001	0.00026	0.000010	0.00174	0.001	< 0.002
27-Aug-14	10	500	470	7.85	52				4																																								
3-Sep-14	11	500	460	7.82	48	#N/A	3.6	24.3																																									

HC 8
Sample = Column 11 Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	TOC	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)							CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18-Jun-14	0	500	425	7.60	358	#N/A	4.6	38.1	94	29.9	3.1	< 0.06	< 0.3	97.2	0.0040	0.0003	0.0047	0.0435	< 0.000007	< 0.000007	0.123	< 0.000003	20.1	0.00039	0.000283	0.00330	< 0.002	0.00001	0.00103	11.4	0.0021	0.01	0.00774	0.0127	0.009	19.9	0.00109	2.87	< 0.000002	23.4	0.253	37.8	0.000057	0.00023	0.00012	< 0.000002	0.00058	0.001	< 0.002
25-Jun-14	1	500	500	7.70	369	#N/A	7.8	33.5	143	11.4	2.4	< 0.06	< 0.3	96.6	0.0042	0.0005	0.0081	0.0242	< 0.000007	< 0.000007	0.129	0.000004	17.8	0.00025	0.000265	0.00163	0.021	0.00001	0.000719	12.7	0.0058	< 0.01	0.00924	0.0215	< 0.009	18.0	0.00114	2.57	< 0.000002	22.6	0.244	44.6	0.000053	0.00050	0.00009	0.000013	0.00037	0.003	< 0.002
2-Jul-14	2	500	485	7.64	208	#N/A	4.3	25.6	55	3.4	0.6	< 0.06	< 0.3	51.6	0.0011	0.0003	0.0060	0.0201	< 0.000007	< 0.000007	0.111	< 0.000003	9.83	< 0.00003	0.000091	0.00089	< 0.002	< 0.00001	0.000502	6.57	0.0027	< 0.01	0.00460	0.0111	< 0.009	11.9	0.00057	2.17	0.000005	11.5	0.133	22.3	0.000029	0.00022	0.00006	0.000002	0.00035	< 0.001	< 0.002
9-Jul-14	3	500	480	7.61	151	#N/A	1.9	24.9	35	3.9	0.3	< 0.06	< 0.3	34.4	0.0019	< 0.0002	0.0054	0.0199	< 0.000007	< 0.000007	0.0992	< 0.000003	6.61	0.00004	0.000068	0.00064	< 0.002	0.00002	0.000403	4.34	0.0013	< 0.01	0.00325	0.0075	< 0.009	10.0	0.00035	2.11	< 0.000002	7.43	0.0885	13.7	0.000021	0.00012	0.00010	0.000005	0.00042	< 0.001	< 0.002
16-Jul-14	4	500	520	7.88	121				22																																								
23-Jul-14	5	500	495	7.66	95	#N/A	2.4	22.1	18	1.0	< 0.2	< 0.06	< 0.3	24.0	0.0011	0.0003	0.0059	0.0183	< 0.000007	< 0.000007	0.0791	< 0.000003	4.58	< 0.00003	0.000043	0.00057	< 0.002	< 0.00001	0.000317	3.06	0.0008	< 0.01	0.00168	0.0049	< 0.009	7.72	0.00039	1.77	< 0.000002	3.63	0.0634	7.31	0.000018	0.00008	< 0.00005	< 0.000002	0.00035	< 0.001	< 0.002
30-Jul-14	6	500	510	7.69	89				18																																								
6-Aug-14	7	500	485	7.67	89	#N/A	1.9	22.0	16	0.8	< 0.2	< 0.06	< 0.3	24.3	0.0064	< 0.0002	0.0041	0.0143	< 0.000007	< 0.000007	0.0682	< 0.000003	4.59	< 0.00003	0.000045	0.00046	0.006	< 0.00001	0.000287	3.12	0.0008	< 0.01	0.00169	0.0039	< 0.009	7.50	0.00024	1.76	< 0.000002	2.59	0.0613	6.58	0.000012	0.00005	0.00010	< 0.000002	0.00038	< 0.001	< 0.002
13-Aug-14	8	500	480	7.64	77				12																																								
20-Aug-14	9	500	450	7.66	73	#N/A	1.7	21.3	13	< 0.5	< 0.2	< 0.06	< 0.3	20.9	0.0038	< 0.0002	0.0042	0.0140	< 0.000007	< 0.000007	0.0661	0.000085	3.94	< 0.00003	0.000070	0.00041	< 0.002	0.00001	0.000280	2.70	0.0011	< 0.01	0.00097	0.0035	< 0.009	7.14	0.00025	1.61	< 0.000002	1.76	0.0541	5.02	0.000012	0.00003	0.00010	0.000004	0.00038	0.001	< 0.002
27-Aug-14	10	500	460	7.69	80				13																																								
3-Sep-14	11	500	470	7.72	70	#N/A	4.2	22.9																																									

T-1

Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	NH3	NO3	NO2	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3											
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Jun-10	0	750	410	7.59	825	#N/A	5.7	99.4	255	< 0.01	< 0.01	0.1	0.35	< 0.06	8.5	239	0.0130	0.0014	0.0022	0.0755	< 0.00002	< 0.00001	0.0401	0.000023	80.5	0.0029	0.00129
15-Jun-10	1	500	475	7.84	351	#N/A	3.1	76.2	79	< 0.01	< 0.01	< 0.3	0.10	< 0.06	1.6	106	0.0206	0.0016	0.0035	0.0548	< 0.00002	< 0.00001	0.0341	0.000010	33.0	0.0011	0.000306
22-Jun-10	2	500	465	8.15	320	#N/A	1.6	77.7	74	< 0.01	< 0.01	< 0.1	0.05	< 0.06	0.5	116	0.0133	0.0024	0.0030	0.0541	< 0.00002	0.00002	0.0275	0.000039	34.6	0.0008	0.000191
29-Jun-10	3	500	465	7.95	306	#N/A	3.2	85.2	68	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.2	138	0.0110	0.0015	0.0037	0.0540	< 0.00002	< 0.00001	0.0242	0.000006	40.2	0.0011	0.000212
6-Jul-10	4	500	445	7.93	280				54																		
13-Jul-10	5	500	485	8.00	271	#N/A	3.2	90.7	42	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.3	106	0.0286	0.0013	0.0024	0.0599	< 0.00002	< 0.00001	0.0201	0.000016	28.4	0.0007	0.000655
20-Jul-10	6	500	450	7.92	247				28																		
27-Jul-10	7	500	425	7.90	251	#N/A	3.8	81.4	47	< 0.01	< 0.01	< 0.6	< 0.05	< 0.06	0.6	116	0.0158	0.0010	0.0016	0.0591	< 0.00002	< 0.00001	0.0181	0.000004	32.5	0.0013	0.000140
3-Aug-10	8	500	485	8.08	257				50																		
10-Aug-10	9	500	500	8.04	247	#N/A	3.5	94.0	46	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.6	123	0.0759	0.0008	0.0018	0.0748	< 0.00002	< 0.00001	0.0135	0.000899	34.3	0.0010	0.00295
17-Aug-10	10	500	435	8.08	224				47																		
24-Aug-10	11	500	455	7.99	232	#N/A	2.9	80.7	46	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.5	114	0.0141	0.0010	0.0015	0.0702	< 0.00002	< 0.00001	0.0117	0.000006	31.6	0.0006	0.000134
31-Aug-10	12	500	435	8.01	217				59																		
7-Sep-10	13	500	475	7.82	232	#N/A	4.4	83.3	49	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.5	108	0.0163	0.0011	0.0012	0.0721	< 0.00002	< 0.00001	0.0114	0.000014	29.9	0.0008	0.000158
14-Sep-10	14	500	430	7.85	199				47																		
21-Sep-10	15	500	410	7.95	180	#N/A	3.0	77.9	44	< 0.01	< 0.01	0.1	< 0.05	< 0.06	0.4	95.1	0.0170	0.0009	0.0015	0.07105	< 0.00002	0.00005	0.0092	0.000005	26.1	0.0017	0.000156
28-Sep-10	16	500	435	7.96	231				43																		
5-Oct-10	17	500	415	7.88	209	#N/A	3.1	76.7	47	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.3	91.3	0.0187	0.0019	0.0015	0.0737	< 0.00002	< 0.00001	0.0088	0.000076	25.2	0.0008	0.000233
12-Oct-10	18	500	505	7.90	206				37																		
19-Oct-10	19	500	520	7.93	211	#N/A	3.1	87.8	37	< 0.01	< 0.01	0.1	< 0.05	< 0.06	0.3	98.5	0.0183	0.0009	0.0010	0.0875	< 0.00002	< 0.00001	0.0072	0.000021	27.2	0.0007	0.000158
26-Oct-10	20	500	460	7.90	197				29																		
2-Nov-10	21	500	475	8.13	219	#N/A	2.4	89.2	36	< 0.01	< 0.01	< 0.1	0.10	< 0.06	0.3	102	0.0192	0.0006	0.0013	0.0925	< 0.00002	< 0.00001	0.0117	0.000038	28.0	< 0.0005	0.000196
9-Nov-10	22	500	470	8.00	197				25																		
16-Nov-10	23	500	425	8.12	#N/A	#N/A	2.7	85.1	32	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.3	87.9	0.0181	0.0007	0.0010	0.0851	< 0.00002	< 0.00001	0.0383	0.000034	24.3	0.0007	0.000130
23-Nov-10	24	500	505	7.82	193				23																		
30-Nov-10	25	500	450	7.73	178	#N/A	5.5	82.8	20	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 0.2	94.0	0.0203	0.0008	0.0012	0.0922	< 0.00002	0.00001	0.0094	0.000009	26.5	0.0008	0.000122
7-Dec-10	26	500	495	7.84	192				18																		
14-Dec-10	27	500	435	7.76	184	#N/A	5.2	81.1	27	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.2	95.2	0.0171	0.0007	0.0011	0.104	< 0.00002	< 0.00001	0.0081	< 0.000003	26.4	< 0.0005	0.000120
21-Dec-10	28	500	470	7.79	187				30																		
28-Dec-10	29	500	445	7.91	158	#N/A	6.3	78.8	25	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.2	89.8	0.0186	0.0007	0.0013	0.100	< 0.00002	0.00004	0.0043	0.000019	24.9	0.0005	0.000127
4-Jan-11	30	500	435	7.39	159				21																		
11-Jan-11	31	500	515	7.88	164	#N/A	4.1	83.6	22	< 0.01	< 0.01	0.3	< 0.05	< 0.06	< 0.2	88.5	0.0175	0.0007	0.0011	0.105	< 0.00002	< 0.00001	0.0043	0.000008	24.7	< 0.0005	0.000173
18-Jan-11	32	500	515	7.88	184				23																		
25-Jan-11	33	500	465	7.90	183	#N/A	4.4	82.9	24	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 0.2	95.0	0.0228	0.0007	0.0009	0.127	< 0.00002	< 0.00001	0.0036	0.000074	26.6	< 0.0005	0.000140
1-Feb-11	34	500	455	7.85	172				23																		
8-Feb-11	35	500	445	7.98	176	#N/A	2.8	82.6	29	< 0.01	< 0.01	< 0.05	< 0.06	0.2	0.2	89.3	0.0164	0.0007	0.0009	0.126	< 0.00002	< 0.00001	0.0042	0.00442	25.2	< 0.0005	0.000157
15-Feb-11	36	500	440	7.90	186				17																		
22-Feb-11	37	500	455	8.00	182	#N/A	2.9	82.2	19	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.2	90.4	0.0174	0.0017	0.0012	0.112	< 0.00002	< 0.00001	0.0048	0.000761	25.4	0.0009	0.000535
1-Mar-11	38	500	430	7.87	188	#N/A	3.0	82.9	37	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 0.2	91.5	0.0159	0.0006	0.0011	0.126	< 0.00002	< 0.00001	0.0043	< 0.000003	25.7	< 0.0005	0.000149
8-Mar-11	39	500	460	7.94	181	#N/A	2.9	80.0	28	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 0.2	84.5	0.0157	0.0005	0.0008	0.116	< 0.00002	< 0.00001	0.0041	0.000004	23.9	0.0010	0.000095
15-Mar-11	40	500	460	7.89	188				23																		
22-Mar-11	41	500	510	7.97	180				17																		
29-Mar-11	42	500	410	7.95	169				16																		
5-Apr-11	43	500	495	7.91	179	#N/A	4.4	83.8	18						< 0.2	85.1	0.0200	0.0005	0.0010	0.122	< 0.00002	< 0.00001	0.0030	< 0.000003	23.5	< 0.0005	0.00058
12-Apr-11	44	500	430	7.90	171				16																		
19-Apr-11	45	500	465	7.91	181				17																		
26-Apr-11	46	500	520	7.94	176				16																		
3-May-11	47	500	480	7.89	190	#N/A	4.5	85.7	20						< 0.2	91.5	0.0187	0.0005	0.0008	0.124	< 0.00002	< 0.00001	0.0036	< 0.000003	26.5	< 0.0005	0.000102
10-May-11	48	500	500	7.89	177				20																		
17-May-11	49	500	465	7.81	201				23																		
24-May-11	50	500	450	7.76	179				19																		
31-May-11	51	500	420	7.90	184	#N/A	4.2	70.7	22						< 0.2	93.0	0.0164	0.0005	0.0009	0.119	< 0.00002	< 0.00001	0.0098	0.000003	27.0	< 0.0005	0.000199
7-Jun-11	52	500	450	7.72	175				17																		
14-Jun-11	53	500	465	8.07	177				19																		
21-Jun-11	54	500	450	8.03	189				31																		
28-Jun-11	55	500	515	7.81	177	#N/A	2.8	46.7	27						< 0.2	94.1	0.0183	0.0005	0.0008	0.134	< 0.00002	< 0.00001	0.0070	0.000017	27.2	< 0.0005	0.000078
5-Jul-11	56	500	445	7.75	180				23																		
12-Jul-11	57	500	435	7.80	194				28																		
19-Jul-11	58	500	525	7.72	167				21																		
26-Jul-11	59	500	450	7.79	180	#N/A	6.2	73.4	25						< 0.2	74.4	0.0193	0.0004	0.0009	0.124	< 0.00002	< 0.00001	0.0026	< 0.000003	21.9	< 0.0005	0.000097
2-Aug-11	60	500	410	7.53	169				25																		
9-Aug-11	61	500	400	7.85	179				26																		
16-Aug-11	62	500	480	7.70	171				21																		
23-Aug-11	63	500	440	7.77	168	#N/A	5.7	72.8	20						< 0.2	75.5	0.0218	0.0005	0.0008	0.125	< 0.00002	< 0.00001	0.0034	0.000048	22.2	0.0010	0.000060
30-Aug-11	64	500	450	7.84	181				25																		
6-Sep-11	65	500	500	7.94	178				22																		
13-Sep-11	66	500	490	7.86	178				26																		
20-Sep-11	67	500	475	7.72	189	#N/A	5.5	80.9	25						< 0.2	97.6	0.0188	0.0003	0.0013	0.137	< 0.00002	0.00001	0.0036	0.000026	28.5	0.0015	0.00143
27-Sep-11	68	500	490	7.89	176				20																		
4-Oct-11	69	500	475	7.83	176				27																		
11-Oct-11	70	500	445	7.73	171				27																		
18-Oct-11	71	500	510	7.92	170	#N/A	3.1	72.8	22						< 0.2	84.0	0.0216	0.0004	0.0008	0.127	< 0.00002	< 0.00001	0.0023	0.00034	24.5	< 0.0005	0.000099
25-Oct-11	72	500	480	7.99	184				25																		
1-Nov-11	73	500	450	7.91	178				28																		

T-1

Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	NH3	NO3	NO2	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3											
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Nov-11	74	500	480	7.70	170				22																		
15-Nov-11	75	500	410	7.94	178	#N/A	3.8	75.8	26						< 0.2	85.6	0.0380	0.0005	0.0017	0.118	< 0.00002	< 0.00001	0.0020	0.000014	24.8	< 0.0005	0.000131
22-Nov-11	76	500	515	7.95	179				20																		
29-Nov-11	77	500	460	8.02	168				20																		
6-Dec-11	78	500	425	7.79	165				19																		
13-Dec-11	79	500	460	7.97	187	#N/A	3.1	79.3	24						< 0.2	89.3	0.0204	< 0.0002	0.0006	0.134	< 0.00002	< 0.00001	0.0016	0.000028	26.2	0.0009	0.000052
20-Dec-11	80	500	460	7.81	183				24																		
27-Dec-11	81	500	470	8.13	195				29																		
3-Jan-12	82	500	425	7.68	167				19																		
10-Jan-12	83	500	505	7.89	182	#N/A	3.1	91.4	22						< 0.2	89.8	0.0507	0.0003	0.0006	0.133	< 0.00002	< 0.00001	0.0021	< 0.000003	26.3	< 0.0005	0.000110
17-Jan-12	84	500	465	7.83	187				25																		
24-Jan-12	85	500	470	7.92	191				29																		
31-Jan-12	86	500	460	7.90	195				28																		
7-Feb-12	87	500	450	7.83	193	#N/A	4.9	92.1	33						< 0.2	90.8	0.0372	0.0006	0.0013	0.129	< 0.00002	< 0.00001	0.0024	0.000032	26.5	< 0.0005	0.000067
14-Feb-12	88	500	420	7.73	190				42																		
21-Feb-12	89	500	465	7.76	200				31																		
28-Feb-12	90	500	465	7.98	197				32																		
6-Mar-12	91	500	455	7.77	199	#N/A	4.3	76.9	35						< 0.2	101	0.0299	0.0003	0.0007	0.126	< 0.00002	< 0.00001	0.0008	0.000013	29.5	< 0.0005	0.000033
13-Mar-12	92	500	450	7.69	184				33																		
20-Mar-12	93	500	455	7.70	199				34																		
27-Mar-12	94	500	485	7.62	181				27																		
3-Apr-12	95	500	435	7.70	175	#N/A	4.3	74.5	30						< 0.2	88.6	0.0420	< 0.0002	0.0007	0.117	< 0.00002	< 0.00001	0.0016	< 0.000003	26.0	< 0.0005	0.000020
10-Apr-12	96	500	470	7.85	186				31																		
17-Apr-12	97	500	460	7.73	177				29																		
24-Apr-12	98	500	430	7.75	178				27																		
1-May-12	99	500	480	7.67	173	#N/A	6.1	74.3	26						< 0.2	93.0	0.0434	0.0015	0.0016	0.112	< 0.00002	< 0.00001	0.0036	0.000023	27.3	< 0.0005	0.000034
8-May-12	100	500	460	7.81	167				20																		
15-May-12	101	500	465	7.83	166				19																		
22-May-12	102	500	480	7.75	170				21																		
29-May-12	103	500	440	7.75	174	#N/A	4.0	68.8	24						< 0.2	82.9	0.0412	0.0003	0.0006	0.101	< 0.00002	< 0.00001	0.0039	< 0.000003	24.2	< 0.0005	0.000054
5-Jun-12	104	500	470	7.72	170				24																		
12-Jun-12	105	500	465	7.76	179				28																		
19-Jun-12	106	500	425	7.79	193				30																		
26-Jun-12	107	500	440	7.74	181	#N/A	5.2	71.7	28						< 0.2	89.2	0.0521	0.0002	0.0005	0.111	< 0.00002	< 0.00001	0.0033	< 0.000003	26.1	< 0.0005	0.000019
3-Jul-12	108	500	450	7.58	188				27																		
10-Jul-12	109	500	410	7.67	185				33																		
17-Jul-12	110	500	430	7.81	180				28																		
24-Jul-12	111	500	505	7.82	182	#N/A	3.4	72.6	25						< 0.2	88.9	0.0425	0.0002	0.0005	0.116	< 0.00002	< 0.00001	0.0057	< 0.000003	25.9	< 0.0005	0.000020
31-Jul-12	112	500	485	7.83	176				25																		
7-Aug-12	113	500	505	7.84	182				26																		
14-Aug-12	114	500	495	7.77	176				21																		
21-Aug-12	115	500	505	7.74	180	#N/A	3.6	70.4	29						< 0.2	91.2	0.0523	0.0005	0.0003	0.111	< 0.00002	0.00002	0.0017	0.000046	26.6	< 0.0005	0.000037
28-Aug-12	116	500	480	7.66	174				23																		
4-Sep-12	117	500	485	7.68	182				23																		
11-Sep-12	118	500	495	7.80	172				20																		
18-Sep-12	119	500	440	7.82	171	#N/A	3.1	76.1	23						< 0.2	83.6	0.0527	< 0.0002	0.0004	0.111	< 0.00002	< 0.00001	0.0016	0.000053	24.1	< 0.0005	0.000022
25-Sep-12	120	500	485	7.69	193				27																		
2-Oct-12	121	500	500	7.65	176				19																		
9-Oct-12	122	500	500	7.64	161				20																		
16-Oct-12	123	500	510	7.72	182	#N/A	5.4	80.0	25						< 0.2	94.2	0.0315	< 0.0002	0.0006	0.120	< 0.00002	< 0.00001	0.0049	0.000003	26.9	< 0.0005	0.000029
23-Oct-12	124	500	490	7.73	188				26																		
30-Oct-12	125	500	500	7.66	168				21																		
6-Nov-12	126	500	495	7.78	150				17																		
13-Nov-12	127	500	500	7.64	157	#N/A	6.5	76.0	18						< 0.2	84.3	0.0257	< 0.0002	0.0005	0.113	< 0.00002	< 0.00001	0.0015	< 0.000003	24.6	< 0.0005	0.000039
20-Nov-12	128	500	500	7.71	153				13																		
27-Nov-12	129	500	480	7.62	156				16																		
4-Dec-12	130	500	455	7.82	147				18																		
11-Dec-12	131	500	480	7.84	153	#N/A	3.2	72.4	16						< 0.2	80.0	0.0373	< 0.0002	0.0005	0.0906	< 0.00002	< 0.00001	0.0024	0.000056	23.9	< 0.0005	0.000043
18-Dec-12	132	500	415	7.80	149				18																		
25-Dec-12	133	500	475	7.83	141				15																		
1-Jan-13	134	500	430	7.84	149				15																		
8-Jan-13	135	500	470	7.82	154	#N/A	8.3	78.0	16						< 0.2	77.7	0.0363	< 0.0002	0.0004	0.112	< 0.00002	< 0.00001	0.0022	< 0.000003	22.9	< 0.0005	0.000027
15-Jan-13	136	500	470	7.68	150				17																		
22-Jan-13	137	500	465	7.71	159				23																		
29-Jan-13	138	500	505	7.79	166				26																		
5-Feb-13	139	500	460	7.78	185	#N/A	5.0	70.5	31						< 0.2	95.9	0.0209	< 0.0002	0.0005	0.135	< 0.00002	< 0.00001	0.0021	< 0.000003	27.5	< 0.0005	< 0.000002
12-Feb-13	140	500	480	7.70	170				30																		
19-Feb-13	141	500	475	7.76	173				35																		
26-Feb-13	142	500	490	7.74	183				40																		
5-Mar-13	143	500	425	7.85	180	#N/A	6.3	72.7	28						< 0.2	88.7	0.0217	< 0.0002	0.0005	0.112	< 0.00002	< 0.00001	0.0038	0.000009	25.7	< 0.0005	0.000205

Cell Terminated

Nov 16/10 EC 1190. Suspect probe malfunction, not repeated.

T-1

Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.																								
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Jun-10	0	0.0087	0.005	0.00008	0.004	9.36	0.0094	0.04	0.0923	0.0035	0.024	26.8	0.00267	6.16	0.00050	79.7	0.654	113	< 0.0002	0.00099	0.0004	0.00119	0.00121	0.006	0.00091
15-Jun-10	1	0.002	0.004	0.00009	0.002	5.81	0.0046	< 0.01	0.0691	0.0010	< 0.009	13.5	0.00243	6.00	0.00025	23.2	0.311	34.8	< 0.0002	0.00199	0.0005	0.000796	0.00279	0.002	0.00013
22-Jun-10	2	0.0033	< 0.002	0.00003	0.002	7.16	0.0035	0.03	0.0431	0.0005	0.011	12.5	0.00262	5.90	< 0.00001	15.9	0.335	32.4	< 0.0002	0.00026	0.0005	0.000761	0.00276	0.001	0.00006
29-Jun-10	3	0.0019	0.004	0.00004	0.003	9.03	0.0050	< 0.01	0.0298	0.0005	0.024	11.1	0.00280	5.92	< 0.00001	11.3	0.385	30.4	< 0.0002	0.00035	0.0003	0.000888	0.00221	< 0.001	0.00002
6-Jul-10	4																								
13-Jul-10	5	0.0029	< 0.002	0.00014	0.003	8.59	0.0056	< 0.01	0.0212	0.0015	0.016	8.45	0.00267	4.91	< 0.00001	5.33	0.327	22.6	< 0.0002	0.00042	0.0002	0.00494	0.00205	0.001	0.00001
20-Jul-10	6																								
27-Jul-10	7	0.0016	< 0.002	0.00005	0.002	8.54	0.0045	< 0.01	0.0168	0.0005	0.009	6.61	0.00214	4.84	< 0.00001	3.38	0.307	19.6	< 0.0002	0.00100	0.0002	0.000622	0.00196	0.001	0.00006
3-Aug-10	8																								
10-Aug-10	9	0.0177	< 0.002	0.0104	0.002	9.00	0.0068	0.01	0.0163	0.0018	< 0.009	6.34	0.00265	5.17	< 0.00001	2.70	0.314	17.1	< 0.0002	0.00011	0.0003	0.00177	0.00185	0.055	< 0.00001
17-Aug-10	10																								
24-Aug-10	11	0.0027	< 0.002	0.00005	0.002	8.40	0.0062	< 0.01	0.0181	0.0004	< 0.009	4.98	0.00258	4.46	< 0.00001	2.19	0.284	19.3	< 0.0002	0.00018	0.0003	0.000644	0.00180	0.001	< 0.00001
31-Aug-10	12																								
7-Sep-10	13	0.0026	0.034	< 0.00002	0.003	8.15	0.0151	< 0.01	0.0191	0.0006	0.013	4.85	0.00152	4.76	< 0.00001	2.28	0.273	17.5	< 0.0002	0.00023	0.0004	0.000576	0.00191	0.003	0.00002
14-Sep-10	14																								
21-Sep-10	15	0.0018	0.006	0.00016	0.002	7.28	0.0058	0.01	0.02646	0.0009	< 0.009	4.07	0.00229	4.68	0.00002	1.82	0.237	14.8	< 0.0002	0.00047	0.0005	0.003741	0.00250	0.001	< 0.00001
28-Sep-10	16																								
5-Oct-10	17	0.0019	< 0.002	0.00068	0.001	6.88	0.0052	< 0.01	0.0739	0.0010	0.035	3.62	0.00211	4.48	< 0.00001	1.59	0.221	15.0	< 0.0002	0.00199	0.0015	0.000931	0.00188	0.012	0.00003
12-Oct-10	18																								
19-Oct-10	19	0.0017	< 0.002	0.00002	0.002	7.43	0.0065	< 0.01	0.0305	0.0001	< 0.009	3.43	0.00185	4.37	< 0.00001	1.71	0.232	12.2	< 0.0002	0.00010	0.0002	0.000431	0.00180	0.003	0.00001
26-Oct-10	20																								
2-Nov-10	21	0.0032	0.020	0.00041	0.003	7.75	0.0072	0.01	0.0378	0.0013	0.019	3.25	0.00212	4.50	< 0.00001	1.81	0.237	13.3	< 0.0002	0.00009	0.0004	0.000847	0.00167	0.002	< 0.00001
9-Nov-10	22																								
16-Nov-10	23	0.0025	< 0.002	0.00087	0.002	6.63	0.0065	< 0.01	0.0287	0.0007	0.011	2.81	0.00100	4.16	< 0.00001	1.48	0.202	10.2	< 0.0002	0.00084	0.0002	0.000485	0.00166	0.004	0.00001
23-Nov-10	24																								
30-Nov-10	25	0.0017	< 0.002	< 0.00002	0.002	6.78	0.0063	< 0.01	0.0217	0.0002	< 0.009	2.48	0.00125	3.85	< 0.00001	1.27	0.187	9.32	< 0.0002	0.00023	0.0003	0.000318	0.00180	0.002	< 0.00001
7-Dec-10	26																								
14-Dec-10	27	0.0017	0.003	0.00004	0.002	7.10	0.0080	< 0.01	0.0274	0.0003	0.012	2.57	0.00151	4.08	< 0.00001	1.39	0.211	9.39	< 0.0002	0.00032	0.0004	0.000379	0.00170	< 0.001	< 0.00001
21-Dec-10	28																								
28-Dec-10	29	0.0022	0.004	0.00097	0.002	6.72	0.0060	< 0.01	0.0255	0.0002	0.037	2.37	0.00185	4.20	0.00002	1.27	0.201	10.4	< 0.0002	0.00013	0.0002	0.000540	0.00173	0.002	< 0.00001
4-Jan-11	30																								
11-Jan-11	31	0.0019	0.002	0.00003	0.001	6.56	0.0062	< 0.01	0.0236	0.0007	< 0.009	2.17	0.00105	3.81	< 0.00001	1.11	0.193	7.57	< 0.0002	0.00066	0.0002	0.000268	0.00165	0.002	0.00002
18-Jan-11	32																								
25-Jan-11	33	0.0015	0.003	0.00118	0.001	6.93	0.0047	< 0.01	0.0293	0.0005	0.016	2.19	0.00090	3.92	< 0.00001	1.09	0.205	14.1	< 0.0002	0.00035	0.0002	0.000326	0.00137	0.008	0.00002
1-Feb-11	34																								
8-Feb-11	35	0.0017	0.004	0.0165	0.001	6.42	0.0052	< 0.01	0.0347	0.0011	0.056	1.93	0.00129	3.83	< 0.00001	0.94	0.186	8.88	< 0.0002	0.00067	0.0006	0.000362	0.00133	0.408	< 0.00001
15-Feb-11	36																								
22-Feb-11	37	0.0022	< 0.002	0.00111	0.001	6.53	0.0044	0.01	0.0284	0.0010	0.052	1.76	0.00106	3.94	< 0.00001	0.95	0.186	7.97	< 0.0002	0.00027	0.0003	0.000288	0.00140	0.036	< 0.00001
1-Mar-11	38	0.0022	< 0.002	0.00166	0.001	6.66	0.0040	< 0.01	0.0411	< 0.0001	0.017	1.75	0.00083	3.52	< 0.00001	0.90	0.188	8.15	< 0.0002	0.00034	0.0004	0.000336	0.00140	0.002	< 0.00001
8-Mar-11	39	0.0019	0.003	0.00186	0.001	6.05	0.0034	< 0.01	0.0314	0.0005	0.027	1.67	0.00080	3.59	< 0.00001	0.86	0.174	7.15	< 0.00002	0.00042	0.0001	0.000290	0.00147	0.002	< 0.00001
15-Mar-11	40																								
22-Mar-11	41																								
29-Mar-11	42																								
5-Apr-11	43	0.0031	0.007	0.00008	0.001	6.44	0.0369	< 0.01	0.0339	0.0006	0.014	1.58	0.00079	3.33	< 0.00001	0.82	0.167	7.53	< 0.00002	0.00024	0.0002	0.00028	0.0014	0.003	< 0.00001
12-Apr-11	44																								
19-Apr-11	45																								
26-Apr-11	46																								
3-May-11	47	0.0022	< 0.002	0.00002	0.001	6.19	0.0012	< 0.01	0.0441	0.0010	< 0.009	1.58	0.00008	3.43	< 0.00001	0.84	0.178	8.31	< 0.0002	0.00009	0.0002	0.000330	0.00132	0.002	< 0.00001
10-May-11	48																								
17-May-11	49																								
24-May-11	50																								
31-May-11	51	0.0016	< 0.002	< 0.00002	0.002	6.22	0.0011	0.01	0.0693	0.0004	0.049	1.50	0.00114	3.68	< 0.00001	0.88	0.169	9.34	< 0.00002	0.00016	0.0004	0.000311	0.00137	0.002	< 0.00001
7-Jun-11	52																								
14-Jun-11	53																								
21-Jun-11	54																								
28-Jun-11	55	0.0030	< 0.002	0.00063	0.001	6.37	0.0010	< 0.01	0.0588	0.0007	< 0.009	1.39	0.00099	3.49	< 0.00001	0.81	0.169	9.39	< 0.00002	0.00048	0.0002	0.000343	0.00133	0.015	< 0.00001
5-Jul-11	56																								
12-Jul-11	57																								
19-Jul-11	58																								
26-Jul-11	59	0.0015	0.041	< 0.00002	< 0.001	4.82	0.0434	< 0.01	0.0686	0.0011	0.037	1.05	0.00082	2.48	< 0.00001	0.59	0.132	7.79	< 0.00002	0.00002	0.0007	0.000287	0.00125	0.006	< 0.00001
2-Aug-11	60																								
9-Aug-11	61																								
16-Aug-11	62																								
23-Aug-11	63	0.0028	< 0.002	0.00005	< 0.001	4.90	0.0008	< 0.01	0.0668	0.0002	< 0.009	1.08	0.00100	2.86	0.00002	0.63	0.127	6.81	< 0.00002	0.00011	< 0.0001	0.000260	0.00139	0.002	< 0.00001
30-Aug-11	64																								
6-Sep-11	65																								
13-Sep-11	66																								
20-Sep-11	67	0.0033	0.006	0.00007	< 0.001	6.44	0.0090	0.01	0.0819	0.0011	< 0.009	1.07	0.00124	3.36	0.00004	0.74	0.153	10.4	< 0.00002	0.00040	0.0003	0.000345	0.00122	0.002	< 0.00001
27-Sep-11	68																								
4-Oct-11	69																								
11-Oct-11	70																								
18-Oct-11	71	0.0018	< 0.003	0.00066	< 0.001	5.54	0.0045	< 0.01	0.0610	0.0006	< 0.009	0.996	0.00132	2.80	< 0.00001	0.59	0.124	7.71	< 0.00002	0.00009	< 0.0001	0.000300	0.00131	0.016	< 0.00001
25-Oct-11	72																								
1-Nov-11	73																								

T-1

Sample = Cleaner and Rougher Tails Composite

Date	Cycle No.	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8-Nov-11	74																								
15-Nov-11	75	0.0059	< 0.003	0.00006	< 0.001	5.73	< 0.0002	< 0.01	0.0810	0.0006	0.014	0.940	0.00082	2.81	< 0.00001	0.56	0.127	8.09	< 0.00002	0.00011	0.0003	0.000223	0.00128	0.001	< 0.00001
22-Nov-11	76																								
29-Nov-11	77																								
6-Dec-11	78																								
13-Dec-11	79	0.0015	< 0.003	0.00003	< 0.001	5.80	0.0016	< 0.01	0.0774	< 0.0001	< 0.009	0.944	0.00087	2.77	< 0.00001	0.50	0.132	8.66	< 0.00002	0.00010	0.0003	0.000316	0.00114	0.004	< 0.00001
20-Dec-11	80																								
27-Dec-11	81																								
3-Jan-12	82																								
10-Jan-12	83	0.0076	< 0.003	0.00004	< 0.001	5.88	0.0005	< 0.01	0.0610	0.0009	< 0.009	0.897	0.00125	2.60	< 0.00001	0.51	0.125	8.00	0.00003	0.00005	0.0003	0.000248	0.00137	0.002	< 0.00001
17-Jan-12	84																								
24-Jan-12	85																								
31-Jan-12	86																								
7-Feb-12	87	0.0018	< 0.003	< 0.00002	< 0.001	5.96	0.0005	< 0.01	0.0652	0.0006	< 0.009	0.845	0.00127	3.53	< 0.00001	0.55	0.124	9.56	< 0.00002	0.00095	0.0006	0.000315	0.00147	0.002	< 0.00001
14-Feb-12	88																								
21-Feb-12	89																								
28-Feb-12	90																								
6-Mar-12	91	0.0025	0.031	0.00003	< 0.001	6.58	0.0058	< 0.01	0.0590	0.0006	< 0.009	0.886	0.00063	2.71	< 0.00001	0.52	0.128	11.1	< 0.00002	0.00075	0.0002	0.000419	0.00124	0.002	< 0.00001
13-Mar-12	92																								
20-Mar-12	93																								
27-Mar-12	94																								
3-Apr-12	95	0.0013	< 0.003	< 0.00002	< 0.001	5.78	< 0.0002	< 0.01	0.0571	0.0004	< 0.009	0.805	0.00058	2.40	< 0.00001	0.44	0.111	9.21	< 0.00002	0.00001	< 0.0001	0.000266	0.00106	0.002	< 0.00001
10-Apr-12	96																								
17-Apr-12	97																								
24-Apr-12	98																								
1-May-12	99	0.0014	< 0.003	0.00004	< 0.001	6.05	0.0002	0.04	0.0530	0.0014	< 0.009	0.806	0.00035	2.43	< 0.00001	0.45	0.110	8.91	< 0.00002	0.00039	0.0007	0.000275	0.00144	0.001	< 0.00001
8-May-12	100																								
15-May-12	101																								
22-May-12	102																								
29-May-12	103	0.0022	< 0.003	0.00044	< 0.001	5.50	0.0037	< 0.01	0.0487	0.0004	< 0.009	0.721	0.00105	2.45	< 0.00001	0.39	0.0985	9.01	< 0.00002	0.00030	0.0002	0.000276	0.00122	0.006	< 0.00001
5-Jun-12	104																								
12-Jun-12	105																								
19-Jun-12	106																								
26-Jun-12	107	0.0016	< 0.003	0.00027	< 0.001	5.81	0.0004	0.01	0.0556	0.0003	< 0.009	0.786	0.00084	2.49	< 0.00001	0.46	0.103	10.8	< 0.00002	0.00015	0.0003	0.000277	0.00139	0.004	< 0.00001
3-Jul-12	108																								
10-Jul-12	109																								
17-Jul-12	110																								
24-Jul-12	111	0.0012	0.058	< 0.00002	< 0.001	5.87	0.0009	< 0.01	0.0491	0.0003	< 0.009	0.710	0.00041	2.30	< 0.00001	0.44	0.0975	9.28	< 0.00002	0.00005	0.0001	0.000250	0.00124	0.001	< 0.00001
31-Jul-12	112																								
7-Aug-12	113																								
14-Aug-12	114																								
21-Aug-12	115	0.0015	0.003	0.00004	< 0.001	6.04	0.0010	< 0.01	0.0541	0.0002	< 0.009	0.643	0.00048	2.66	< 0.00001	0.41	0.0971	10.7	< 0.00002	0.00019	0.0002	0.000272	0.00118	0.001	< 0.00001
28-Aug-12	116																								
4-Sep-12	117																								
11-Sep-12	118																								
18-Sep-12	119	0.0020	0.005	0.00011	< 0.001	5.67	0.0007	< 0.01	0.0434	< 0.0001	< 0.009	0.612	0.00043	2.21	< 0.00001	0.41	0.0886	8.08	< 0.00002	0.00035	0.0002	0.000233	0.00127	0.006	< 0.00001
25-Sep-12	120																								
2-Oct-12	121																								
9-Oct-12	122																								
16-Oct-12	123	0.0018	< 0.003	0.00002	< 0.001	6.54	0.0013	< 0.01	0.0457	0.0003	0.012	0.789	0.00037	2.33	< 0.00001	4.48	0.0972	9.56	< 0.00002	0.00023	< 0.0001	0.000279	0.00111	0.002	< 0.00001
23-Oct-12	124																								
30-Oct-12	125																								
6-Nov-12	126																								
13-Nov-12	127	0.0015	< 0.003	< 0.00002	< 0.001	5.55	0.0024	< 0.01	0.0393	0.0002	< 0.009	0.586	0.00041	2.19	< 0.00001	0.35	0.0855	7.40	< 0.00002	0.00003	0.0001	0.000213	0.00119	0.001	< 0.00001
20-Nov-12	128																								
27-Nov-12	129																								
4-Dec-12	130																								
11-Dec-12	131	0.0022	< 0.003	< 0.00002	< 0.001	4.93	0.0003	< 0.01	0.0382	0.0002	< 0.009	0.531	0.00045	1.87	< 0.00001	0.30	0.0743	6.23	< 0.00002	0.00026	0.0002	0.000198	0.00126	0.003	< 0.00001
18-Dec-12	132																								
25-Dec-12	133																								
1-Jan-13	134																								
8-Jan-13	135	0.0008	< 0.003	< 0.00002	< 0.001	5.00	0.0002	< 0.01	0.0339	0.0004	< 0.009	0.530	0.00060	1.76	< 0.00001	0.30	0.0743	5.17	< 0.00002	0.00021	0.0001	0.000386	0.00118	< 0.001	< 0.00001
15-Jan-13	136																								
22-Jan-13	137																								
29-Jan-13	138																								
5-Feb-13	139	0.0011	< 0.003	0.00004	< 0.001	6.62	0.0013	0.01	0.0374	0.0002	< 0.009	0.615	0.00168	2.31	< 0.00001	0.34	0.0969	11.6	< 0.00002	0.00002	< 0.0001	0.000317	0.00093	0.001	< 0.00001
12-Feb-13	140																								
19-Feb-13	141																								
26-Feb-13	142																								
5-Mar-13	143	0.0011	< 0.003	< 0.00002	< 0.001	5.96	< 0.0002	< 0.01	0.0370	0.0002	< 0.009	0.529	0.00031	1.88	< 0.00001	0.30	0.0830	10.8	< 0.00002	0.00005	< 0.0001	0.000252	0.00094	< 0.001	< 0.00001

Cell Terminated
Nov 16/10 EC 1190. Suspect probe malfunction, not repeated.

T-2
Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	NH3	NO3	NO2	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3										
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
9-Jun-10	0	2335	430	7.39	3073	#N/A	10.5	111.9	1535	< 0.01	< 0.01	0.9	1.90	< 0.06	59	1410	0.0124	0.0015	0.0071	0.139	< 0.00002	< 0.00001	0.0461	0.000175	467	0.0022
16-Jun-10	1	300	310	8.01	609	#N/A	3.9	107.7	148	< 0.01	< 0.01	< 0.3	< 0.05	< 0.06	1.6	133	0.0244	0.0024	0.0066	0.0433	< 0.00002	< 0.00001	0.0540	0.000081	42.1	0.0024
23-Jun-10	2	300	295	8.15	489	#N/A	2.6	123.4	88	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	1.4	92.5	0.0119	0.0027	0.0041	0.0407	< 0.00002	0.00003	0.115	0.000066	28.0	0.0015
30-Jun-10	3	300	290	8.12	468	#N/A	4.0	131.0	99	< 0.01	< 0.01	0.1	< 0.05	< 0.06	1.2	93.2	0.0116	0.0025	0.0040	0.0398	< 0.00002	< 0.00001	0.0555	0.000061	27.5	0.0013
7-Jul-10	4	300	305	8.04	457				106																	
14-Jul-10	5	300	285	8.05	499	#N/A	4.7	125.8	104	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.9	94.6	0.0906	0.0014	0.0033	0.0469	0.00004	< 0.00001	0.0518	0.000060	25.8	0.0017
21-Jul-10	6	300	310	7.98	566				159																	
28-Jul-10	7	300	300	8.04	597	#N/A	5.52	130.4	170	< 0.01	< 0.01	< 0.6	< 0.05	< 0.06	< 0.2	142	0.0128	0.0011	0.0024	0.0533	< 0.00002	0.00011	0.0560	0.000011	40.6	0.0017
4-Aug-10	8	300	290	8.12	609				170																	
11-Aug-10	9	300	295	#N/A	#N/A	#N/A	#N/A	#N/A	183	< 0.01	< 0.01	< 0.1	0.11	< 0.06	0.6	149	0.0180	0.0003	0.0021	0.0469	< 0.00002	< 0.00001	0.0486	0.000105	41.8	0.0015
18-Aug-10	10	300	295	8.08	604				193																	
25-Aug-10	11	300	290	7.89	593	#N/A	5.78	128.7	192	< 0.01	< 0.01	< 0.1	0.26	< 0.06	0.5	164	0.0083	0.0006	0.0020	0.0454	< 0.00002	< 0.00001	0.0518	< 0.000003	45.7	0.0010
1-Sep-10	12	300	290	8.01	593				253																	
8-Sep-10	13	300	300	7.76	594	#N/A	7.83	116.2	242	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.4	191	0.0080	0.0006	0.0020	0.0434	< 0.00002	0.00012	0.0508	0.000026	52.7	0.0009
15-Sep-10	14	300	295	7.85	528				258																	
22-Sep-10	15	300	305	7.93	483	#N/A	5.6	120.6	210	< 0.01	< 0.01	0.2	< 0.05	< 0.06	< 1	211	0.0087	0.0003	0.0017	0.04554	< 0.00002	0.00005	0.0617	< 0.000003	58.1	0.0016
29-Sep-10	16	300	300	7.98	446				187																	
6-Oct-10	17	300	290	7.92	557	#N/A	5.2	135.6	200	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.5	213	0.0072	0.0009	0.0013	0.0423	< 0.00002	0.00001	0.0608	0.000034	58.4	0.0017
13-Oct-10	18	300	295	8.03	536				206																	
20-Oct-10	19	300	295	7.93	526	#N/A	5.3	144.5	209	< 0.01	< 0.01	0.2	< 0.05	< 0.06	0.5	222	0.0081	0.0003	0.0011	0.0409	< 0.00002	< 0.00001	0.0609	0.000034	60.5	0.0013
27-Oct-10	20	300	315	8.1	535				196																	
3-Nov-10	21	300	295	8.16	482	#N/A	3.7	156.1	185	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.4	225	0.0071	< 0.0002	0.0011	0.0436	< 0.00002	< 0.00001	0.0710	0.000034	60.3	0.0006
10-Nov-10	22	300	305	8.13	548				174																	
17-Nov-10	23	300	290	8.24	#N/A	#N/A	3.4	161.9	144	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.4	218	0.0065	0.0002	0.0011	0.0409	< 0.00002	< 0.00001	0.0652	< 0.000003	57.7	0.0007
24-Nov-10	24	300	305	7.84	507				177																	
1-Dec-10	25	300	290	7.81	492	#N/A	8.1	161.9	152	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.3	237	0.0059	0.0003	0.0012	0.0392	< 0.00002	0.00003	0.0544	0.000005	63.4	0.0012
8-Dec-10	26	300	295	7.87	497				171																	
15-Dec-10	27	300	305	8.04	493	#N/A	6.5	163.5	125	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 1	219	0.0057	< 0.0002	0.0012	0.0390	< 0.00002	< 0.00001	0.0506	< 0.000003	57.1	< 0.0005
22-Dec-10	28	300	260	7.91	478				68																	
29-Dec-10	29	300	290	7.84	478	#N/A	9.5	164.6	104	< 0.01	< 0.01	0.1	< 0.05	< 0.06	0.3	215	0.0060	0.0002	0.0012	0.0386	< 0.00002	0.00004	0.0446	< 0.000003	55.8	0.0007
5-Jan-11	30	300	290	7.89	415				92																	
12-Jan-11	31	300	290	7.97	406	#N/A	6.4	166.8	102	< 0.01	< 0.01	0.1	< 0.05	< 0.06	0.4	197	0.0071	0.0003	0.0012	0.0392	< 0.00002	0.00002	0.0428	< 0.000003	50.6	< 0.0005
19-Jan-11	32	300	285	7.90	423				86																	
26-Jan-11	33	300	285	7.99	417	#N/A	6.6	165.6	96	0.01	< 0.01	0.1	< 0.05	< 0.06	0.4	205	0.0068	0.0005	0.0012	0.0456	< 0.00002	0.00001	0.0457	0.000012	52.6	< 0.0005
2-Feb-11	34	300	300	7.82	382				101																	
9-Feb-11	35	300	300	8.11	384	#N/A	3.9	157.8	86	< 0.01	< 0.01	< 0.05	< 0.06	< 0.1	0.4	189	0.0233	< 0.0002	0.0015	0.0426	< 0.00002	0.00002	0.0390	0.000007	48.1	0.0010
16-Feb-11	36	300	305	8.00	422				99																	
23-Feb-11	37	300	300	8.08	467	#N/A	5.3	157.1	110	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	0.4	211	0.0057	0.0003	0.0014	0.0420	< 0.00002	< 0.00001	0.0353	0.000006	53.1	0.0016
2-Mar-11	38	300	310	7.85	466	#N/A	5.6	153.1	107	< 0.01	< 0.01	< 0.1	< 0.05	< 0.06	< 1	202	0.0054	0.0002	0.0012	0.0439	< 0.00002	< 0.00001	0.0322	0.000036	50.4	< 0.0005
9-Mar-11	39	300	285	8.05	462	#N/A	5.4	159.5	103	0.02	< 0.01	< 0.1	< 0.05	< 0.06	< 1	192	0.0055	< 0.0002	0.0012	0.0415	< 0.00002	0.00001	0.0348	0.000009	48.1	0.0012
16-Mar-11	40	300	300	7.98	453				125																	
23-Mar-11	41	300	305	8.10	446				81																	
30-Mar-11	42	300	300	7.72	437				86																	
6-Apr-11	43	300	300	8.00	441	#N/A	7.6	168.5	80						0.3	190	0.0055	0.0004	0.0016	0.0413	< 0.00002	< 0.00001	0.0267	0.000055	45.6	< 0.0005
13-Apr-11	44	300	300	7.92	438				76																	
20-Apr-11	45	300	295	8.03	446				81																	
27-Apr-11	46	300	305	7.85	432				65																	
4-May-11	47	300	295	8.03	440	#N/A	6.3	169.8	76						0.4	188	0.0057	< 0.0002	0.0013	0.0404	< 0.00002	< 0.00001	0.0221	0.000011	46.3	< 0.0005
11-May-11	48	300	300	7.94	439				77																	
18-May-11	49	300	290	7.99	429				73																	
25-May-11	50	300	305	7.88	445				76																	
1-Jun-11	51	300	295	8.16	441	#N/A	6.2	153.7	71						0.3	205	0.0053	< 0.0002	0.0014	0.0450	< 0.00002	< 0.00001	0.0270	0.000005	50.2	< 0.0005
8-Jun-11	52	300	290	8.00	425				71																	
15-Jun-11	53	300	290	8.30	442				72																	
22-Jun-11	54	300	310	8.08	441				100																	
29-Jun-11	55	300	295	8.19	441	#N/A	3.5	171.1	82						0.3	198	0.0063	< 0.0002	0.0017	0.0454	< 0.00002	< 0.00001	0.0263	0.000011	48.0	< 0.0005
6-Jul-11	56	300	290	7.93	447				80																	
13-Jul-11	57	300	285	7.86	444				84																	
20-Jul-11	58	300	295	7.88	449				91																	
27-Jul-11	59	300	275	7.98	441	#N/A	5.9	159.9	87						0.3	188	0.0063	0.0003	0.0013	0.0436	< 0.00002	0.00002	0.0210	0.000021	45.1	< 0.0005
3-Aug-11	60	300	315	7.85	441				91																	
10-Aug-11	61	300	290	7.93	438				77																	
17-Aug-11	62	300	250	7.82	442				83																	
24-Aug-11	63	300	290	7.90	440	#N/A	9.6	163.2	79						0.3	202	0.0067	0.0003	0.0014	0.0469	< 0.00002	< 0.00001	0.0204	0.000020	48.4	0.0011
31-Aug-11	64	300	295	7.87	445				93																	
7-Sep-11	65	300	300	8.11	444				92																	
14-Sep-11	66	300	270	7.92	435				95																	
21-Sep-11	67	300	315	7.94	432	#N/A	7.2	160.3	88						< 1	209	0.0062	< 0.0002	0.0015	0.0458	< 0.00002	< 0.00001	0.0170	< 0.000003	50.0	0.0018
28-Sep-11	68	300	290	7.92	436				84																	
5-Oct-11	69	300	295	7.99	431				87																	
12-Oct-11	70	300	295	7.69	423				86																	
19-Oct-11	71	300	300	8.07	419	#N/A	4.5	156.3	84						< 0.2	196	0.0080	< 0.0002	0.0021	0.0446	< 0.00002	< 0.00001	0.0160	0.00001	46.6	0.0017
26-Oct-11	72	300	300	8.00	417				80																	
2-Nov-11	73	300	295	7.98	411				84																	
9-Nov-11	74	300	295	7.77	409				70																	
16-Nov-11	75	300	290	8.02	408	#N/A	4.7	157.1	70						< 0.2	189	0.0254	< 0.0002	0.0015	0.0505	< 0.00002	< 0.00001	0.0168	0.000006	44.6	< 0.0005
23-Nov-11	76	300	295	8.04	390				64																	
30-Nov-11	77	300	290	7.92	402				78																	
7-Dec-11	78	300	300	7.83	392				66																	
14-Dec-11	79	300	300	7.97	399	#N/A	6.4	158.3	61						< 0.2	173	0.0069	< 0.0002	0.0014	0.0488	< 0.00002	< 0.00001	0.0144	0.000038	41.0	0.0024
21-Dec-11	80	300	290	7.92	391				68																	
28-Dec-11	81	500	500	7.92	386				56																	

T-2
Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	NH3	NO3	NO2	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3										
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
4-Jan-12	82	300	285	7.78	391				56																	
11-Jan-12	83	300	290	7.97	386	#N/A	4.5	175.8	62						< 0.2	185	0.0678	< 0.0002	0.0017	0.0536	< 0.00002	< 0.00001	0.0131	0.000042	43.7	< 0.0005
18-Jan-12	84	300	295	8.06	399				62																	
25-Jan-12	85	300	295	8.01	377				78																	
1-Feb-12	86	300	300	7.82	376				58																	
8-Feb-12	87	300	290	7.95	381	#N/A	6.3	181.5	60						0.2	170	0.0220	0.0004	0.0016	0.0536	< 0.00002	< 0.00001	0.0117	0.000013	40.5	< 0.0005
15-Feb-12	88	300	300	7.98	400				73																	
22-Feb-12	89	300	285	8.00	390				54																	
29-Feb-12	90	300	295	7.85	369				54																	
7-Mar-12	91	300	280	7.92	398	#N/A	9.0	161.8	58						0.2	187	0.0175	< 0.0002	0.0015	0.0564	< 0.00002	< 0.00001	0.0092	< 0.000003	44.3	< 0.0005
14-Mar-12	92	300	310	7.98	390				65																	
21-Mar-12	93	300	295	7.95	404				57																	
28-Mar-12	94	300	285	7.87	390				69																	
4-Apr-12	95	300	310	8.01	392	#N/A	4.6	158.7	67						< 0.2	182	0.0333	< 0.0002	0.0016	0.0554	< 0.00002	< 0.00001	0.0117	< 0.000003	42.8	< 0.0005
11-Apr-12	96	300	290	8.09	390				72																	
18-Apr-12	97	300	300	7.98	399				65																	
25-Apr-12	98	300	300	7.83	401				74																	
2-May-12	99	300	300	7.82	390	#N/A	10.1	154.3	70						< 0.2	196	0.0683	0.0003	0.0018	0.0563	< 0.00002	< 0.00001	0.0138	< 0.000003	46.7	< 0.0005
9-May-12	100	300	290	8.05	403				64																	
16-May-12	101	300	310	7.98	389				58																	
23-May-12	102																									
30-May-12	103	600	540	8.00	433	#N/A	7.7	152.4	68						0.2	196	0.0273	< 0.0002	0.0017	0.0533	< 0.00002	< 0.00001	0.0126	< 0.000003	45.9	< 0.0005
6-Jun-12	104																									
13-Jun-12	105	400	305	7.86	615				153																	
20-Jun-12	106																									
27-Jun-12	107	300	260	7.70	882	#N/A	10.5	102.5	307						< 1	419	0.0581	0.0006	0.0019	0.0480	< 0.00002	< 0.00001	0.0201	< 0.000003	92.1	< 0.0005
4-Jul-12	108																									
11-Jul-12	109	500	310	7.90	1060				459																	
18-Jul-12	110																									
25-Jul-12	111	500	270	7.80	1320	#N/A	8.0	91.1	649						< 0.2	660	0.0682	0.0008	0.0022	0.0387	< 0.00002	< 0.00001	0.0205	0.000009	150	< 0.0005
1-Aug-12	112																									
8-Aug-12	113	500	265	7.85	1486				831																	
15-Aug-12	114																									
22-Aug-12	115	500	255	7.75	1411	#N/A	9.8	87.0	851						< 0.2	710	0.0987	0.0010	0.0022	0.0258	< 0.00002	0.00005	0.0193	0.000029	149	< 0.0005
29-Aug-12	116																									
5-Sep-12	117	500	270	7.82	1317				601																	
12-Sep-12	118																									
19-Sep-12	119	500	235	7.76	1237	#N/A	8.8	98.4	687						0.4	620	0.0355	0.0009	0.0024	0.0235	< 0.00002	< 0.00001	0.0208	0.000033	126	0.0007
26-Sep-12	120																									
3-Oct-12	121	500	255	7.54	1291				664																	
10-Oct-12	122																									
17-Oct-12	123	500	270	7.79	875	#N/A	7.4	100.0	363						< 0.2	446	0.0209	0.0008	0.0018	0.0204	< 0.00002	< 0.00001	0.0169	0.000019	86.8	< 0.0005
24-Oct-12	124																									
31-Oct-12	125	500	255	7.79	883				332																	
7-Nov-12	126																									
14-Nov-12	127	500	240	7.88	827	#N/A	18.4	112.6	288						< 0.2	408	0.0207	0.0009	0.0019	0.0239	< 0.00002	< 0.00001	0.0153	0.000013	79.0	< 0.0005
21-Nov-12	128																									
28-Nov-12	129	300	235	7.77	808				336																	
5-Dec-12	130																									
12-Dec-12	131	500	315	7.91	714	#N/A	6.4	105.7	253						< 0.2	346	0.0146	0.0009	0.0017	0.0241	< 0.00002	< 0.00001	0.0159	0.000021	67.9	< 0.0005
19-Dec-12	132																									
26-Dec-12	133	500	260	7.90	788				280																	
2-Jan-13	134																									
9-Jan-13	135	500	220	7.89	684	#N/A	9.8	105.3	265						< 0.2	315	0.0194	0.0011	0.0016	0.0267	< 0.00002	< 0.00001	0.0191	0.000008	59.6	< 0.0005
16-Jan-13	136																									
23-Jan-13	137	500	175	7.79	831				331																	
30-Jan-13	138																									
6-Feb-13	139	500	205	7.85	766	#N/A	9.9	91.6	324						0.3	334	0.0057	0.0014	0.0021	0.0291	< 0.00002	< 0.00001	0.0207	0.000035	56.0	< 0.0005
13-Feb-13	140																									
20-Feb-13	141	500	210	7.93	649				253																	
27-Feb-13	142																									
6-Mar-13	143	500	310	7.91	488	#N/A	7.7	101.0	145						< 0.2	223	0.0051	0.0010	0.0014	0.0329	< 0.00002	< 0.00001	0.0145	0.000035	40.9	< 0.0005
13-Mar-13	144																									
20-Mar-13	145	500	195	8.03	585				218																	
27-Mar-13	146																									
3-Apr-13	147	500	180	7.94	688	#N/A	9.6	90.7	241						0.2	315	0.0061	0.0014	0.0023	0.0294	< 0.00002	< 0.00001	0.0194	0.000043	50.3	< 0.0005
10-Apr-13	148																									
17-Apr-13	149	500	215	7.95	517				213																	
24-Apr-13	150																									
1-May-13	151	500	240	7.99	480	#N/A	7.9	92.2	196						< 0.2	226	0.0052	0.0012	0.0021	0.0271	< 0.00002	< 0.00001	0.0183	0.000015	36.0	< 0.0005
8-May-13	152																									
15-May-13	153	500	225	7.85	452				189																	
22-May-13	154																									
29-May-13	155	550	260	7.92	446	#N/A	9.8	92.1	164						< 0.2	215	0.0046	0.0011	0.0017	0.0283	< 0.00002	< 0.00001	0.0183	0.000031	32.3	< 0.0005
5-Jun-13	156																									
12-Jun-13	157	500	240	8.00	472				158																	
19-Jun-13	158																									
26-Jun-13	159	500	250	7.70	618	#N/A	17.7	100.1	196						< 1	251	0.0058	0.0014	0.0023	0.0373	< 0.00002	< 0.00001	0.0316	0.000064	37.4	0.0006
3-Jul-13	160																									
10-Jul-13	161	500	90	7.95	748				294																	
17-Jul-13	162																									
24-Jul-13	163	500	230	7.84	559	#N/A	19.1	107.4	185						< 1	240	0.0045	0.0014	0.0021	0.0284	< 0.00002	< 0.00001	0.0259	0.000072	27.8	< 0.0005

T-2

Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	NH3	NO3	NO2	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3										
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
31-Jul-13	164																									
7-Aug-13	165	500	80	7.83	840				305																	
14-Aug-13	166																									
21-Aug-13	167	550	255	7.78	504	#N/A	16.4	99.6	156						< 0.2	222	0.0062	0.0015	0.0024	0.0300	< 0.00002	< 0.00001	0.0274	0.000293	25.6	< 0.0005
28-Aug-13	168																									
4-Sep-13	169	550	110	7.96	651				246																	
11-Sep-13	170																									
18-Sep-13	171	600	205	7.98	532	#N/A	10.4	101.9	165						< 1	240	0.0016	0.0017	0.0024	0.0347	< 0.00002	< 0.00001	0.0415	0.000055	27.1	< 0.0005
25-Sep-13	172																									
2-Oct-13	173	500	140	8.11	571				164																	
9-Oct-13	174																									
16-Oct-13	175	600	200	8.06	521	#N/A	3.4	104.9	151						0.4	228	0.0207	0.0016	0.0022	0.0376	< 0.00002	< 0.00001	0.0346	0.000080	25.0	0.0013
23-Oct-13	176																									
30-Oct-13	177	500	250	8.19	405				95																	
6-Nov-13	178																									
13-Nov-13	179	500	245	8.16	430	#N/A	4.1	91.8	98						< 0.2	183	0.0053	0.0011	0.0017	0.0432	< 0.00002	< 0.00001	0.0191	0.000116	25.1	0.0007
20-Nov-13	180																									
27-Nov-13	181	500	220	8.08	458				104																	
4-Dec-13	182																									
11-Dec-13	183	500	245	8.15	394	#N/A	2.0	91.0	97						< 0.2	176	0.0056	0.0011	0.0017	0.0425	< 0.00002	< 0.00001	0.0193	0.000197	25.1	0.0007
18-Dec-13	184																									
25-Dec-13	185	500	210	8.11	455				106																	
1-Jan-14	186																									
8-Jan-14	187	500	365	8.20	369	#N/A	1.4	95.0	75						< 0.2	164	0.0037	0.0010	0.0015	0.0460	< 0.00002	< 0.00001	0.0186	0.000211	27.0	0.0009
15-Jan-14	188																									
22-Jan-14	189	500	210	8.16	528				117																	
29-Jan-14	190																									
5-Feb-14	191	500	265	8.10	400	#N/A	2.9	99.8	98						< 0.2	187	0.0058	0.0012	0.0014	0.0407	< 0.00002	< 0.00001	0.0166	0.000199	27.3	0.0010
12-Feb-14	192																									
19-Feb-14	193	400	115	8.06	565				164																	
26-Feb-14	194																									
5-Mar-14	195	500	370	7.98	354	#N/A	5.7	101.9	78						< 0.2	173	0.0031	0.0009	0.0012	0.0401	< 0.00002	< 0.00001	0.0157	0.000143	28.4	0.0011
12-Mar-14	196																									
19-Mar-14	197	300	95	7.95	489																					
26-Mar-14	198																									
2-Apr-14	199	500	310	8.06	387	#N/A	4.8	101.5	93						< 0.2	180	0.0041	0.0008	0.0011	0.0421	< 0.00002	< 0.00001	0.0174	0.000369	29.1	0.0006
9-Apr-14	200																									
16-Apr-14	201	300	140	8.02	477																					
23-Apr-14	202																									
30-Apr-14	203	500	255	8.00	419	#N/A	8.1	90.6	103						< 0.2	186	0.0030	0.0009	0.0012	0.0427	< 0.000007	< 0.000007	0.0259	0.000422	29.4	0.00094
7-May-14	204																									
14-May-14	205	400	60	8.03	707																					
21-May-14	206																									
28-May-14	207	500	195	7.97	529	#N/A	6.7	98.1	146						< 1	242	0.0026	0.0015	0.0018	0.0346	< 0.000007	< 0.000007	0.0287	0.000200	29.3	0.00127
4-Jun-14	208																									
11-Jun-14	209	500	110	8.13	579																					
18-Jun-14	210																									
25-Jun-14	211	500	190	8.02	495	#N/A	9.0	104.0	131						0.2	215	0.0038	0.0015	0.0023	0.0322	< 0.000007	< 0.000007	0.0331	0.000168	23.7	0.00130
2-Jul-14	212																									
9-Jul-14	213	400	70	8.14	633																					
16-Jul-14	214																									
23-Jul-14	215	500	315	8.23	366	#N/A	2.6	95.1	71						< 0.2	168	0.0046	0.0012	0.0017	0.0344	< 0.000007	< 0.000007	0.0242	0.000081	24.1	0.00069
30-Jul-14	216																									
6-Aug-14	217	300	65	8.25	566																					
13-Aug-14	218																									
20-Aug-14	219	500	290	8.13	373	#N/A	2.5	92.3	89						< 0.2	165	0.0058	0.0010	0.0016	0.0370	< 0.000007	< 0.000007	0.0241	0.000145	24.6	0.00071
27-Aug-14	220																									
3-Sep-14	221	350	60	7.99	685																					

Aug 11/10. EC 29, Alkalinity 14.2. Suspect sample mix-up.
Nov 17. EC 1395. Suspect probe malfunction, not repeated.
Dec 28/11 500 mL inadvertently added to the cell.
Apr 23/12 Change in analytical schedule.
May 30/12 600 mL added to ensure enough leachate for analysis.
Mar 19/14 Change in analytical schedule

T-2
Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.																									
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
9-Jun-10	0	0.00132	0.030	< 0.002	0.00031	0.007	58.4	0.0288	1.42	0.442	0.0057	0.162	76.2	0.0164	6.94	0.00041	142	3.41	647	< 0.0002	0.00102	0.0005	0.00285	0.00167	0.005	0.00065
16-Jun-10	1	0.000165	0.0130	0.005	0.00024	0.005	6.78	0.0054	< 0.01	0.281	0.0013	< 0.009	18.7	0.00213	6.44	0.00052	65.3	0.379	73.9	< 0.0002	0.00536	0.0008	0.00143	0.00321	0.005	0.00042
23-Jun-10	2	0.000161	0.0090	0.015	0.00013	0.002	5.47	0.0053	0.01	0.186	0.0015	0.022	16.9	0.00266	6.84	< 0.00001	53.9	0.271	43.9	< 0.0002	0.00139	0.0004	0.00119	0.00318	0.001	0.00005
30-Jun-10	3	0.000233	0.0111	0.002	0.00007	0.003	5.98	0.0054	< 0.01	0.146	0.0017	< 0.009	15.6	0.00289	6.05	< 0.00001	51.6	0.267	40.5	< 0.0002	0.00106	0.0004	0.00141	0.00268	0.001	0.00011
7-Jul-10	4																									
14-Jul-10	5	0.00365	0.0105	0.004	0.00074	0.002	7.32	0.0070	< 0.01	0.110	0.0079	0.016	16.8	0.00403	6.13	0.00002	53.0	0.308	46.6	< 0.0002	0.00379	0.0005	0.0215	0.00273	0.004	0.00007
21-Jul-10	6																									
28-Jul-10	7	0.000299	0.0079	0.003	0.00037	0.002	9.92	0.0081	< 0.01	0.0607	0.0013	< 0.009	18.7	0.00276	6.73	0.00006	67.1	0.397	65.1	< 0.0002	0.00521	0.0007	0.00197	0.00247	0.005	0.00010
4-Aug-10	8																									
11-Aug-10	9	0.000698	0.0059	< 0.002	0.00142	0.002	10.8	0.0090	0.01	0.0765	0.0010	0.017	18.6	0.00214	6.48	< 0.00001	64.8	0.401	63.6	< 0.0002	0.00552	0.0004	0.00177	0.00213	0.008	0.00002
18-Aug-10	10																									
25-Aug-10	11	0.000274	0.0036	0.004	0.00004	0.002	12.1	0.0112	0.02	0.0832	0.0009	< 0.009	17.5	0.00276	6.01	< 0.00001	55.7	0.440	68.7	< 0.0002	0.00509	0.0004	0.00140	0.00196	< 0.001	0.00003
1-Sep-10	12																									
8-Sep-10	13	0.000326	0.0076	0.163	0.00008	0.002	14.3	0.167	< 0.01	0.0749	0.0011	0.024	20.2	0.00154	6.31	0.00004	35.9	0.526	70.3	< 0.0002	0.00391	0.0004	0.00105	0.00172	0.002	0.00006
15-Sep-10	14																									
22-Sep-10	15	0.000402	0.0045	0.006	0.00009	0.002	16.0	0.0155	< 0.01	0.07618	0.0016	0.010	20.5	0.00225	6.58	0.00001	24.6	0.574	66.3	< 0.0002	0.00532	0.0007	0.000857	0.00183	0.002	0.00003
29-Sep-10	16																									
6-Oct-10	17	0.000614	0.0050	< 0.002	0.00035	< 0.001	16.3	0.0159	< 0.01	0.0780	0.0007	0.015	18.1	0.00109	6.44	< 0.00001	17.5	0.581	62.1	< 0.0002	0.00366	0.0021	0.000876	0.00142	0.006	0.00006
13-Oct-10	18																									
20-Oct-10	19	0.000429	0.0044	0.005	0.00006	0.002	17.3	0.0167	< 0.01	0.0637	0.0005	< 0.009	19.9	0.00142	6.57	< 0.00001	17.1	0.615	55.5	< 0.0002	0.00287	0.0009	0.00110	0.00149	0.003	0.00003
27-Oct-10	20																									
3-Nov-10	21	0.000446	0.0056	0.024	0.00137	0.002	18.1	0.0178	< 0.01	0.0615	0.0023	0.012	20.0	0.00155	6.78	< 0.00001	13.7	0.631	51.1	< 0.0002	0.00333	0.0014	0.00156	0.00136	0.002	0.00004
10-Nov-10	22																									
17-Nov-10	23	0.000416	0.0047	< 0.002	0.00003	0.002	17.8	0.0184	< 0.01	0.0581	0.0013	0.022	19.1	0.00143	6.67	< 0.00001	11.6	0.613	46.1	< 0.0002	0.00387	0.0006	0.000530	0.00132	0.002	0.00001
24-Nov-10	24																									
1-Dec-10	25	0.000451	0.0055	< 0.002	0.00265	0.002	19.1	0.0199	< 0.01	0.0518	0.0006	< 0.009	16.4	0.00147	5.94	< 0.00001	9.93	0.590	39.9	< 0.0002	0.00467	0.0008	0.000306	0.00130	0.003	0.00002
8-Dec-10	26																									
15-Dec-10	27	0.000441	0.0060	0.008	0.00016	0.002	18.6	0.0208	< 0.01	0.0523	0.0012	0.024	16.4	0.00131	6.20	< 0.00001	9.10	0.624	39.3	< 0.0002	0.00671	0.0007	0.000324	0.00136	0.002	0.00001
22-Dec-10	28																									
29-Dec-10	29	0.000413	0.0059	< 0.002	0.00211	0.002	18.5	0.0210	< 0.01	0.0484	0.0006	0.032	18.0	0.00083	7.28	0.00004	9.17	0.624	43.2	< 0.0002	0.00731	0.0007	0.00803	0.00144	0.002	0.00002
5-Jan-11	30																									
12-Jan-11	31	0.000414	0.0057	0.003	0.00003	0.002	17.2	0.0204	< 0.01	0.0526	0.0012	< 0.009	17.7	0.00097	6.85	< 0.00001	8.67	0.582	35.4	< 0.0002	0.00971	0.0006	0.000260	0.00153	0.001	0.00005
19-Jan-11	32																									
26-Jan-11	33	0.000372	0.0065	< 0.002	0.00005	0.002	18.0	0.0197	0.03	0.0549	0.0011	0.040	18.3	0.00080	7.46	< 0.00001	8.82	0.609	50.4	< 0.0002	0.01159	0.0007	0.000269	0.00141	0.004	0.00005
2-Feb-11	34																									
9-Feb-11	35	0.000491	0.0067	0.003	0.00135	0.002	16.6	0.0174	< 0.01	0.0524	0.0020	0.059	15.9	0.00105	7.48	< 0.00001	7.99	0.554	31.3	< 0.0002	0.0130	0.0008	0.000242	0.00130	0.006	0.00002
16-Feb-11	36																									
23-Feb-11	37	0.000517	0.0066	< 0.002	0.00227	0.002	19.0	0.0177	0.01	0.0505	0.0014	0.063	15.4	0.00092	7.56	< 0.00001	8.53	0.612	36.9	< 0.0002	0.0139	0.0007	0.000320	0.00121	0.010	0.00002
2-Mar-11	38	0.000429	0.0062	0.002	0.00287	0.002	18.5	0.0177	0.01	0.0542	0.0004	0.030	14.6	0.00098	6.63	< 0.00001	7.61	0.592	34.0	< 0.0002	0.0140	0.0015	0.000251	0.00113	0.003	0.00001
9-Mar-11	39	0.000271	0.0059	0.004	0.00310	0.003	17.4	0.0135	< 0.01	0.0550	0.0012	0.045	14.8	0.00037	7.10	< 0.00001	7.32	0.567	30.0	< 0.00002	0.0135	0.0007	0.000239	0.00132	0.003	0.00003
16-Mar-11	40																									
23-Mar-11	41																									
30-Mar-11	42																									
6-Apr-11	43	0.00031	0.0049	0.008	0.00011	0.003	19.1	0.0166	< 0.01	0.0627	0.0007	< 0.009	13.8	0.00066	6.45	< 0.00001	6.64	0.549	29.6	< 0.00002	0.0146	0.0006	0.00026	0.0011	0.002	< 0.00001
13-Apr-11	44																									
20-Apr-11	45																									
27-Apr-11	46																									
4-May-11	47	0.000222	0.0056	< 0.002	0.00005	0.003	17.7	0.0082	< 0.01	0.0810	0.0018	0.033	13.7	0.00005	6.62	< 0.00001	6.34	0.576	27.6	< 0.0002	0.0240	0.0009	0.000272	0.00103	0.002	0.00002
11-May-11	48																									
18-May-11	49																									
25-May-11	50																									
1-Jun-11	51	0.000215	0.0064	< 0.002	0.00002	0.005	19.4	0.0073	< 0.01	0.0933	0.0004	0.072	14.8	0.00052	7.92	< 0.00001	6.68	0.612	29.3	< 0.00002	0.0380	0.0009	0.000345	0.00120	0.002	< 0.00001
8-Jun-11	52																									
15-Jun-11	53																									
22-Jun-11	54																									
29-Jun-11	55	0.000139	0.0062	0.006	0.00068	0.005	18.9	0.0060	0.01	0.109	0.0012	< 0.009	13.1	0.00043	7.32	< 0.00001	6.48	0.602	28.0	< 0.00002	0.0591	0.0006	0.000405	0.00120	0.004	0.00002
6-Jul-11	56																									
13-Jul-11	57																									
20-Jul-11	58																									
27-Jul-11	59	0.000222	0.0078	0.048	0.00003	0.005	18.2	0.0473	< 0.01	0.118	0.0024	0.036	11.7	0.00100	6.73	< 0.00001	5.84	0.566	28.3	< 0.00002	0.0822	0.0014	0.000438	0.00122	0.004	0.00002
3-Aug-11	60																									
10-Aug-11	61																									
17-Aug-11	62																									
24-Aug-11	63	0.000130	0.0059	< 0.002	0.00007	0.006	19.7	0.0047	< 0.01	0.127	0.0004	< 0.009	11.9	0.00043	7.41	0.00002	6.15	0.603	29.4	< 0.00002	0.109	0.0005	0.000536	0.00119	0.003	0.00001
31-Aug-11	64																									
7-Sep-11	65																									
14-Sep-11	66																									
21-Sep-11	67	0.000335	0.0064	0.010	0.00006	0.006	20.5	0.0055	0.01	0.117	0.0005	0.012	11.3	0.00052	6.93	< 0.00001	6.15	0.622	30.6	< 0.00002	0.130	0.0006	0.000589	0.00116	0.002	0.00001
28-Sep-11	68																									
5-Oct-11	69																									
12-Oct-11	70																									
19-Oct-11	71	0.000113	0.0065	0.003	0.00044	0.006	19.3	0.0033	< 0.01	0.111	0.0011	< 0.009	10.3	0.00048	6.78	< 0.00001	5.48	0.562	27.3	< 0.00002	0.141	0.0004	0.000611	0.00108	0.005	0.00002
26-Oct-11	72																									
2-Nov-11	73																									
9-Nov-11	74																									
16-Nov-11	75	0.000097	0.0062	< 0.003	< 0.00002	0.006	18.9	0.0016	< 0.01	0.131	0.0013	< 0.009	9.83	0.00033	6.92	< 0.00001	5.24	0.566	24.0	< 0.00002	0.176	0.0008	0.000541	0.00145	0.002	0.00001
23-Nov-11	76																									
30-Nov-11	77																									
7-Dec-11	78																									
14-Dec-11	79	0.000108	0.0065	0.006	0.00014	0.006	17.2	0.0030	< 0.01	0.125	0.0004	< 0.009	9.15	0.00026	7.16	< 0.00001	4.57	0.517	21.7	< 0.00002	0.181	0.0006	0.000589	0.00111	0.003	0.00003
21-Dec-11	80																									
28-Dec-11	81																									

T-2
Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.																									
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
4-Jan-12	82																									
11-Jan-12	83	0.000093	0.0065	< 0.003	< 0.00002	0.006	18.4	0.0025	< 0.01	0.115	0.0004	< 0.009	9.38	0.00028	7.16	< 0.00001	4.63	0.551	21.9	< 0.00002	0.181	0.0007	0.000477	0.00163	< 0.001	< 0.00001
18-Jan-12	84																									
25-Jan-12	85																									
1-Feb-12	86																									
8-Feb-12	87	0.000099	0.0063	< 0.003	0.00003	0.005	16.8	0.0020	< 0.01	0.126	0.0006	< 0.009	8.38	0.00061	7.09	< 0.00001	4.67	0.518	18.9	< 0.00002	0.182	0.0007	0.000616	0.00158	0.002	< 0.00001
15-Feb-12	88																									
22-Feb-12	89																									
29-Feb-12	90																									
7-Mar-12	91	0.000047	0.0061	< 0.003	< 0.00002	0.005	18.5	0.0034	< 0.01	0.130	0.0006	< 0.009	8.83	0.00044	7.55	< 0.00001	4.55	0.556	20.9	< 0.00002	0.177	0.0003	0.000671	0.00147	0.002	< 0.00001
14-Mar-12	92																									
21-Mar-12	93																									
28-Mar-12	94																									
4-Apr-12	95	0.000046	0.0062	< 0.003	< 0.00002	0.005	18.3	0.0019	< 0.01	0.128	0.0008	< 0.009	8.37	0.00032	7.16	< 0.00001	4.42	0.548	21.5	< 0.00002	0.161	< 0.0001	0.000651	0.00149	0.004	< 0.00001
11-Apr-12	96																									
18-Apr-12	97																									
25-Apr-12	98																									
2-May-12	99	0.000052	0.0065	0.006	0.00005	0.005	19.3	0.0019	0.06	0.135	0.0009	< 0.009	7.68	0.00010	7.08	< 0.00001	4.56	0.577	23.8	< 0.00002	0.154	0.0006	0.000790	0.00182	0.002	< 0.00001
9-May-12	100																									
16-May-12	101																									
23-May-12	102																									
30-May-12	103	0.000128	0.0055	< 0.003	0.00017	0.006	19.7	0.0084	< 0.01	0.168	0.0010	< 0.009	8.42	0.00074	6.27	< 0.00001	4.30	0.612	28.9	< 0.00002	0.135	0.0004	0.00132	0.00157	0.004	< 0.00001
6-Jun-12	104																									
13-Jun-12	105																									
20-Jun-12	106																									
27-Jun-12	107	0.000205	0.0048	< 0.003	0.00004	0.010	45.9	0.0103	< 0.01	0.346	0.0016	< 0.009	13.4	0.00773	6.07	< 0.00001	7.81	1.13	125	< 0.00002	0.133	0.0005	0.00272	0.00174	0.004	< 0.00001
4-Jul-12	108																									
11-Jul-12	109																									
18-Jul-12	110																									
25-Jul-12	111	0.000264	0.0043	< 0.003	< 0.00002	0.015	69.2	0.0124	0.01	0.315	0.0014	< 0.009	18.0	0.0283	5.87	< 0.00001	9.83	1.69	220	< 0.00002	0.108	0.0004	0.00387	0.00181	0.004	< 0.00001
1-Aug-12	112																									
8-Aug-12	113																									
15-Aug-12	114																									
22-Aug-12	115	0.000240	0.0045	0.005	0.00026	0.019	82.5	0.0079	0.01	0.253	0.0023	< 0.009	18.9	0.0310	5.33	< 0.00001	9.69	1.66	235	< 0.00002	0.0652	0.0005	0.00414	0.00194	0.006	0.00005
29-Aug-12	116																									
5-Sep-12	117																									
12-Sep-12	118																									
19-Sep-12	119	0.000185	0.0038	< 0.003	0.00003	0.021	74.9	0.0065	0.02	0.319	0.0005	< 0.009	18.7	0.0356	5.70	< 0.00001	9.04	1.41	203	< 0.00002	0.0506	0.0005	0.00372	0.00179	0.003	0.00002
26-Sep-12	120																									
3-Oct-12	121																									
10-Oct-12	122																									
17-Oct-12	123	0.000090	0.0033	< 0.003	< 0.00002	0.016	55.6	0.0037	< 0.01	0.298	0.0009	< 0.009	14.4	0.0239	4.93	< 0.00001	7.63	1.01	130	< 0.00002	0.0427	0.0003	0.00299	0.00153	0.003	< 0.00001
24-Oct-12	124																									
31-Oct-12	125																									
7-Nov-12	126																									
14-Nov-12	127	0.000096	0.0039	< 0.003	0.00014	0.015	51.3	0.0036	0.01	0.294	0.0006	< 0.009	13.3	0.0217	4.89	0.00002	6.94	0.932	115	< 0.00002	0.0405	0.0003	0.00251	0.00183	0.004	< 0.00001
21-Nov-12	128																									
28-Nov-12	129																									
5-Dec-12	130																									
12-Dec-12	131	0.000057	0.0039	< 0.003	< 0.00002	0.012	42.8	0.0043	< 0.01	0.285	0.0012	< 0.009	11.6	0.0141	4.71	< 0.00001	5.79	0.794	92.6	< 0.00002	0.0407	0.0004	0.00234	0.00158	0.003	< 0.00001
19-Dec-12	132																									
26-Dec-12	133																									
2-Jan-13	134																									
9-Jan-13	135	0.000095	0.0043	< 0.003	0.00007	0.013	40.4	0.0032	< 0.01	0.362	0.0011	0.014	11.9	0.0163	4.39	< 0.00001	6.19	0.701	72.5	< 0.00002	0.0463	0.0004	0.00216	0.00181	0.003	< 0.00001
16-Jan-13	136																									
23-Jan-13	137																									
30-Jan-13	138																									
6-Feb-13	139	0.000095	0.0048	0.004	0.00003	0.014	47.3	0.0065	< 0.01	0.637	0.0006	< 0.009	13.6	0.0192	5.22	< 0.00001	7.78	0.709	98.0	< 0.00002	0.0492	0.0002	0.00191	0.00178	0.003	< 0.00001
13-Feb-13	140																									
20-Feb-13	141																									
27-Feb-13	142																									
6-Mar-13	143	0.000238	0.0031	< 0.003	0.00006	0.009	29.4	0.0045	< 0.01	0.372	0.0003	< 0.009	8.22	0.00977	4.38	< 0.00001	4.75	0.487	53.1	< 0.00002	0.0513	< 0.0001	0.00118	0.00146	0.001	0.00001
13-Mar-13	144																									
20-Mar-13	145																									
27-Mar-13	146																									
3-Apr-13	147	0.000178	0.0049	0.005	0.00007	0.014	46.0	0.0062	< 0.01	0.830	0.0004	< 0.009	14.6	0.0145	5.53	< 0.00001	9.13	0.591	90.7	< 0.00002	0.0498	0.0001	0.00136	0.00214	0.002	< 0.00001
10-Apr-13	148																									
17-Apr-13	149																									
24-Apr-13	150																									
1-May-13	151	0.000142	0.0044	< 0.003	< 0.00002	0.009	32.9	0.0044	< 0.01	0.593	0.0002	< 0.009	10.4	0.0107	4.73	< 0.00001	6.32	0.440	55.8	< 0.00002	0.0539	0.0004	0.00105	0.00212	0.002	< 0.00001
8-May-13	152																									
15-May-13	153																									
22-May-13	154																									
29-May-13	155	0.000069	0.0033	< 0.003	< 0.00002	0.009	32.7	0.0058	< 0.01	0.607	0.0004	< 0.009	10.2	0.00911	4.82	< 0.00001	6.32	0.417	52.3	< 0.00002	0.0479	0.0002	0.000918	0.00188	0.005	< 0.00001
5-Jun-13	156																									
12-Jun-13	157																									
19-Jun-13	158																									
26-Jun-13	159	0.000095	0.0041	< 0.003	< 0.00002	0.011	38.3	0.0073	0.02	1.11	0.0005	< 0.009	12.2	0.0127	5.85	< 0.00001	8.32	0.433	67.8	< 0.00002	0.0683	0.0003	0.000956	0.00234	0.003	< 0.00001
3-Jul-13	160																									
10-Jul-13	161																									
17-Jul-13	162																									
24-Jul-13	163	0.000082	0.0032	< 0.003	0.00003	0.011	41.5	0.0064	< 0.01	0.932	0.0005	< 0.009	12.8	0.0104	6.22	0.00001	8.39	0.325	61.1	< 0.00002	0.0733	0.0003	0.000703	0.00271	0.002	0.00002

T-2
Sample = Cleaner and Rougher Tails Composite

Date	Cycle	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.																									
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
31-Jul-13	164																									
7-Aug-13	165																									
14-Aug-13	166																									
21-Aug-13	167	0.000086	0.0036	0.050	< 0.00002	0.010	38.4	0.0039	0.02	0.857	0.0002	< 0.009	11.0	0.0117	6.03	< 0.00001	6.93	0.318	54.5	< 0.00002	0.0813	0.0002	0.000646	0.00249	0.002	0.00003
28-Aug-13	168																									
4-Sep-13	169																									
11-Sep-13	170																									
18-Sep-13	171	0.000086	0.0033	< 0.003	< 0.00002	0.011	41.9	0.0059	< 0.01	1.00	0.0002	0.009	11.7	0.01195	6.68	< 0.00001	7.56	0.314	53.7	< 0.00002	0.0984	0.0002	0.000624	0.00256	0.003	< 0.00001
25-Sep-13	172																									
2-Oct-13	173																									
9-Oct-13	174																									
16-Oct-13	175	0.000078	0.0041	< 0.003	0.00006	0.009	40.3	0.0085	< 0.01	1.16	0.0004	< 0.009	12.1	0.0124	7.37	0.00001	7.00	0.285	52.4	< 0.00002	0.0923	0.0007	0.000628	0.00300	0.007	0.00002
23-Oct-13	176																									
30-Oct-13	177																									
6-Nov-13	178																									
13-Nov-13	179	0.000063	0.0028	< 0.003	< 0.00002	0.007	29.2	0.0070	< 0.01	1.12	0.0007	< 0.009	8.10	0.00829	4.99	< 0.00001	4.81	0.295	38.5	< 0.00002	0.0623	0.0002	0.000687	0.00192	0.002	< 0.00001
20-Nov-13	180																									
27-Nov-13	181																									
4-Dec-13	182																									
11-Dec-13	183	0.000049	0.0023	0.018	< 0.00002	0.007	27.5	0.0120	0.01	1.86	< 0.0001	< 0.009	7.47	0.00940	4.68	< 0.00001	4.35	0.281	36.0	< 0.00002	0.0595	0.0003	0.000740	0.00185	0.002	< 0.00001
18-Dec-13	184																									
25-Dec-13	185																									
1-Jan-14	186																									
8-Jan-14	187	0.000053	0.0020	< 0.003	< 0.00002	0.005	23.6	0.0110	< 0.01	1.87	0.0004	< 0.009	6.13	0.00738	4.30	< 0.00001	3.52	0.306	28.7	< 0.00002	0.0584	0.0004	0.000697	0.00158	0.001	0.00001
15-Jan-14	188																									
22-Jan-14	189																									
29-Jan-14	190																									
5-Feb-14	191	0.000061	0.0025	0.004	< 0.00002	0.005	28.9	0.0200	< 0.01	3.67	0.0006	< 0.009	7.49	0.00853	5.04	0.00012	4.36	0.317	35.7	< 0.00002	0.0513	0.0005	0.000734	0.00180	0.002	< 0.00001
12-Feb-14	192																									
19-Feb-14	193																									
26-Feb-14	194																									
5-Mar-14	195	0.000051	0.0018	< 0.003	< 0.00002	0.005	24.7	0.0179	< 0.01	3.45	0.0004	< 0.009	6.43	0.00688	4.66	< 0.00001	3.71	0.320	31.9	< 0.00002	0.0473	0.0002	0.000693	0.00158	0.002	< 0.00001
12-Mar-14	196																									
19-Mar-14	197																									
26-Mar-14	198																									
2-Apr-14	199	0.000054	0.0016	< 0.003	< 0.00002	0.005	25.4	0.0197	< 0.01	3.57	0.0004	< 0.009	6.35	0.00776	4.45	< 0.00001	3.69	0.321	34.1	< 0.00002	0.0438	0.0004	0.000795	0.00146	< 0.001	< 0.00001
9-Apr-14	200																									
16-Apr-14	201																									
23-Apr-14	202																									
30-Apr-14	203	0.000083	0.00292	0.017	0.00001	0.00522	27.5	0.0203	< 0.01	3.65	0.0005	< 0.009	6.92	0.00903	4.69	0.000003	4.16	0.322	37.2	< 0.000005	0.0390	0.00037	0.000854	0.00153	0.002	< 0.002
7-May-14	204																									
14-May-14	205																									
21-May-14	206																									
28-May-14	207	0.000206	0.00278	0.011	< 0.00001	0.00756	41.1	0.0277	< 0.01	5.78	0.0003	< 0.009	10.2	0.0121	5.90	0.000003	6.87	0.307	58.3	0.000005	0.0495	0.00026	0.000853	0.00228	0.001	< 0.002
4-Jun-14	208																									
11-Jun-14	209																									
18-Jun-14	210																									
25-Jun-14	211	0.000109	0.00421	< 0.002	< 0.00001	0.00801	37.8	0.0187	< 0.01	3.40	0.0006	< 0.009	9.59	0.0125	5.84	< 0.000002	6.52	0.256	47.7	0.000005	0.0471	0.00033	0.000782	0.00266	0.004	< 0.002
2-Jul-14	212																									
9-Jul-14	213																									
16-Jul-14	214																									
23-Jul-14	215	0.000062	0.00207	< 0.002	< 0.00001	0.00560	26.3	0.0098	< 0.01	1.80	0.0002	< 0.009	6.64	0.00883	4.91	0.000002	4.24	0.264	30.4	< 0.000005	0.0435	0.00018	0.000580	0.00191	0.001	< 0.002
30-Jul-14	216																									
6-Aug-14	217																									
13-Aug-14	218																									
20-Aug-14	219	0.000074	0.00205	< 0.002	0.00004	0.00519	25.3	0.0100	< 0.01	1.95	0.0003	0.014	6.25	0.00925	4.65	< 0.000002	3.91	0.273	30.0	< 0.000005	0.0389	0.00026	0.000638	0.00182	0.002	< 0.002
27-Aug-14	220																									
3-Sep-14	221																									

Aug 11/10. EC 29, Alkalinity 14.2. Suspect sample mix-up.
Nov 17. EC 1395. Suspect probe malfunction, not repeated.
Dec 28/11 500 mL inadvertently added to the cell.
Apr 23/12 Change in analytical schedule.
May 30/12 600 mL added to ensure enough leachate for analysis.
Mar 19/14 Change in analytical schedule

T-3 Restart
Sample = Jan 25 Tailings

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	Ammonia	Nitrate	Nitrite	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	Nmg/L	Nmg/L	Nmg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
14-Aug-13	0	715	425	7.47	2052	#N/A	11.0	66.1	1054	< 0.01	< 0.01	< 0.1	0.79	0.07	10	880	0.0127	0.0010	0.0021	0.0252	< 0.00002	< 0.00001	0.0883	0.000164	248	< 0.0005	0.000610	0.0035	< 0.003	0.00013	0.009	63.7	0.0914	< 0.01	0.0857	0.0040	0.010	45.3	0.00407	4.21	< 0.00001	73.5	2.28	349	< 0.00002	0.00074	0.0002	0.00123	0.00035	0.006	0.00002
21-Aug-13	1	475	500	7.57	626	#N/A	11.7	79.3	205	< 0.01	< 0.01	< 0.1	0.09	< 0.03	< 2	210	0.0147	0.0009	0.0017	0.0182	< 0.00002	< 0.00001	0.0642	0.000025	58.0	< 0.0005	0.000140	0.0022	0.113	0.00002	0.005	16.0	0.0197	< 0.01	0.00104	0.0006	< 0.009	15.5	0.00076	3.49	< 0.00001	19.7	0.653	70.3	< 0.00002	0.00074	< 0.0001	0.000460	0.00056	0.002	< 0.00001
28-Aug-13	2	475	415	7.81	355	#N/A	4.3	68.4	115	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	130	0.0241	0.0011	0.0020	0.0320	< 0.00002	< 0.00001	0.0567	0.000003	34.7	< 0.0005	0.000116	0.0017	< 0.003	0.00003	0.005	10.4	0.0114	< 0.01	0.0324	0.0006	< 0.009	12.4	0.00076	3.27	< 0.00001	10.5	0.432	31.6	< 0.00002	0.00184	< 0.0001	0.000256	0.00096	0.001	< 0.00001
4-Sep-13	3	500	460	7.69	302	#N/A	7.2	66.4	95	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	121	0.0242	0.0012	0.0020	0.0323	< 0.00002	< 0.00001	0.0398	0.000008	31.1	< 0.0005	0.000289	0.0013	< 0.003	0.00002	0.004	10.4	0.0117	< 0.01	0.0221	0.0008	< 0.009	11.4	0.00110	3.15	< 0.00001	7.22	0.393	28.2	< 0.00002	0.00129	0.0001	0.000442	0.00076	0.001	< 0.00001
11-Sep-13	4	475	400	7.76	319				100																																										
18-Sep-13	5	475	440	7.71	300	#N/A	6.9	72.2	86	< 0.01	< 0.01	< 0.1	0.09	< 0.03	< 2	123	0.0170	0.0014	0.0017	0.0397	< 0.00002	< 0.00001	0.0346	< 0.000003	31.1	< 0.0005	0.000150	0.0014	< 0.003	< 0.00002	0.004	11.0	0.0130	< 0.01	0.0214	0.0003	< 0.009	9.64	0.00140	3.02	< 0.00001	4.80	0.402	24.4	< 0.00002	0.00083	< 0.0001	0.000287	0.00066	< 0.001	< 0.00001
25-Sep-13	6	475	415	7.84	292				88																																										
2-Oct-13	7	475	410	7.81	303	#N/A	5.0	64.4	94	< 0.01	< 0.01	< 0.1	0.07	< 0.03	< 0.2	125	0.0327	0.0015	0.0020	0.0431	< 0.00002	< 0.00001	0.0235	0.000005	31.2	< 0.0005	0.000170	0.0018	0.058	0.00003	0.004	11.5	0.0137	< 0.01	0.0234	0.0006	< 0.009	9.80	0.00159	3.33	< 0.00001	3.59	0.405	27.4	< 0.00002	0.00070	0.0001	0.000361	0.00101	0.001	0.00002
9-Oct-13	8	475	425	7.80	294				87																																										
16-Oct-13	9	475	430	7.83	307	#N/A	3.0	64.7	89	< 0.01	< 0.01	< 0.1	0.06	< 0.03	< 0.2	131	0.0270	0.0014	0.0017	0.0420	< 0.00002	< 0.00001	0.0182	0.000019	32.7	0.0009	0.000179	0.0024	< 0.003	0.00002	0.004	11.9	0.0148	< 0.01	0.0301	0.0008	< 0.009	9.13	0.00187	3.36	< 0.00001	2.85	0.390	29.0	< 0.00002	0.00146	< 0.0001	0.000350	0.00108	0.001	< 0.00001
23-Oct-13	10	475	425	7.77	296				88																																										
30-Oct-13	11	475	410	7.90	275	#N/A	2.4	58.8	72	< 0.01	< 0.01	< 0.1	0.07	< 0.03	0.2	117	0.0223	0.0013	0.0018	0.0398	< 0.00002	< 0.00001	0.0149	0.000009	29.2	< 0.0005	0.000175	0.0024	0.131	< 0.00002	0.003	10.6	0.0133	< 0.01	0.0202	0.0009	< 0.009	8.37	0.00165	2.92	0.00002	2.49	0.337	22.8	< 0.00002	0.00161	0.0002	0.000291	0.00084	0.002	0.00001
6-Nov-13	12	475	440	7.90	275				64																																										
13-Nov-13	13	475	425	7.87	264	#N/A	4.2	59.0	58	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	0.2	108	0.0385	0.0012	0.0019	0.0383	< 0.00002	< 0.00001	0.0147	< 0.000003	27.1	< 0.0005	0.000152	0.0027	< 0.003	0.00003	0.003	9.91	0.0138	< 0.01	0.0371	0.0009	< 0.009	7.65	0.00149	2.90	< 0.00001	2.08	0.303	22.6	< 0.00002	0.00156	0.0001	0.000278	0.00080	0.002	< 0.00001
20-Nov-13	14	475	390	7.90	274				68																																										
27-Nov-13	15	475	425	7.52	270	#N/A	3.3	66.1	58	< 0.01	< 0.01	0.1	< 0.06	< 0.03	0.2	120	0.0417	0.0014	0.0015	0.0477	< 0.00002	< 0.00001	0.0148	0.000006	29.3	< 0.0005	0.00016	0.0030	< 0.003	0.00003	0.003	10.7	0.0129	< 0.01	0.0231	0.0007	< 0.009	7.95	0.00150	3.08	< 0.00001	2.03	0.332	20.7	< 0.00002	0.0011	0.0002	0.00030	0.0009	0.002	< 0.00001
4-Dec-13	16	475	405	7.91	266				56																																										
11-Dec-13	17	475	430	7.98	237	#N/A	2.3	67.7	50	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	0.2	103	0.0201	0.0015	0.0015	0.0494	< 0.00002	< 0.00001	0.0098	0.000011	26.2	< 0.0005	0.000128	0.0031	0.006	< 0.00002	0.003	9.16	0.0120	< 0.01	0.0596	< 0.0001	< 0.009	7.41	0.00123	3.05	< 0.00001	1.62	0.279	17.0	< 0.00002	0.00135	0.0002	0.000265	0.00084	0.001	< 0.00001
18-Dec-13	18	475	430	7.91	236				50																																									
25-Dec-13	19	475	430	7.86	227	#N/A	4.3	67.2	38	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	98.3	0.0161	0.0017	0.0019	0.0527	< 0.00002	< 0.00001	0.0087	< 0.000003	24.7	< 0.0005	0.00014	0.0033	< 0.003	< 0.00002	0.003	8.89	0.0119	< 0.01	0.0208	0.0006	< 0.009	6.83	0.00121	3.23	< 0.00001	1.46	0.276	14.7	< 0.00002	0.00097	0.0002	0.00027	0.0009	< 0.001	< 0.00001
1-Jan-14	20	475	400	7.98	248				46																																									
8-Jan-14	21	475	445	8.05	256	#N/A	1.6	72.7	39	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	108	0.0165	0.0015	0.0013	0.0632	< 0.00002	< 0.00001	0.0099	< 0.000003	27.2	< 0.0005	0.000150	0.0040	< 0.003	< 0.00002	0.002	9.81	0.0139	< 0.01	0.0713	0.0006	< 0.009	7.22	0.00150	3.03	< 0.00001	1.64	0.285	16.7	< 0.00002	0.00119	0.0002	0.000248	0.00087	< 0.001	< 0.00001
15-Jan-14	22	475	410	7.96	260				42																																									
22-Jan-14	23	475	420	8.00	249	#N/A	2.3	69.7	37	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	99.6	0.0269	0.0013	0.0017	0.0608	< 0.00002	< 0.00001	0.0090	0.000006	25.0	< 0.0005	0.00037	0.0085	< 0.003	0.00032	0.002	9.02	0.0115	< 0.01	0.0201	0.0012	< 0.009	6.62	0.00122	3.06	< 0.00001	1.44	0.259	13.8	< 0.00002	0.0012	0.0003	0.00023	0.0008	0.002	< 0.00001
29-Jan-14	24	475	430	7.99	211				32																																									
5-Feb-14	25	475	420	7.89	202	#N/A	2.9	72.1	31	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	94.0	0.0184	0.0014	0.0012	0.0597	< 0.00002	< 0.00001	0.0067	0.000009	23.8	< 0.0005	0.000129	0.0040	0.007	< 0.00002	0.002	8.41	0.0107	< 0.01	0.0194	0.0006	0.015	6.43	0.00120	3.10	0.00003	1.32	0.250	12.1	< 0.00002	0.00090	0.0002	0.000181	0.00087	< 0.001	< 0.00001
12-Feb-14	26	475	410	7.98	200				28																																									
19-Feb-14	27	475	410	7.93	212	#N/A	3.1	76.5	33	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	99.0	0.0203	0.0013	0.0011	0.0640	< 0.00002	< 0.00001	0.0091	< 0.000003	25.1	< 0.0005	0.000123	0.0036	< 0.003	< 0.00002	0.002	8.80	0.0108	< 0.01	0.0216	0.0005	< 0.009	6.48	0.00111	3.23	< 0.00001	1.34	0.262	12.9	< 0.00002	0.00071	0.0001	0.000208	0.00086	< 0.001	< 0.00001
26-Feb-14	28	475	410	7.93	187				32																																									
5-Mar-14	29	475	415	8.06	206	#N/A	4.0	78.6	34	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	96.9	0.0178	0.0013	0.0011	0.0619	< 0.00002	< 0.00001	0.0077	< 0.000003	24.7	< 0.0005	0.000110	0.0030	0.005	< 0.00002	0.002	8.53	0.0110	< 0.01	0.0199	0.0006	< 0.009	6.46	0.00105	3.21	< 0.00001	1.35	0.247	12.7	< 0.00002	0.00099	0.0001	0.000175	0.00090	0.002	< 0.00001
12-Mar-14	30	475	405	7.96	214				29																																									
19-Mar-14	31	475	455	8.04	215																																												
26-Mar-14	32	475	415	8.00	205																																												
2-Apr-14	33	475	425	7.84	198	#N/A	5.2	79.8	25	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	0.2	92.4	0.0194	0.0012	0.0011	0.0718	< 0.00002	< 0.00001	0.0067	0.000012	23.7	< 0.0005	0.000098	0.0033	< 0.003	< 0.00002	0.002	8.08	0.0094	< 0.01	0.0186	0.0004	< 0.009	6.20	0.00110	3.19	< 0.00001	1.18	0.232	10.4	< 0.00002	0.0158	0.0002	0.000163	0.00096	0.002	< 0.00001
9-Apr-14	34	475	415	7.82	203																																												
16-Apr-14	35	475	405	7.80	202																																												
23-Apr-14	36	475	420	7.85	202																																												
30-Apr-14	37	475	405	8.01	191	#N/A	5.4	69.5	21	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	0.2	83.5	0.0165	0.0011	0.0012	0.0786	< 0.000007	< 0.000007	0.0075	< 0.000004	21.7	0.00007	0.000097	0.00344	< 0.002	< 0.00001	0.00140	7.14	0.0091	< 0.01	0.0403	0.0004	< 0.009	5.34	0.00090	3.08	0.000002	1.03	0.207	8.56	0.000005	0.0211	0.00015	0.000150	0.00093	< 0.001	< 0.002
7-May-14	38	475	420	7.92	188	#N/A	3.2	68.4	17	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	87.9	0.0192	0.0016	0.0012	0.0890	< 0.000007	< 0.000007	0.0072	0.000008	22.9	0.00006	0.000156	0.00365	0.002	< 0.00001	0.00141	7.49	0.0094	< 0.01	0.0271	0.0002	< 0.009	5.51	0.00089	3.15	< 0.000002	1.11	0.214	8.82	0.000006	0.0314	0.00030	0.000144	0.00100	< 0.001	< 0.002
14-May-14	39	475	405	7.72	173	#N/A	6.8	67.6	19	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	78.0	0.0176	0.0013	0.0013	0.0826	0.000009	< 0.000007	0.0076	< 0.000003	20.3	< 0.00003	0.000137	0.00303	< 0.002	< 0.00001	0.00150	6.67	0.0083	< 0.01	0.0188	0.0007	< 0.009	4.85	0.00166	2.67	< 0.000002	0.99	0.191	7.51	0.000005	0.0397	0.00026	0.000156	0.00093	< 0.001	< 0.002
21-May-14	40	475	430	7.75	175																																													
28-May-14	41	475	410	7.87	166																																												
4-Jun-14	42	475	420	7.96	171																																												
11-Jun-14	43	475	430	7.84	180	#N/A	6.0	68.7	19	< 0.01	< 0.01	0.1	< 0.06	< 0.03	< 0.2	83.2	0.0183	0.0013	0.0014	0.0933	< 0.000007	< 0.000007	0.0071	< 0.000003	21.7	< 0.00003	0.000187	0.00305	0.004	< 0.00001	0.00156	7.03	0.0087	< 0.01	0.0165	0.0001	< 0.009	5.09	0.00092	3.09	< 0.000002	0.98	0.199	7.68	< 0.000005	0.0402	0.00008	0.000136	0.00100	< 0.001	< 0.002
18-Jun-14	44	475	430	7.90	174																																												
25-Jun-14	45	475	425	7.74	174																																												
2-Jul-14	46	475	435	7.95	178																																												
9-Jul-14	47	475	430	7.86	177	#N/A	2.9	70.2	11	< 0.01	< 0.01	0.1	< 0.06	< 0.03	< 0.2	77.1	0.0204	0.0011	0.0012	0.0966	< 0.000007	< 0.000007	0.0089	0.000007	20.4	0.00009	0.000080	0.00309	< 0.002	0.00002	0.00123	6.33	0.0074	< 0.01	0.0127	< 0.0001	< 0.009	4.61	0.00071	2.98	0.000002	0.85	0.176	6.25	0.000007	0.0242	0.00012	0.000141	0.00112	0.001	< 0.002
16-Jul-14	48	475	435	7.91	189																																												
23-Jul-14	49	475	415	7.85	174																																											
30-Jul-14	50	475	425	7.98	176																																											
6-Aug-14	51	475	420	7.96	171	#N/A	2.7	69.4	14	< 0.01	< 0.01	0.2	< 0.06	< 0.03	< 0.2	79.7	0.0249	0.0011	0.0013	0.101	< 0.000007	< 0.000007	0.0074	0.000005	21.0	0.00010	0.000170	0.00273	< 0.002	< 0.00001	0.00116	6.62	0.0077	< 0.01	0.0132	< 0.0001	< 0.009	4.61	0.00145	2.92	< 0.000002	0.87	0.180	6.27	< 0.000005	0.0180	0.00011	0.000119	0.00113	< 0.001	< 0.002
13-Aug-14	52	475	450	7.86	170																																												
20-Aug-14	53	475	375	7.90	173																																											
27-Aug-14	54	475	455	7.91	184																																											
3-Sep-14	55	475	435	8.05	181	#N/A	5.8	76.3																																										

Mar 19/14 Change in analytical schedule

T-4
Sample = Jan 25 Tailings

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Total CN	WAD CN	Ammonia	Nitrate	Nitrite	Chloride	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)									CaCO3																																				
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
27-Mar-13	1	1925	440	7.58	4470	#N/A	18.1	88.9	2909	< 0.01	< 0.01	0.4	1.23	2.18	67	2380	0.0079	0.0012	0.0034	0.0279	< 0.00002	< 0.00001	0.122	0.000017	603	0.0008	0.00153	0.0223	< 0.003	0.00004	0.015	212	0.293	0.40	0.0840	0.0152	0.018	121	0.0106	4.61	0.00015	332	7.16	1080	0.00003	0.00044	0.0002	0.00563	0.00038	0.003	0.00002
3-Apr-13	2																																																		
10-Apr-13	3	500	390	7.55	3619	#N/A	14.5	77.5	2852	< 0.01	< 0.01	< 0.06	< 0.03	0.2	< 2	2010	0.0068	0.0013	0.0029	0.0144	< 0.00002	< 0.00001	0.119	0.000016	485	< 0.0005	0.00373	0.0124	< 0.003	0.00006	0.015	194	0.414	0.04	0.0614	0.0133	< 0.009	83.2	0.00093	4.21	0.00007	183	5.83	825	0.00002	0.00038	0.0003	0.00363	0.00023	0.004	0.00001
17-Apr-13	4																																																	
24-Apr-13	5	500	395	7.87	1716	#N/A	12.4	104.2	1042	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	840	0.0076	0.0015	0.0020	0.0207	< 0.00002	< 0.00001	0.121	0.000011	218	< 0.0005	0.00242	0.0091	< 0.003	< 0.00002	0.012	71.9	0.186	< 0.01	0.0763	0.0080	< 0.009	42.7	0.00158	3.61	< 0.00001	49.9	2.31	314	< 0.00002	0.00006	0.0001	0.00195	0.00040	0.004	0.00001
1-May-13	6																																																	
8-May-13	7	600	460	7.92	1089	#N/A	11.7	125.1	511	< 0.01	< 0.01	0.1	< 0.6	< 0.3	< 2	499	0.0078	0.0014	0.0010	0.0211	< 0.00002	< 0.00001	0.123	0.000016	123	< 0.0005	0.00151	0.0086	< 0.003	< 0.00002	0.011	46.2	0.0974	< 0.01	0.0749	0.0042	< 0.009	33.5	0.00310	3.43	< 0.00001	33.6	1.42	167	< 0.00002	0.00072	0.0001	0.00138	0.00048	0.002	< 0.00001
15-May-13	8																																																	
22-May-13	9	500	350	8.01	1096				591																																									
29-May-13	10																																																	
5-Jun-13	11	500	430	7.79	1412	#N/A	17.0	136.5	724	0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	677	0.0075	0.0013	0.0012	0.0210	< 0.00002	< 0.00001	0.116	0.000005	163	< 0.0005	0.00245	0.0090	< 0.003	0.00081	0.012	65.7	0.135	< 0.01	0.0781	0.0062	< 0.009	38.6	0.00418	4.14	< 0.00001	36.1	1.86	217	< 0.00002	0.00024	0.0001	0.00254	0.00040	0.003	< 0.00001
12-Jun-13	12																																																	
19-Jun-13	13	500	300	7.91	1571				735																																									
26-Jun-13	14																																																	
3-Jul-13	15	600	310	7.80	1615	#N/A	14.9	149.0	893	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	818	0.0093	0.0012	0.0011	0.0197	< 0.00002	< 0.00001	0.115	0.000007	189	< 0.0005	0.00312	0.0046	0.018	< 0.00002	0.019	84.3	0.120	< 0.01	0.0912	0.0065	< 0.009	41.8	0.0113	4.55	0.00001	35.3	2.22	280	< 0.00002	0.00006	0.0002	0.00324	0.00036	0.002	< 0.00001
10-Jul-13	16																																																	
17-Jul-13	17	500	265	7.92	1590				867																																									
24-Jul-13	18																																																	
31-Jul-13	19	500	310	7.78	1834	#N/A	16.5	113.9	876	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	909	0.0089	0.0013	0.0006	0.0241	< 0.00002	< 0.00001	0.112	0.000006	202	< 0.0005	0.00377	0.0071	< 0.003	< 0.00002	0.026	98.4	0.144	< 0.01	0.113	0.0093	< 0.009	46.8	0.0176	4.80	< 0.00001	32.9	2.45	309	0.00002	0.00011	0.0002	0.00383	0.00040	0.005	< 0.00001
7-Aug-13	20																																																	
14-Aug-13	21	500	245	7.92	1933				1066																																									
21-Aug-13	22																																																	
28-Aug-13	23	500	275	7.99	1743	#N/A	8.4	136.1	995	< 0.01	< 0.01	< 0.1	< 0.6	< 0.3	< 2	901	0.0160	0.0012	0.0016	0.0223	< 0.00002	< 0.00001	0.0984	0.000058	208	< 0.0005	0.00414	0.0068	< 0.003	0.00004	0.025	92.7	0.166	< 0.01	0.134	0.0069	< 0.009	45.0	0.0216	4.49	< 0.00001	26.4	2.46	293	0.00003	0.00032	0.0002	0.00343	0.00039	0.011	< 0.00001
4-Sep-13	24																																																	
11-Sep-13	25	500	215	7.86	1683				974																																									
18-Sep-13	26																																																	
25-Sep-13	27	600	300	7.90	1899	#N/A	8.7	127.6	1111	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 2	741	0.0058	0.0014	0.0018	0.0197	< 0.00002	< 0.00001	0.0924	0.000030	159	< 0.0005	0.00494	0.0104	< 0.003	< 0.00002	0.027	83.3	0.149	< 0.01	0.206	0.0097	< 0.009	30.0	0.0225	3.19	< 0.00001	18.3	1.87	219	0.00003	0.00013	0.0002	0.00407	0.00035	0.008	0.00001
2-Oct-13	28																																																	
9-Oct-13	29	500	205	7.81	1942				1042																																									
16-Oct-13	30																																																	
23-Oct-13	31	600	305	7.71	2488	#N/A	6.6	61.6	1650	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 2	1470	0.0069	0.0021	0.0022	0.0203	< 0.00002	< 0.00001	0.0872	0.000067	308	< 0.0005	0.00166	0.0081	< 0.003	0.00041	0.028	169	0.142	< 0.01	0.584	0.0038	< 0.009	69.9	0.0462	4.04	< 0.00001	37.4	3.29	498	0.00002	0.00069	0.0001	0.00331	0.00060	0.004	0.00004
30-Oct-13	32																																																	
6-Nov-13	33	500	230	7.91	2407				1208																																									
13-Nov-13	34																																																	
20-Nov-13	35	550	310	7.99	1607	#N/A	0.2	64.6	770	< 0.01	< 0.01	0.1	< 0.06	< 0.03	0.2	830	0.0089	0.0024	0.0015	0.0208	< 0.00002	< 0.00001	0.0814	0.000487	190	< 0.0005	0.00108	0.0085	0.003	0.00008	0.027	85.8	0.0612	0.02	0.764	0.0018	< 0.009	52.6	0.0219	4.43	< 0.00001	24.4	2.14	288	0.00002	0.0005	0.0003	0.00226	0.0008	0.007	0.00008
27-Nov-13	36																																																	
4-Dec-13	37	550	220	7.95	1722				708																																									
11-Dec-13	38																																																	
18-Dec-13	39	600	350	7.98	1424	#N/A	3.5	68.7	629	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	550	0.0088	0.0025	0.0016	0.0210	< 0.00002	< 0.00001	0.0651	0.000059	120	< 0.0005	0.00054	0.0049	0.006	< 0.00002	0.020	60.1	0.0342	< 0.01	0.701	0.0006	< 0.009	43.4	0.0171	4.80	0.00001	17.1	1.28	182	< 0.00002	0.0005	0.0003	0.00143	0.0009	0.003	0.00002
25-Dec-13	40	600	335	8.00	1123	#N/A	3.0	68.3	488	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	522	0.0089	0.0027	0.0023	0.0220	< 0.00002	< 0.00001	0.0666	0.000091	113	< 0.0005	0.0005	0.0046	< 0.003	< 0.00002	0.021	58.2	0.0306	< 0.01	0.829	0.0022	< 0.009	41.3	0.0206	5.25	0.00002	17.2	1.28	187	< 0.00002	0.00006	0.0004	0.00135	0.00077	0.003	0.00005
1-Jan-14	41	600	445	8.01	842	#N/A	3.4	87.5	245	< 0.01	< 0.01	< 0.1	< 0.06	< 0.03	< 0.2	328	0.0091	0.0025	0.0018	0.0225	< 0.00002	< 0.00001	0.0499	0.000047	68.7	< 0.0005	0.000390	0.0044	< 0.003	< 0.00002	0.015	37.9	0.0212	< 0.01	0.436	0.0013	< 0.009	29.8	0.0119	4.41	< 0.00001	11.3	0.785	107	< 0.00002	0.00014	0.0004	0.000858	0.00076	0.002	0.00002
8-Jan-14	42																																																	
15-Jan-14	43	500	390	8.10	741																																												
22-Jan-14	44	300	165	7.99	885																																												
29-Jan-14	45	600	360	8.04	633	#N/A	4.3	100.5	226	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	284	0.0059	0.0027	0.0013	0.0250	< 0.00002	< 0.00001	0.0506	0.000024	55.8	< 0.0005	0.000315	0.0043	< 0.003	< 0.00002	0.015	35.1	0.0110	< 0.01	0.333	0.0014	< 0.009	29.7	0.00888	5.18	< 0.00001	11.4	0.678	82.4	< 0.00002	0.0000	0.0003	0.000646	0.00023	0.002	< 0.00001
5-Feb-14	46	500	345	8.09	651																																												
12-Feb-14	47	300	185	8.16	625																																												
19-Feb-14	48	300	170	8.11	707																																												
26-Feb-14	49	500	340	7.86	597	#N/A	10.5	115.8	202	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	261	0.0034	0.0024	0.0015	0.0258	< 0.00002	< 0.00001	0.0367	0.000014	50.2	0.0007	0.000219	0.0035	0.008	0.00002	0.012	32.9	0.0083	0.01	0.291	0.0006	< 0.009	27.5	0.0111	5.05	0.00002	9.80	0.624	70.8	< 0.00002	0.00005	< 0.0001	0.000674	0.00080	0.002	0.00001
5-Mar-14	50	300	180	8.09	629																																												
12-Mar-14	51	300	175	8.10	683																																												
19-Mar-14	52	300	180	8.08	646																																												
26-Mar-14	53	300	275	8.18	555	#N/A	3.6	121.7	147	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	230	0.0068	0.0018	0.0012	0.0265	< 0.00002	< 0.00001	0.0292	0.000072	46.2	< 0.0005	0.000412	0.0039	< 0.003	< 0.00002	0.010	27.8	0.0138	< 0.01	0.227	0.0002	< 0.009	21.3	0.00915	4.50	< 0.00001	7.17	0.623	54.7	< 0.00002	0.00010	0.0005	0.000712	0.00074	0.002	0.00002
2-Apr-14	54	300	180	8.08	690																																												
9-Apr-14	55	300	265	8.09	569																																												
16-Apr-14	56	300	290	8.10	555																																												
23-Apr-14	57	500	300	8.08	622	#N/A	4.7	115.2	180	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	253	0.0062	0.0020	0.0013	0.0269	< 0.000007	< 0.000007	0.0313	0.000021	49.0	0.00016	0.000483	0.00660	0.046	0.00004	0.0111	31.8	0.0086	< 0.01	0.293	0.0008	< 0.009	25.0	0.01018	4.90	< 0.000002	9.03	0.637	64.7	0.000011	0.00009	0.00021	0.000654	0.00086	0.002	< 0.002
30-Apr-14	58	300	180	7.78	585																																												
7-May-14	59	300	115	8.12	745																																												
14-May-14	60	300	105	7.92	780																																												
21-May-14	61	500	235	7.95	595	#N/A	10.8	89.0	165	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	243	0.0056	0.0034	0.0018	0.0255	< 0.000007	0.000087	0.0367	0.000041	41.5	0.00076	0.000640	0.00644	< 0.002	0.00006	0.0112	34.0	0.0062	< 0.01	0.385	0.0027	< 0.009	28.3	0.0148	5.28	0.000002	9.73	0.543	68.9	0.000013	0.00025	0.00063	0.000607	0.00103	0.003	< 0.002
28-May-14	62	300	315	8.11	421																																												
4-Jun-14	63	300	155	8.19	601																																												
11-Jun-14	64	300	115	7.98	688																																												
18-Jun-14	65	500	275	7.98	509	#N/A	6.5	91.1	139	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	209	0.0046	0.0025	0.0023	0.0300	< 0.000007	< 0.000007	0.0354	0.000027	35.9	0.00043	0.000261	0.00322	< 0.002	< 0.00001	0.0106	29.0	0.0063	0.01	0.285	0.0007	< 0.009	24.7	0.0117	5.30	< 0.000002	8.26	0.471	55.6	0.000011	0.00010	0.00019	0.000535	0.00110	0.001	< 0.002
25-Jun-14	66	300	150	7.92	584																																												
2-Jul-14	67	300	140	8.09	600																																												
9-Jul-14	68	300	95	8.03	693																																												
16-Jul-14	69	500	270	8.09	495	#N/A	2.8	102.1	128	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	181	0.0040	0.0025	0.0020	0.0297	< 0.000007	< 0.000007	0.0252	0.000008	33.1	0.00049	0.000430	0.00420	0.058	< 0.00001	0.00884	24.0	0.0049	< 0.01	0.203	0.0008	< 0.009	20.4	0.00798	4.47	0.000010	7.01	0.446	39.6	0.000015	0.00017	0.00018	0.000409	0.00112	0.001	< 0.002
23-Jul-14	70	360	265	8.07	471																																												
30-Jul-14	71	300	235	7.90	520																																												
6-Aug-14	72	300	175	8.16	492																																												
13-Aug-14	73	500	370	8.08	434	#N/A	3.9	104.4	88	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	169	0.0052	0.0024	0.0016	0.0345	< 0.000007	< 0.000007	0.0285	0.000008	30.6	0.00020	0.000134	0.00287	< 0.002	< 0.00001	0.00811	22.6	0.0041	< 0.01	0.187	0.0001	< 0.009	18.0	0.00755	4.37	< 0.000002	5.85	0.405	34.2	0.000008	0.00009	0.00018	0.000425	0.00083	< 0.001	< 0.002
20-Aug-14	74	300	200	8.10	444																																												
27-Aug-14	75	300	145	8.08	496																																												
3-Sep-14	76	300	170	8.07	511																																												

Jan 15/14 Change in analytical schedule

T-5

Sample = November 2013 Composite Tailings

Date	Cycle	Volume mL		pH	Cond.	Acidity	Acidity	Alkalinity	Sulphate	Chloride	Fluoride	Bromide	Hardness	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
	No.	Input	Output		umhos/cm	(pH 4.5)	(pH 8.3)						CaCO3																																					
						mgCaCO3/L	mgCaCO3/L	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
4-Jun-14	0	500	235	7.80	1471	#N/A	7.0	58.4	563	12	0.13	< 0.3	387	0.0102	0.0022	0.0033	0.0304	< 0.000007	< 0.000007	0.0646	0.000039	126	0.00016	0.000458	0.0118	0.007	0.00019	0.00632	17.6	0.0193	< 0.01	0.157	0.0022	0.018	57.7	0.00325	6.49	0.000023	72.7	1.12	216	0.000030	0.00291	0.00028	0.000811	0.00153	0.012	< 0.002
11-Jun-14	1	500	465	7.94	558	#N/A	5.5	54.0	195	2.0	0.12	< 0.3	130	0.0175	0.0016	0.0043	0.0203	< 0.000007	< 0.000007	0.0415	0.000003	39.7	0.00005	0.000234	0.00093	0.004	< 0.00001	0.00371	7.46	0.0069	< 0.01	0.0777	0.0012	0.012	32.5	0.00119	4.98	< 0.000002	36.0	0.420	64.0	0.000011	0.00073	0.00018	0.000395	0.00241	< 0.001	< 0.002
18-Jun-14	2	500	485	8.03	381	#N/A	5.8	59.3	117	0.6	0.11	< 0.3	107	0.0251	0.0012	0.0046	0.0251	< 0.000007	< 0.000007	0.0353	< 0.000003	31.9	0.00004	0.000193	0.00197	< 0.002	< 0.00001	0.00336	6.75	0.0066	0.02	0.0578	0.0007	< 0.009	26.6	0.00120	4.60	< 0.000002	20.2	0.332	41.1	0.000011	0.00025	0.00043	0.000362	0.00257	< 0.001	< 0.002
25-Jun-14	3	500	450	7.89	357	#N/A	8.4	68.4	98	0.2	0.10	< 0.3	102	0.0177	0.0015	0.0035	0.0291	< 0.000007	< 0.000007	0.0335	< 0.000003	29.5	0.00010	0.000166	0.00099	0.003	< 0.00001	0.00333	6.88	0.0061	< 0.01	0.0652	0.0007	0.014	25.4	0.00122	4.49	< 0.000002	13.9	0.313	33.4	0.000015	0.00060	0.00020	0.000333	0.00228	0.002	< 0.002
2-Jul-14	4	500	435	8.06	349				74																																							
9-Jul-14	5	500	450	8.01	306	#N/A	2.9	74.5	60	< 0.2	0.12	< 0.3	90.6	0.0161	0.0017	0.0030	0.0455	< 0.000007	< 0.000007	0.0300	0.000006	25.6	0.00006	0.000120	0.00100	< 0.002	< 0.00001	0.00310	6.49	0.0053	< 0.01	0.0614	0.0004	0.014	23.4	0.00102	4.76	< 0.000002	7.36	0.275	22.2	0.000014	0.00052	0.00027	0.000230	0.00232	< 0.001	< 0.002
16-Jul-14	6	500	460	8.05	295				61																																						
23-Jul-14	7	500	435	8.01	268	#N/A	3.4	65.9	58	< 0.2	0.08	< 0.3	90.6	0.0214	0.0018	0.0034	0.0482	< 0.000007	< 0.000007	0.0264	0.000005	25.1	0.00003	0.000124	0.00154	0.004	0.00006	0.00312	6.82	0.0053	< 0.01	0.130	0.0003	< 0.009	22.0	0.00134	4.40	< 0.000002	4.49	0.272	20.4	0.000013	0.00033	0.00031	0.000236	0.00243	< 0.001	< 0.002
30-Jul-14	8	500	440	8.03	251				43																																						
6-Aug-14	9	500	460	8.10	233	#N/A	2.1	70.8	37	< 0.2	0.07	< 0.3	80.0	0.0372	0.0017	0.0030	0.0519	< 0.000007	< 0.000007	0.0199	0.000041	21.9	< 0.00003	0.000112	0.00117	0.005	< 0.00001	0.00282	6.12	0.0047	< 0.01	0.0791	< 0.0001	< 0.009	19.9	0.00152	4.26	< 0.000002	3.00	0.237	14.2	0.000010	0.00025	0.00034	0.000172	0.00242	< 0.001	< 0.002
13-Aug-14	10	500	445	7.94	235				35																																						
20-Aug-14	11	500	425	8.06	252	#N/A	2.8	77.2	36	0.2	0.08	< 0.3	87.3	0.0260	0.0017	0.0030	0.0789	< 0.000007	< 0.000007	0.0241	0.000010	23.7	0.00006	0.000127	0.00208	0.004	0.00005	0.00316	6.80	0.0060	< 0.01	0.114	0.0005	< 0.009	20.9	0.00196	4.34	< 0.000002	2.83	0.256	14.5	0.000013	0.00027	0.00045	0.000161	0.00224	0.002	< 0.002
27-Aug-14	12	500	445	7.95	262				41																																						
3-Sep-14	13	500	450	8.06	236	#N/A	5.8	81.1																																								

APPENDIX D-1.3 SGS LAB LETTER (MAY 17, 2012)

SGS

May 17, 2012

Ms. Diana Loomer
Lorax Environmental
2289 Burrard St.
Vancouver, BC
V6J 3H9

Subject: Tin Contamination of Abacus Kinetic Test Leachates

Dear Diana,

As per our phone conversations and e-mails, we have been attempting to find the source of tin in the kinetic test leachates. Analysis of the Abacus head samples shows that they contain <1 ppm tin and confirms that the samples are not a point source of this element.

We have recently set up a blank kinetic test containing Plexiglas shavings to determine if Plexiglas could be the source of the tin. After 3 leaching cycles, tin levels have not increased suggesting that this is not a source of contamination.

Upon further investigation, we believe the tin is coming from our 1" diameter PVC air line pipe that feeds the air from the compressor to the kinetic tests. Large scale blank leaching tests conducted in PVC columns also show elevated levels of tin confirming that tin does leach from PVC pipe. Currently, we believe that this is the only source of tin contamination. Although not all of our kinetic tests show elevated levels of tin, we have observed this anomaly with other kinetic tests from different projects.

We recommend that Lorax ignore all tin values reported for the kinetic tests associated with the Abacus project.

To eliminate the tin contamination, we are endeavouring to find a substitute conduit that will be inert to leaching.

Sincerely,

Rik Vos
ARD Testing Specialist
SGS Canada Inc.

6927 Antrim Avenue, Burnaby, BC, V5J 4M5
Tel: (604) 264-5536 ♦ Fax: (604) 264-5535

APPENDIX D-1.4 LAB KINETIC TEST LEACHATE LOADING RATES

Cell ID	Cycles used	pH	Alkalinity	SO_4	Cl	F	Br	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb
			mg CaCO3/kg/wk	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*
Mine Rock																					
Col-2	169-173	8.1	3.3	0.48	0.0027	0.00080	0.0040	0.00014	0.0000051	0.000040	0.0054	0.00000026	0.00000013	0.00047	0.000000053	0.87	0.0000064	0.0000020	0.000096	0.000038	0.00000027
Col-3	181-189	7.9	2.0	6.3	0.0036	0.0021	0.0054	0.00013	0.000036	0.00014	0.00093	0.00000013	0.00000013	0.00078	0.0000011	2.6	0.0000021	0.0000082	0.000068	0.000038	0.00000019
Col-4	109-117	8.1	6.1	0.13	0.0030	0.00090	0.0045	0.00021	0.0000090	0.000097	0.0044	0.00000030	0.00000015	0.00065	0.000000078	1.2	0.0000075	0.0000015	0.000051	0.000045	0.00000034
Col-5	109-117	8.1	6.8	0.19	0.0031	0.0019	0.0046	0.000084	0.000047	0.00016	0.0083	0.00000031	0.00000015	0.00084	0.000000046	1.1	0.000019	0.0000022	0.000062	0.000047	0.00000054
Col-6	109-117	8.2	6.2	1.2	0.0032	0.0027	0.0041	0.00012	0.000055	0.0013	0.0042	0.00000028	0.00000014	0.0017	0.00000040	0.78	0.000019	0.0000096	0.000069	0.000047	0.00000095
Ore																					
Col 1	181-189	7.9	1.9	4.4	0.0038	0.0010	0.0052	0.000063	0.0000035	0.000072	0.00085	0.00000012	0.00000012	0.00077	0.00000041	2.5	0.00000052	0.0000041	0.000091	0.000038	0.00000019
Tailings																					
T1	135-143	7.8	32	13	0.046	-	-	0.0096	0.000046	0.00021	0.053	0.0000046	0.0000023	0.0010	0.00000071	11	0.00012	0.000013	0.00047	0.00069	0.0000047
T2	211-219	8.1	2.2	2.1	0.0026	-	-	0.00012	0.000024	0.000039	0.00089	0.000000085	0.000000085	0.00058	0.0000027	0.59	0.000018	0.0000017	0.000054	0.000024	0.00000013
T3	43-51	7.9	31	6.2	0.045	-	-	0.0092	0.00050	0.00057	0.044	0.0000016	0.0000016	0.0033	0.0000022	9.3	0.000041	0.000075	0.0014	0.00045	0.0000023
T4	65-73	8.1	5.5	6.9	-	-	-	0.00025	0.00014	0.00012	0.0017	0.00000019	0.00000019	0.0019	0.00000059	2.0	0.000024	0.000014	0.00021	0.000074	0.00000028

Notes: The cycles used comprise the last three leachates with full dissolved metals analyses

Cell ID	Cycles used	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U	V	Zn	Zr
		mg/kg/wk	*mg/kg/wk*	*mg/kg/wk*	*µg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*	*mg/kg/wk*
Mine Rock																						
Col-2	169-173	0.000069	0.24	0.000068	0.00013	0.00080	0.000010	0.00012	0.22	0.000027	0.25	0.00000013	0.039	0.011	0.21	0.00000026	0.0020	0.0000064	0.000019	0.00074	0.000053	0.00000019
Col-3	181-189	0.000089	0.29	0.00012	0.00019	0.011	0.000072	0.00017	0.95	0.00014	0.20	0.00000022	0.044	0.021	2.3	0.0000025	0.0020	0.0000089	0.0000075	0.00054	0.000036	0.000036
Col-4	109-117	0.00015	0.43	0.00012	0.00015	0.00013	0.0000090	0.00014	0.26	0.0000054	0.26	0.00000015	0.044	0.016	0.041	0.00000030	0.0027	0.0000015	0.0000075	0.00079	0.000034	0.00000015
Col-5	109-117	0.00024	0.52	0.00014	0.00015	0.00012	0.000012	0.00014	0.83	0.000036	0.31	0.00000015	0.037	0.021	0.099	0.00000031	0.0034	0.0000016	0.0000036	0.0013	0.000061	0.00000015
Col-6	109-117	0.00011	0.44	0.00011	0.00014	0.0053	0.00053	0.00012	2.2	0.000058	0.32	0.00000014	0.037	0.011	0.48	0.0000038	0.0018	0.0000053	0.0000039	0.00024	0.000032	0.00000014
Ore																						
Col 1	181-189	0.000069	0.14	0.00012	0.00019	0.0050	0.0000076	0.00016	0.31	0.000093	0.22	0.00000017	0.034	0.0099	1.7	0.00000072	0.0012	0.0000076	0.0000057	0.00036	0.000035	0.000035
Tailings																						
T1	135-143	0.00023	2.5	0.000094	0.0024	0.016	0.000092	0.0021	0.25	0.00028	0.83	0.0000023	0.14	0.035	4.6	0.0000046	0.000021	0.000023	0.00015	0.00043	0.00024	0.0000023
T2	211-219	0.00013	0.61	0.00026	0.00012	0.047	0.0000073	0.00012	0.15	0.00022	0.11	0.000000024	0.10	0.0066	0.76	0.000000066	0.00094	0.0000052	0.000015	0.000044	0.000048	0.000024
T3	43-51	0.00056	2.9	0.0034	0.0023	0.0058	0.000023	0.0020	2.1	0.00042	1.3	0.00000045	0.38	0.080	2.8	0.0000011	0.011	0.000049	0.000062	0.00050	0.00023	0.00045
T4	65-73	0.00058	1.6	0.00030	0.00037	0.014	0.000039	0.00025	1.3	0.00056	0.29	0.000000074	0.43	0.026	2.5	0.00000061	0.0000067	0.000010	0.000029	0.000061	0.000054	0.000055

Notes: The cycles used comprise the last three leachates with full dissolved metals analyses

APPENDIX D-2.1 FIELD KINETIC TEST RESULTS

Date Sampled	Hardness	pH	Alkalinity	Cl	F	SO_4	NO_3	NO_2	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe
	mg $CaCO_3$/L		*mg $CaCO_3$/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
B1 (IMH)																					
8-Jun-07	60	8.1	71	2.1	0.18	28	2.6	0.068	0.025	0.0013	0.046	0.13	**0.00050**	**0.00050**	1.1	0.000078	12	0.0012	0.00015	0.025	**0.030**
16-Jul-07	104	8.2	104	3.2	0.21	44	3.8	0.070	0.0045	0.0020	0.048	0.066	**0.00050**	**0.00050**	0.24	**0.000017**	20	0.0021	**0.00010**	0.014	**0.030**
17-Jul-07	117	8.1	75	2.9	0.22	85	9.9	0.13	0.0022	0.0021	0.061	0.042	**0.00050**	**0.00050**	0.068	**0.000017**	23	0.0025	0.00014	0.015	**0.030**
21-Aug-07	124	8.1	90	3.0	0.23	68	7.3	0.014	**0.0010**	0.0023	0.069	0.036	**0.00050**	**0.00050**	0.048	**0.000017**	24	0.0031	**0.00010**	0.015	**0.030**
14-Sep-07	76	8.3	86	0.93	0.18	37	3.1	0.067	0.018	0.0019	0.046	0.026	**0.00050**	**0.00050**	0.026	**0.000017**	16	0.0015	0.00010	0.011	**0.030**
17-Oct-07	120	8.1	99	1.9	0.20	65	4.7	0.013	0.0018	0.0021	0.056	0.038	**0.00050**	**0.00050**	0.026	**0.000017**	23	0.0029	0.00010	0.014	**0.030**
24-May-08	59	8.1	60	1.8	0.15	34	-	-	0.051	0.0014	0.057	0.018	**0.00050**	**0.00050**	0.022	**0.000017**	12	0.0021	0.00014	0.011	0.11
31-Jul-08	36	8.2	64	0.79	0.13	18	0.58	0.0085	0.052	0.00073	0.035	0.015	**0.00050**	**0.00050**	0.015	0.000033	7.7	0.0018	0.00014	0.011	0.11
5-Sep-08	105	8.5	128	1.7	0.22	44	0.86	0.033	**0.0020**	0.0022	0.060	0.044	**0.0010**	**0.0010**	0.031	**0.000034**	21	0.0022	**0.00020**	0.0073	**0.030**
8-Oct-08	47	8.1	45	1.3	0.084	26	1.2	0.0052	0.040	0.00063	0.035	0.015	**0.00050**	**0.00050**	0.013	0.000031	9.6	0.0013	0.00012	0.0085	0.074
14-May-10	90	7.9	67	3.7	0.12	47	0.16	**0.0010**	**0.0010**	0.0011	0.026	0.030	**0.00050**	**0.00050**	0.012	**0.000017**	20	0.00098	**0.00010**	0.0040	**0.030**
12-Aug-10	151	8.2	-	8.5	0.21	106	**0.0050**	**0.0010**	0.0011	0.0028	0.072	0.044	**0.00050**	**0.00050**	0.025	**0.000017**	30	0.0059	**0.00010**	0.014	**0.030**
31-May-11	18	8.0	22	0.50	0.026	10	0.036	**0.0010**	0.022	0.00031	0.022	0.0042	**0.00050**	**0.00050**	**0.010**	**0.000010**	4.3	0.00091	**0.00010**	0.0046	0.037
19-Aug-11	30	8.6	34	**0.50**	0.078	16	0.12	**0.0010**	0.095	0.00051	0.039	0.0083	**0.00010**	**0.00050**	0.011	**0.000010**	6.6	0.0017	0.00019	0.0096	0.17
24-Apr-12	63	7.8	68	**0.50**	0.19	33	**0.0050**	**0.0010**	0.012	0.0017	0.077	0.018	**0.00010**	**0.00050**	0.023	0.000014	16	0.00085	**0.00010**	0.0088	**0.030**
11-Jun-12	30	7.7	28	1.6	0.060	21	0.28	0.0026	0.041	0.00075	0.037	0.0077	**0.00010**	**0.00050**	0.015	**0.000010**	6.7	0.0015	0.00012	0.011	0.078
26-Jun-13	59	8.1	84	0.75	0.17	24	0.37	0.0019	0.016	0.0013	0.096	0.019	**0.00010**	**0.00050**	0.027	**0.000010**	12	0.0027	**0.00010**	0.0070	0.021
2-May-14	71.8	8.08	58.1	1.45	0.089	40.5	0.390	0.0020	**0.001**	0.00069	0.0192	0.0355	**0.0001**	**0.0005**	**0.01**	**0.00001**	16.8	0.00087	**0.0001**	0.00512	**0.01**
4-Jul-14	33.6	8.10	31.5	**0.5**	0.064	15.2	0.128	**0.001**	0.407	**0.0005**	0.0413	0.0103	**0.0005**	**0.0025**	**0.05**	**0.00005**	6.85	0.00453	0.00087	0.0254	0.846
B1																					
median	63	8.1	68	1.6	0.17	34	0.49	0.004	0.016	0.0013	0.046	0.026	0.00050	0.00050	0.025	0.000017	16	0.0018	0.00010	0.011	0.030
95th percentile	127	8.5	108	4.1	0.22	87	7.7	0.078	0.126	0.0024	0.079	0.072	0.00055	0.00115	0.32	0.000053	25	0.0047	0.00027	0.025	0.24
B2 (SLD)																					
8-Jun-07	108	8.1	71	0.53	0.12	38	0.79	0.061	0.0072	0.0018	0.0060	0.072	**0.00050**	**0.00050**	1.0	0.00014	25	0.0015	**0.00010**	0.019	**0.030**
16-Jul-07	147	8.1	84	0.70	0.11	62	1.4	0.0054	0.0036	0.0020	0.0051	0.047	**0.00050**	**0.00050**	0.041	**0.000017**	36	0.0014	**0.00010**	0.012	**0.030**
17-Jul-07	373	7.9	44	0.61	0.12	244	15	0.0052	0.0026	0.0017	0.0058	0.097	**0.00050**	**0.00050**	0.033	0.000049	91	0.0012	**0.00010**	0.013	**0.030**
21-Aug-07	271	7.9	48	0.78	0.12	174	9.0	0.0050	**0.0010**	0.0017	0.0067	0.067	**0.00050**	**0.00050**	**0.010**	0.000023	67	0.0012	**0.00010**	0.011	**0.030**
14-Sep-07	306	8.0	46	**0.50**	0.098	248	5.8	0.0024	0.0014	0.0014	0.0045	0.066	**0.00050**	**0.00050**	**0.010**	0.000023	78	**0.00050**	**0.00010**	0.0098	**0.030**
17-Oct-07	446	7.8	49	**0.50**	0.077	341	8.1	**0.0010**	**0.0020**	0.0014	0.0037	0.070	**0.0010**	**0.0010**	**0.020**	0.000091	108	**0.0010**	**0.00020**	0.012	**0.030**
24-May-08	289	7.9	43	**0.50**	0.094	227	-	-	0.0016	0.00099	0.0034	0.040	**0.00050**	**0.00050**	**0.010**	**0.000017**	71	**0.00050**	**0.00010**	0.011	**0.030**
31-Jul-08	453	7.9	42	**0.50**	0.11	395	0.90	0.0098	0.022	0.0014	0.0034	0.064	**0.0010**	**0.0010**	**0.020**	0.00013	110	**0.0010**	**0.00020**	0.015	**0.030**
5-Sep-08	616	8.0	46	**0.50**	0.11	535	2.1	0.022	0.0013	0.00065	0.0016	0.047	**0.00050**	**0.00050**	**0.010**	**0.000080**	150	**0.00050**	**0.00010**	0.0052	**0.030**
8-Oct-08	433	7.8	40	**0.50**	0.069	345	2.0	0.0015	0.0020	0.00061	0.0023	0.037	**0.00050**	**0.00050**	**0.010**	0.000073	107	**0.00050**	**0.00010**	0.0071	**0.030**
14-May-10	1070	7.7	45	6.6	**0.20**	1030	2.9	**0.010**	**0.0050**	0.00095	0.0017	0.022	**0.0025**	**0.0025**	**0.050**	0.00027	277	**0.0025**	**0.00050**	0.012	**0.030**
12-Aug-10	587	7.9	52	**5.0**	**0.20**	520	1.0	**0.010**	**0.0010**	0.0013	0.0020	0.052	**0.00050**	**0.00050**	**0.010**	**0.00020**	142	0.00077	**0.00010**	0.0078	**0.030**
23-Oct-10	710	7.9	69	**5.0**	**0.20**	620	2.6	**0.010**	**0.0060**	0.00092	0.0020	0.067	**0.0010**	**0.0010**	**0.020**	**0.00030**	178	**0.0010**	**0.00020**	0.0074	**0.030**
31-May-11	561	7.7	66	**5.0**	**0.20**	488	0.47	**0.010**	**0.0030**	0.00097	0.0018	0.042	**0.00050**	**0.00050**	**0.010**	**0.00020**	139	0.00080	0.00013	0.0095	**0.030**
19-Aug-11	447	7.9	39	**5.0**	**0.20**	396	0.21	**0.010**	0.0032	0.0012	0.0018	0.062	**0.00010**	**0.00050**	**0.010**	**0.00015**	110	0.00027	0.00010	0.019	**0.030**
24-Apr-12	458	7.6	85	2.7	0.14	363	**0.025**	**0.0050**	**0.0030**	0.0022	0.0040	0.062	**0.00010**	**0.00050**	0.013	0.00013	114	0.00038	**0.00010**	0.061	**0.030**
11-Jun-12	299	7.5	23	0.83	0.087	252	0.42	0.0015	0.0074	0.00059	0.0018	0.033	**0.00010**	**0.00050**	**0.010**	**0.00012**	77	0.00034	**0.00010**	0.014	**0.030**
26-Jun-13	219	8.0	60	0.63	0.18	164	0.35	0.0022	0.015	0.0013	0.0030	0.021	**0.00010**	**0.00050**	**0.010**	**0.00020**	53	0.00041	**0.00010**	0.0092	**0.010**
2-May-14	398	7.89	49.7	**2.5**	**0.1**	353	0.284	**0.005**	**0.001**	0.00083	0.00161	0.0245	**0.0001**	**0.0005**	**0.01**	**0.00009**	106	0.00041	**0.0001**	0.00890	**0.01**
4-Jul-14	299	8.06	61.4	0.66	0.170	239	0.0386	0.0016	**0.005**	0.00139	0.00234	0.0499	**0.0005**	**0.0025**	**0.05**	**0.0002**	72.7	0.00050	**0.0005**	0.0069	**0.01**
B2																					
median	416	7.9	48	0.7	0.12	343	1.03	0.005	0.003	0.0013	0.003	0.051	0.00050	0.00050	0.010	0.000123	107	0.0006	0.00010	0.011	0.030
95th percentile	728	8.1	84	5.1	0.20	641	9.6	0.025	0.016	0.0020	0.006	0.073	0.00108	0.00250	0.10	0.000272	183	0.0016	0.00050	0.021	0.03
B3 (IMH)																					
8-Jun-07	112	8.2	90	1.0	0.33	24	4.2	0.041	0.0064	0.0020	0.0016	0.042	**0.00050**	**0.00050**	0.46	0.00010	16	0.0019	**0.00010**	0.0046	**0.030**
16-Jul-07	133	8.2	105	1.2	0.30	29	5.0	0.052	0.0036	0.0019	0.00079	0.036	**0.00050**	**0.00050**	0.049	**0.000017**	19	0.0013	**0.00010**	0.0024	**0.030**
17-Jul-07	162	8.1	69	0.91	0.34	53	15	0.036	0.0034	0.0023	0.0013	0.032	**0.00050**	**0.00050**	0.060	**0.000017**	23	0.0018	**0.00010**	0.0028	**0.030**
21-Aug-07	163	8.0	81	1.2	0.30	51	13	0.015	0.0017	0.0022	0.0011	0.017	**0.00050**	**0.00050**	0.034	0.000018	23	0.0020	**0.00010**	0.0024	**0.030**
14-Sep-07	114	8.3	83	**0.50**	0.27	34	6.5	0.024	0.0062	0.0018	0.0014	0.012	**0.00050**	**0.00050**	0.021	0.000020	16	0.00076	**0.00010**	0.0022	**0.030**
17-Oct-07	151	8.2	93	0.55	0.26	46	7.6	0.0042	0.0028	0.0019	0.00066	0.015	**0.00050**	**0.00050**	0.020	0.000026	21	0.0010	**0.00010**	0.0018	**0.030**
24-May-08	99	8.3	88	**0.50**	0.29	25			0.011	0.0020	0.0014	0.010	**0.00050**	**0.00050**	0.028	**0.000017**	14	0.0011	**0.00010**	0.0020	**0.030**
31-Jul-08	81	8.2	77	**0.50**	0.34	17	0.91	0.0071	0.012	0.0025	0.0024	0.0099	**0.00050**	**0.00050**	0.025	**0.000017**	11	0.0017	**0.00010**	0.0029	**0.030**
5-Sep-08	94	8.3	85	**0.50**	0.35	22	1.1	0.030	0.0018	0.0023	0.0012	0.011	**0.00050**	**0.00050**	0.025	**0.000017**	14	0.0018	**0.00010**	0.0016	**0.030**
8-Oct-08	82	8.2	74	**0.50**	0.27	17	1.1	0.0044	0.021	0.0014	0.0017	0.0078	**0.00050**	**0.00050**	0.018	**0.000017**	11	**0.0010**	**0.00010**	0.0017	**0.030**
14-May-10	118	8.0	84	1.6	0.16	40	1.1	0.0022	**0.0010**	0.0010	0.00035	0.013	**0.00050**	**0.00050**	0.018	**0.000017**	20	**0.00050**	**0.00010**	0.0012	**0.030**
12-Aug-10	125	8.2	111	0.97	0.31	30	0.27	0.0039	0.0015	0.0018	0.00048	0.013	**0.00050**	**0.00050**	0.026	0.000018	19	0.0017	**0.00010**	0.0016	**0.030**
23-Oct-10	126	8.4	118	0.54	0.25	29	0.79	0.0021	**0.0030**	0.0016	0.00046	0.013	**0.00050**	**0.00050**	0.018	**0.000017**	18	0.0012	**0.00010**	0.0015	**0.030**
31-May-11	114	8.1	107	0.81	0.23	26	0.42	**0.0010**	**0.0030**	0.0016	0.00052	0.010	**0.00050**	**0.00050**	0.018	**0.000020**	16	0.0013	**0.00010**	0.0016	**0.030**

Date Sampled	Hardness	pH	Alkalinity	Cl	F	SO_4	NO_3	NO_2	Al	Sb	As	Ba	Be	Bi	B	Cd	Ca	Cr	Co	Cu	Fe
	mg $CaCO_3$/L		*mg $CaCO_3$/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
19-Aug-11	53	8.4	61	**0.50**	0.22	12	0.18	**0.0010**	0.042	0.0015	0.0026	0.0066	**0.00010**	**0.00050**	0.019	0.000013	8.0	0.00032	**0.00010**	0.0023	0.041
24-Apr-12	107	7.8	98	0.99	0.34	26	**0.0050**	**0.0010**	0.0082	0.0020	0.00087	0.011	**0.00010**	**0.00050**	0.031	0.000027	18	0.00025	**0.00010**	0.0030	**0.030**
11-Jun-12	68	8.0	65	1.4	0.21	23	0.25	0.0014	0.038	0.0018	0.0017	0.0077	**0.00010**	**0.00050**	0.025	0.000015	10	0.0012	**0.00010**	0.0028	0.047
26-Jun-13	96	8.2	102	0.90	0.29	16	0.59	**0.0010**	0.0023	0.0023	0.00065	0.010	**0.00010**	**0.00050**	0.027	**0.000030**	14	0.0011	**0.00010**	0.0016	**0.010**
2-May-14	62.3	8.14	61.2	**0.5**	0.137	12.1	0.532	0.0739	0.0018	0.00089	0.00017	0.00893	**0.0001**	**0.0005**	**0.01**	**0.00001**	12.4	0.00026	**0.0001**	0.00075	**0.01**
4-Jul-14	105	8.36	105	**0.5**	0.255	16.3	3.78	0.0266	**0.005**	0.00165	**0.0005**	0.0134	**0.0005**	**0.0025**	**0.05**	**0.00005**	15.2	0.00092	**0.0005**	0.0014	**0.01**
B3																					
median	110	8.2	86	0.7	0.28	25	1.05	0.004	0.004	0.0018	0.001	0.011	0.00050	0.00050	0.025	0.000017	16	0.0011	0.00010	0.002	0.030
95th percentile	162	8.4	111	1.4	0.34	51	13.4	0.054	0.038	0.0023	0.002	0.037	0.00050	0.00060	0.08	0.000053	23	0.0019	0.00012	0.003	0.04
B4 (PICR)																					
16-Jul-07	198	8.3	124	1.2	0.022	147	2.4	0.0016	0.0028	0.0019	0.015	0.21	**0.0010**	**0.0010**	0.15	0.000038	36	0.0051	**0.00020**	0.0022	**0.030**
17-Jul-07	201	8.1	79	0.88	0.025	169	9.8	0.0029	0.0021	0.0027	0.031	0.18	**0.0010**	**0.0010**	0.30	**0.000034**	37	0.0037	0.00040	0.0035	**0.030**
21-Aug-07	207	8.1	81	0.87	0.021	164	9.9	0.0064	**0.0010**	0.0020	0.025	0.17	**0.00050**	**0.00050**	0.14	0.000059	36	0.0034	0.00023	0.0032	**0.030**
14-Sep-07	96	8.3	58	**0.50**	**0.020**	85	2.6	0.0069	0.019	0.0012	0.019	0.062	**0.00050**	**0.00050**	0.083	0.000065	16	0.0016	0.00043	0.0021	**0.030**
17-Oct-07	153	8.3	82	**0.50**	**0.020**	127	4.5	0.0022	0.0027	0.0017	0.025	0.098	**0.00050**	**0.00050**	0.10	0.000065	26	0.0028	0.00039	0.0026	**0.030**
24-May-08	103	8.3	100	**0.50**	**0.020**	82			0.023	0.0017	0.026	0.059	**0.00050**	**0.00050**	0.12	**0.000017**	17	0.0037	0.00048	0.0035	0.050
31-Jul-08	128	8.2	88	**0.50**	0.022	127	0.85	0.0051	**0.0010**	0.0022	0.023	0.057	**0.00050**	**0.00050**	0.11	0.000058	21	0.0051	0.00036	0.0036	**0.030**
5-Sep-08	177	8.4	49	0.68	0.022	27	0.34	**0.0010**	6.0	0.00039	0.013	0.059	**0.00050**	**0.00050**	0.079	**0.000090**	9.1	0.086	0.027	0.069	6.3
8-Oct-08	107	8.2	85	0.65	0.022	91	0.23	0.0023	0.024	0.0023	0.027	0.064	**0.0010**	**0.0010**	0.11	0.000062	18	0.0021	0.00046	0.010	0.039
14-May-10	281	8.4	119	4.0	**0.10**	271	0.69	**0.0050**	**0.0010**	0.0014	0.019	0.053	**0.00050**	**0.00050**	0.076	0.000068	40	0.0036	0.00045	0.0038	**0.030**
12-Aug-10	97	9.1	98	0.87	**0.020**	100	**0.0050**	**0.0010**	**0.0010**	0.0024	0.036	0.040	**0.00050**	**0.00050**	0.14	0.000070	10	0.0047	0.00033	0.0032	**0.030**
23-Oct-10	120	8.6	118	1.0	**0.020**	97	**0.0050**	**0.0010**	0.0080	0.0016	0.037	0.067	**0.0010**	**0.0010**	0.11	0.00010	19	0.0040	0.00044	0.0028	**0.030**
31-May-11	109	8.3	123	1.2	**0.020**	78	0.47	**0.0010**	0.012	0.0016	0.036	0.048	**0.00050**	**0.00050**	0.10	**0.000070**	17	0.0074	0.00042	0.0034	**0.030**
19-Aug-11	89	9.1	114	1.0	0.028	85	**0.0050**	**0.0010**	0.0092	0.0032	0.038	0.050	**0.00010**	**0.00050**	0.16	**0.00010**	14	0.0064	0.00050	0.0039	**0.030**
24-Apr-12	132	8.5	108	1.5	**0.020**	117	**0.0050**	**0.0010**	**0.0030**	0.0023	0.023	0.052	**0.00010**	**0.00050**	0.096	0.000063	20	0.0023	0.00058	0.0063	**0.030**
11-Jun-12	133	8.3	115	2.0	0.024	126	0.66	0.0011	0.0059	0.0022	0.030	0.051	**0.00010**	**0.00050**	0.12	**0.00015**	20	0.0071	0.00064	0.0044	**0.030**
26-Jun-13	73	8.4	110	**0.50**	0.033	41	0.39	0.0011	0.22	0.0021	0.042	0.047	**0.00010**	**0.00050**	0.14	**0.000070**	10.0	0.0075	0.0010	0.0070	0.37
2-May-14	85.5	8.55	127	0.86	0.024	43.1	0.237	0.0014	0.0330	0.00122	0.0298	0.0563	**0.0001**	**0.0005**	0.097	**0.00006**	12.4	0.00719	0.00043	0.00388	0.060
4-Jul-14	59.5	9.73	106	0.69	0.028	49.4	**0.005**	**0.001**	0.0228	0.00237	0.0355	0.0426	**0.0001**	**0.0005**	0.123	**0.0001**	7.14	0.00855	0.00051	0.00389	0.042
B4																					
median	120	8.3	106	0.9	0.02	97	0.43	0.001	0.008	0.0020	0.027	0.057	0.00050	0.00050	0.112	0.000065	18	0.0047	0.00044	0.004	0.030
95th percentile	214	9.2	124	2.2	0.04	179	9.8	0.006	0.791	0.0028	0.039	0.184	0.00100	0.00100	0.17	0.000105	38	0.0163	0.00368	0.016	0.96
B7 (SLD)																					
17-Jul-07	374	7.9	49	1.2	0.079	199	25	0.12	0.0033	0.0015	0.017	0.095	**0.00050**	**0.00050**	0.093	0.000031	93	**0.00050**	0.00014	0.11	**0.030**
21-Aug-07	322.0	8.7	65.2	**1.52**	**0.076**	166.0	22.900	0.0820	0.0015	**0.00157**	0.02120	0.0711	**0.00050**	**0.00050**	**0.015**	**0.000261**	79.4	**0.00050**	**0.00014**	0.0940	**0.030**
14-Sep-07	189	7.8	48	**0.50**	0.070	120	8.1	0.028	0.0026	0.0012	0.016	0.048	**0.00050**	**0.00050**	0.010	0.000075	47	**0.00050**	**0.00010**	0.087	**0.030**
17-Oct-07	395	8.0	71	0.84	0.056	238	22	0.0059	**0.0020**	0.0012	0.017	0.080	**0.0010**	**0.0010**	**0.020**	0.000066	95	**0.0010**	**0.00020**	0.080	**0.030**
24-May-08	84	7.8	31	**0.50**	0.047	54			0.029	0.00036	0.015	0.018	**0.00050**	**0.00050**	**0.010**	**0.000017**	21	**0.00050**	**0.00010**	0.054	0.038
31-Jul-08	284	8.0	67	**0.50**	0.070	198	5.8	0.039	0.0020	0.0013	0.014	0.055	**0.00050**	**0.00050**	**0.010**	0.00018	69	**0.00050**	**0.00010**	0.086	**0.030**
5-Sep-08	149	7.9	42	**0.50**	0.075	98	5.3	0.024	0.0037	0.00092	0.019	0.031	**0.00050**	**0.00050**	**0.010**	**0.000050**	38	**0.00050**	0.00011	0.085	**0.030**
8-Oct-08	237	8.1	77	**0.50**	0.088	143	6.5	0.084	0.0015	0.0013	0.019	0.045	**0.00050**	**0.00050**	**0.010**	0.000019	59	**0.00050**	**0.00010**	0.077	**0.030**
14-May-10	527	8.3	72	2.7	**0.10**	420	7.2	0.0079	**0.0020**	0.0012	0.013	0.040	**0.0010**	**0.0010**	**0.020**	0.000096	137	**0.0010**	**0.00020**	0.053	**0.030**
12-Aug-10	229	9.0	48	2.6	0.11	166	5.1	0.074	0.0025	0.0021	0.037	0.029	**0.00050**	**0.00050**	**0.010**	**0.000017**	41	**0.00050**	0.00020	0.12	**0.030**
31-May-11	66	8.0	29	0.65	0.025	42	1.6	**0.0010**	0.010	0.00054	0.021	0.0094	**0.00050**	**0.00050**	**0.010**	**0.000040**	15	0.00013	**0.00010**	0.038	**0.030**
19-Aug-11	175	8.6	65	0.99	0.085	128	**0.0050**	**0.0010**	**0.0030**	0.0018	0.037	0.025	**0.00010**	**0.00050**	**0.010**	**0.00010**	37	**0.00010**	0.00018	0.031	**0.030**
11-Jun-12	502	7.8	101	**5.0**	**0.20**	387	0.88	**0.010**	**0.0030**	0.0022	0.029	0.060	**0.00010**	**0.00050**	0.010	**0.00022**	119	0.00016	0.00042	0.10	**0.030**
26-Jun-13	168	8.1	82	**0.50**	0.078	93	1.8	0.0017	0.0015	0.0016	0.047	0.023	**0.00010**	**0.00050**	**0.010**	**0.000070**	41	**0.00010**	0.00011	0.047	**0.010**
2-May-14	263	8.10	68.1	1.14	0.051	209	1.86	0.0021	**0.001**	0.00105	0.0248	0.0270	**0.0001**	**0.0005**	**0.01**	**0.00005**	73.0	**0.0001**	**0.0001**	0.0345	**0.01**
4-Jul-14	163	8.45	54.9	**0.5**	0.075	126	**0.005**	**0.001**	**0.001**	0.00223	0.0375	0.0204	**0.0001**	**0.0005**	**0.01**	**0.0001**	37.4	0.00013	0.00025	0.0480	**0.01**
B7																					
median	233	8.1	65	0.7	0.08	155	5.25	0.010	0.002	0.0013	0.020	0.036	0.00050	0.00050	0.010	0.000068	53	0.0005	0.00013	0.079	0.030
95th percentile	508	8.7	87	3.3	0.13	395	23.5	0.093	0.015	0.0022	0.040	0.084	0.00100	0.00100	0.04	0.000230	124	0.0010	0.00029	0.108	0.03
B8 (Tailings)																					
10-Jul-13	1870	7.90	113	14	**0.4**	1710	**0.1**	**0.02**	0.0331	0.00201	0.00105	0.0831	**0.0002**	**0.001**	0.083	**0.0001**	467	**0.0002**	0.00059	0.00313	**0.01**
10-Jul-13	2360	7.95	115	18	**0.4**	2570	**0.1**	**0.02**	0.0023	0.00139	0.00086	0.0515	**0.0002**	**0.001**	0.093	**0.0001**	545	**0.0002**	0.00744	0.00126	**0.01**
2-May-14	1670	8.04	103	15	**0.4**	1880	**0.1**	**0.02**	0.0054	0.00195	0.00105	0.0603	**0.0002**	**0.001**	0.082	**0.00006**	344	0.00027	0.00056	0.00319	**0.01**
B8																					
median	1870	8.0	113	15	0.40	1880	0.10	0.020	0.0054	0.0020	0.0011	0.060	0.00020	0.0010	0.083	0.00010	467	0.00020	0.00059	0.0031	0.010
95th percentile	2311	8.0	115	18	0.40	2501	0.10	0.020	0.030	0.0020	0.0011	0.081	0.00020	0.0010	0.092	0.00010	537	0.00026	0.0068	0.0032	0.010

* Values indicated in bold fall below the analytical detection limit

Date Sampled	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	Tl	Sn	Ti	U	V	Zn
	mg/L	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
B1 (IMH)																				
8-Jun-07	**0.000050**	**0.0050**	7.4	0.0031	**0.000050**	0.028	0.00068	**0.30**	21	0.012	5.5	**0.000010**	11	0.087	**0.00010**	**0.00010**	**0.010**	0.00029	0.083	0.20
16-Jul-07	**0.000050**	**0.0050**	13	0.00066	**0.000050**	0.048	0.00052	**0.30**	27	0.019	6.5	**0.000010**	12	0.16	**0.00010**	**0.00010**	**0.010**	0.00063	0.060	0.055
17-Jul-07	**0.000050**	**0.0050**	14	0.0014	**0.000050**	0.068	**0.00050**	**0.30**	33	0.028	6.0	**0.000010**	13	0.20	**0.00010**	**0.00010**	**0.010**	0.00028	0.11	0.017
21-Aug-07	**0.000050**	**0.0050**	15	0.0011	**0.000050**	0.079	**0.00050**	**0.30**	34	0.023	7.2	**0.000010**	15	0.22	**0.00010**	**0.00010**	**0.010**	0.00058	0.086	**0.0010**
14-Sep-07	**0.000050**	**0.0050**	8.9	0.0024	**0.000050**	0.036	**0.00050**	**0.30**	29	0.013	5.3	**0.000010**	9.7	0.13	**0.00010**	**0.00010**	**0.010**	0.00053	0.063	**0.0010**
17-Oct-07	**0.000050**	**0.0050**	15	0.000095	**0.000050**	0.057	0.00096	**0.30**	35	0.021	6.4	**0.000010**	13	0.20	**0.00010**	**0.00010**	**0.010**	0.0011	0.068	0.0031
24-May-08	**0.000050**	**0.0050**	7.0	0.0030	0.000010	0.017	**0.00050**	**0.30**	24	0.011	5.6	**0.000010**	7.3	0.096	**0.00010**	**0.00010**	0.010	0.00038	0.081	**0.0010**
31-Jul-08	0.000091	**0.0050**	4.0	0.0031	**0.000050**	0.0090	0.00053	**0.30**	24	0.0049	3.2	**0.000010**	5.1	0.058	**0.00010**	**0.00010**	**0.010**	0.00028	0.050	0.0031
5-Sep-08	**0.00010**	**0.010**	13	0.00020	**0.000050**	0.024	**0.0010**	**0.30**	42	0.014	7.6	**0.000020**	11	0.19	**0.00020**	**0.00020**	**0.010**	0.0011	0.060	**0.0020**
8-Oct-08	**0.000050**	**0.0050**	5.5	0.0043	**0.000050**	0.012	**0.00050**	**0.30**	20	0.0074	3.3	**0.000010**	5.7	0.066	**0.00010**	0.00010	**0.010**	0.00025	0.050	**0.0010**
14-May-10	**0.000050**	**0.0050**	9.5	0.000053	**0.000050**	0.017	**0.00050**	**0.30**	16	-	6.9	**0.000010**	5.8	0.16	**0.00010**	**0.00010**	**0.010**	0.00080	0.032	**0.0010**
12-Aug-10	**0.000050**	**0.0050**	18	**0.000050**	**0.000050**	0.072	**0.00050**	**0.30**	56	0.022	8.9	**0.000010**	17	0.25	**0.00010**	**0.00010**	**0.010**	0.0011	0.079	**0.0010**
31-May-11	**0.000050**	**0.0050**	1.7	0.00088	**0.000010**	0.0082	**0.00050**	**0.30**	8.1	0.0019	1.3	**0.000010**	2.2	0.026	**0.00010**	**0.00010**	**0.010**	0.000072	0.051	**0.0030**
19-Aug-11	**0.000050**	0.00063	3.2	0.0033	**0.000010**	0.010	0.00053	**0.30**	12	0.0026	2.6	**0.000010**	3.2	0.048	**0.000010**	**0.00010**	0.016	0.00010	0.077	**0.0030**
24-Apr-12	**0.000050**	0.00077	5.7	0.00033	**0.000010**	0.017	**0.00050**	**0.30**	21	0.0042	4.1	**0.000010**	5.7	0.090	**0.000010**	**0.00010**	**0.010**	0.00023	0.12	**0.0030**
11-Jun-12	**0.000050**	**0.00050**	3.2	0.0017	**0.000010**	0.015	**0.00050**	**0.30**	15	0.0032	2.2	**0.000010**	3.5	0.048	**0.000010**	**0.00010**	**0.010**	0.00010	0.071	**0.0030**
26-Jun-13	**0.000050**	**0.00050**	7.2	0.00041	**0.000010**	0.020	**0.00050**	**0.050**	26	0.0034	6.3	**0.000010**	7.6	0.098	**0.000010**	**0.00010**	**0.010**	0.00032	0.11	**0.0010**
2-May-14	**0.00005**	0.00068	7.25	0.000123	**0.00002**	0.0107	**0.0005**	**0.05**	11.5	0.00550	5.57	**0.00001**	4.72	0.153	**0.00001**	**0.0001**	**0.01**	0.000703	0.0231	0.0014
4-Jul-14	**0.00025**	**0.0025**	4.00	0.0157	**0.00001**	0.00669	**0.0025**	0.058	14.2	0.00140	4.45	**0.00005**	2.43	0.0453	**0.00005**	**0.0005**	**0.05**	0.000087	0.113	**0.005**
B1																				
median	0.000050	0.0050	7.3	0.0011	0.000050	0.017	0.00050	0.30	24	0.009	5.6	0.000010	7.3	0.098	0.00010	0.00010	0.010	0.00032	0.071	0.0030
95th percentile	0.000115	0.0055	16	0.0054	0.000050	0.072	0.00115	0.30	43	0.024	7.7	0.000023	15	0.22	0.00011	0.00023	0.019	0.0011	0.11	0.069
B2 (SLD)																				
8-Jun-07	**0.000050**	**0.0050**	11	0.00072	**0.000050**	0.056	**0.00050**	**0.30**	4.1	0.0015	7.4	**0.000010**	3.5	0.18	**0.00010**	**0.00010**	**0.010**	0.0010	0.041	0.10
16-Jul-07	**0.000050**	**0.0050**	14	0.00039	**0.000050**	0.080	**0.00050**	**0.30**	4.6	0.0016	6.8	**0.000010**	**2.0**	0.26	**0.00010**	**0.00010**	**0.010**	0.0018	0.033	0.033
17-Jul-07	**0.000050**	0.0072	35	0.00037	**0.000050**	0.23	**0.00050**	**0.30**	8.3	0.0042	7.7	**0.000010**	2.2	0.61	**0.00010**	**0.00010**	**0.010**	0.00045	0.038	0.026
21-Aug-07	**0.000050**	0.0051	25	0.00050	**0.000050**	0.19	**0.00050**	**0.30**	7.2	0.0035	7.6	**0.000010**	2.2	0.51	**0.00010**	**0.00010**	**0.010**	0.00080	0.037	**0.0010**
14-Sep-07	**0.000050**	0.0051	27	0.00034	**0.000050**	0.32	**0.00050**	**0.30**	7.9	0.0038	8.0	**0.000010**	2.4	0.57	**0.00010**	**0.00010**	**0.010**	0.00055	0.030	**0.0040**
17-Oct-07	**0.00010**	**0.010**	43	0.00023	**0.000050**	0.43	**0.0010**	**0.30**	8.0	0.0049	6.6	**0.000020**	2.7	0.82	**0.00020**	**0.00020**	**0.010**	0.0013	0.022	0.0029
24-May-08	0.000067	**0.0050**	27	0.00090	**0.000010**	0.31	**0.00050**	**0.30**	6.5	0.0033	5.8	**0.000010**	**2.0**	0.49	**0.00010**	**0.00010**	**0.010**	0.00075	0.024	**0.0010**
31-Jul-08	**0.00010**	**0.010**	44	0.0016	**0.000050**	0.53	**0.0010**	**0.30**	8.5	0.0038	6.5	**0.000020**	2.6	0.78	**0.00020**	**0.00020**	**0.010**	0.00075	0.021	0.0026
5-Sep-08	**0.000050**	**0.0050**	59	0.00013	**0.000050**	0.37	**0.00050**	**0.30**	9.2	0.0088	7.0	**0.000010**	3.0	0.54	**0.00010**	**0.00010**	0.012	0.00048	0.0098	**0.0010**
8-Oct-08	**0.000050**	**0.0050**	40	0.00064	**0.000050**	0.44	**0.00050**	**0.30**	6.6	0.0061	4.7	**0.000010**	2.3	0.61	**0.00010**	**0.00010**	**0.010**	0.00075	0.014	**0.0010**
14-May-10	**0.00025**	**0.025**	92	0.0010	**0.000050**	1.1	**0.0025**	**0.30**	7.9	0.019	8.4	**0.000050**	4.0	2.0	**0.00050**	**0.00050**	0.017	0.0026	0.0096	0.0060
12-Aug-10	**0.000050**	0.0060	57	**0.000050**	**0.000050**	1.1	**0.00050**	**0.30**	8.8	0.0084	6.5	**0.000010**	3.4	1.0	**0.00010**	**0.00010**	**0.010**	0.0012	0.014	**0.0010**
23-Oct-10	**0.00010**	**0.010**	64	0.00037	**0.000010**	1.0	**0.0010**	**0.30**	8.0	0.014	5.9	**0.000020**	3.4	1.1	**0.00020**	**0.00020**	**0.010**	0.0016	0.011	**0.0060**
31-May-11	**0.000050**	0.0054	52	0.00096	**0.000010**	0.87	**0.00050**	**0.30**	6.7	0.0074	5.9	**0.000010**	3.1	0.90	**0.00010**	**0.00010**	**0.010**	0.0016	0.0099	0.0031
19-Aug-11	**0.000050**	0.0045	42	0.0022	**0.000010**	0.60	**0.00050**	**0.30**	6.2	0.0053	4.9	**0.000010**	2.4	0.75	**0.000010**	**0.00010**	**0.010**	0.00056	0.015	**0.0030**
24-Apr-12	**0.000050**	0.0059	42	0.00060	**0.000010**	0.55	0.00089	**0.30**	8.2	0.0040	5.7	**0.000010**	2.9	0.70	**0.000010**	**0.00010**	**0.010**	0.00091	0.014	0.0035
11-Jun-12	**0.000050**	0.0030	26	0.0017	**0.000010**	0.31	**0.00050**	**0.30**	5.1	0.0057	3.0	**0.000010**	**2.0**	0.48	**0.000010**	**0.00010**	**0.010**	0.00027	0.016	**0.0030**
26-Jun-13	**0.000050**	0.0043	21	0.00025	**0.000010**	0.37	**0.00050**	**0.050**	5.4	0.0035	6.2	**0.000010**	2.3	0.36	**0.000010**	**0.00010**	**0.010**	0.00082	0.018	0.0014
2-May-14	**0.00005**	0.00453	32.5	0.000262	**0.00002**	0.488	**0.0005**	**0.05**	4.16	0.00598	5.69	**0.00001**	2.32	0.795	**0.00001**	**0.0001**	**0.01**	0.00201	0.0082	0.0013
4-Jul-14	**0.00025**	0.0037	28.6	**0.00025**	**0.00001**	0.483	**0.0025**	**0.05**	5.66	0.00425	6.28	**0.00005**	2.53	0.507	**0.00005**	**0.0005**	**0.05**	0.00121	0.0141	**0.005**
B2																				
median	0.000050	0.0051	37.8	0.0004	0.000050	0.439	0.00050	0.30	7	0.005	6.4	0.000010	2.5	0.606	0.00010	0.00010	0.010	0.00086	0.016	0.0030
95th percentile	0.000250	0.0108	66	0.0017	0.000050	1.053	0.00250	0.30	9	0.014	8.0	0.000050	4	1.17	0.00022	0.00050	0.019	0.0020	0.04	0.036
B3 (IMH)																				
8-Jun-07	**0.000050**	0.0070	18	0.00094	**0.000050**	0.036	**0.00050**	**0.30**	5.0	0.012	7.7	**0.000010**	7.1	0.18	**0.00010**	**0.00010**	**0.010**	0.00055	0.023	0.036
16-Jul-07	**0.000050**	0.0076	21	0.00022	**0.000050**	0.043	**0.00050**	**0.30**	5.3	0.014	6.6	**0.000010**	6.8	0.23	**0.00010**	**0.00010**	**0.010**	0.00075	0.012	0.028
17-Jul-07	**0.000050**	0.0081	25	0.00081	**0.000050**	0.081	**0.00050**	**0.30**	7.2	0.017	7.8	**0.000010**	8.2	0.29	**0.00010**	**0.00010**	**0.010**	0.00031	0.024	0.027
21-Aug-07	**0.000050**	0.0071	26	0.00017	**0.000050**	0.098	**0.00050**	**0.30**	6.5	0.017	7.0	**0.000010**	8.7	0.33	**0.00010**	**0.00010**	**0.010**	0.00057	0.016	0.0019
14-Sep-07	**0.000050**	**0.0050**	18	0.00037	**0.000050**	0.057	**0.00050**	**0.30**	4.8	0.013	5.6	**0.000010**	7.1	0.21	**0.00010**	**0.00010**	**0.010**	0.00058	0.026	**0.0040**
17-Oct-07	**0.000050**	0.0056	24	0.00015	**0.000050**	0.086	**0.00050**	**0.30**	5.6	0.017	6.2	**0.000010**	8.2	0.29	**0.00010**	**0.00010**	**0.010**	0.00094	0.013	0.0025
24-May-08	**0.000050**	**0.0050**	16	0.00013	**0.000010**	0.050	**0.00050**	**0.30**	5.0	0.0076	6.6	**0.000010**	7.2	0.17	**0.00010**	**0.00010**	**0.010**	0.00070	0.025	**0.0010**
31-Jul-08	**0.000050**	**0.0050**	13	0.00052	**0.000050**	0.034	**0.00050**	**0.30**	5.1	0.0058	5.7	**0.000010**	6.8	0.14	**0.00010**	**0.00010**	**0.010**	0.00057	0.040	**0.0010**
5-Sep-08	**0.000050**	**0.0050**	15	0.000073	**0.000050**	0.061	**0.00050**	**0.30**	4.8	0.0081	6.1	**0.000010**	7.0	0.17	**0.00010**	**0.00010**	**0.010**	0.00063	0.022	**0.0010**
8-Oct-08	**0.000050**	**0.0050**	13	0.00046	**0.000050**	0.026	**0.00050**	**0.30**	4.2	0.0046	4.4	**0.000010**	6.9	0.13	**0.00010**	**0.00010**	**0.010**	0.00071	0.031	**0.0010**
14-May-10	**0.000050**	**0.0050**	17	**0.000050**	**0.000050**	0.065	**0.00050**	**0.30**	2.5	0.012	5.2	**0.000010**	5.1	0.24	**0.00010**	**0.00010**	**0.010**	0.0010	0.0054	**0.0010**
12-Aug-10	**0.000050**	**0.0050**	19	**0.000050**	**0.000050**	0.13	**0.00050**	**0.30**	5.2	0.0048	5.5	**0.000010**	8.7	0.23	**0.00010**	**0.00010**	**0.010**	0.00096	0.010	**0.0010**
23-Oct-10	**0.000050**	**0.0050**	20	0.000056	**0.000010**	0.12	**0.00050**	**0.30**	4.6	0.0078	4.7	**0.000010**	8.2	0.24	**0.00010**	**0.00010**	**0.010**	0.0010	0.0094	**0.0030**
31-May-11	**0.000050**	**0.0050**	18	0.00014	**0.000010**	0.12	**0.00050**	**0.30**	3.8	0.0040	4.9	**0.000010**	7.5	0.20	**0.00010**	**0.00010**	**0.010**	0.0010	0.011	**0.0030**

Date Sampled	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	Tl	Sn	Ti	U	V	Zn
	mg/L	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
19-Aug-11	**0.000050**	0.0021	8.0	0.00055	**0.000010**	0.042	**0.00050**	**0.30**	3.3	0.0025	3.6	**0.000010**	4.5	0.10	**0.000010**	**0.00010**	**0.010**	0.00031	0.052	**0.0030**
24-Apr-12	**0.000050**	0.0039	15	0.00024	**0.000010**	0.095	**0.00050**	**0.30**	5.1	0.0052	4.7	**0.000010**	6.9	0.18	**0.000010**	**0.00010**	**0.010**	0.00048	0.019	**0.0030**
11-Jun-12	**0.000050**	0.0027	10	0.00074	**0.000010**	0.049	**0.00050**	**0.30**	4.3	0.0051	4.1	**0.000010**	5.6	0.14	**0.000010**	**0.00010**	**0.010**	0.00047	0.044	**0.0030**
26-Jun-13	**0.000050**	0.0037	15	0.000061	**0.000010**	0.092	**0.00050**	**0.050**	4.5	0.0030	5.0	**0.000010**	7.7	0.19	**0.000010**	**0.00010**	**0.010**	0.00085	0.015	0.0015
2-May-14	**0.00005**	0.00158	7.61	0.000058	**0.00002**	0.0352	**0.0005**	**0.05**	1.35	0.00190	3.84	**0.00001**	3.32	0.181	**0.00001**	**0.0001**	**0.01**	0.000826	0.0035	0.0015
4-Jul-14	**0.00025**	0.0025	16.3	**0.00025**	**0.00001**	0.0796	**0.0025**	**0.05**	4.65	0.00192	4.87	**0.00005**	8.81	0.181	0.000055	**0.0005**	**0.05**	0.000854	0.0111	**0.005**
B3																				
median	0.000050	0.0050	16.6	0.0002	0.000050	0.063	0.00050	0.30	5	0.007	5.4	0.000010	7.1	0.187	0.00010	0.00010	0.010	0.00070	0.018	0.0028
95th percentile	0.000060	0.0076	25	0.0008	0.000050	0.123	0.00060	0.30	7	0.017	7.7	0.000012	9	0.30	0.00010	0.00012	0.012	0.0010	0.04	0.029
B4 (PICR)																				
16-Jul-07	**0.00010**	**0.010**	26	0.00087	**0.000050**	0.11	0.0042	**0.30**	51	0.0030	8.3	**0.000020**	3.8	0.34	**0.00020**	**0.00020**	**0.010**	0.00068	0.014	0.031
17-Jul-07	**0.00010**	**0.010**	26	0.0026	**0.000050**	0.19	0.0063	**0.30**	69	0.0031	8.8	**0.000020**	6.7	0.33	**0.00020**	**0.00020**	**0.010**	0.00021	0.022	0.033
21-Aug-07	**0.000050**	**0.0050**	29	0.00017	**0.000050**	0.21	0.0069	**0.30**	62	0.0027	8.4	**0.000010**	6.7	0.36	**0.00010**	**0.00010**	**0.010**	0.00031	0.015	**0.0010**
14-Sep-07	**0.000050**	**0.0050**	13	0.0027	**0.000050**	0.13	0.0044	**0.30**	40	0.0020	4.8	**0.000010**	5.0	0.17	**0.00010**	**0.00010**	**0.010**	0.000085	0.016	**0.0010**
17-Oct-07	**0.000050**	**0.0050**	22	0.00037	**0.000050**	0.25	0.0047	**0.30**	55	0.0020	6.9	**0.000010**	6.8	0.27	**0.00010**	**0.00010**	**0.010**	0.00034	0.015	0.0035
24-May-08	**0.000050**	**0.0050**	15	0.0019	**0.000010**	0.17	0.0057	**0.30**	53	0.0021	8.0	**0.000010**	6.9	0.16	**0.00010**	**0.00010**	**0.010**	0.00024	0.019	**0.0010**
31-Jul-08	**0.000050**	**0.0050**	18	0.00019	**0.000050**	0.28	0.0049	**0.30**	64	0.0019	7.1	**0.000010**	8.0	0.21	**0.00010**	**0.00010**	**0.010**	0.00027	0.017	**0.0010**
5-Sep-08	0.00077	**0.0050**	38	0.27	**0.000050**	0.050	0.27	**0.30**	27	0.0013	13	0.000045	2.5	0.088	**0.00010**	**0.00010**	0.046	0.00015	0.050	0.018
8-Oct-08	0.00011	**0.010**	15	0.0015	**0.000050**	0.31	0.0055	**0.30**	57	0.00076	7.5	**0.000020**	6.8	0.18	**0.00020**	**0.00020**	**0.010**	0.00027	0.020	0.0039
14-May-10	**0.000050**	**0.0050**	44	0.00013	**0.000050**	0.56	0.0056	**0.30**	85	0.0057	9.0	**0.000010**	11	0.45	**0.00010**	**0.00010**	**0.010**	0.00082	0.011	**0.0010**
12-Aug-10	**0.000050**	**0.0050**	17	**0.000050**	**0.000050**	0.42	0.0027	**0.30**	72	0.0017	7.4	**0.000010**	8.6	0.19	**0.00010**	**0.00010**	**0.010**	0.00037	0.019	**0.0010**
23-Oct-10	**0.00010**	**0.010**	18	0.00035	**0.000010**	0.46	0.0039	**0.30**	65	0.0016	6.9	**0.000020**	7.5	0.22	**0.00020**	**0.00020**	**0.010**	0.00042	0.019	**0.0060**
31-May-11	**0.000050**	**0.0050**	17	0.00049	**0.000010**	0.37	0.0048	**0.30**	60	0.0017	7.7	**0.000010**	6.5	0.18	**0.00010**	**0.00010**	**0.010**	0.00047	0.018	**0.0030**
19-Aug-11	**0.000050**	**0.00050**	13	0.00040	**0.000010**	0.45	0.0037	**0.30**	71	0.0017	7.9	**0.000010**	7.6	0.17	0.000043	**0.00010**	**0.010**	0.00029	0.026	**0.0030**
24-Apr-12	**0.000050**	**0.00050**	20	0.00013	**0.000010**	0.34	0.0064	**0.30**	66	0.0021	6.0	**0.000010**	6.5	0.22	0.000048	**0.00010**	**0.010**	0.00053	0.0091	**0.0030**
11-Jun-12	**0.000050**	**0.00050**	20	0.00022	**0.000010**	0.48	0.0052	**0.30**	79	0.0025	7.2	**0.000010**	7.7	0.26	0.000049	**0.00010**	**0.010**	0.00045	0.018	**0.0030**
26-Jun-13	**0.000050**	**0.00050**	12	0.0073	**0.000010**	0.24	0.014	**0.050**	58	0.00087	9.4	**0.000010**	4.6	0.12	0.000033	**0.00010**	**0.010**	0.00028	0.038	0.0014
2-May-14	**0.00005**	**0.0005**	13.2	0.00128	**0.00002**	0.191	0.00566	**0.05**	55.5	0.00123	6.92	**0.00001**	4.31	0.164	0.000023	**0.0001**	**0.01**	0.000513	0.0190	**0.001**
4-Jul-14	**0.00005**	**0.0005**	10.1	0.000841	**0.00001**	0.225	0.00321	**0.05**	69.6	0.00139	6.28	**0.00001**	5.36	0.132	0.000028	**0.0001**	**0.01**	0.000376	0.0274	0.0010
B4																				
median	0.000050	0.0050	17.6	0.0005	0.000050	0.245	0.00516	0.30	62	0.002	7.5	0.000010	6.7	0.186	0.00010	0.00010	0.010	0.00034	0.019	0.0030
95th percentile	0.000176	0.0100	38	0.0339	0.000050	0.490	0.03912	0.30	79	0.003	9.7	0.000022	9	0.37	0.00020	0.00020	0.014	0.0007	0.04	0.031
B7 (SLD)																				
17-Jul-07	**0.000050**	0.0064	35	0.0022	**0.000050**	0.74	0.00090	**0.30**	11	0.028	12	**0.000010**	3.3	0.47	**0.00010**	**0.00010**	**0.010**	0.00013	0.022	0.046
21-Aug-07	**0.000050**	**0.0055**	30.10	0.0002	**0.000050**	0.7820	**0.00252**	**0.30**	**9.7**	**0.02300**	12.800	**0.000010**	**3.2**	0.4670	**0.00010**	**0.00010**	**0.010**	**0.000207**	**0.0208**	0.0038
14-Sep-07	**0.000050**	**0.0050**	18	0.0013	**0.000050**	0.35	0.00086	**0.30**	11	0.017	10	**0.000010**	2.3	0.27	**0.00010**	**0.00010**	**0.010**	0.00014	0.017	**0.0040**
17-Oct-07	**0.00010**	**0.010**	38	0.00029	**0.000050**	0.85	**0.0010**	**0.30**	11	0.031	10	**0.000020**	3.7	0.57	**0.00020**	**0.00020**	**0.010**	0.00043	0.015	**0.0020**
24-May-08	**0.000050**	**0.0050**	7.8	0.0026	**0.000010**	0.19	**0.00050**	**0.30**	6.7	0.0088	5.5	**0.000010**	**2.0**	0.11	**0.00010**	**0.00010**	**0.010**	0.000052	0.025	**0.0010**
31-Jul-08	**0.000050**	**0.0050**	27	0.0012	**0.000050**	0.87	0.00062	**0.30**	12	0.023	10	**0.000010**	3.1	0.37	**0.00010**	**0.00010**	**0.010**	0.00027	0.012	0.0022
5-Sep-08	**0.000050**	**0.0050**	13	0.0051	**0.000050**	0.24	0.00087	**0.30**	11	0.014	8.1	**0.000010**	**2.0**	0.21	**0.00010**	**0.00010**	**0.010**	0.00014	0.018	**0.0010**
8-Oct-08	**0.000050**	0.0057	22	0.00057	**0.000050**	0.38	0.00053	**0.30**	15	0.020	12	**0.000010**	2.8	0.28	**0.00010**	**0.00010**	**0.010**	0.00025	0.019	**0.0010**
14-May-10	**0.00010**	**0.010**	45	0.00024	**0.000050**	0.63	**0.0010**	**0.30**	12	0.042	16	**0.000020**	4.0	0.65	**0.00020**	**0.00020**	0.014	0.00087	0.012	**0.0020**
12-Aug-10	**0.000050**	0.0056	31	0.000097	**0.000050**	0.87	**0.00050**	**0.30**	14	0.031	14	**0.000010**	4.4	0.34	**0.00010**	**0.00010**	**0.010**	0.00039	0.029	**0.0010**
31-May-11	**0.000050**	**0.0050**	6.9	0.00075	**0.000010**	0.16	**0.00050**	**0.30**	5.7	0.0070	4.6	**0.000010**	1.2	0.087	**0.00010**	**0.00010**	**0.010**	0.000068	0.035	**0.0030**
19-Aug-11	**0.000050**	0.0037	20	0.000060	**0.000010**	0.47	**0.00050**	**0.30**	11	0.013	12	**0.000010**	2.6	0.26	**0.000010**	**0.00010**	**0.010**	0.00023	0.029	**0.0030**
11-Jun-12	**0.000050**	0.0066	50	0.0089	**0.000010**	0.65	0.0012	**0.30**	21	0.024	14	**0.000010**	4.1	0.73	0.000011	**0.00010**	**0.010**	0.00058	0.025	0.011
26-Jun-13	**0.000050**	0.0030	16	0.000059	**0.000010**	0.24	**0.00050**	0.065	11	0.0091	11	**0.000010**	1.7	0.23	**0.000010**	**0.00010**	**0.010**	0.00037	0.029	0.0096
2-May-14	**0.00005**	0.00290	19.6	0.000126	**0.00002**	0.241	0.00064	**0.05**	9.22	0.0139	9.93	**0.00001**	1.86	0.469	**0.00001**	**0.0001**	**0.01**	0.000584	0.0167	**0.001**
4-Jul-14	**0.00005**	0.00355	16.8	0.000590	**0.00001**	0.306	**0.0005**	**0.05**	14.0	0.00931	11.5	**0.00001**	1.86	0.255	**0.00001**	**0.0001**	**0.01**	0.000264	0.0310	**0.001**
B7																				
median	0.000050	0.0050	20.7	0.0006	0.000050	0.424	0.00063	0.30	11	0.019	11.4	0.000010	2.7	0.312	0.00010	0.00010	0.010	0.00025	0.021	0.0021
95th percentile	0.000100	0.0100	46	0.0061	0.000050	0.867	0.00154	0.30	16	0.033	14.8	0.000020	4	0.67	0.00020	0.00020	0.011	0.0007	0.03	0.019
B8 (Tailings)																				
10-Jul-13	**0.0001**	0.0038	172	0.162	**0.00001**	0.215	0.0012	0.080	48.6	0.0259	4.97	**0.00002**	77.0	5.19	0.000312	**0.0002**	**0.02**	0.00915	0.0059	0.0038
10-Jul-13	**0.0001**	0.0563	243	0.411	**0.00001**	0.192	0.0185	**0.05**	55.9	0.0420	8.80	**0.00002**	118	6.18	0.000058	**0.0002**	**0.02**	0.00586	0.0151	0.0113
2-May-14	**0.0001**	0.0049	198	0.0912	**0.00002**	0.212	0.0016	**0.05**	50.8	0.0271	4.41	**0.00002**	88.4	4.48	0.000317	**0.0002**	**0.02**	0.00912	0.0063	0.0029
B8																				
median	0.00010	0.0049	198	0.16	0.000010	0.21	0.0016	0.050	51	0.027	5.0	0.000020	88	5.2	0.00031	0.00020	0.020	0.0091	0.0063	0.0038
95th percentile	0.00010	0.051	239	0.39	0.000019	0.21	0.017	0.077	55	0.041	8.4	0.000020	115	6.1	0.00032	0.00020	0.020	0.0091	0.014	0.011

*Values indicated in bold fall below the analytical detection limit

Appendix E: Results of Quality Assurance / Quality Control Program

KGHM

Appendix E – Results of Quality Assurance / Quality Control Programs

The following section discusses the results of the Quality Assurance / Quality Control (QAQC) programs for Phase I and Phase II geochemical testing for the Ajax project. The original laboratory reports for the static test results are provided in Appendix C and the laboratory reports for the kinetic test results are provided in Appendix D.

E.1 Solid Phase Program

Fifteen duplicate drill core samples were analyzed to evaluate the combined variability from sampling and analytical methods in the Iron Mask, Sugarloaf and Volcanics units of the Ajax deposit. For these duplicates, a second quarter from the same core section is analyzed as the duplicate. Table E-1 provides a statistical summary of the relative differences in reported values between duplicate samples. The mean relative difference for all parameters except Mo are <20%; indicating good reproducibility in the values. The values reported for Mo show the highest degree of variability with mean relative difference for Mo is 30% and the maximum is 149%. The data was evaluated based on rock type and phase of the program (Table E-2). The results suggest that the Phase I sample duplicates show the greatest variability and the Phase II duplicates show improved (lower) relative differences. This may have resulted from improved sample splitting techniques in the field. Overall, the Phase II duplicates show good reproducibility for all the lithologies tested. The relative differences for Mo in the Phase II duplicates remain the highest and may reflect Mo's inconsistent presence in the material; it is expected to be associated with sulphides.

Replicate samples provided by the analytical laboratory were in good agreement demonstrating acceptable reproducibility by the analytical techniques.

For both the field and laboratory kinetic tests, solid samples were split by the analytical laboratory after pulverization and homogenization. At least 1 to 2 samples per run were split for ABA and solid metal duplicate determinations and the split samples were found to be in good agreement with the original samples analyzed.

Table E-1:
Relative Difference Summary Statistics from 15 ABA Duplicate Samples

Parameter	Min	Mean	Max
pH	0.1%	1.2%	6.5%
TIC	0.0%	8.2%	37.9%
Total S	0.0%	15.1%	74.3%
SO_4-S	0.0%	13.0%	108.6%
S^{-2}-S	0.0%	13.1%	66.7%
Al	0.3%	3.2%	17.3%
As	0.0%	11.8%	49.2%
Ca	0.4%	5.3%	25.0%
Co	0.3%	8.0%	25.0%
Cr	0.0%	7.1%	25.4%
Cu	0.7%	17.9%	118.8%
Fe	0.4%	1.7%	7.3%
K	0.0%	5.1%	40.0%
Mg	0.0%	5.1%	49.1%
Mn	0.2%	4.8%	18.5%
Mo	0.0%	30.2%	149.1%
Na	0.0%	5.2%	24.4%
Ni	0.4%	14.1%	127%
Pb	0.0%	22.6%	169%
Sr	0.0%	8.3%	59.3%
U	0.0%	14.3%	66.7%
V	0.0%	1.6%	3.6%
Zn	0.0%	2.1%	8.0%

Notes: TIC = total inorganic carbon, originating from carbonates; Total S = Total sulphur; Sulphate Sulphur (SO_4-S); Sulphide Sulphur (S^{2-}-S); relative difference that equal 0% represent values below detection.

Table E-2:
Relative Difference of Duplicate Samples for Selected Parameters by Rock type

Sample ID	Rock Type	TIC	Total S	Ca	Cu	Mo
L10-100	Iron Mask Hybrid	0.0%	0.0%	1.6%	5.6%	0.0%
L10-101D						
L-AW-004-5	Iron Mask	18.8%	30.0%	1.9%	6.6%	28.6%
L-AW-004-6						
L10-85	Iron Mask Hybrid	0.0%	13.3%	1.9%	1.8%	0.0%
L10-86D						
L10-11	Iron Mask hybrid	8.1%	0.0%	0.4%	4.4%	16.7%
L10-12D						
L10-54	Mafic Volcanic	0.0%	0.0%	6.4%	1.9%	0.0%
L10-55D						
L10-34	Albitized Sugarloaf	5.1%	1.4%	1.2%	2.4%	7.4%
L10-35D						
L-AE-006-1	Sugarloaf Diorite/Hybrid	17.8%	46.2%	9.8%	54.6%	100.0%
L-AE-006-2						
L-AW-023-2	Sugarloaf Diorite	0.0%	74.3%	5.7%	118.8%	149.1%
L-AW-023-3						
L10-165	Sugarloaf Diorite	1.7%	0.0%	0.5%	6.5%	40.0%
L10-166D						
L10-73	Sugarloaf Diorite	1.6%	1.1%	0.6%	2.1%	4.4%
L10-74D						
L10-150	Sugarloaf Diorite	3.2%	0.0%	1.3%	1.8%	1.7%
L10-151D						
L10-129	Sugarloaf Diorite	0.0%	2.5%	0.5%	0.9%	42.1%
L10-130D						
L-AE-003-2	Sugarloaf Diorite	37.9%	28.6%	25.0%	28.7%	22.2%
L-AE-003-3						
L-AW-020-2	Picrite	28.6%	28.6%	19.7%	32.1%	41.6%
L-AW-020-3						
L10-180	Picrite	0.0%	0.0%	2.7%	0.7%	0.0%
L10-181D						

Notes: L-AW series samples are Phase I samples and L10 series are Phase II samples; TIC = total inorganic carbon, originating from carbonates; Total S = Total sulphur; Sulphate Sulphur (SO_4-S); Sulphide Sulphur (S^{2-}-S); relative difference that equal 0% represent values below detection.

E.2 Kinetic Test Programs

E.2.1 Field Kinetic Program

Blank bin samples were collected during each leachate sampling event by pouring distilled-deionised water down the inside walls of the bin and collecting the samples in the same manner as the other water quality samples. There are consistently detectable concentrations of Al, Ba, Ca, Cu, Mg, Mn, Mo and Sr; there are frequently detectable concentrations of SO4, NO3 and NO2, As and Si; and there are sporadically detectable concentrations of Cl, Sb, B, Cd, Ni, K, Se, Na, U, V and Zn. In most cases the mean concentrations of the elements in the blank filed bin fall well below those detected in the mine rock field bins with the exception of Al, Cu, Mn and Zn. The Al concentration is the blank field bin is higher than all the other field bins except that of FB1 (Iron Mask), while the median Cu concentration is higher than FB3 and FB 4. The blank field bin Mn concentration is similar to the median of FB2 FB3 and FB4, while the Zn concentration is similar across all the field bins, including the blank field bin. These data indicate that the elements may be leaching from the bin walls and/or be naturally entering the system via air born particles and organic matter. Lorax monitoring of identical bin configurations for other projects at locations that are less susceptible to wind/dust suggest that the HDPE barrels and tubing configuration are not the source of metal contamination in the blank bin. Sediment and organics were observed in the bins prior to each sample collection.

A duplicate sample was obtained by filling two sets of bottles from one field bin leachate collection bottle and treating them as separate samples. The elements Al, Cd, Mn and Zn have relative differences exceeding 20% on several occasions consistent with the pattern of their concentrations from in the blank bin with the exception of Cd which is at or very close to its detection limit of 0.00002 mg/L and so even small differences are relatively large as such low concentrations. Other elements that show relative differences greater than 20% more than once include Ba, Co, Fe, Se and U. Overall, the duplicates indicate good reproducibility in the data.

Field blanks, composed of distilled water, exposed to the same conditions and treatment as the water quality samples, were collected during sampling events. Nearly all field blank bin samples produced values below detection; however there were detectable amounts of Al, B, Ca, Cl, Cu, Sr and Zn in 2007 and early 2008 field blanks and Ba has been detected at low concentrations at least once in 2010 and 2012. Overall, the results of the field blanks do not indicate any systematic problem with the water quality analyses or sample handling procedures.

E.3 Laboratory Kinetic Program

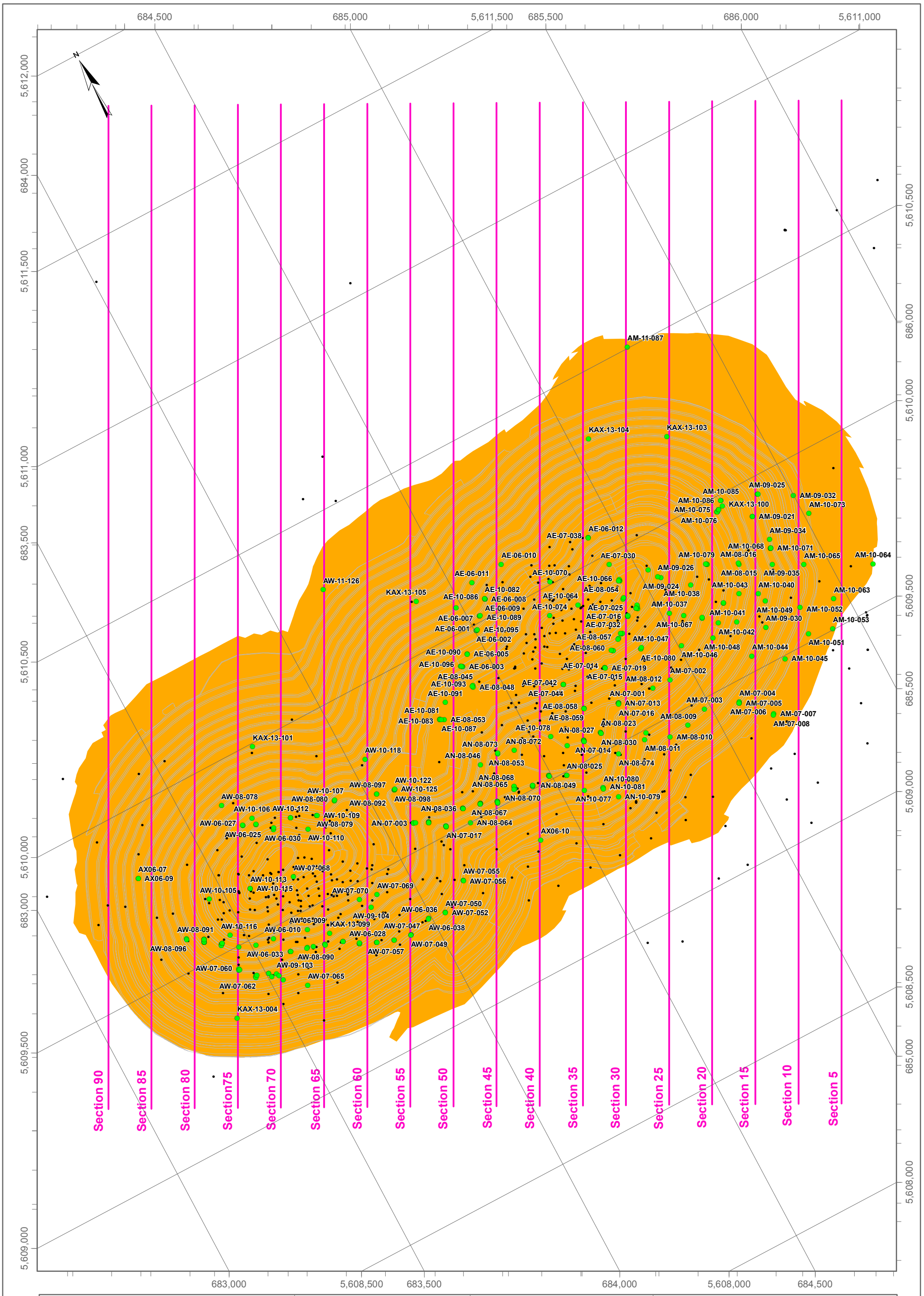
Analysis of the laboratory kinetic test results indicates one major QAQC problem. High concentrations of tin (Sn) were consistently detected in the leachate from Col 1, T2 (but not T1), Col2, Col3, Col4 and Col5 and with lesser amounts leached from Col6 and the humidity cells. Analysis of subsamples from all the Ajax kinetic tests indicate solid-phase Sn concentrations of < 1 ppm and, therefore, the Sn is not thought to be leaching from the test materials. Instead, it appears that the there is a laboratory source of Sn contamination. The exact source of the Sn is unknown and the investigation of the matter by SGS Laboratory is ongoing as of May, 2012 (see letter in Appendix D). However, due to the contamination, all Sn results from the Ajax laboratory kinetic tests must be excluded from evaluation. As Sn is not an element of concern in the Ajax mine rock, neglecting Sn is not expected to compromise the overall results and utility of the kinetic tests. The only other element that may be associated with the Sn contamination is antimony, Sb. However, there is no clear indication from the data that there is Sb contamination and again, Sb is not considered an element of concern with this project.

Appendix F: Cross Sections

APPENDIX F-1 PIT OUTLINE WITH SECTION LINES
APPENDIX F-2 CROSS-SECTIONS BY GEOMET UNIT
APPENDIX F-3 CROSS-SECTIONS BY ALTERATION

KGHM

APPENDIX F-1 PIT OUTLINE WITH SECTION LINES



LEGEND

- Drillhole collars with Lorax Sample
- Drillhole Collars
- Pit Sections
- Ultimate Pit
- Pit Contours (15m)

DATE SAVED:	Nov 06, 2014
DRAWN BY:	GM
REVIEWED:	BM
VERSION:	1

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:10,000

0 100 200 Meters

CLIENT:

KGHM Ajax Mining Inc.

LORAX ENVIRONMENTAL

PROJECT:

Ajax Geochemical Characterization Study

TITLE:

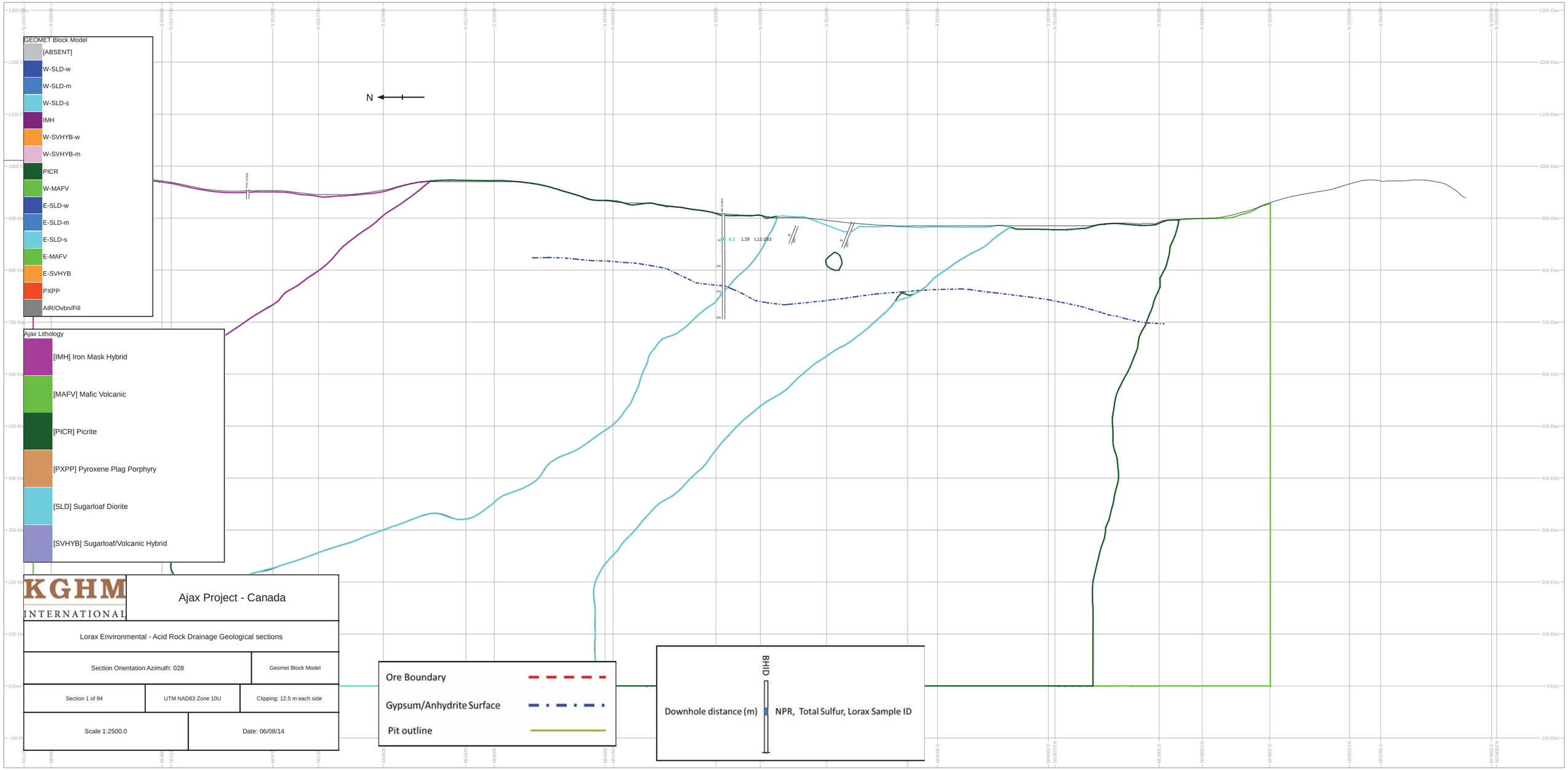
Lorax Drillhole and Static Test Sites

PROJECT #: J933-1

FIGURE: 1

P:\J933 Ajax\Drafting\MXD\Geochem Characterization Report\Drillhole Collars and Static Test Samples_20141106.mxd

APPENDIX F-2 CROSS-SECTIONS BY GEOMET UNIT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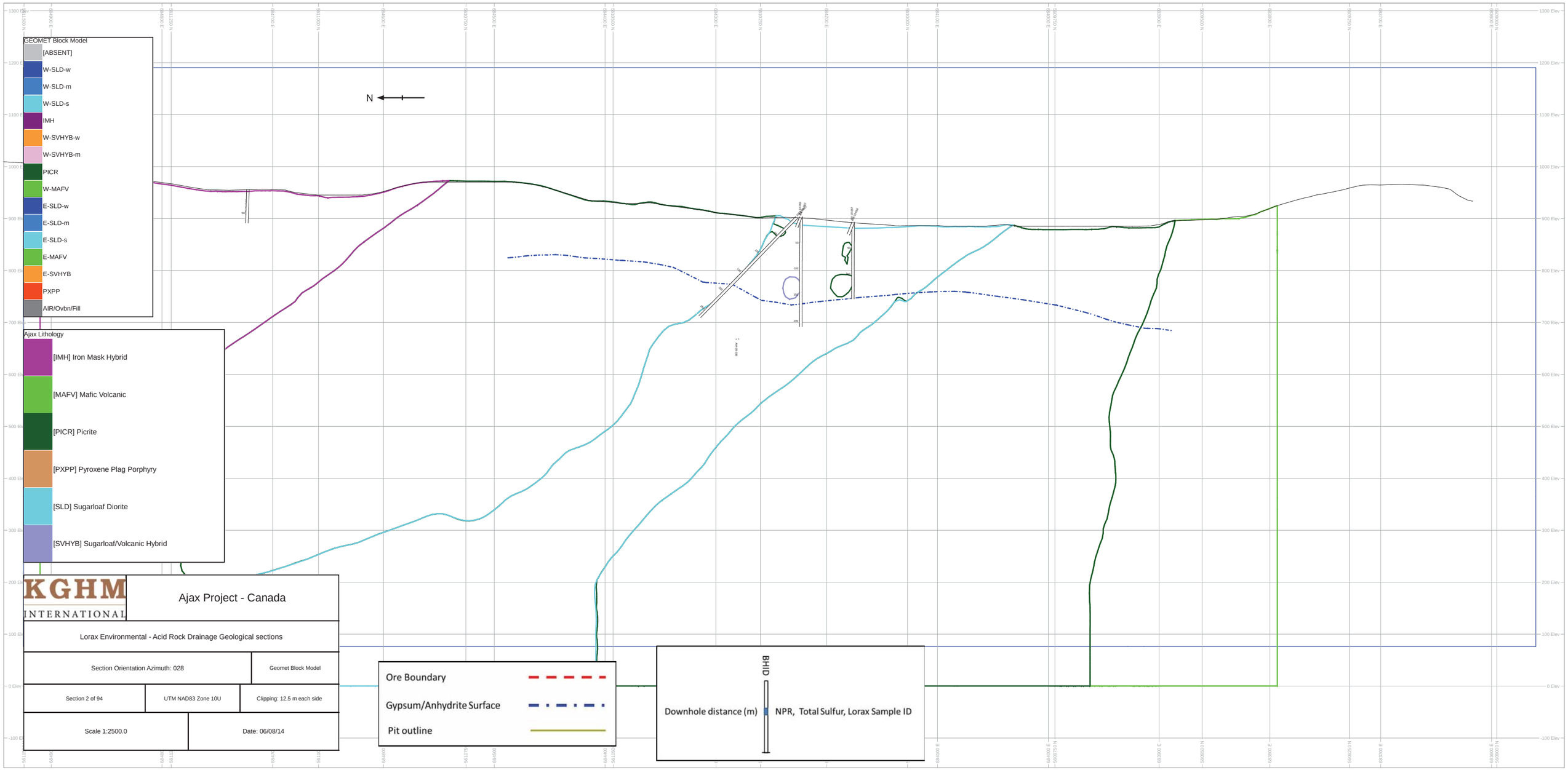
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 1 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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W-MAFV
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E-SLD-s
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E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
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KGHM INTERNATIONAL
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 2 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
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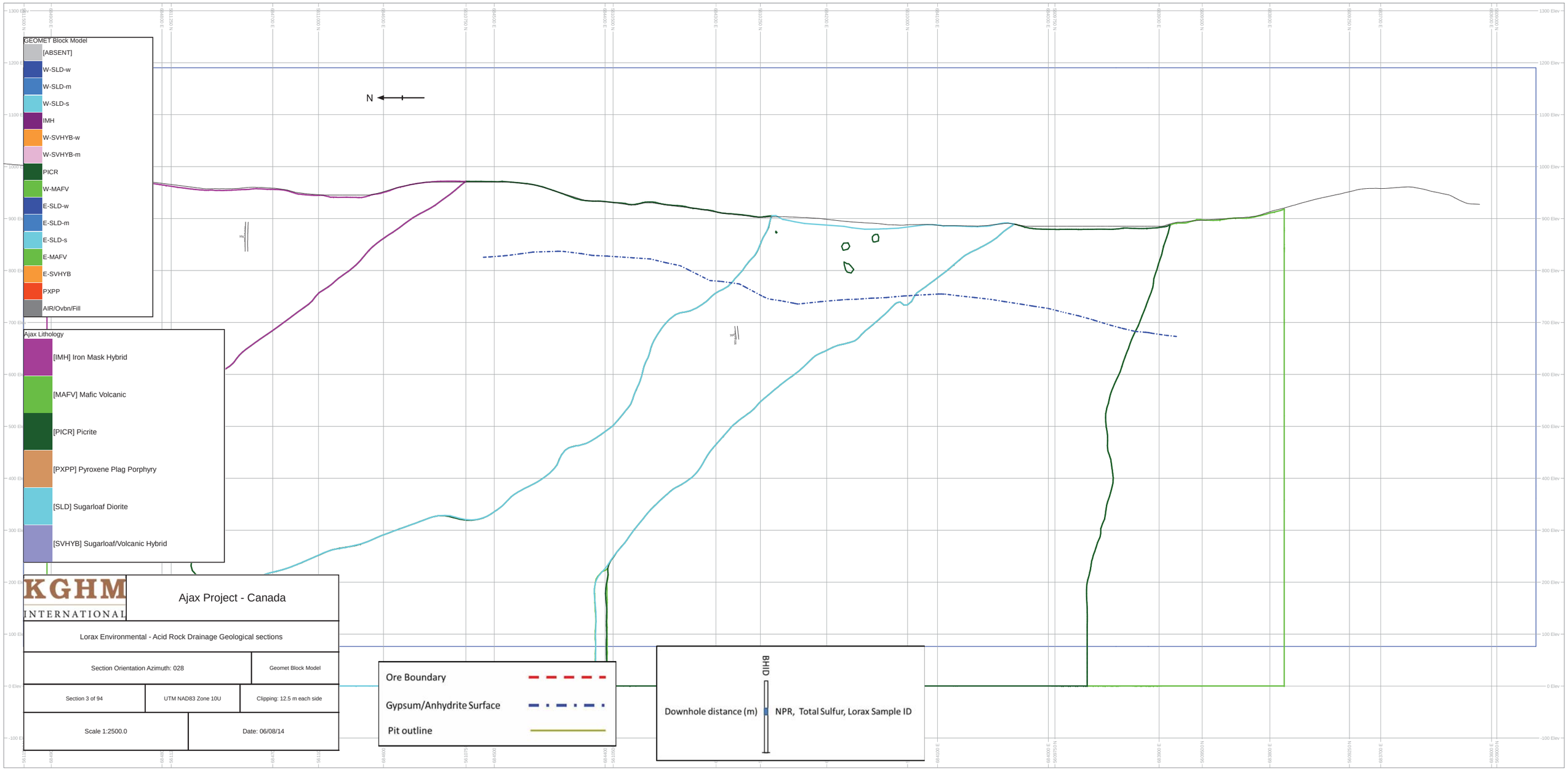
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W-MAFV
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E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
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Lorax Environmental - Acid Rock Drainage Geological sections
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Section 3 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
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Pit outline
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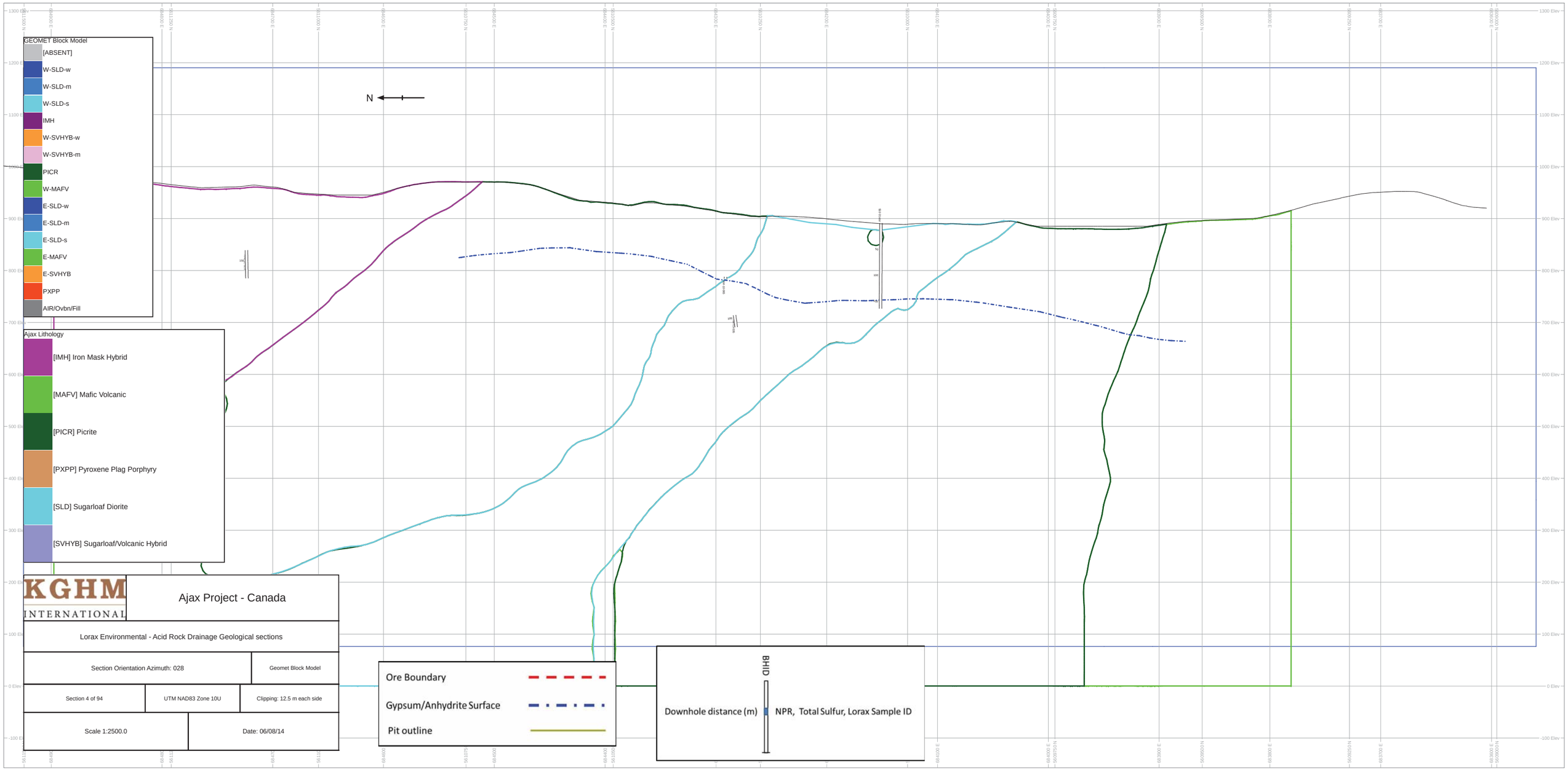
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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E-MAFV
E-SVHYB
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AIR/Ovbn/Fill
Ajax Lithology
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Lorax Environmental - Acid Rock Drainage Geological sections
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Section 4 of 94
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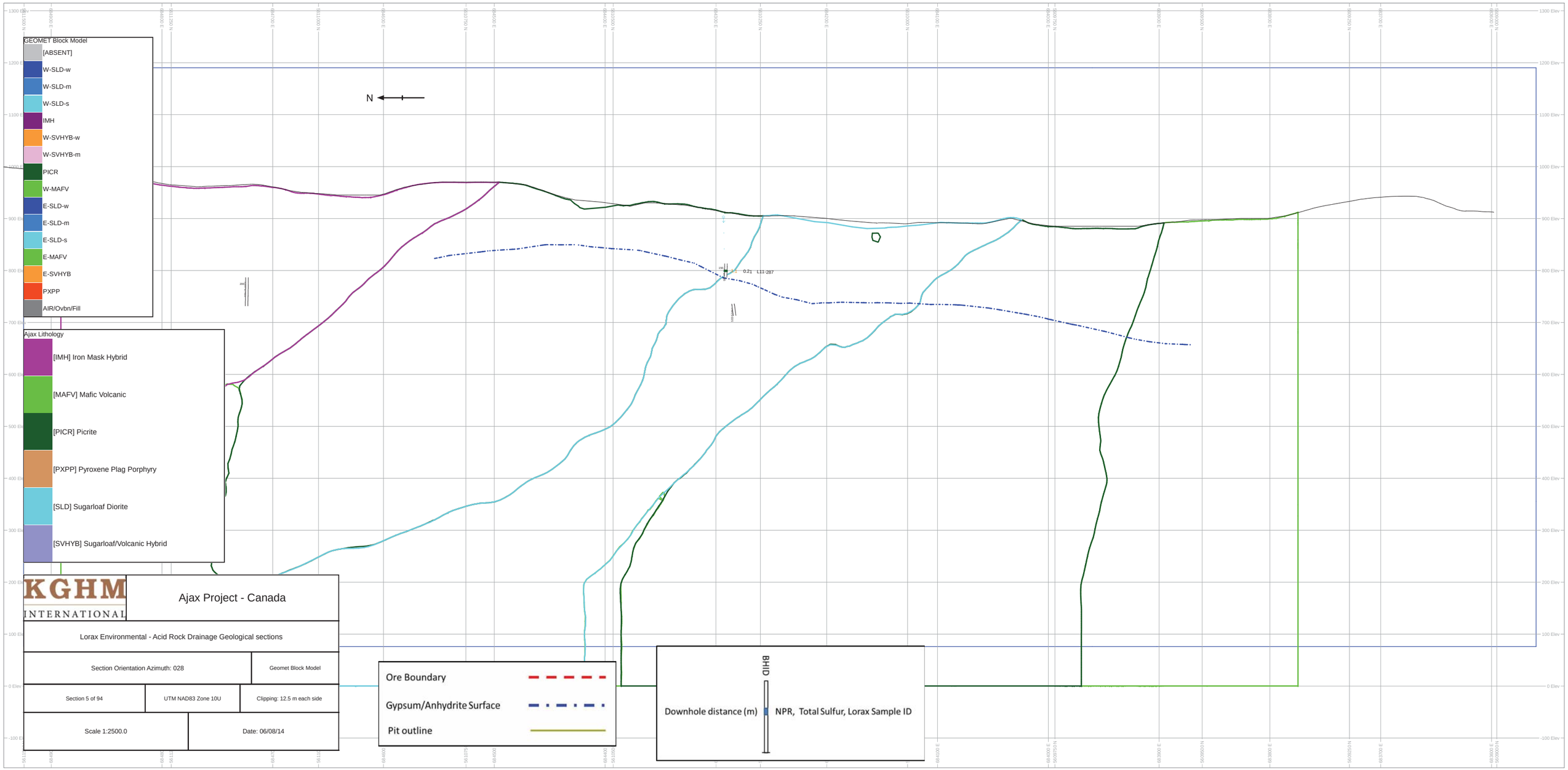
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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AIR/Ovbn/Fill
Ajax Lithology
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Lorax Environmental - Acid Rock Drainage Geological sections
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Geomet Block Model
Section 5 of 94
UTM NAD83 Zone 10U
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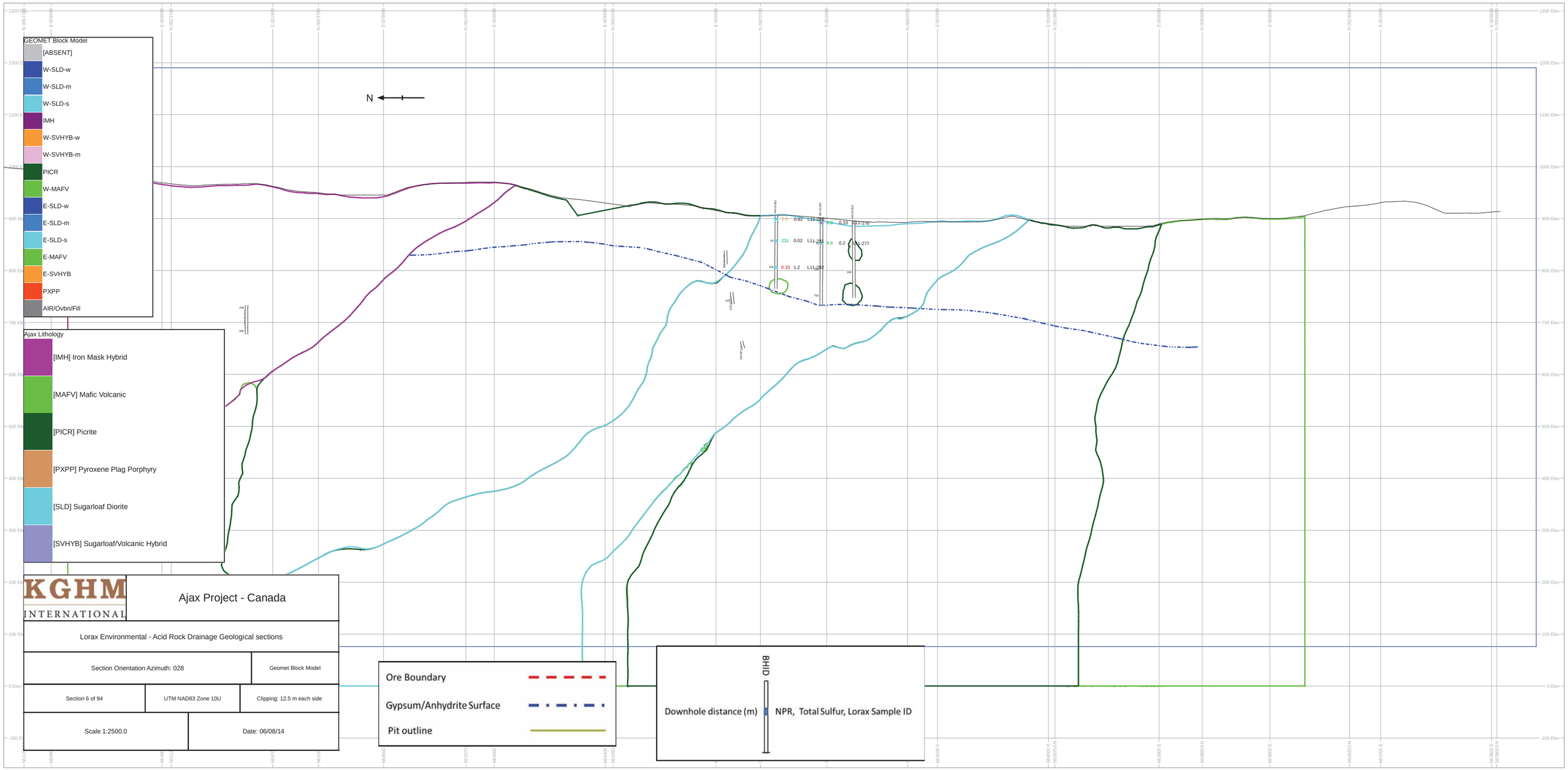
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
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Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 6 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
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Ore Boundary
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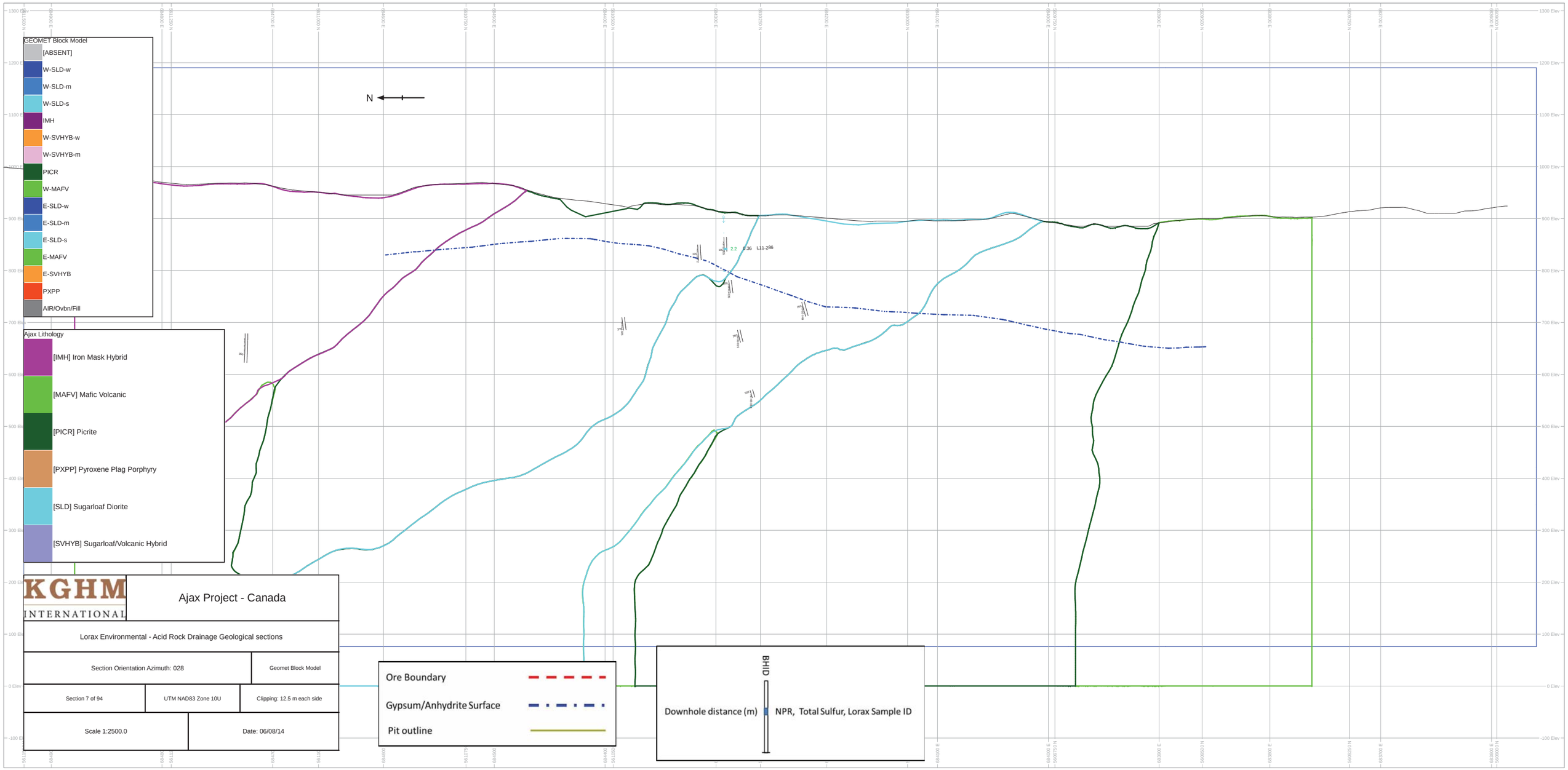
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
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L11-286
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Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 7 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
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Pit outline
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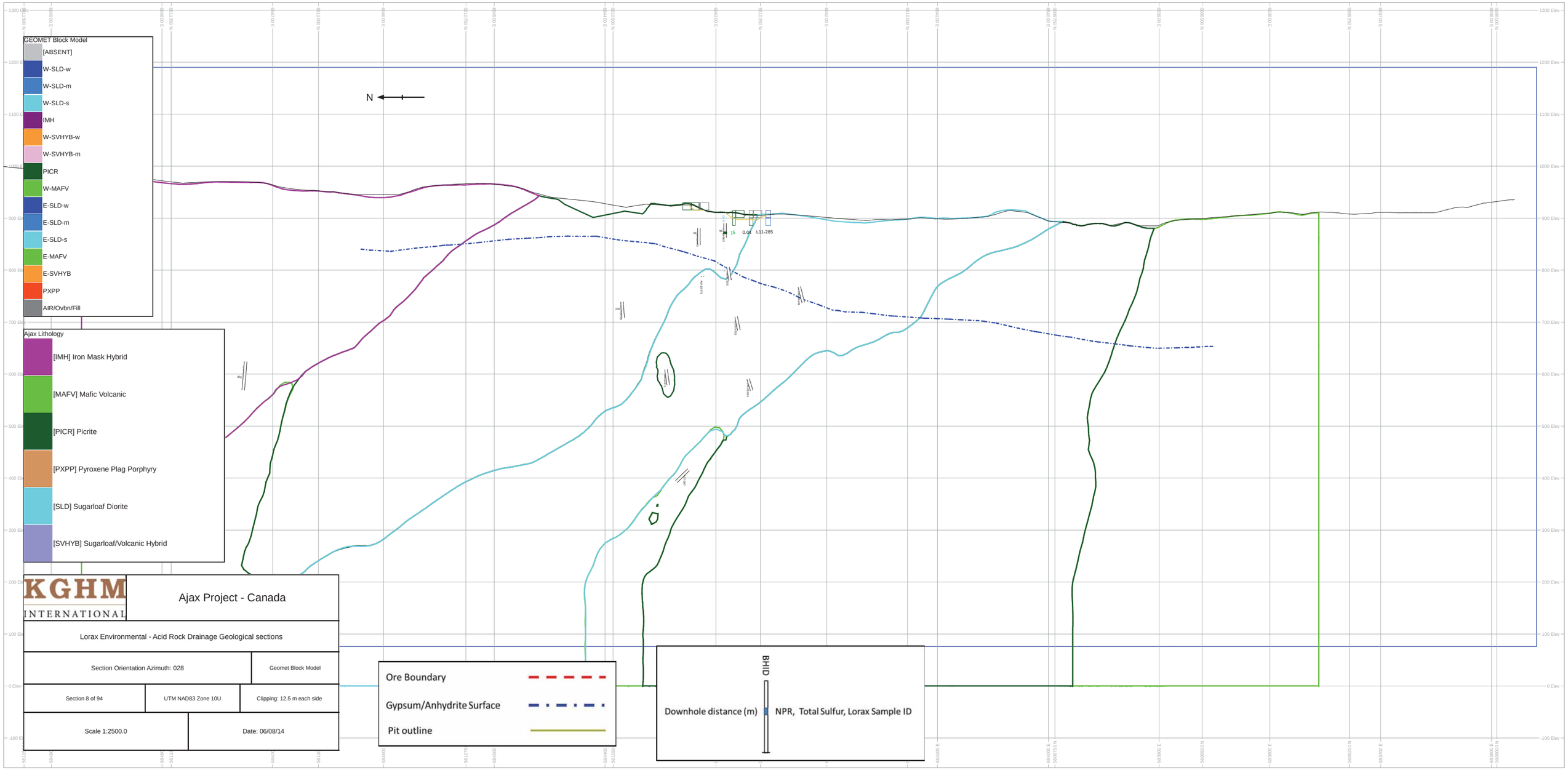
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID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KGHM INTERNATIONAL
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Lorax Environmental - Acid Rock Drainage Geological sections
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Geomet Block Model
Section 8 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
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- W-SLD-s
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- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028 | Geomet Block Model

Section 9 of 94 | UTM NAD83 Zone 10U | Clipping: 12.5 m each side

Scale 1:2500.0 | Date: 06/08/14

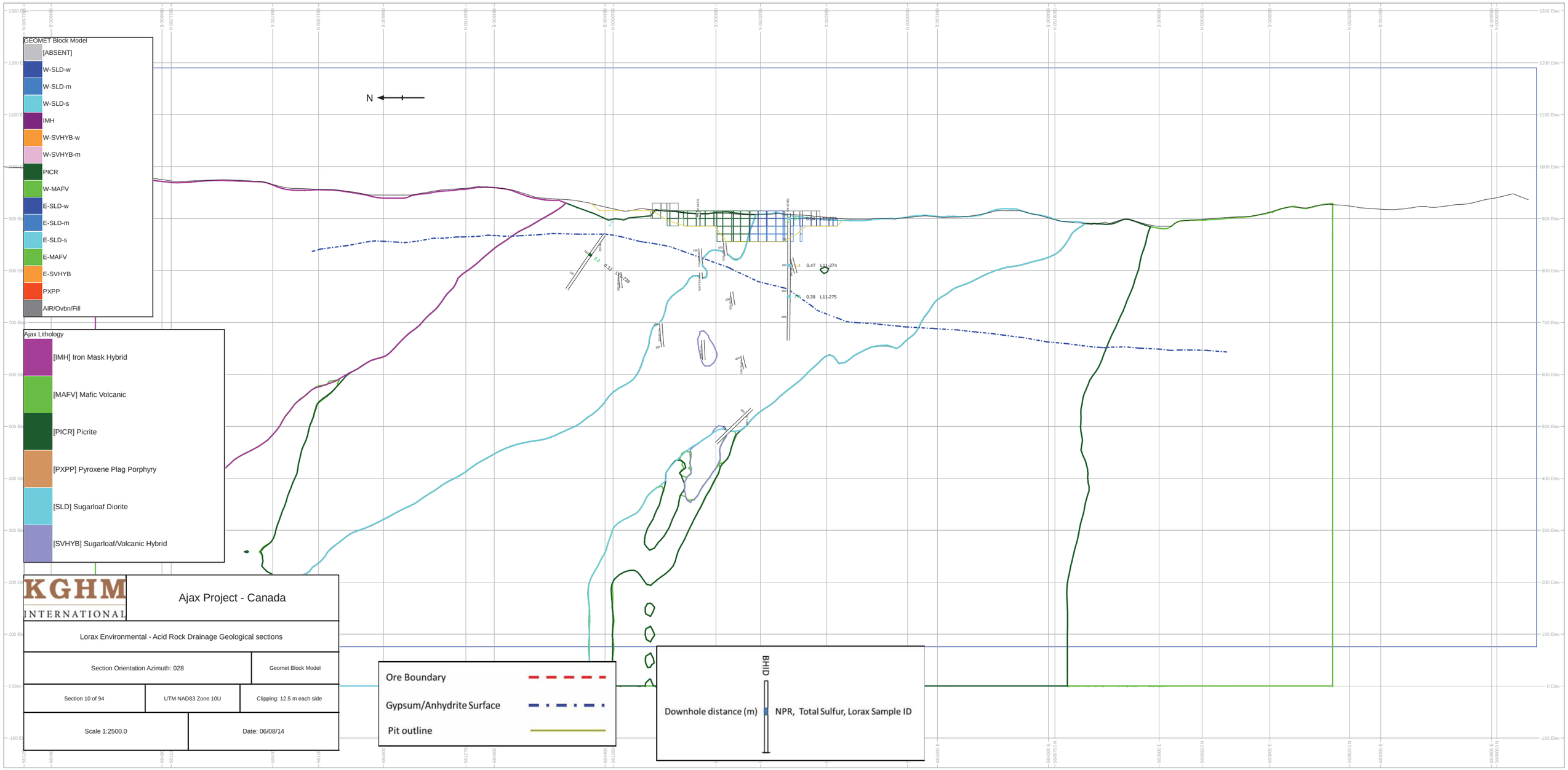
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID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KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
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Section 10 of 94
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Clipping: 12.5 m each side
Scale 1:2500.0
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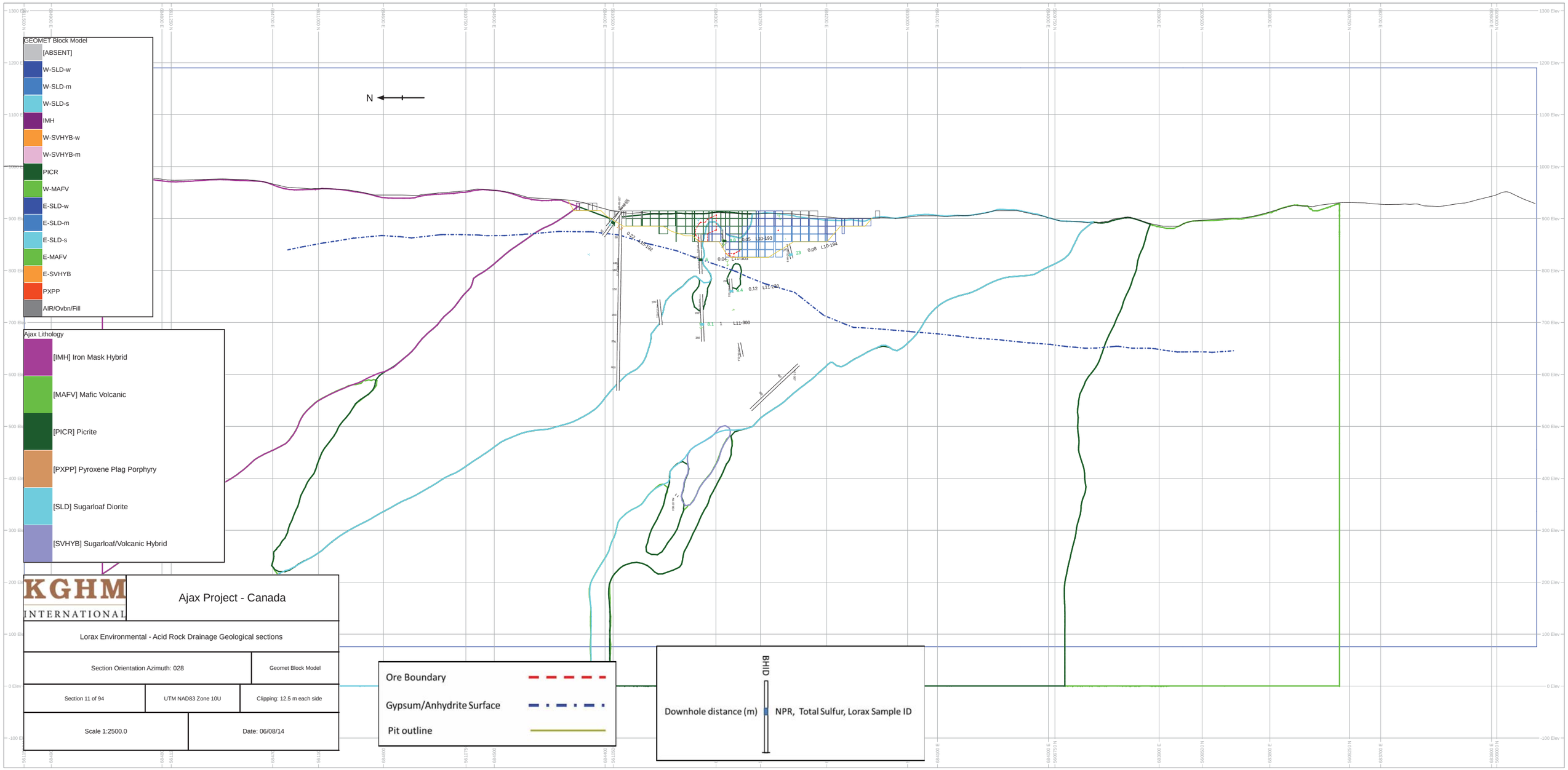
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID



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Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

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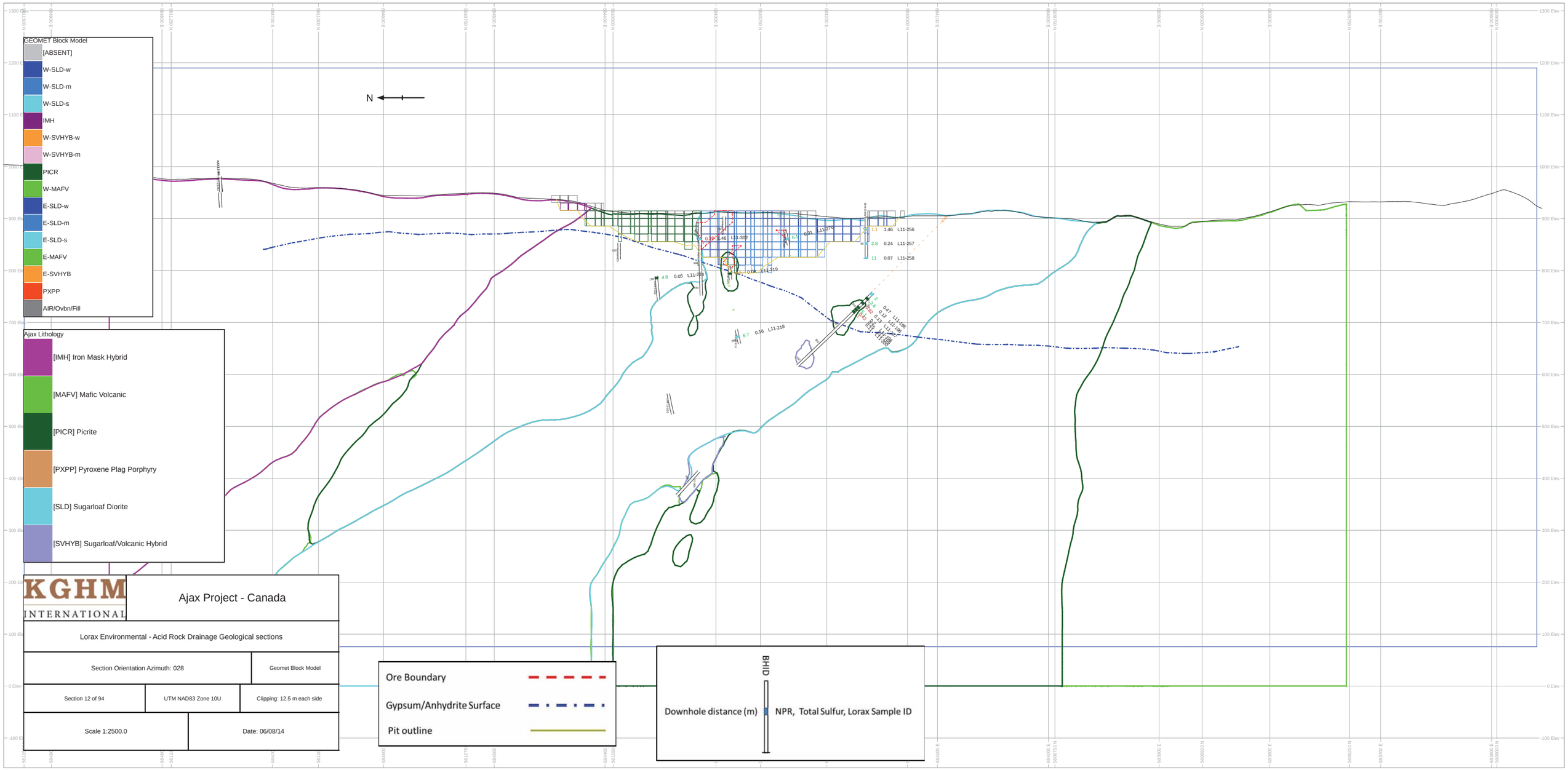
Section 11 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

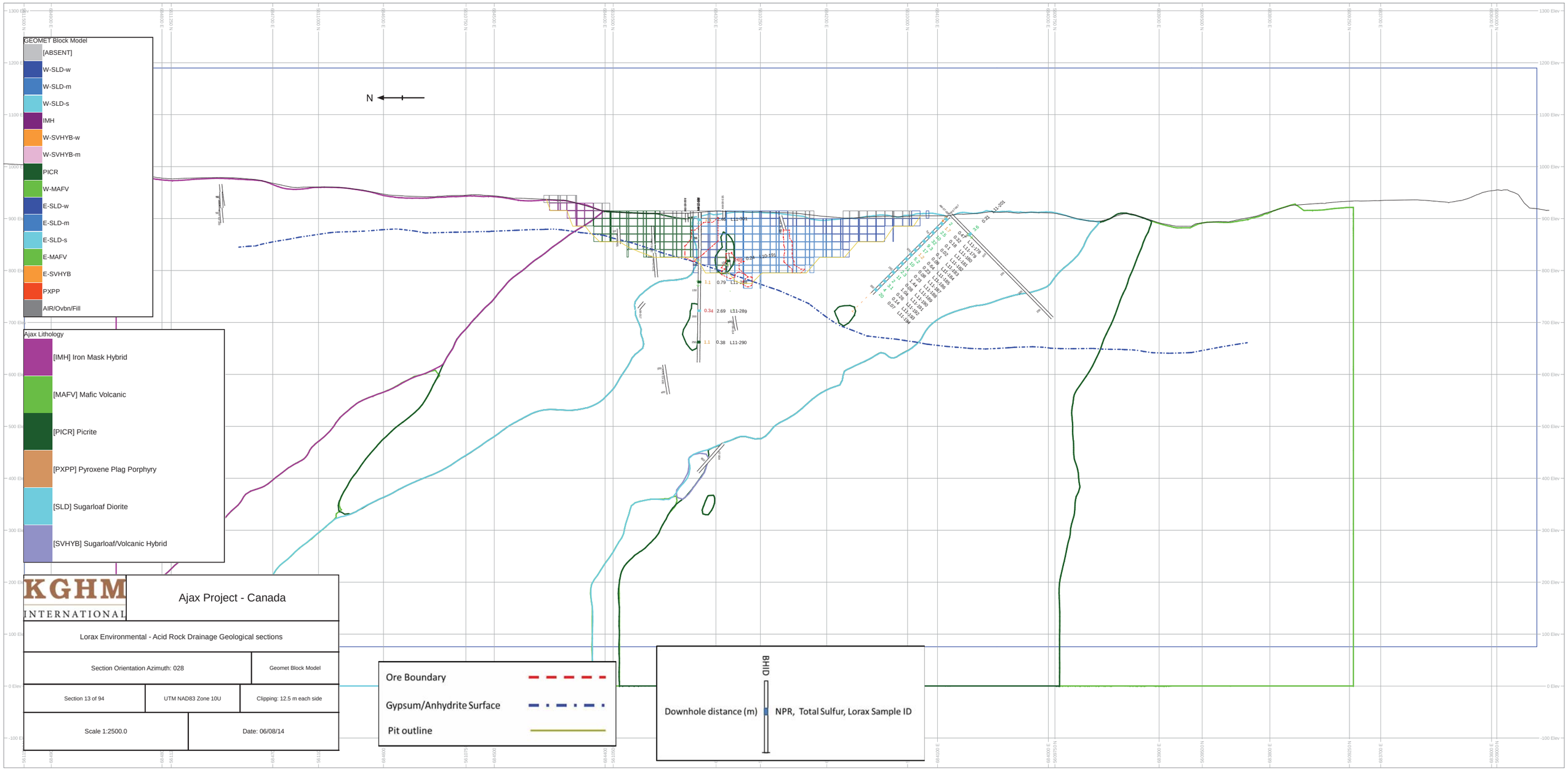


KGHM INTERNATIONAL

Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 12 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	



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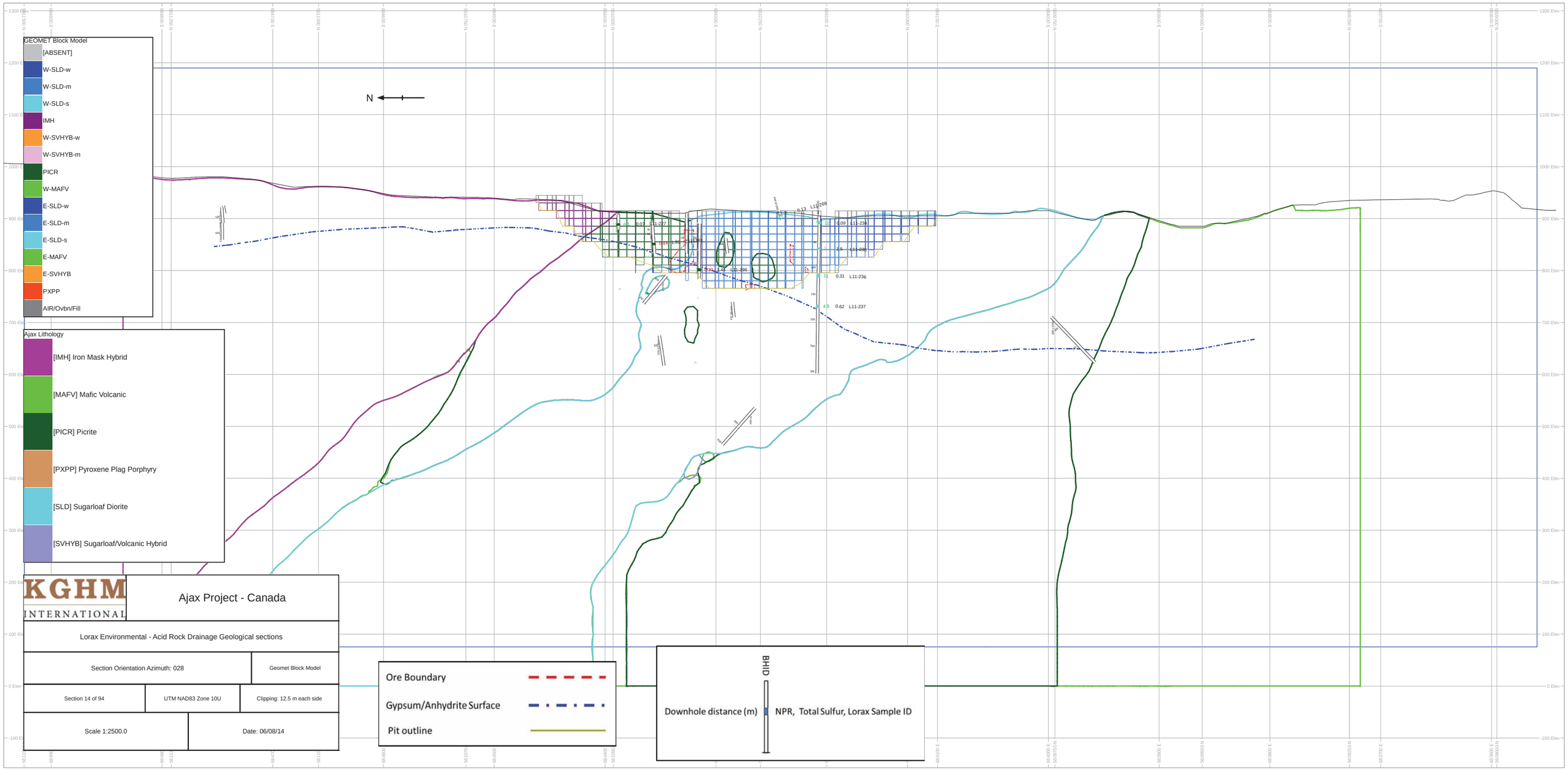
Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 13 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 14 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 15 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

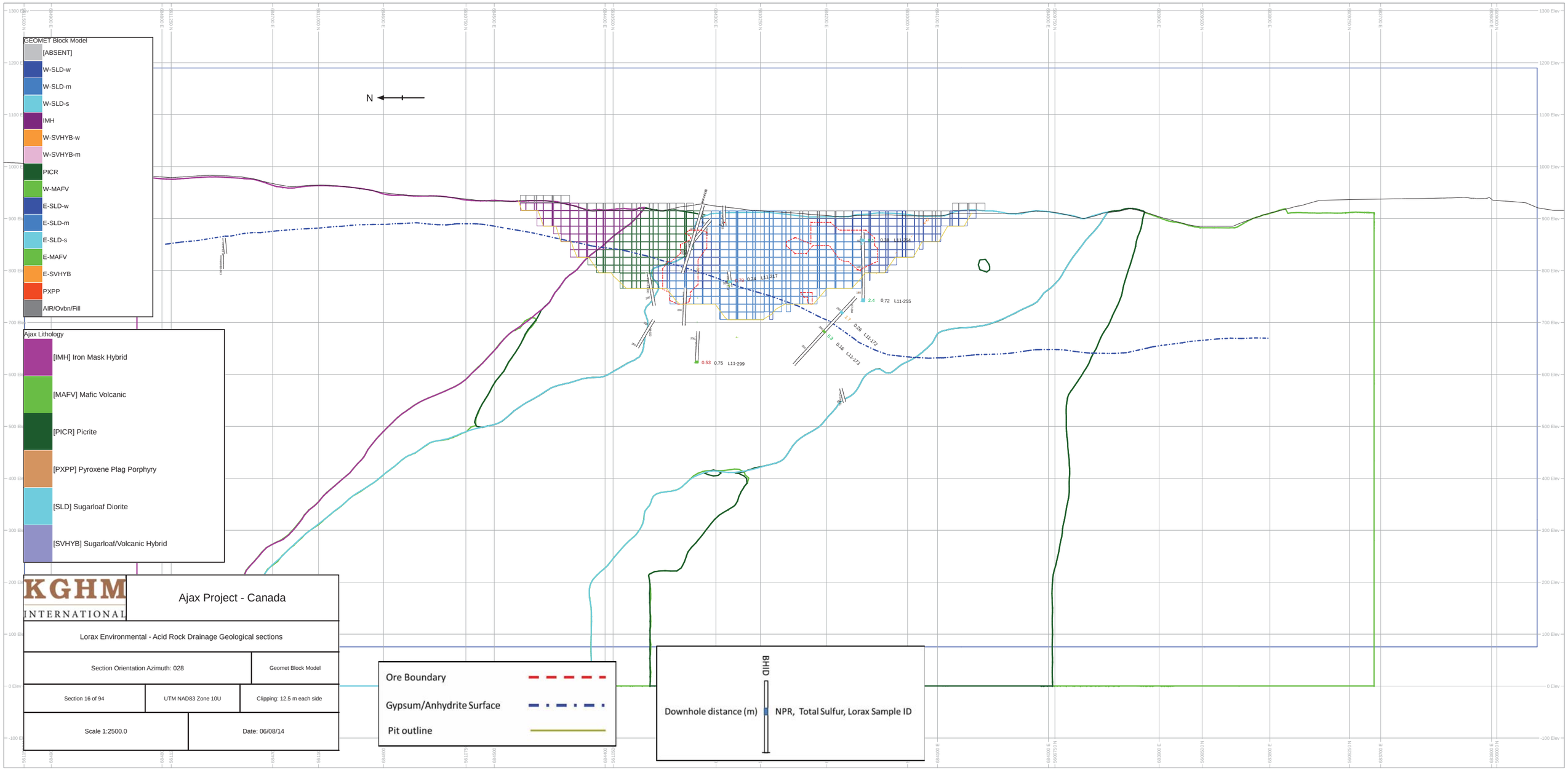
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID



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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 16 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

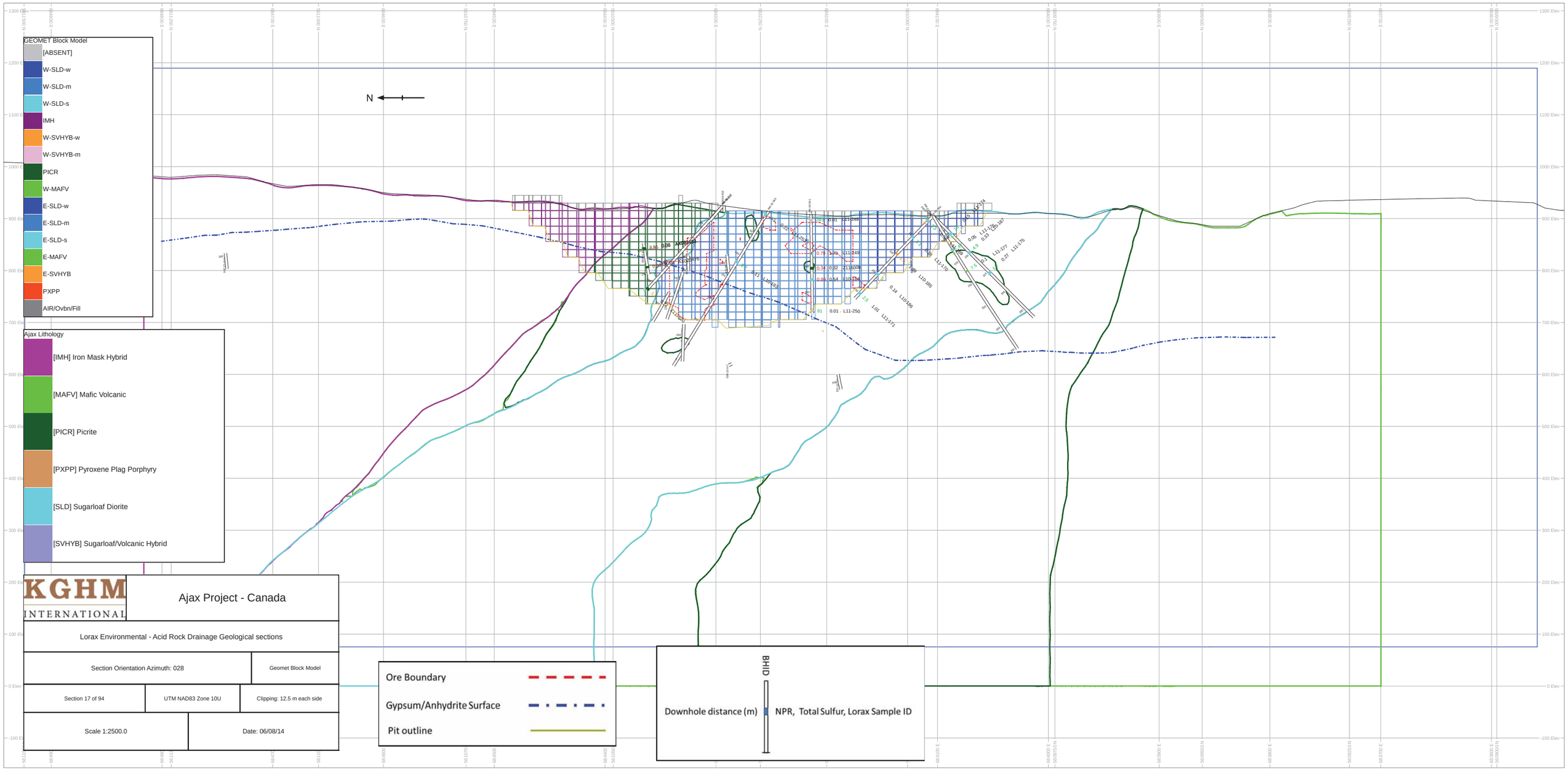
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
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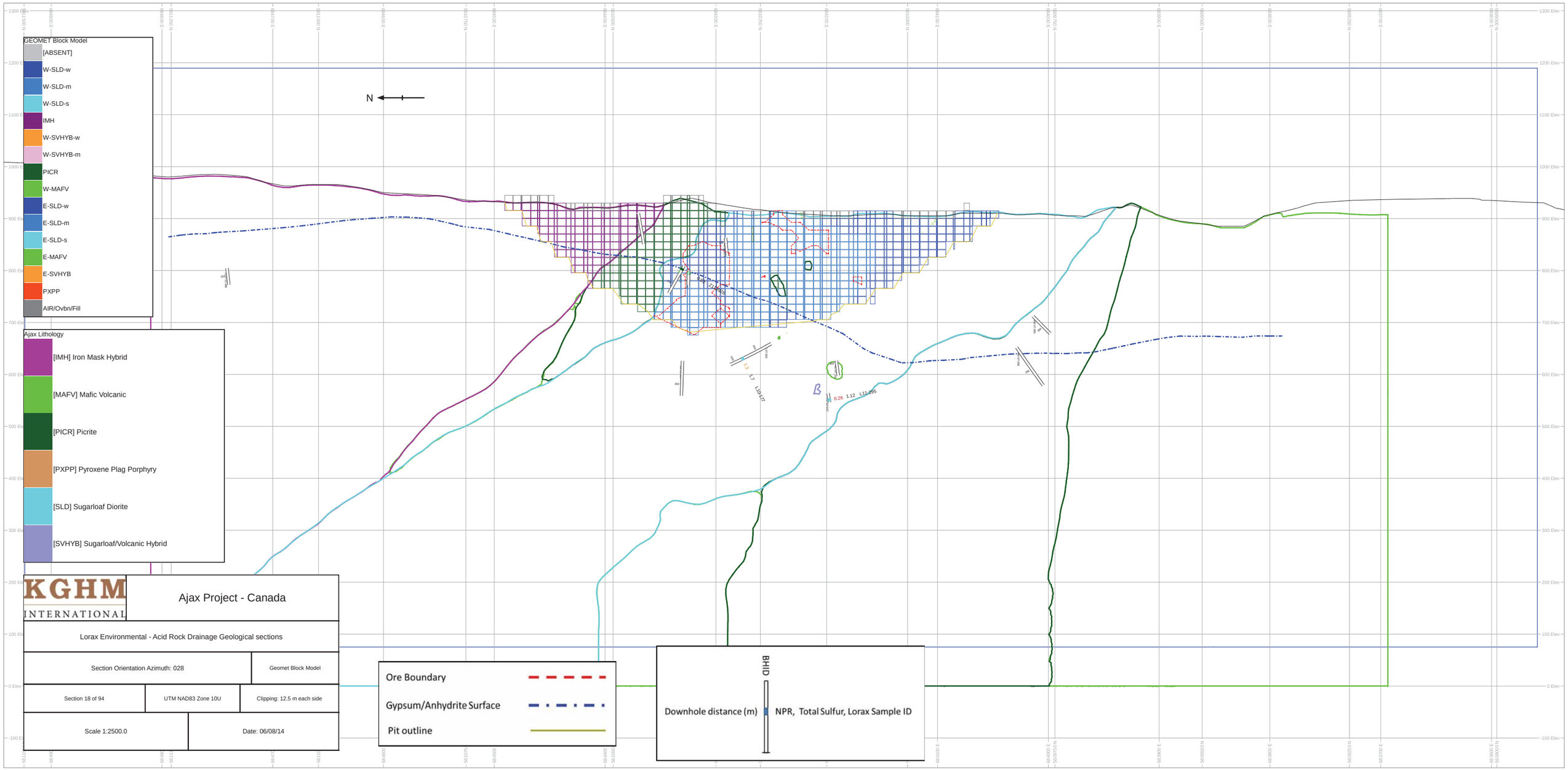
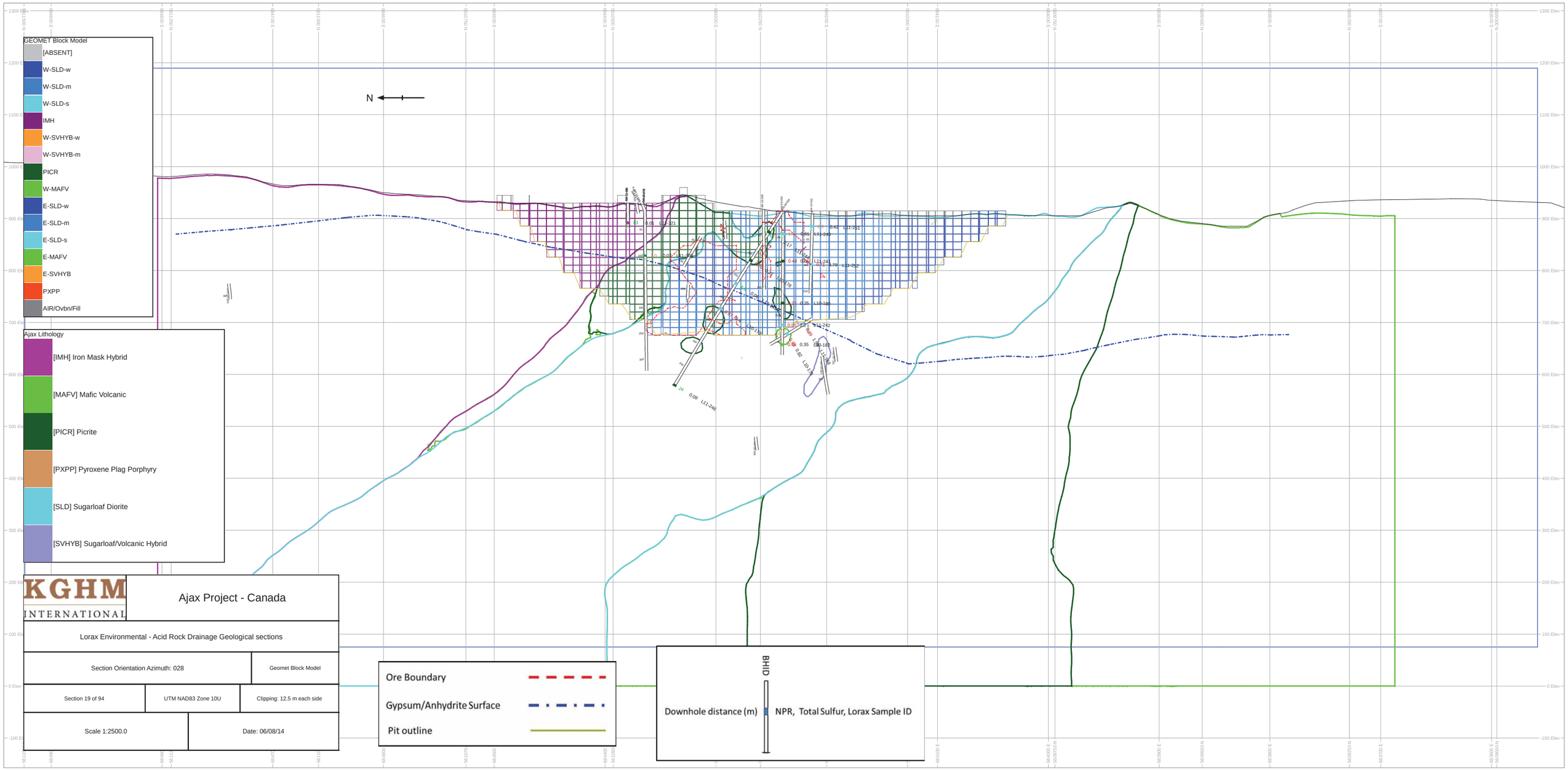
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 17 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 18 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 19 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
Downhole distance (m)
BHID
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 20 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

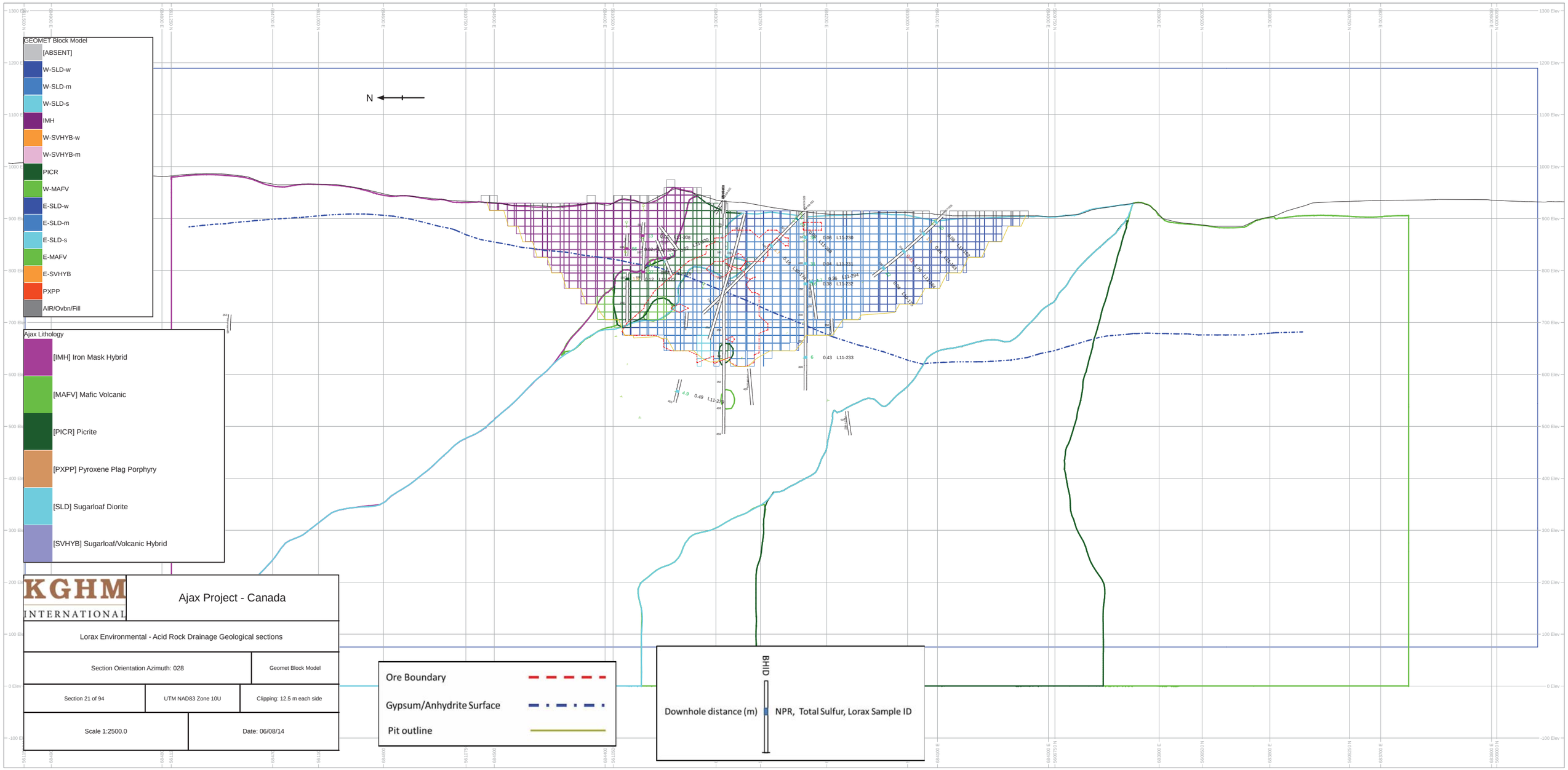
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID



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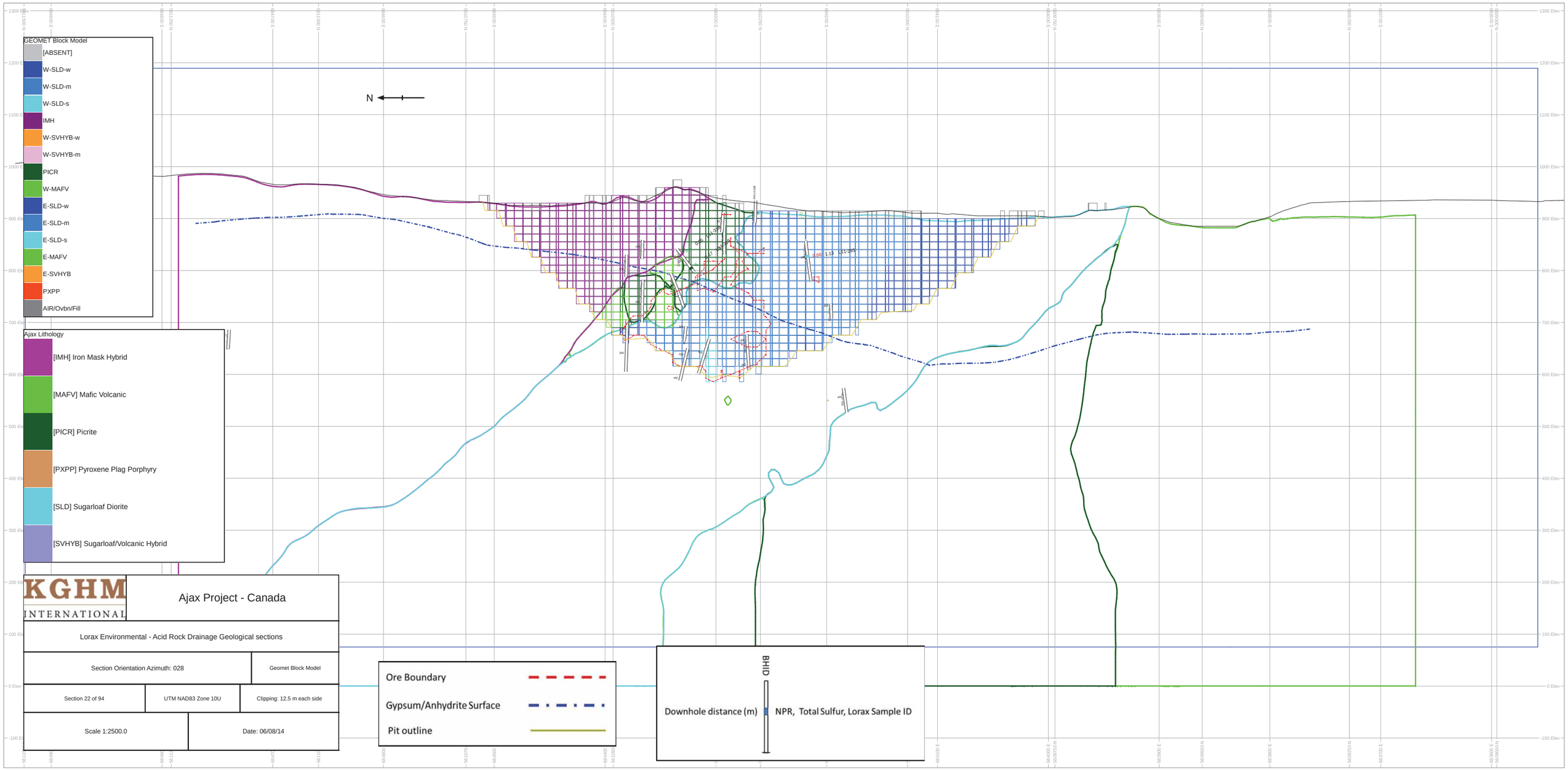
Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 21 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
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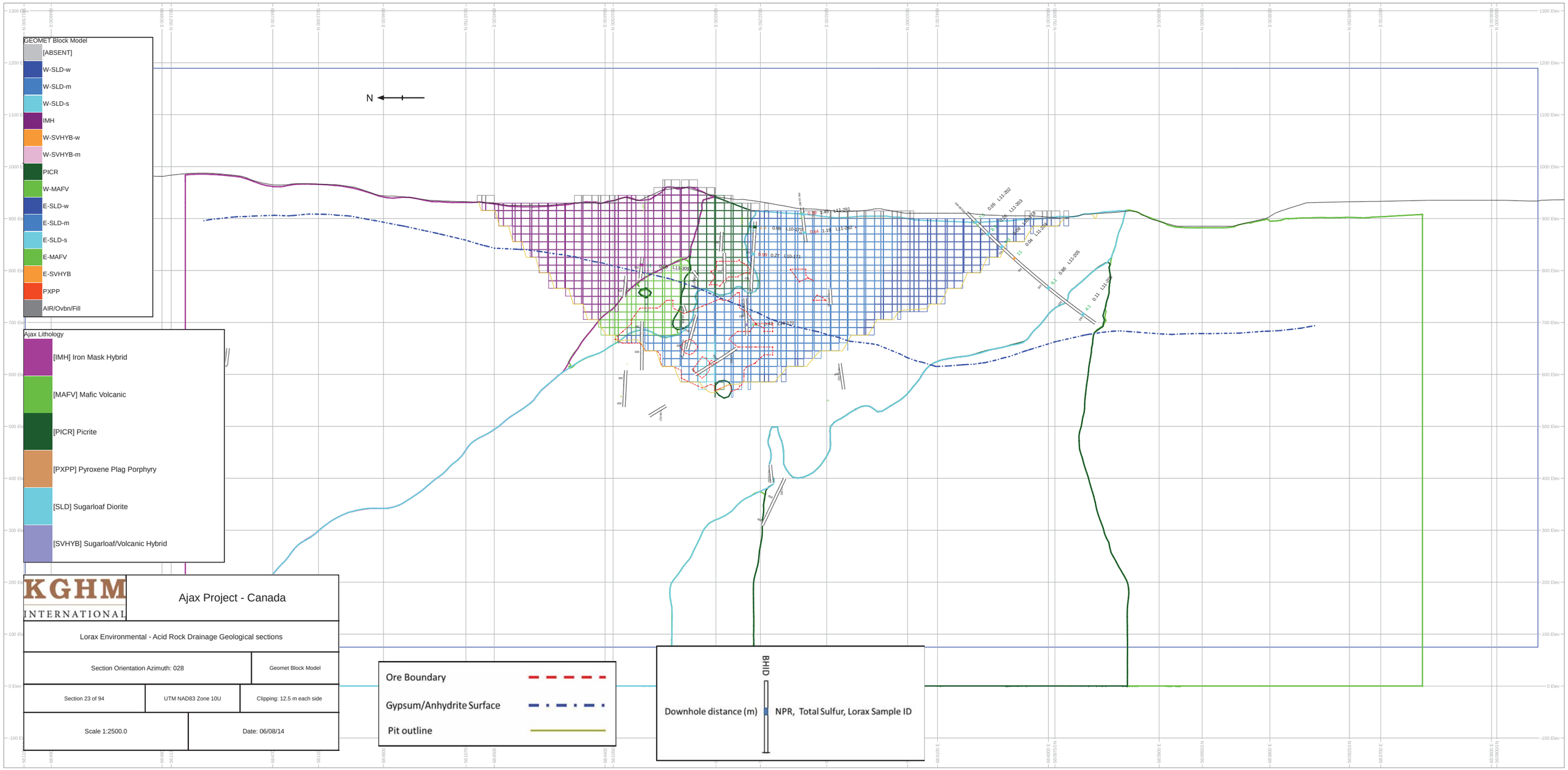
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 22 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 23 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 24 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 25 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 26 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

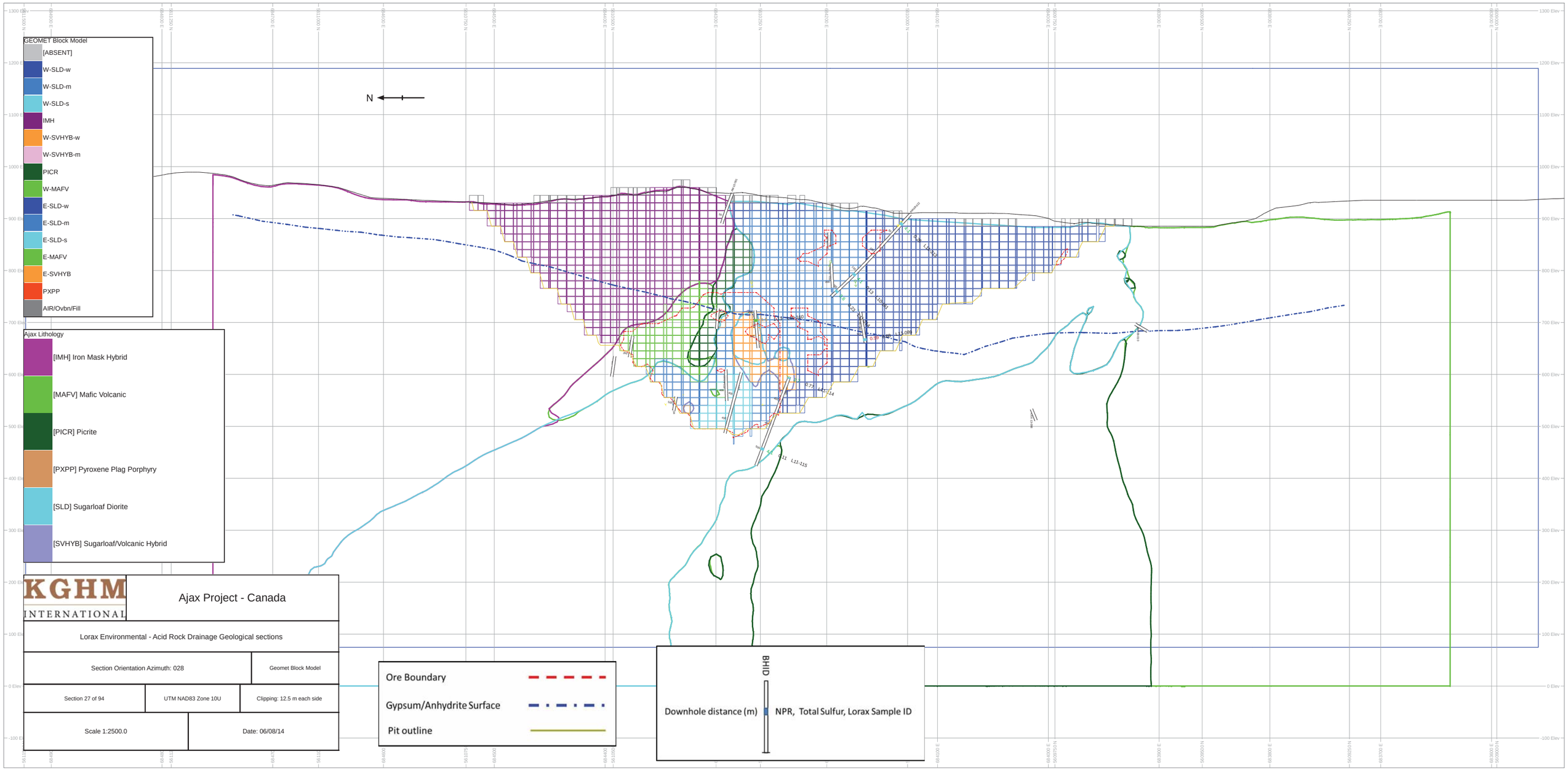
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID



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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 27 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 28 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 29 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 30 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 31 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

KGHM INTERNATIONAL

Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 32 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

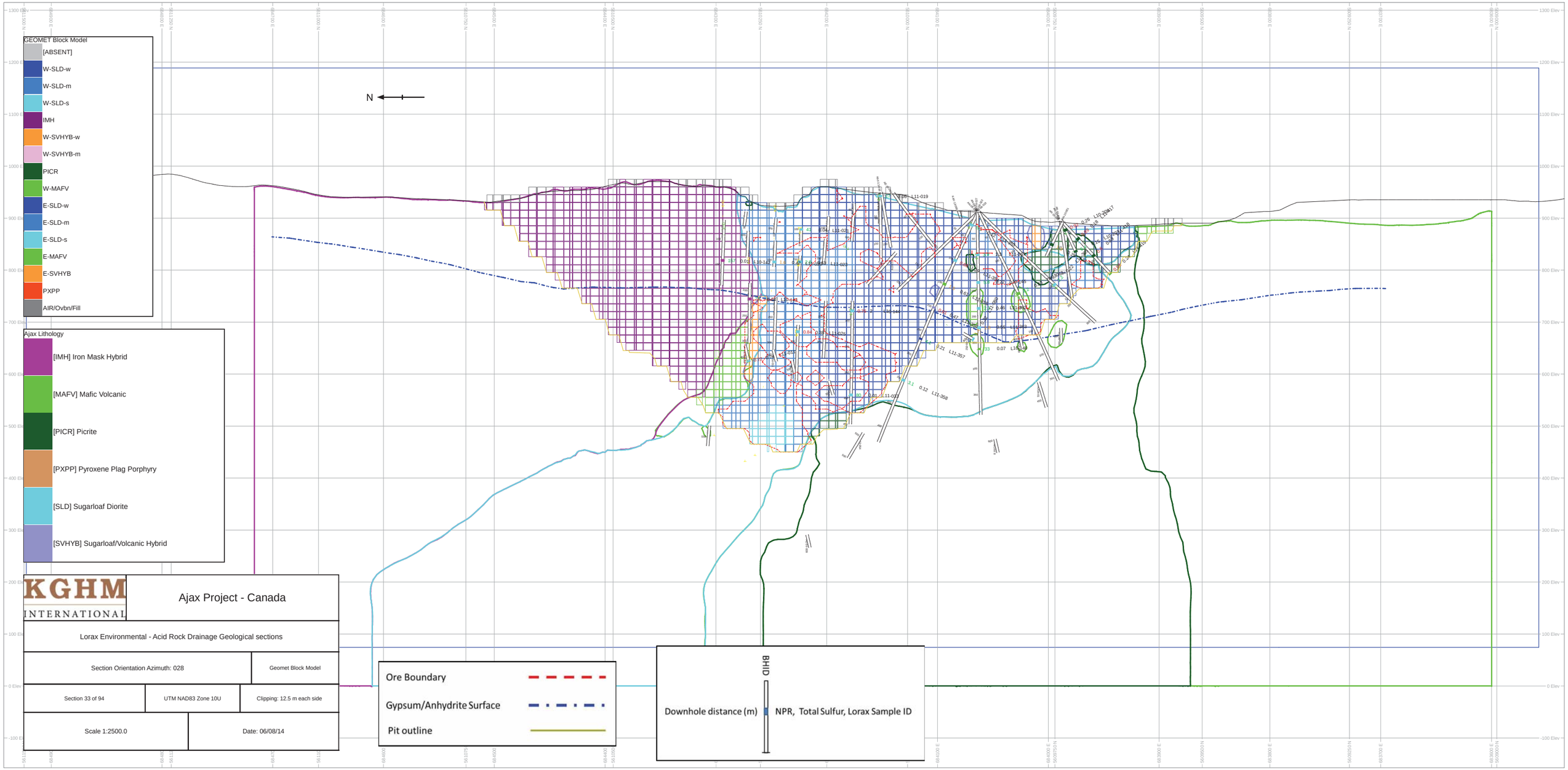
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 33 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 34 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
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- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
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- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 35 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 36 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 37 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

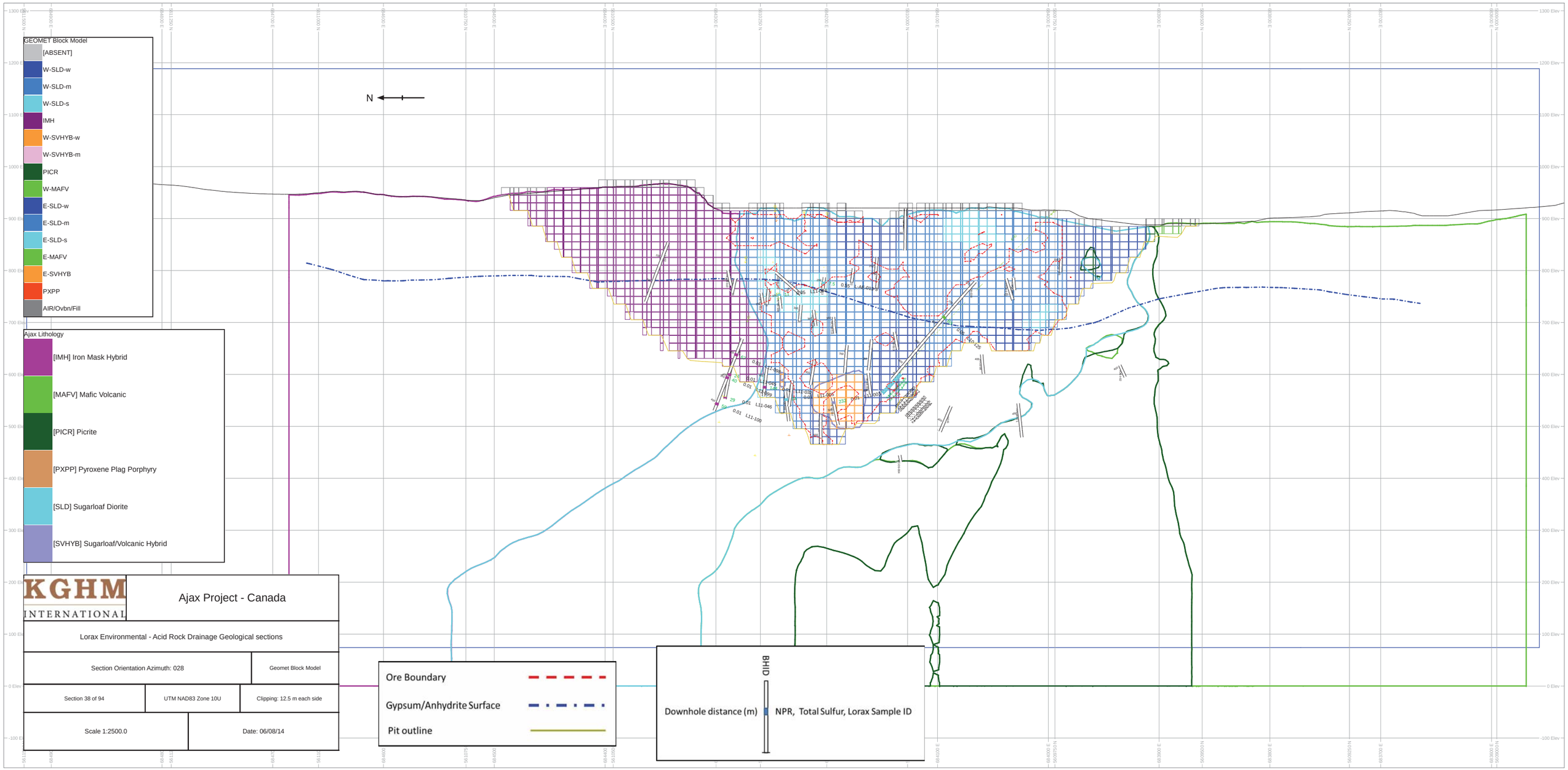
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 38 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
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- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 39 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

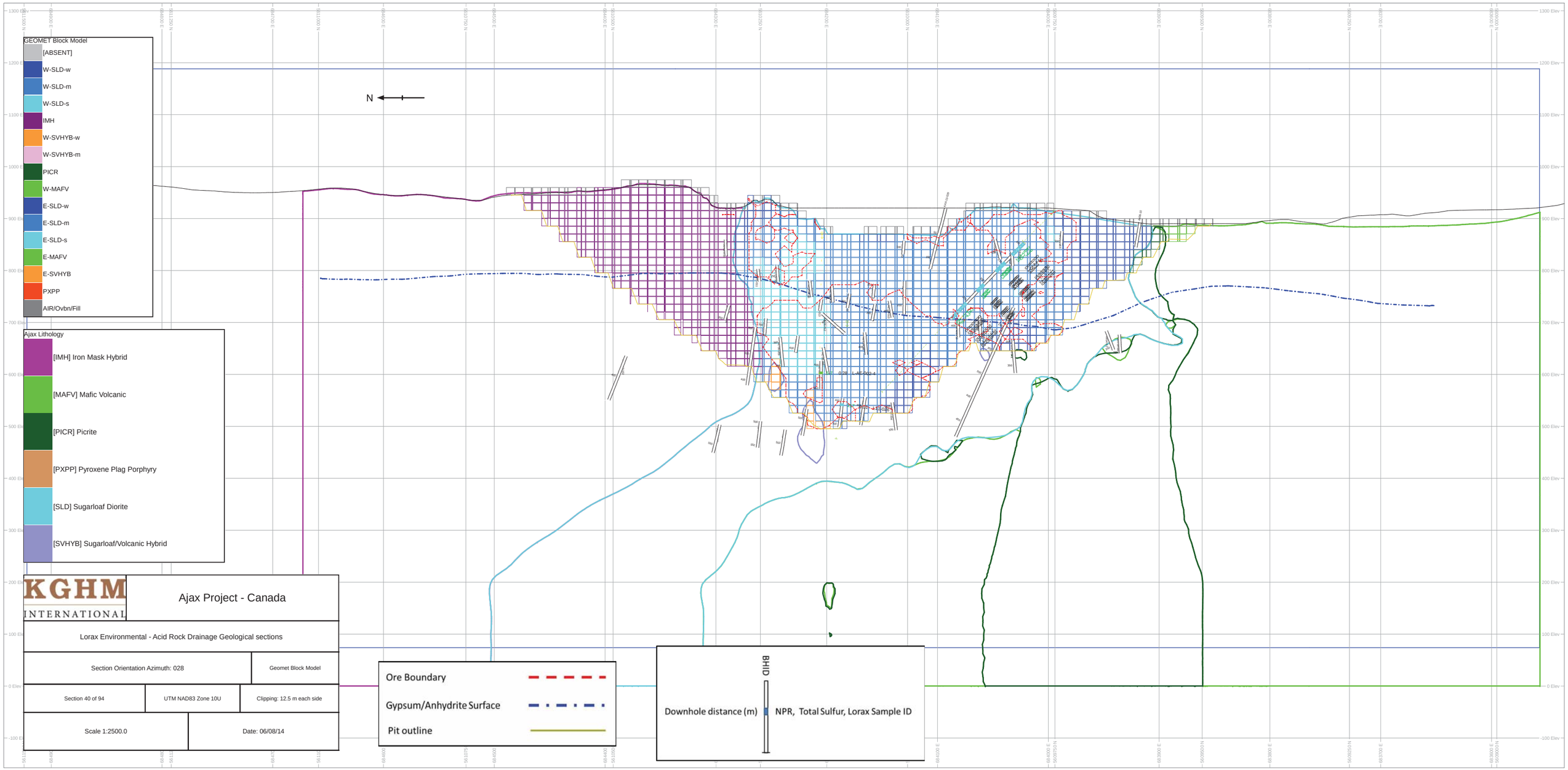
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 40 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

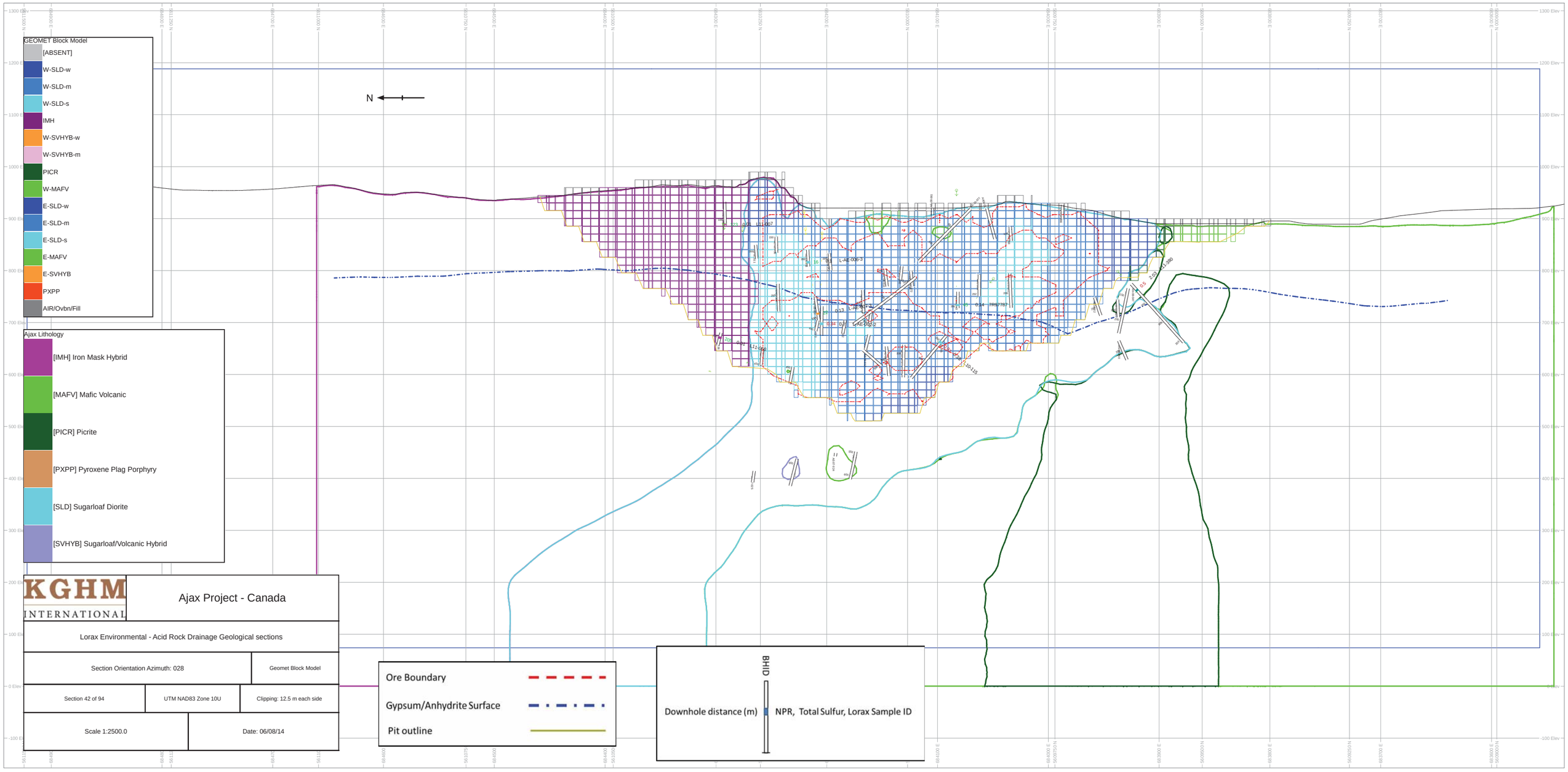
Section Orientation Azimuth: 028		Geomet Block Model
Section 41 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 42 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 43 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 44 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

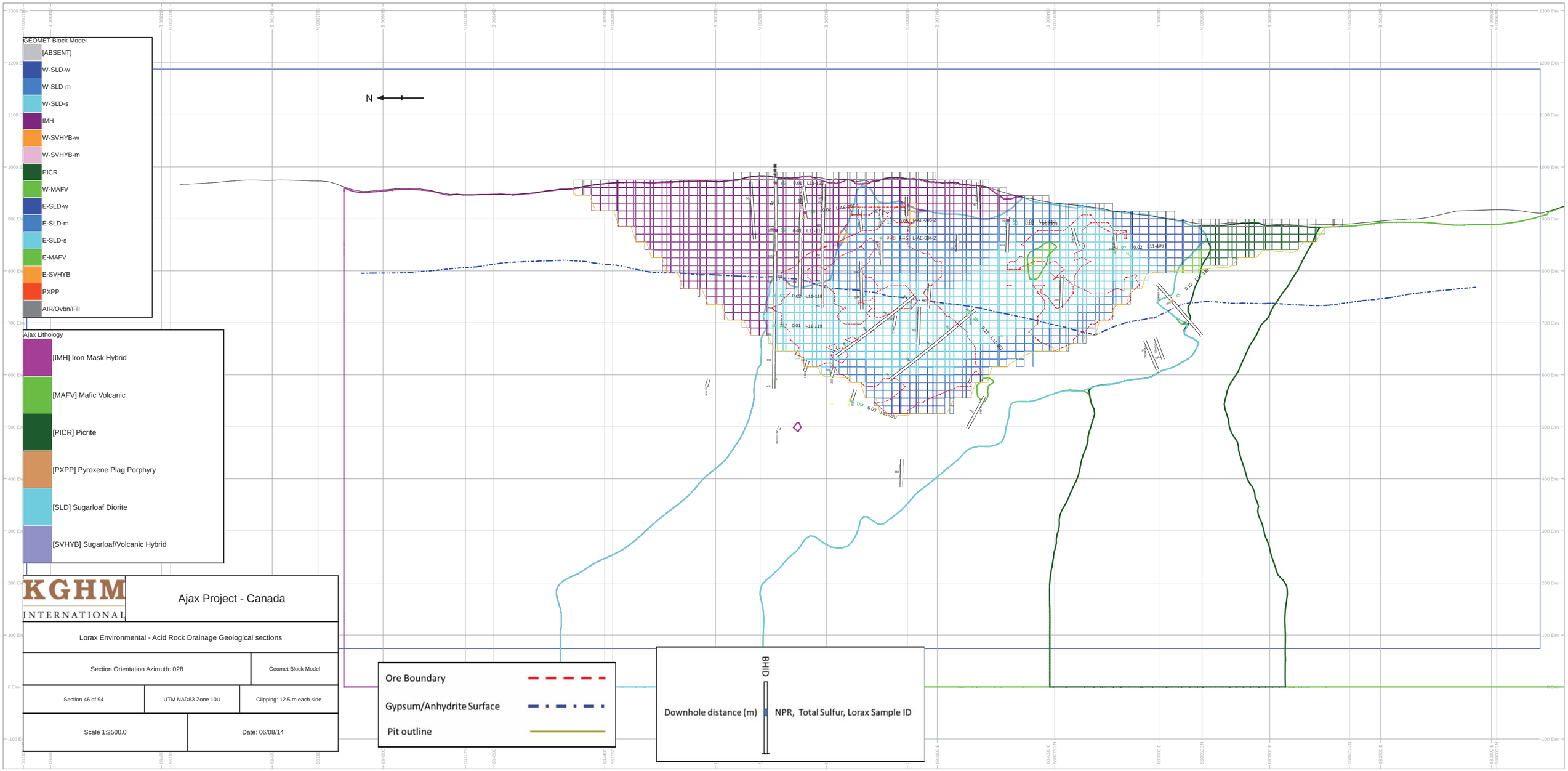
Section Orientation Azimuth: 028	Geomet Block Model
Section 45 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 46 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
Downhole distance (m)
BHID
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

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- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 47 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 48 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 49 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 50 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 51 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 52 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 53 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 54 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 55 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 56 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 57 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 58 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 59 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 60 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
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- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 61 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 62 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

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- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
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N

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Lorax Environmental - Acid Rock Drainage Geological sections

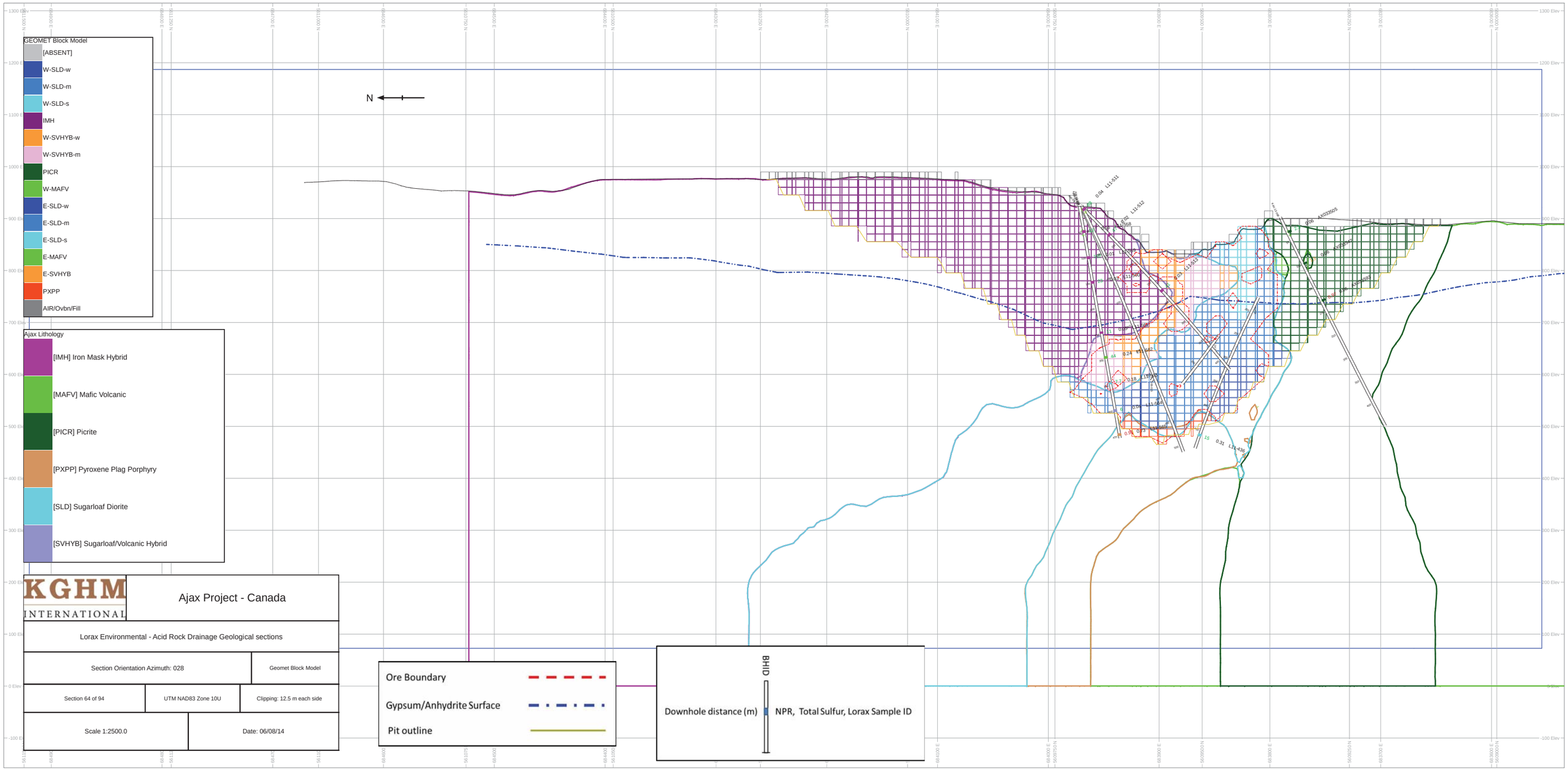
Section Orientation Azimuth: 028	Geomet Block Model
Section 63 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 64 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 65 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

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- [MAFV] Mafic Volcanic
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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 66 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

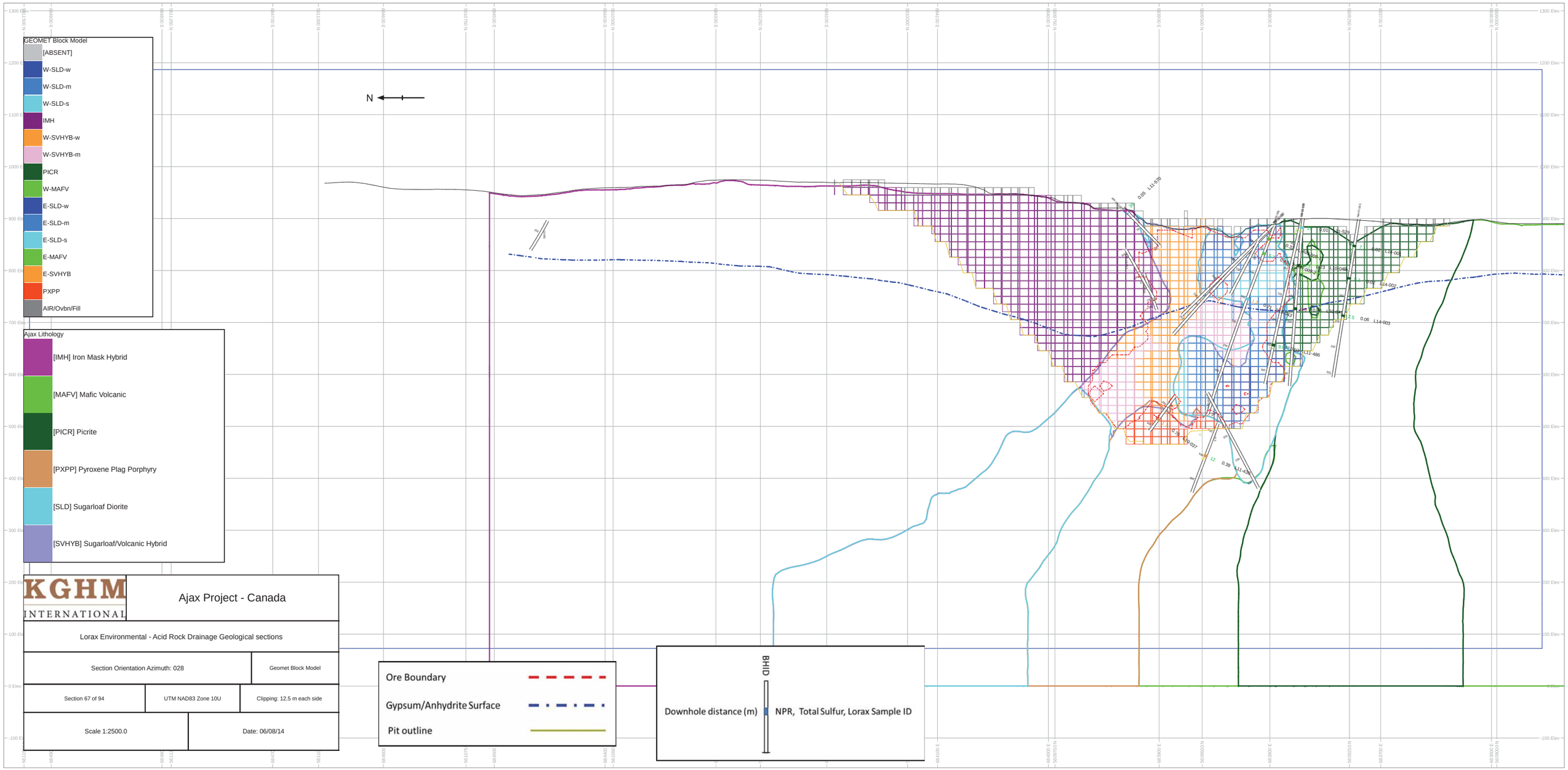
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 67 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 68 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 69 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

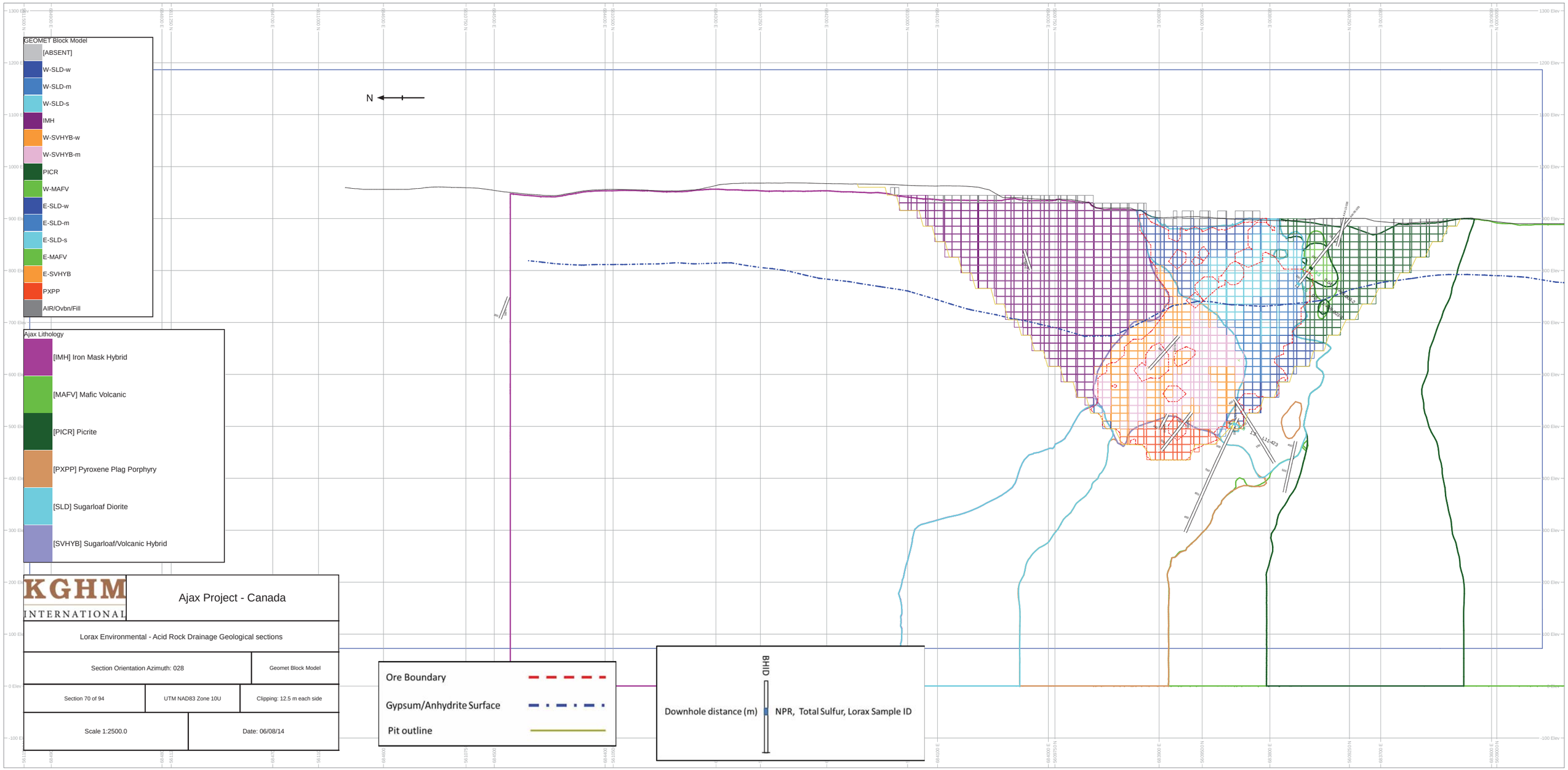
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
1300 Elev
1200 Elev
1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
100 Elev
0 Elev
-100 Elev
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 70 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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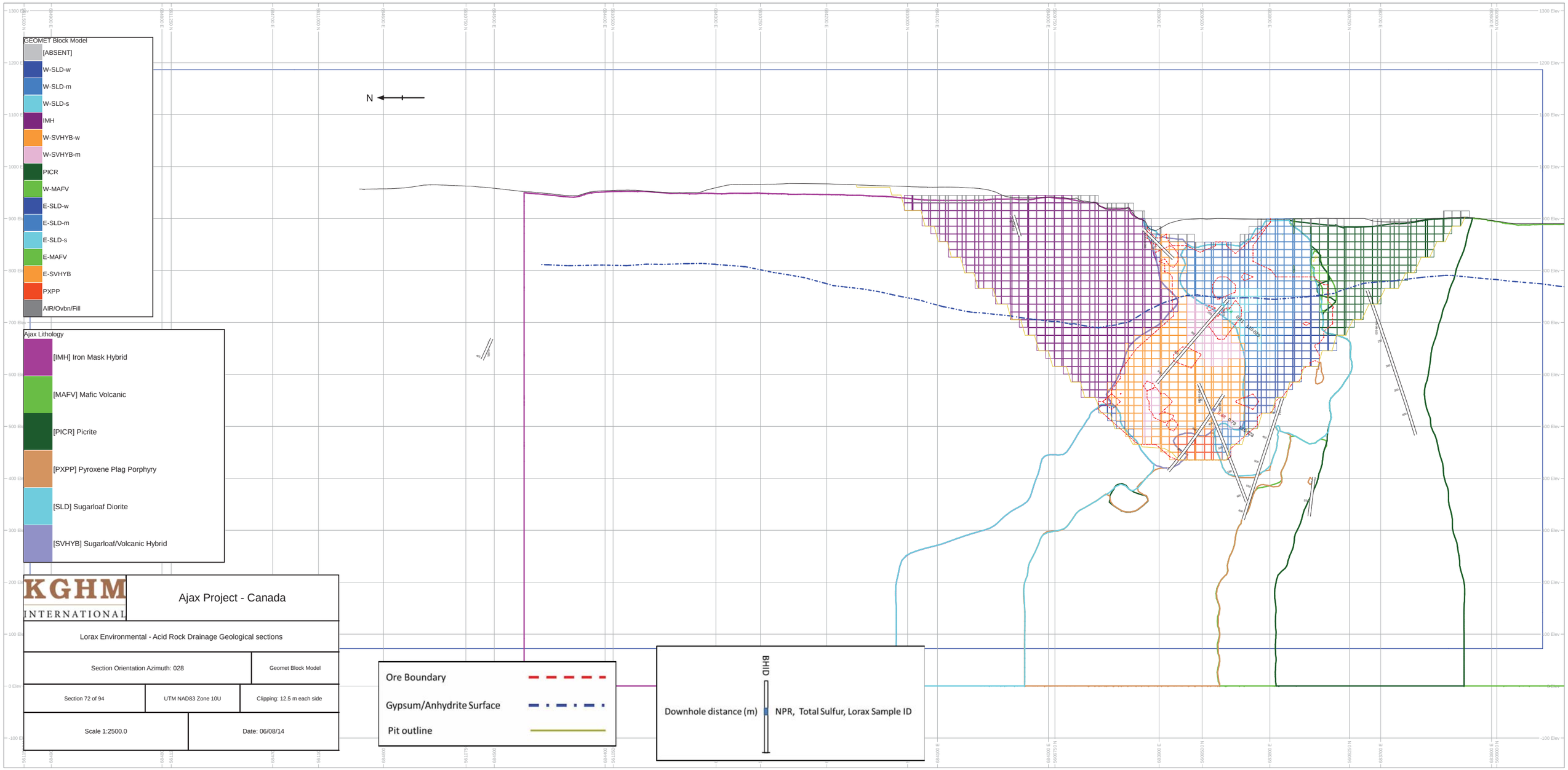
Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 71 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 72 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

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- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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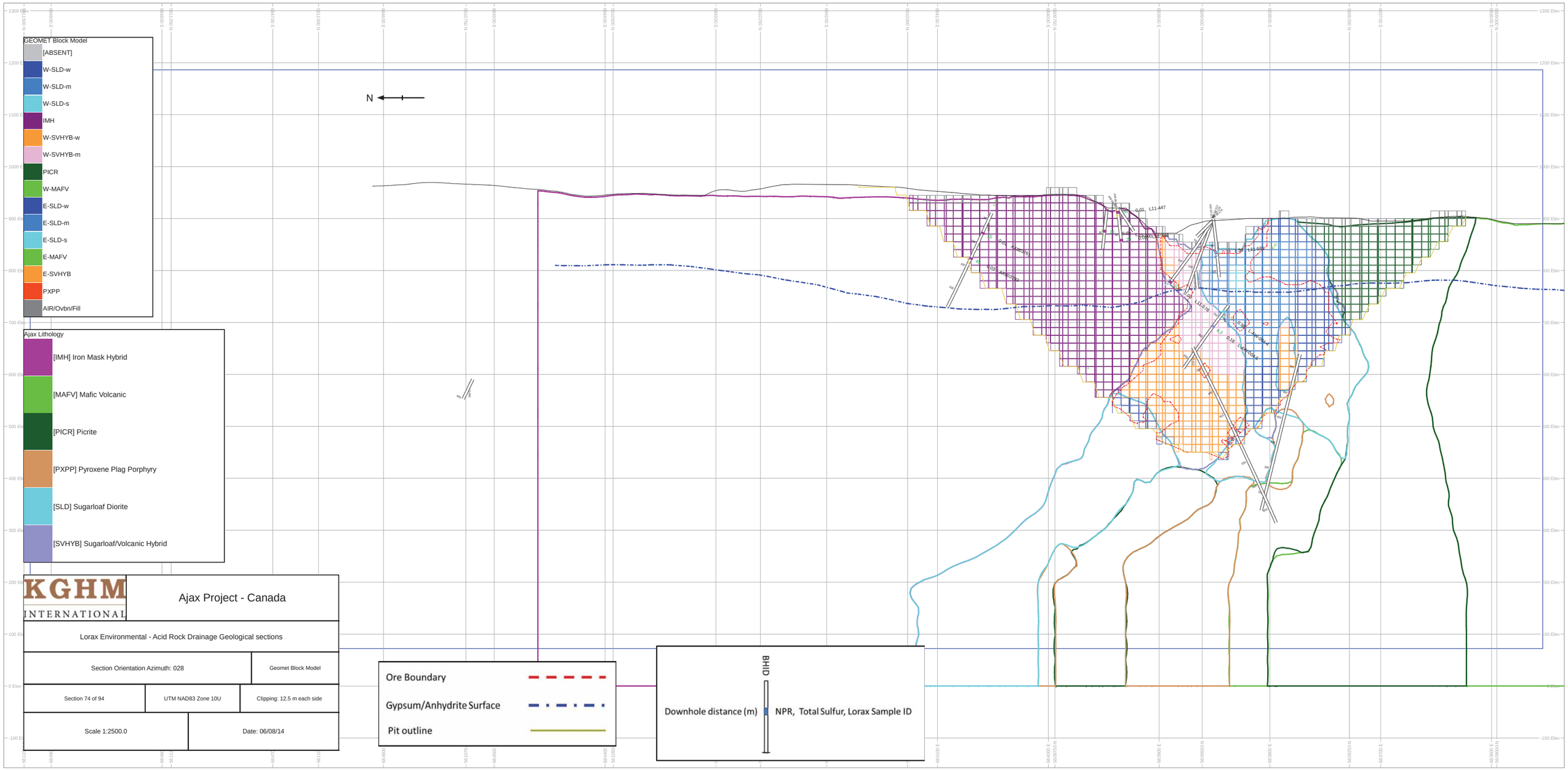
Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 73 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 74 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 75 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections	
Section Orientation Azimuth: 028	Geomet Block Model
Section 76 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

KGHM INTERNATIONAL

Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028		Geomet Block Model
Section 77 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 78 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

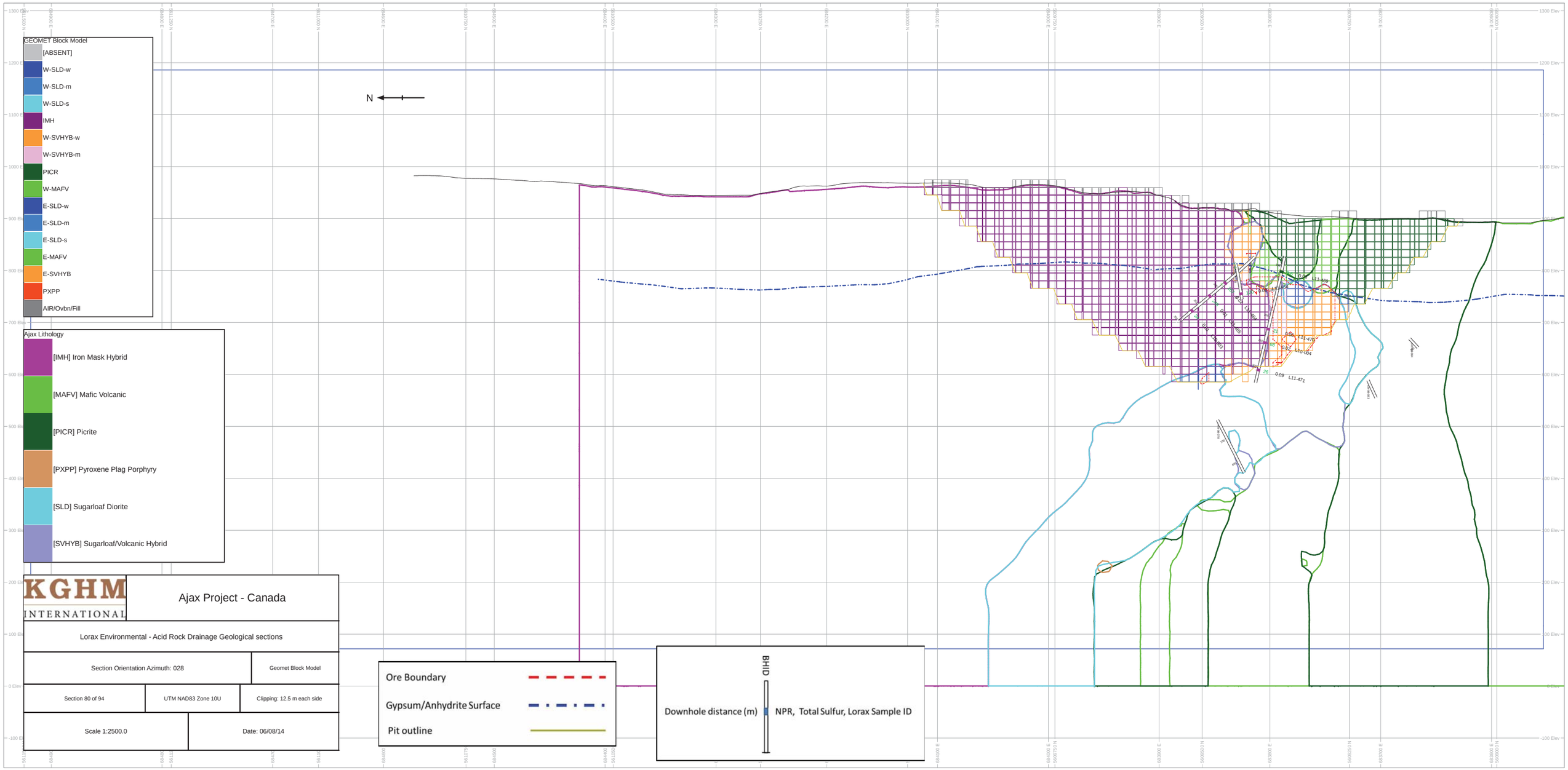
Section Orientation Azimuth: 028	Geomet Block Model
Section 79 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

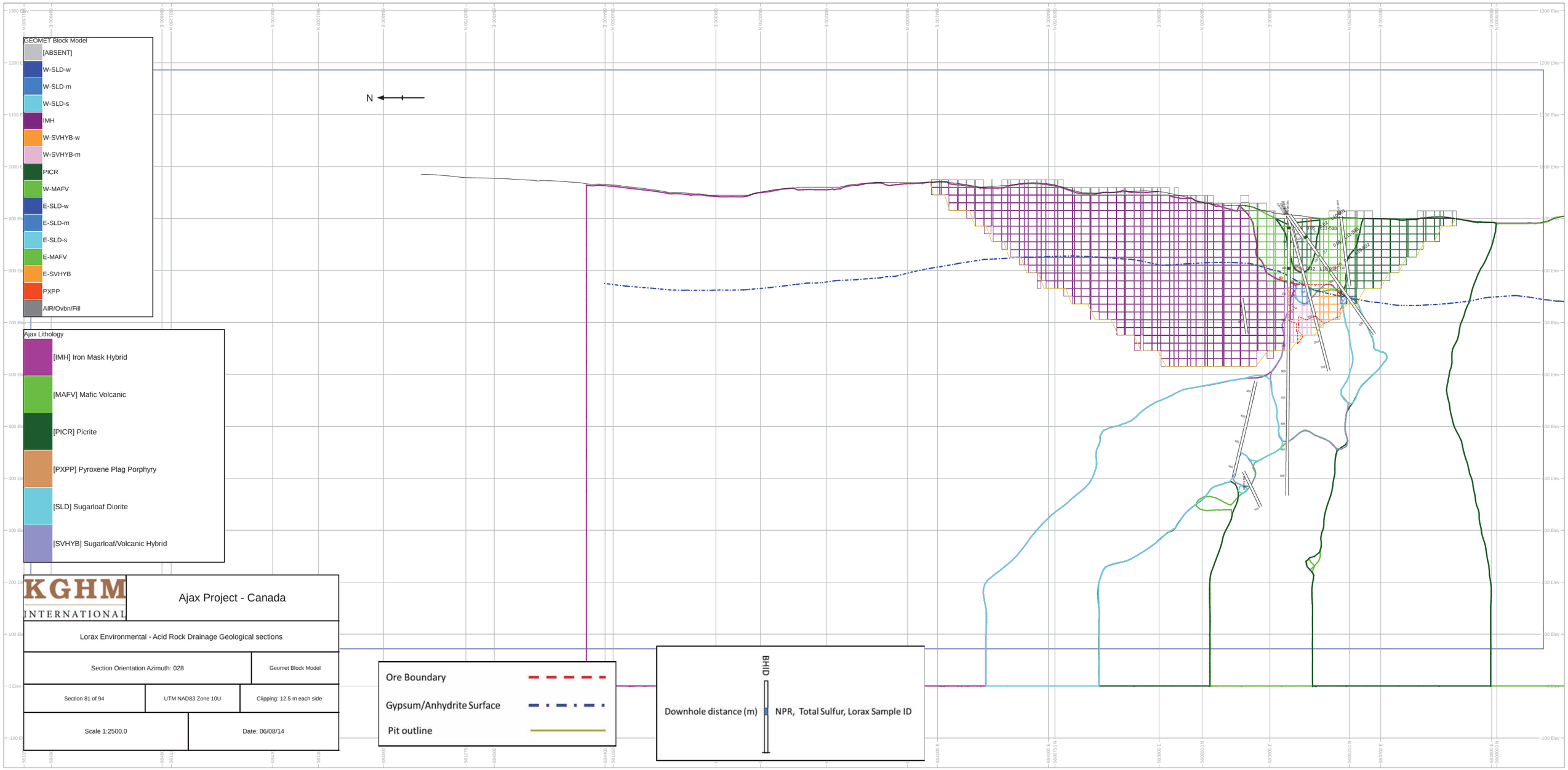
Ore Boundary

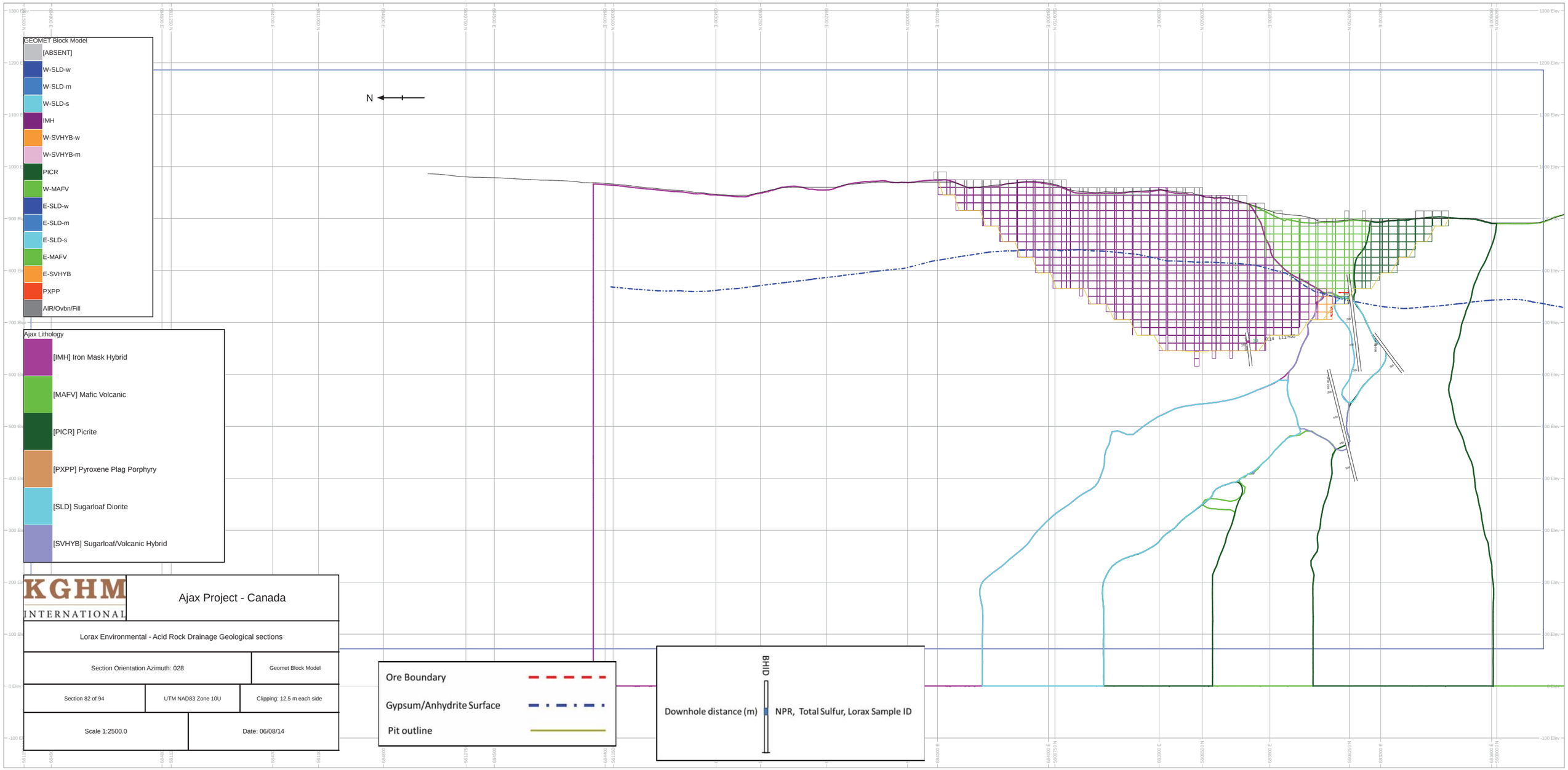
Gypsum/Anhydrite Surface

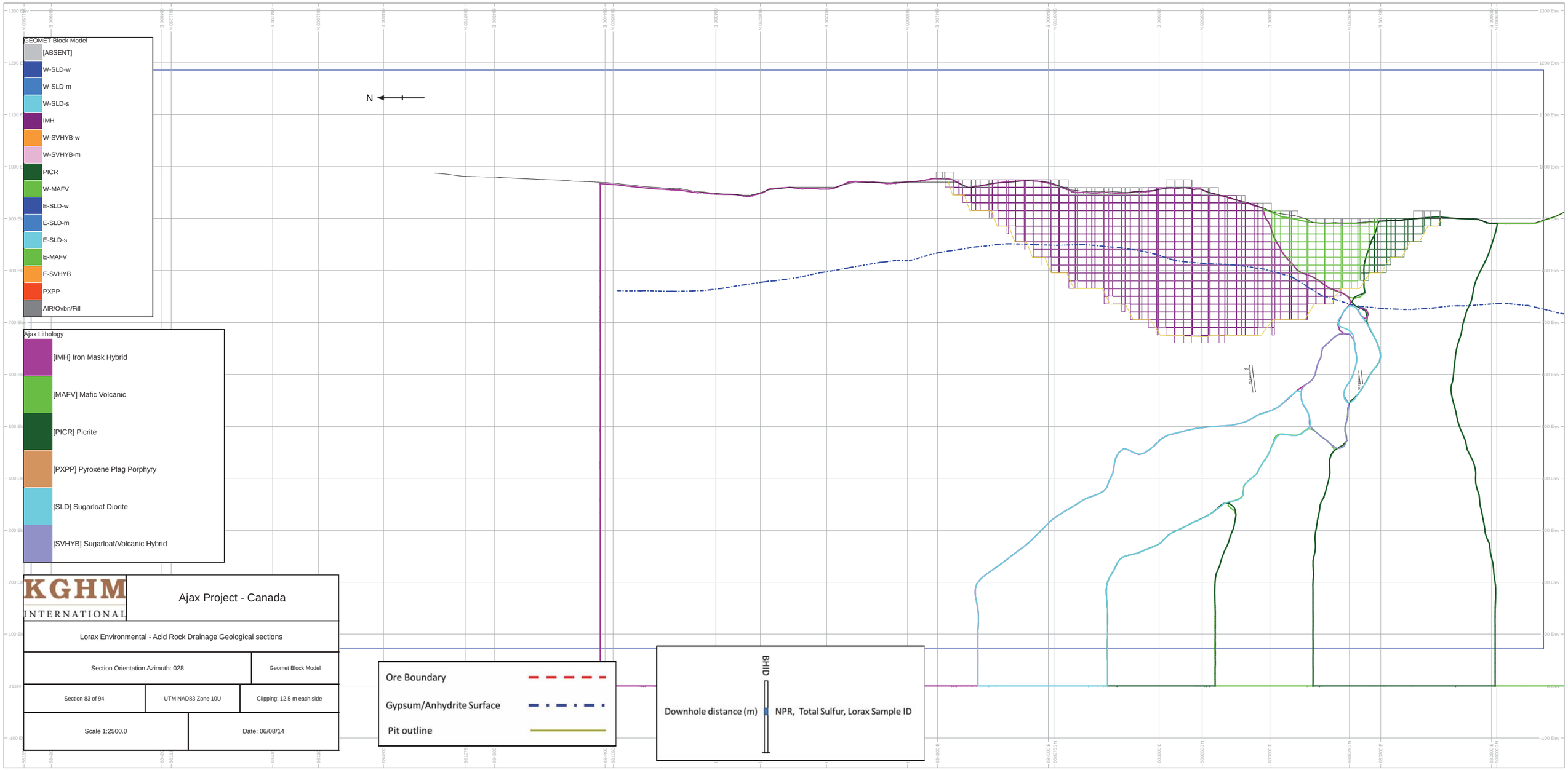
Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 80 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 81 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 82 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 83 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 84 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

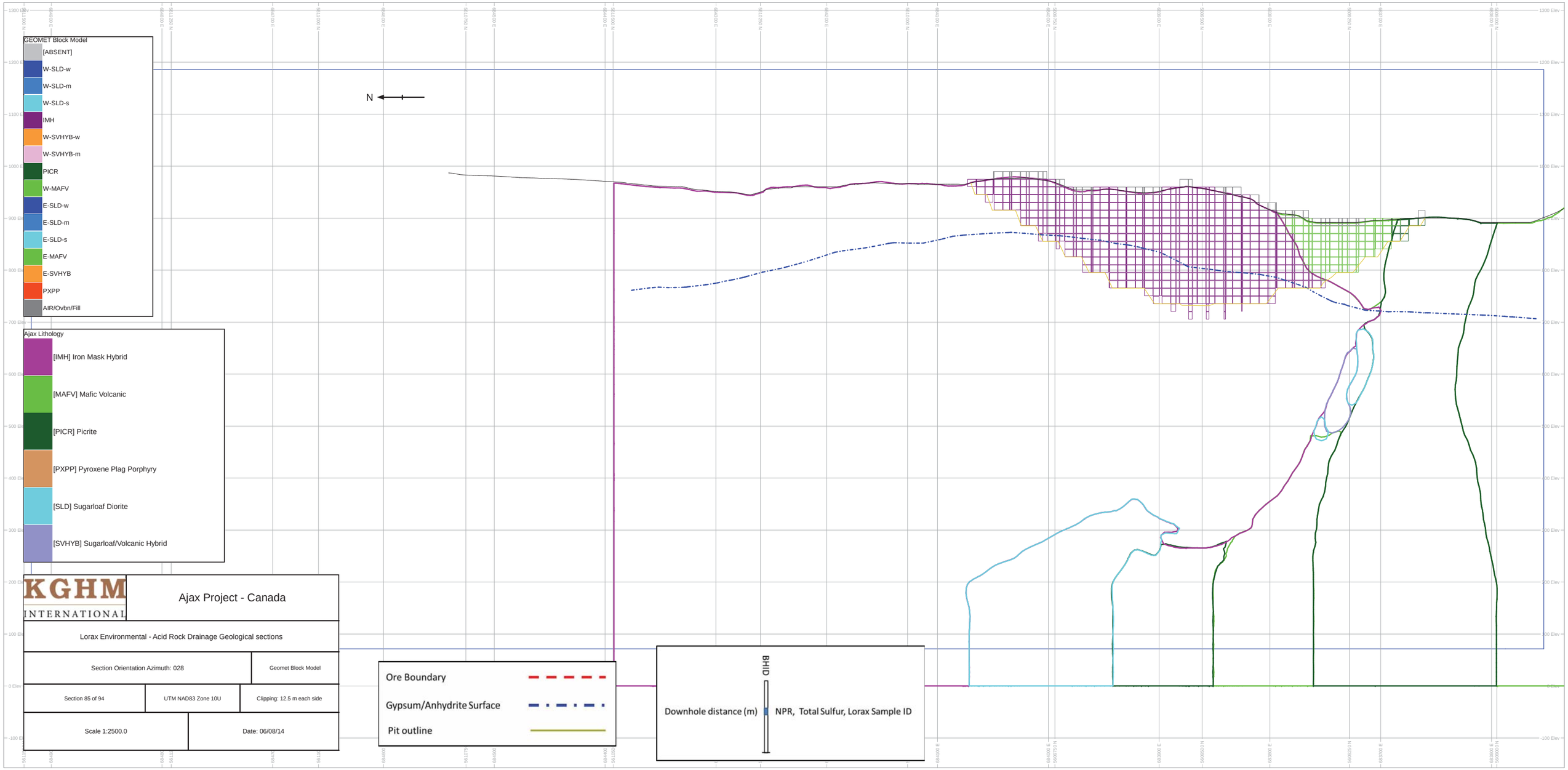
Ore Boundary

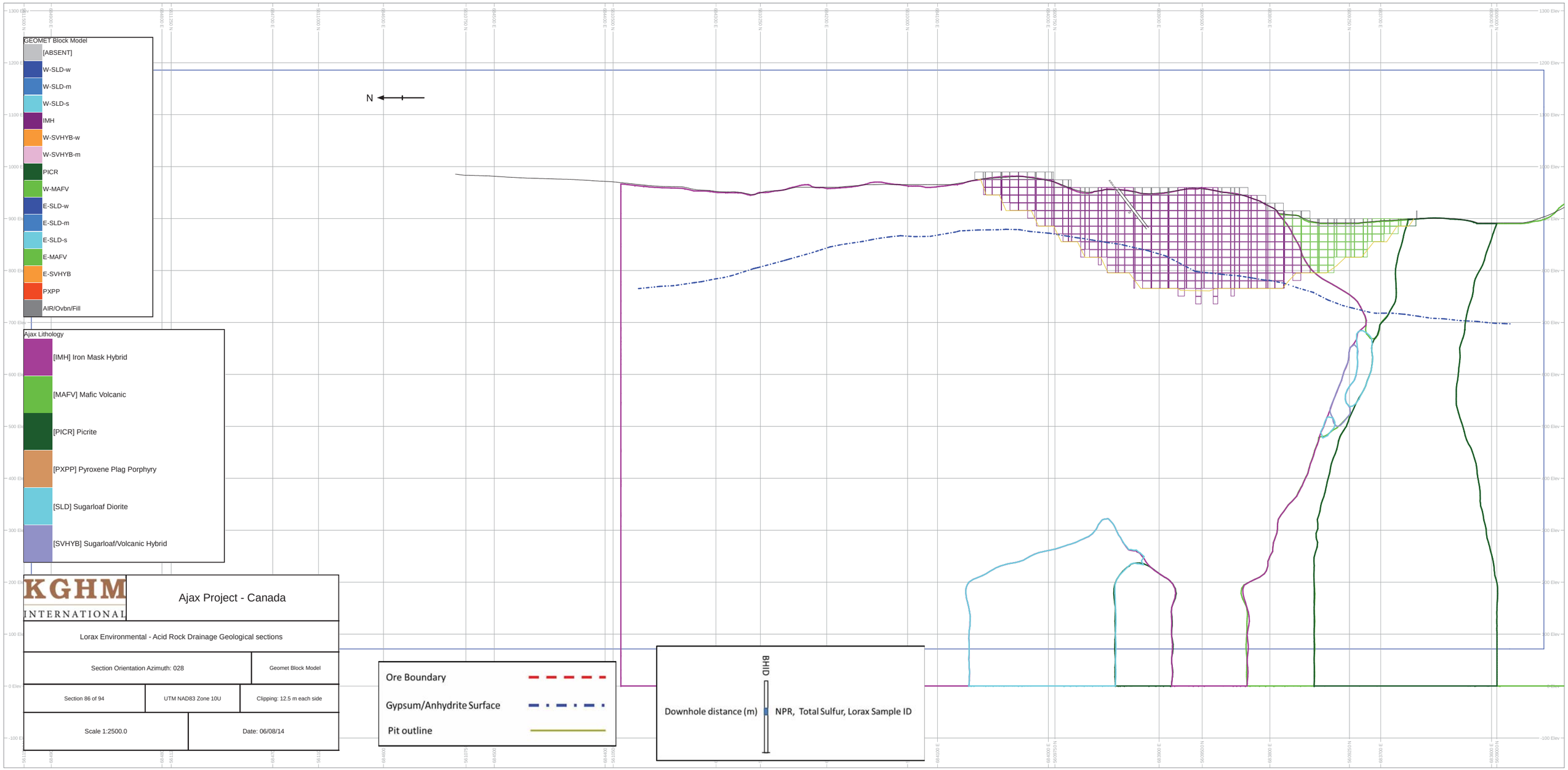
Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 85 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 86 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 87 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 88 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

N

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 89 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 90 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 91 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 92 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

GEOMET Block Model

- [ABSENT]
- W-SLD-w
- W-SLD-m
- W-SLD-s
- IMH
- W-SVHYB-w
- W-SVHYB-m
- PICR
- W-MAFV
- E-SLD-w
- E-SLD-m
- E-SLD-s
- E-MAFV
- E-SVHYB
- PXPP
- AIR/Ovbn/Fill

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Ajax Project - Canada

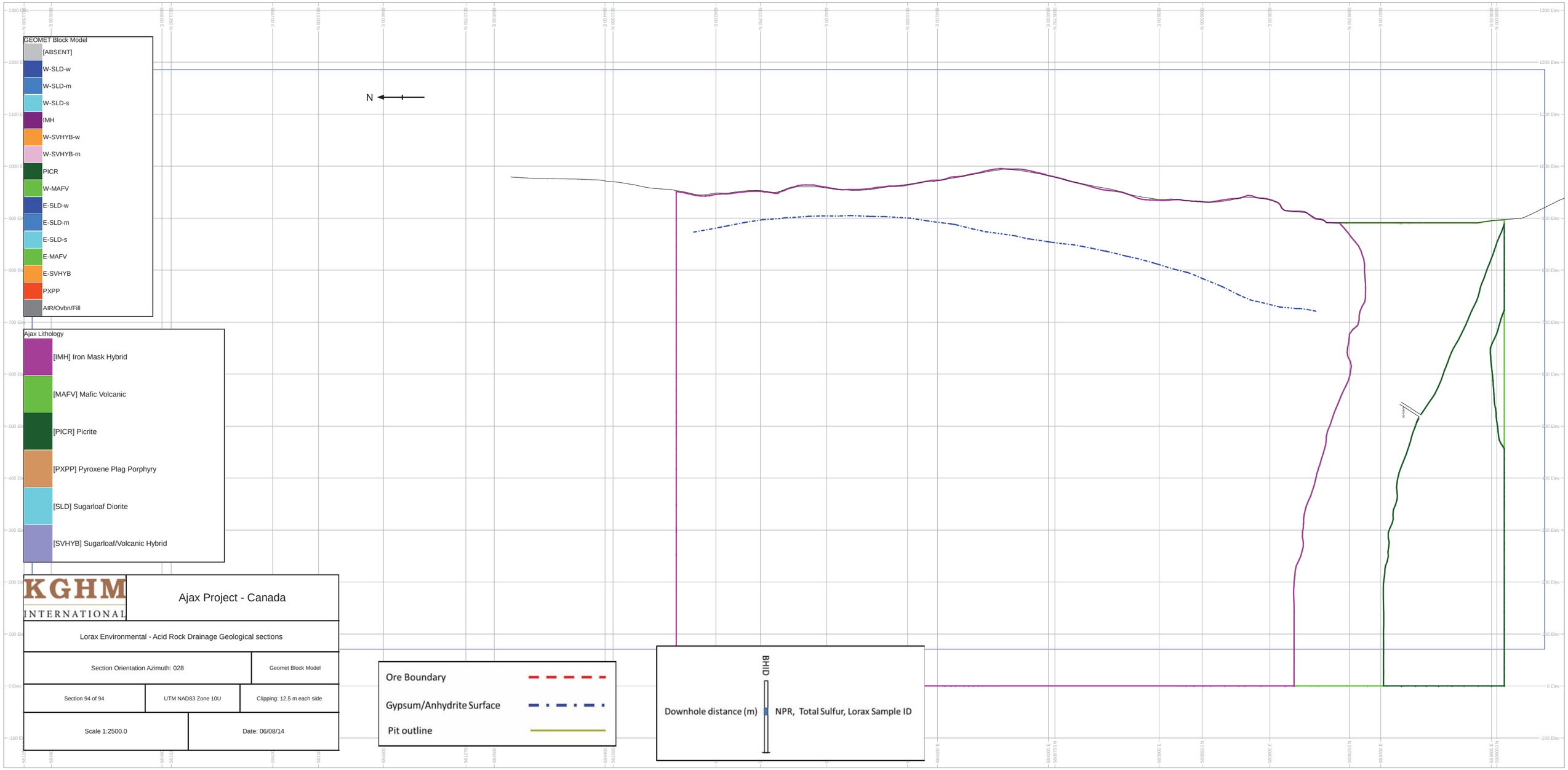
Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	Geomet Block Model
Section 93 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


GEOMET Block Model
[ABSENT]
W-SLD-w
W-SLD-m
W-SLD-s
IMH
W-SVHYB-w
W-SVHYB-m
PICR
W-MAFV
E-SLD-w
E-SLD-m
E-SLD-s
E-MAFV
E-SVHYB
PXPP
AIR/Ovbn/Fill
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
N
KGHM INTERNATIONAL
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
Geomet Block Model
Section 94 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

APPENDIX F-3 CROSS-SECTIONS BY ALTERATION

N

1.29 L11-283

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 1 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

KGHM INTERNATIONAL

Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 2 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 3 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 4 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

0.21 L11-287

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 5 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) NPR, Total Sulfur, Lorax Sample ID

N

0.62 L11-275 6.9 0.33 L11-276

231 0.02 L11-281 0.6 0.2 L11-277

0.33 1.2 L11-282

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 6 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) NPR, Total Sulfur, Lorax Sample ID

N

2.2 0.36 L11-286

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 7 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

15 0.04 L11-285

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 8 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 9 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

0.94 L11-275

0.47 L11-274

0.39 L11-275

0.2 0.12 L11-208

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 10 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 11 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 12 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 13 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 14 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 15 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 16 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 17 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 18 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 19 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 20 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 21 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

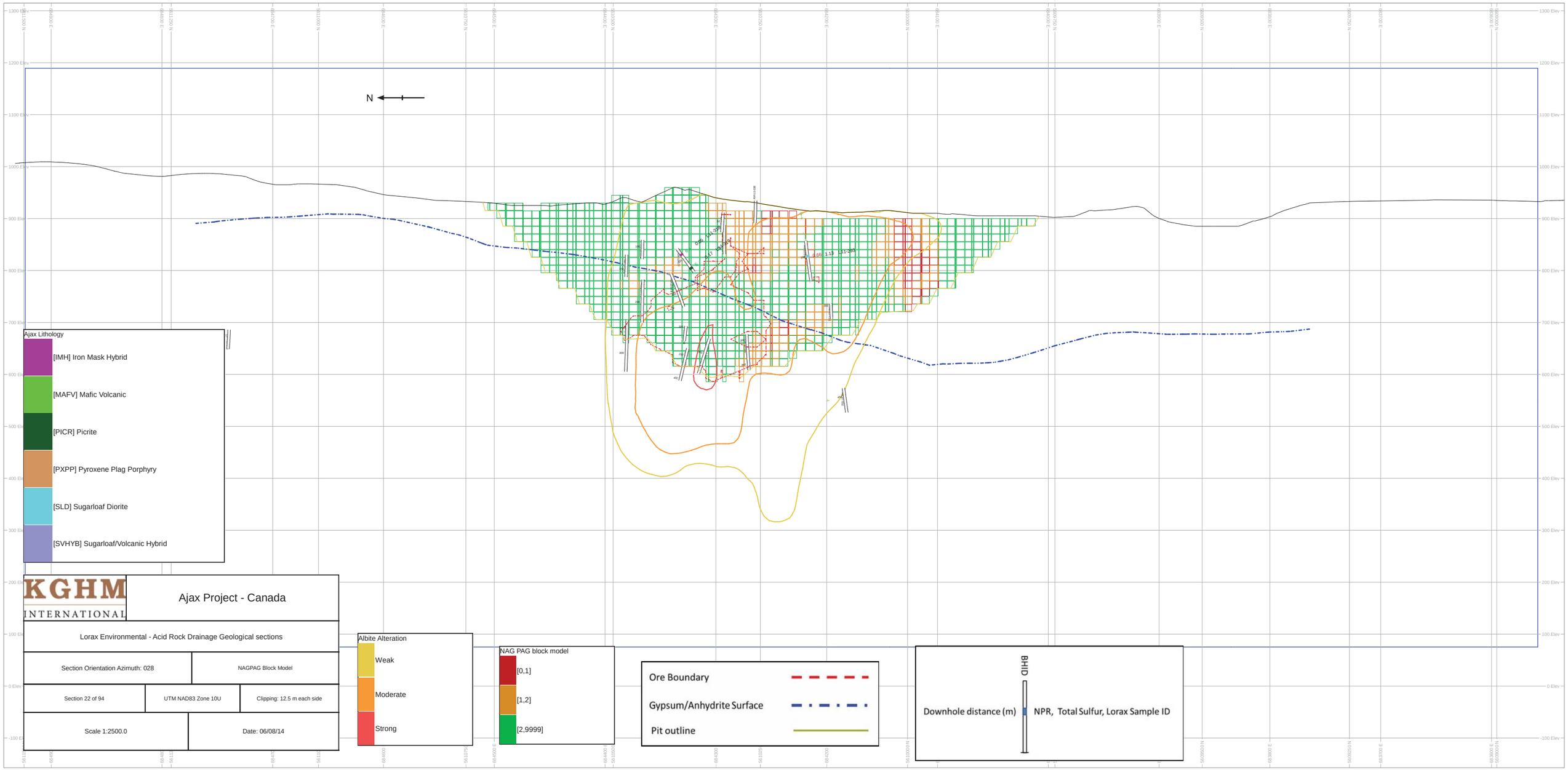
NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 22 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 23 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 24 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 25 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 26 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 27 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 28 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 29 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 30 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 31 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 32 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 33 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 34 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 35 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 36 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 37 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

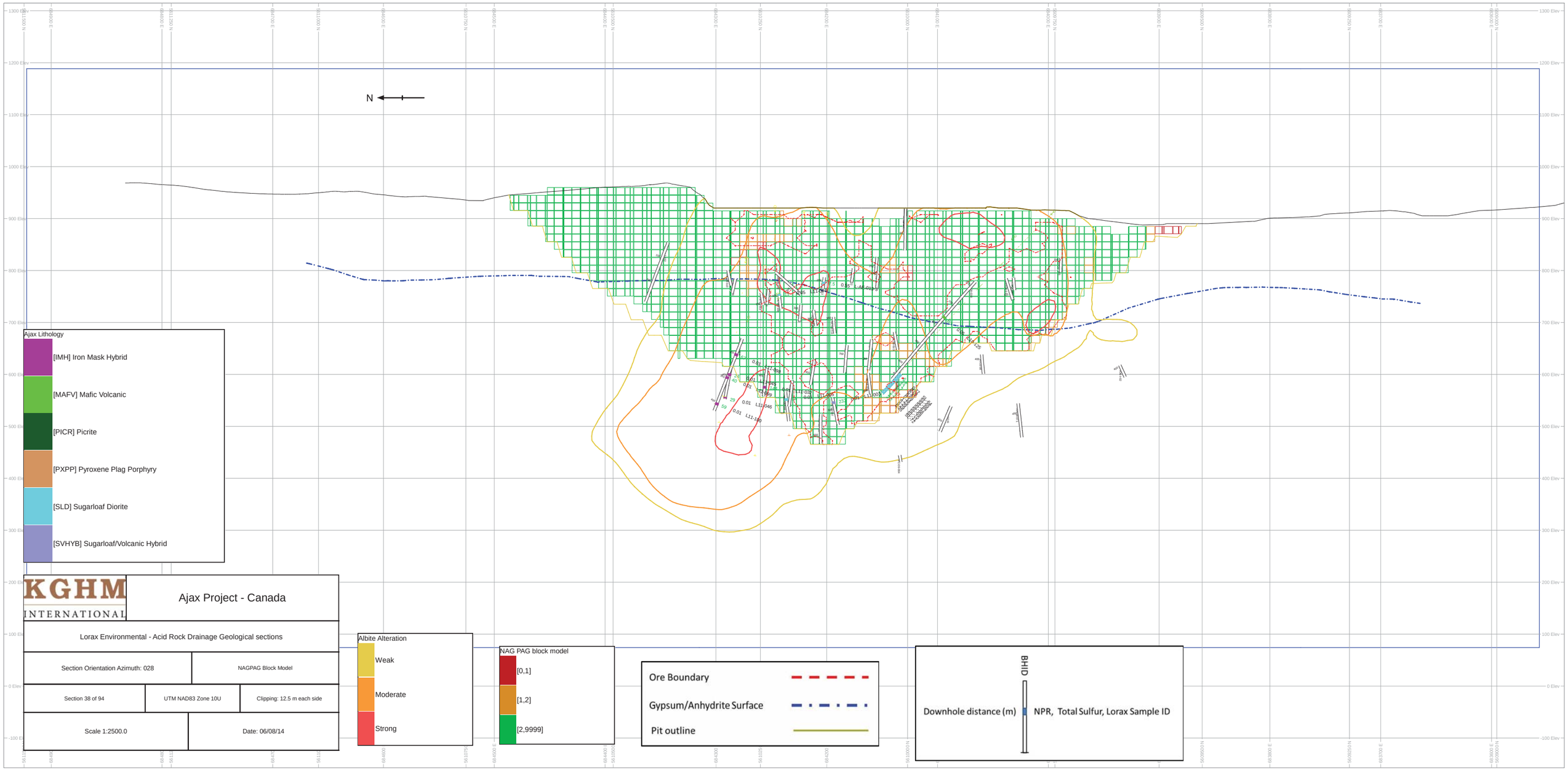
- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 38 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 39 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 40 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 41 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 42 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

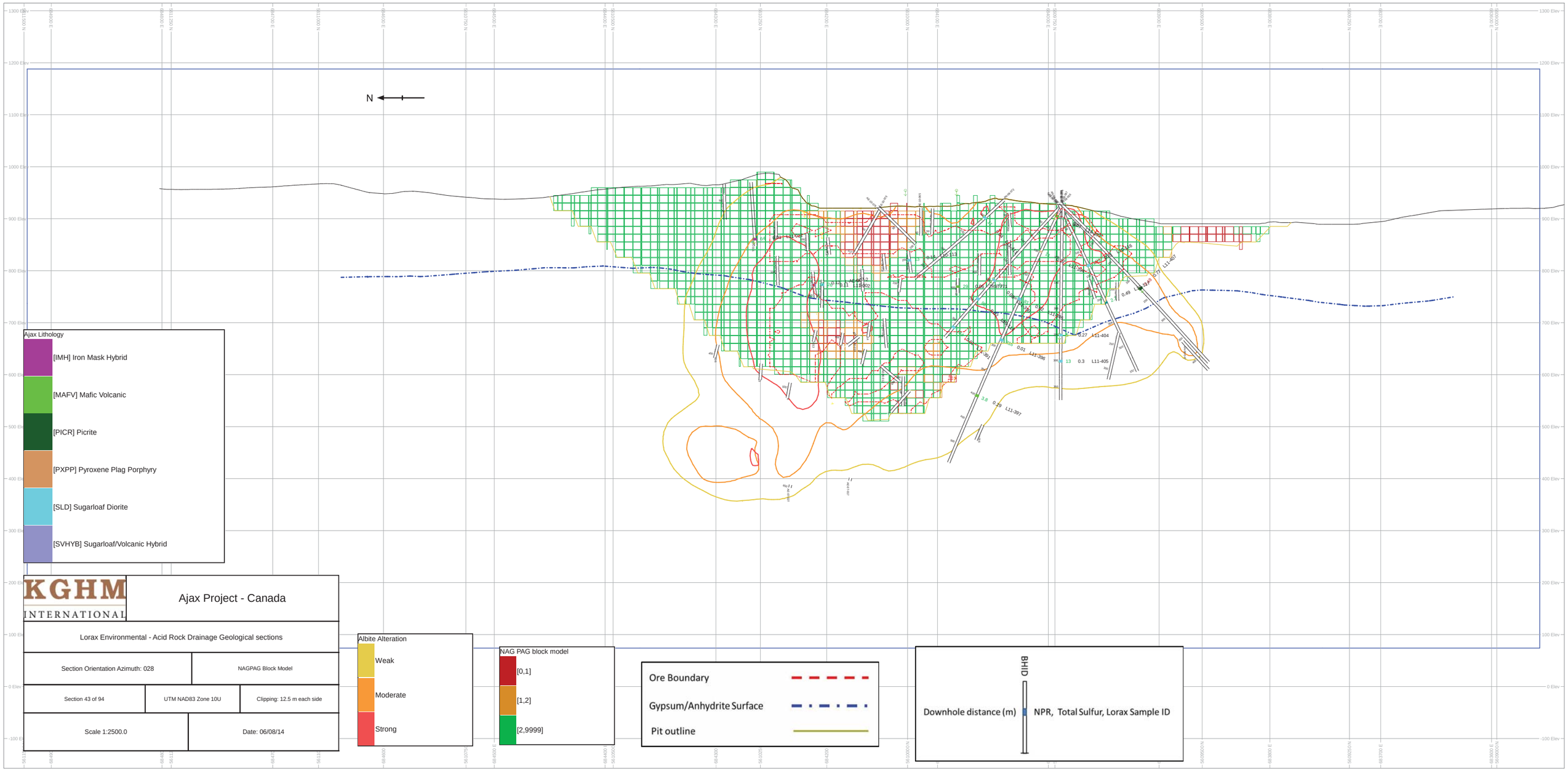
- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 43 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 44 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 45 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 46 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 47 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 48 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 49 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 50 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 51 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 52 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 53 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 54 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 55 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model
Section 56 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Section Orientation Azimuth: 028	NAGPAG Block Model
Section 57 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 58 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 59 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 60 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 61 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 62 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 63 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

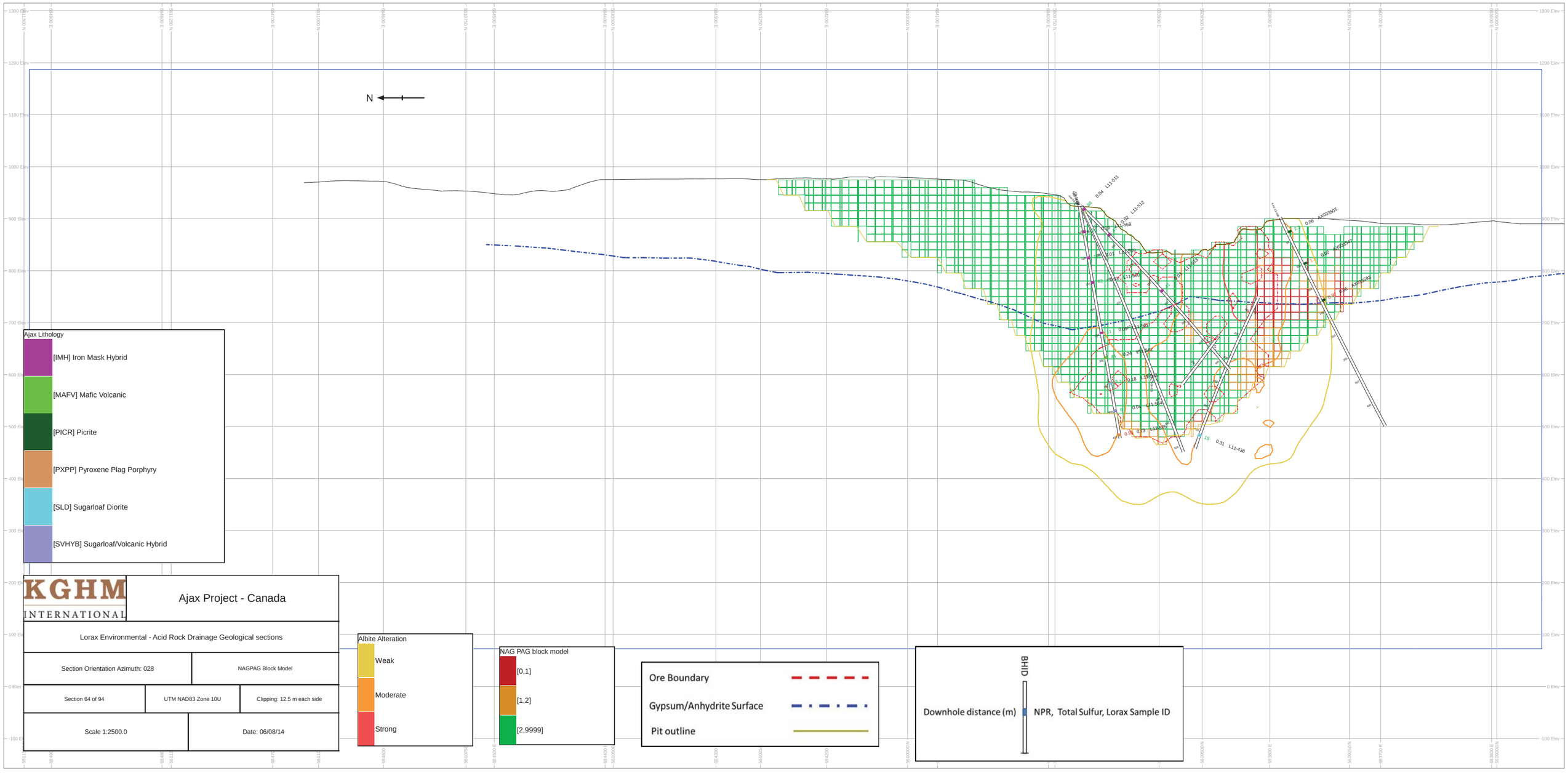
NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID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Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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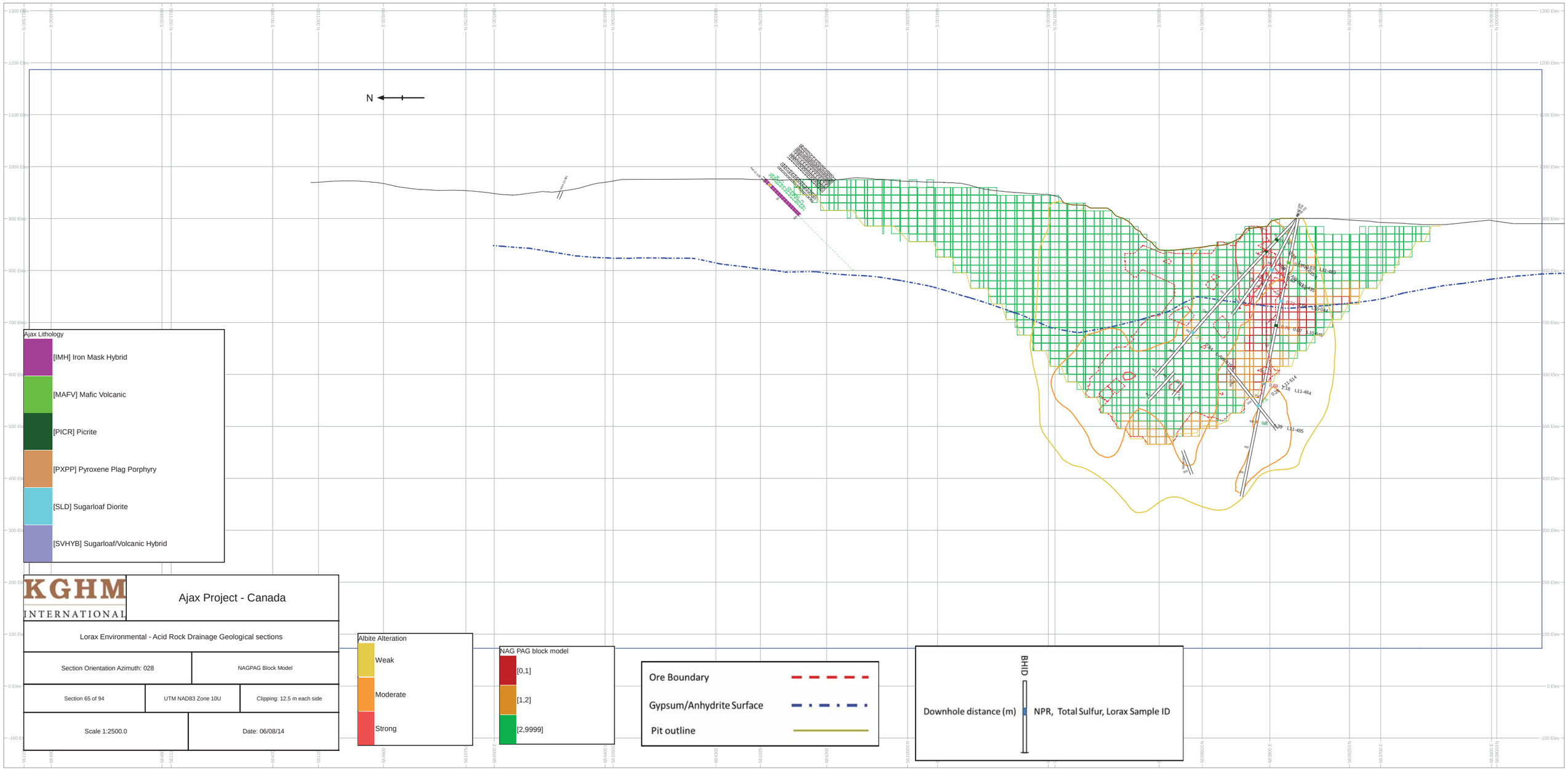
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 64 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
Downhole distance (m)
BHID
NPR, Total Sulfur, Lorax Sample ID



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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 65 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 66 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 67 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 68 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 69 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 70 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 71 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 72 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

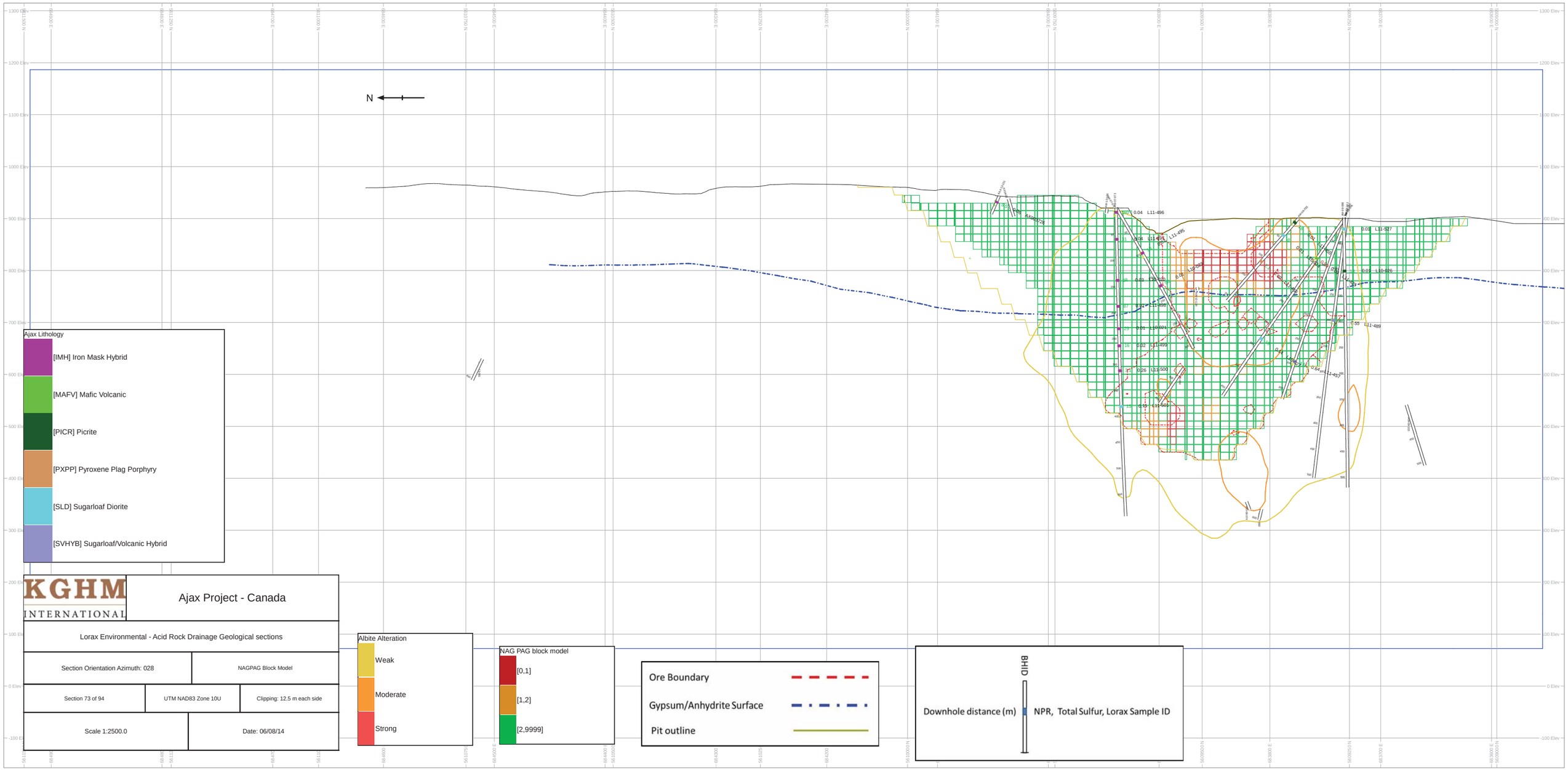
NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 73 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 74 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 75 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 76 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 77 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 78 of 94	UTM NAD83 Zone 10U / Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) — BHID — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 79 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 80 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 81 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 82 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 83 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 84 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

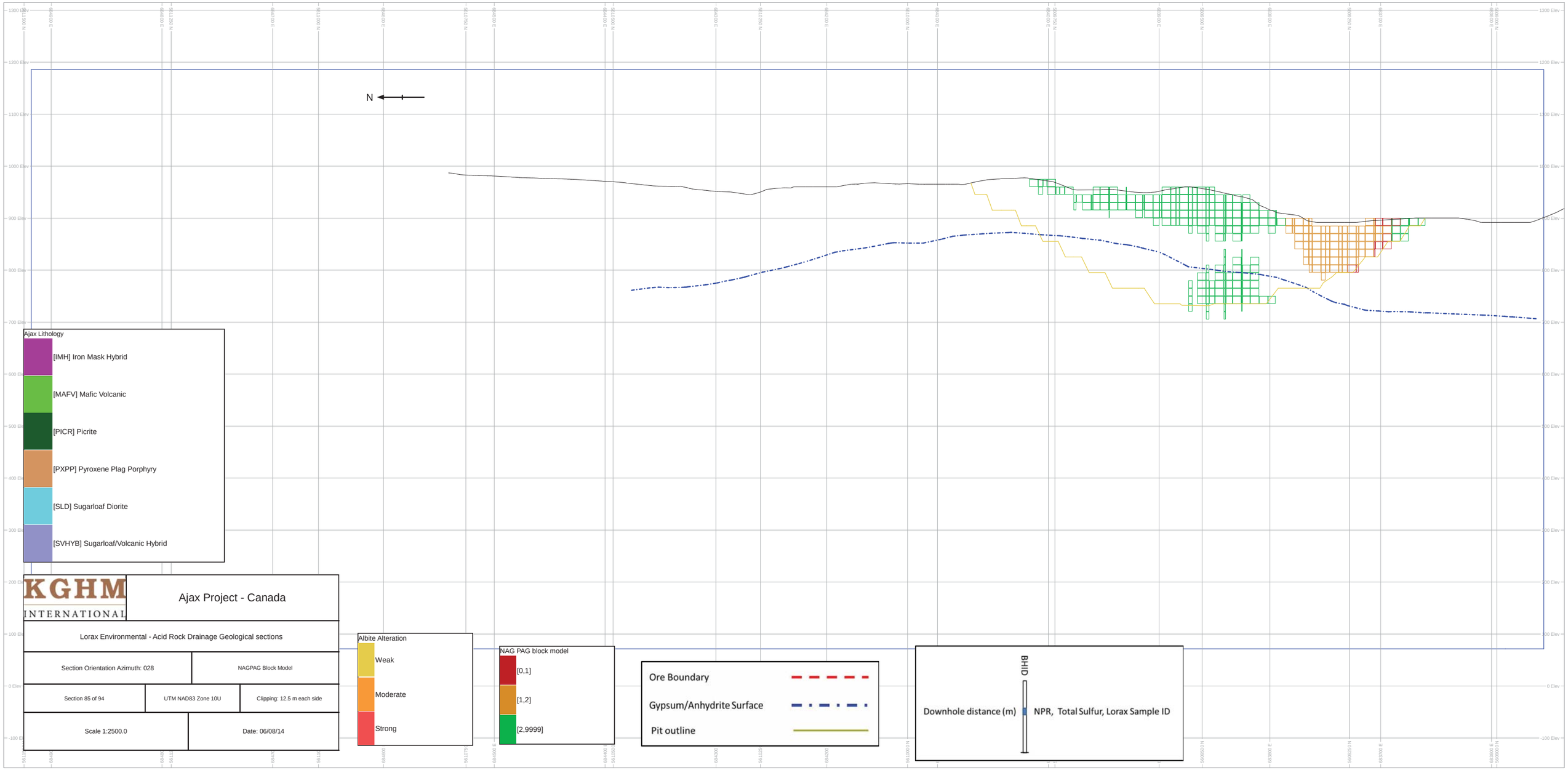
Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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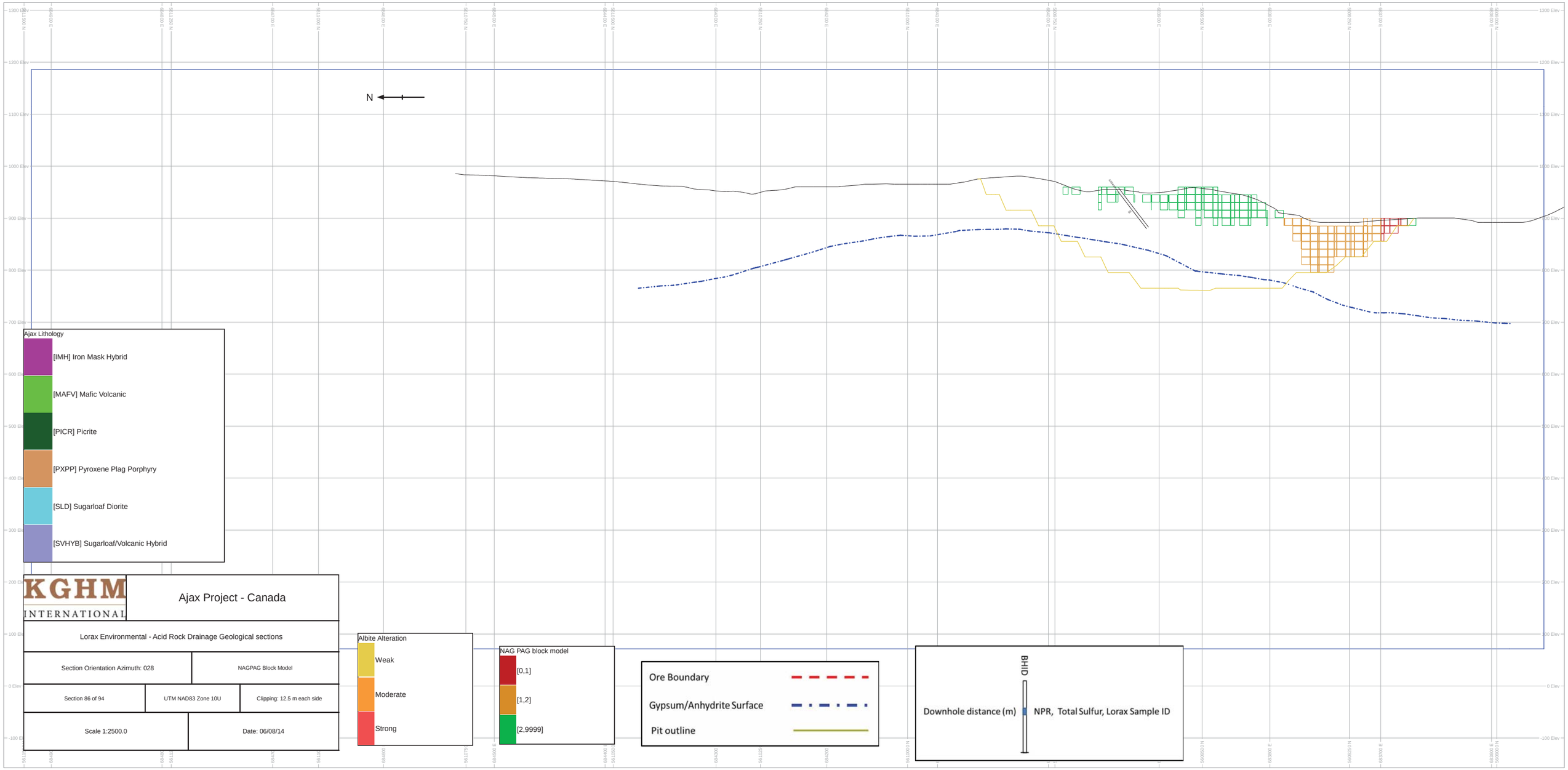
Ajax Project - Canada
Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 85 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID


N
Ajax Lithology
[IMH] Iron Mask Hybrid
[MAFV] Mafic Volcanic
[PICR] Picrite
[PXPP] Pyroxene Plag Porphyry
[SLD] Sugarloaf Diorite
[SVHYB] Sugarloaf/Volcanic Hybrid
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Lorax Environmental - Acid Rock Drainage Geological sections
Section Orientation Azimuth: 028
NAGPAG Block Model
Section 86 of 94
UTM NAD83 Zone 10U
Clipping: 12.5 m each side
Scale 1:2500.0
Date: 06/08/14
Albite Alteration
Weak
Moderate
Strong
NAG PAG block model
[0,1]
[1,2]
[2,9999]
Ore Boundary
Gypsum/Anhydrite Surface
Pit outline
BHID
Downhole distance (m)
NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 87 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 88 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

Downhole distance (m) | BHID | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model
Section 89 of 94	UTM NAD83 Zone 10U
Clipping: 12.5 m each side	
Scale 1:2500.0	Date: 06/08/14

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

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Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 90 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m) | NPR, Total Sulfur, Lorax Sample ID

N

Ajax Lithology

- [IMH] Iron Mask Hybrid
- [MAFV] Mafic Volcanic
- [PICR] Picrite
- [PXPP] Pyroxene Plag Porphyry
- [SLD] Sugarloaf Diorite
- [SVHYB] Sugarloaf/Volcanic Hybrid

KGHM INTERNATIONAL

Ajax Project - Canada

Lorax Environmental - Acid Rock Drainage Geological sections

Section Orientation Azimuth: 028	NAGPAG Block Model	
Section 91 of 94	UTM NAD83 Zone 10U	Clipping: 12.5 m each side
Scale 1:2500.0	Date: 06/08/14	

Albite Alteration

- Weak
- Moderate
- Strong

NAG PAG block model

- [0,1]
- [1,2]
- [2,9999]

- Ore Boundary
- Gypsum/Anhydrite Surface
- Pit outline

BHID

Downhole distance (m) — NPR, Total Sulfur, Lorax Sample ID

N

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Section Orientation Azimuth: 028	NAGPAG Block Model
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- Moderate
- Strong

NAG PAG block model

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Ore Boundary

Gypsum/Anhydrite Surface

Pit outline

BHID

Downhole distance (m)

NPR, Total Sulfur, Lorax Sample ID

Appendix G:
Site Water Quality

KGHM

Site ID	MDL	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-D	AJWW-D	AJWW-D	AJWW-D
Date/Time Sampled		**5/3/2007**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/5/2008**	**5/1/2014**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**
In Situ Parameters												
Conductivity (In Situ) µS/cm	...	2285	2575	2579	2283	2748	2643	2321	2174	2202		2139
Oxygen Dissolved (In Situ %)	...					57.9	83.3	65.7				12.2
Oxygen Dissolved (In Situ)%	...	9.09	4.84	8.39		5.6	8.62	7.37	2.08	1.82		1.54
pH (In Situ) pH	...	8.28	7.9	8.3		7.28	8.08	8	7.9	8.04		7.59
Redox Potential (In Situ) mV	...					-57.9	-86	110				-73.8
Salinity (In Situ) ppt	...							1.71				
Specific Conductivity (In Situ) µS/cm	...	3334	3352	3399	3439	3465	3406	3254	3367	3428		3477
Temperature (In Situ) °C	...	8.5	12.9	12.4	7.41	14.2	13.3	10.1	6.46	6.3		4.85
Total Dissolved Solids (In Situ) ppt	...							2110				
Turbidity (In Situ) NTU	...							-3.1				
Physical Tests												
Acidity to pH 8.3 (as CaCO3)	1		4.6		6.4			157	5.8		7.8	
Alkalinity (Total as CaCO3)	1.0 to 2.0	165	152	155	156	157	154		154	161	170	163
Bicarbonate Alkalinity	1.0 to 2.0				156		154	157			170	
Carbonate Alkalinity	1.0 to 2.0				<2		<2	<2			<2	
Color TCU	5		<5	<5	<5	<5	<5		<5	<5	<5	<5
Conductivity µS/cm	2	3150	3290	3360	3430	3370	3420		3300	3370	3450	3380
Hardness as CaCO3 (Dissolved)	0.5 to 1.0	1670	1760	1630	1710	1690	1750	1900	1770	1590	1750	1700
Hydroxide Alkalinity	1.0 to 2.0				<2		<2	<2			<2	
pH pH	0.01 to 0.1	8.13	8.05	8.21	8.09	8.14	8.22	8.16	7.97	8.1	7.95	8.1
Specific Conductivity µS/cm								3410				
Total Dissolved Solids	10 to 40	2870	2900	2880	1030	2880	3110	3260	2970	3010	741	2930
Total Suspended Solids	3	<3	5.5	<3	<3	<3	<3	5.7	4.2	<3	4.1	<3
Turbidity NTU	0.1				0.28	0.22	0.32	0.32			0.65	0.5
Dissolved Anions												
Bromide (Dissolved)	0.1 to 5.0	<0.5	<0.5	<0.5	<2.5	<0.5	<0.5	<1	<0.5	<0.5	<2.5	<0.5
Chloride (Dissolved)	0.5 to 50	35.7	35	33.6	35	35.5	34.5	36	35.8	38.4	33	36
Fluoride (Dissolved)	0.0 to 1.0	0.4		0.22	<1	0.27	<0.2	<0.4		0.24	1.3	0.38
Sulphate (Dissolved)	2.5 to 50	1640	1660	1640	1670	1690	1690	1910	1650	1800	1650	1700
Sulphite (Dissolved)	5					<5						<5
Nutrients												
Ammonia (Total)	0.005 to 0.02	0.032	0.029	0.0326	<0.02	0.048	0.063	<0.005	0.024	0.0107	<0.02	0.045
Nitrate (as N)	0.005 to 0.5	71.5	72.2	71.5	74.3	72.8	72.6	68.2	72.9	79.9	74.1	74.3
Nitrite (as N)	0.001 to 0.1	0.077	0.127	0.137	0.112	0.093	0.134	0.137	0.138	0.187	0.074	0.049
Nitrogen (Dissolved)	0.1											
Nitrogen (Total)	0.013 to 0.51											
Nitrogen Kjeldahl (Total)	0.05 to 0.5	<0.05	<0.05	<0.05	0.064	<0.36	0.169	<0.05	<0.05	0.27	0.152	0.39
Orthophosphate (Dissolved)	0.001	<0.001	0.0013	0.002	0.0013	0.001		0.001	0.0012	0.0021	0.0011	<0.001
Phosphorus (Nutrient) Dissolved	0.002							<0.002				
Phosphorus (Nutrient) Total	0.002	0.0036	0.0026	0.0036	0.0027	0.0041		0.0021	0.0032	0.0066	0.0034	0.005
Cyanide												
Cyanide (Free)	0.005				<0.005	<0.005		<0.005			<0.005	<0.005
Cyanide (Total)	0.005	<0.005	<0.005	<0.005	0.0207	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005				<0.005	<0.005		<0.005			<0.005	<0.005

Site ID	MDL	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-D	AJWW-D	AJWW-D	AJWW-D
Date/Time Sampled		**5/3/2007**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/5/2008**	**5/1/2014**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**
Dissolved Metals												
Aluminum (Dissolved)	0.001 to 0.1	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	0.0065	<0.025	<0.05	<0.05	<0.05
Antimony (Dissolved)	0.0001 to 0.01	0.0157	0.0166	0.0165	0.0198	0.0166	0.0179	0.0167	0.0151	0.0142	0.0167	0.0143
Arsenic (Dissolved)	0.0001 to 0.01	0.025	0.0226	0.0214	0.0264	0.0207	0.0204	0.0177	0.02	0.0183	0.0212	0.018
Barium (Dissolved)	0.00005 to 0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0157	<0.02	<0.02	<0.02	<0.02
Beryllium (Dissolved)	0.0001 to 0.02	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.005	<0.01	<0.01	<0.01
Bismuth (Dissolved)	0.0005 to 0.001							<0.0005				
Boron (Dissolved)	0.01 to 0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.065	<0.1	<0.1	<0.1	<0.1
Cadmium (Dissolved)	0.000085 to 0.005	0.00151	<0.005	<0.002	<0.002	0.00054	0.00093	<0.00008	<0.005	<0.002	<0.0007	0.00066
Calcium (Dissolved)	0.05 to 0.2	219	228	213	218	219	228	250	228	212	221	218
Chromium (Dissolved)	0.0001 to 0.02	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.005	<0.01	<0.01	<0.01
Cobalt (Dissolved)	0.0001 to 0.006	<0.003	<0.0015	<0.003	<0.003	<0.003	<0.003	0.0007	<0.0015	<0.003	<0.003	<0.003
Copper (Dissolved)	0.0002 to 0.04	0.03	0.0311	0.028	0.035	0.031	0.032	0.0334	0.0281	0.028	0.034	0.031
Iron (Dissolved)	0.01 to 0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03
Lead (Dissolved)	0.00005 to 0.01	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.00005	<0.0025	<0.005	<0.005	<0.005
Lithium (Dissolved)	0.0005 to 0.1	<0.05	0.048	0.051	0.061	<0.05	<0.05	0.0485	0.047	<0.05	0.054	0.05
Magnesium (Dissolved)	0.1 to 0.2	273	289	267	284	278	287	310	292	258	292	280
Manganese (Dissolved)	0.00005 to 0.006	0.008	0.0111	0.0074	0.0073	0.0081	0.0066	0.00237	0.0269	0.0341	0.0213	0.0234
Mercury (Dissolved)	0.00001 to 0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum (Dissolved)	0.00005 to 0.02	3.41	3.28	3.23	4.09	3.21	3.48	4.56	3.3	3.29	3.4	3.15
Nickel (Dissolved)	0.0005 to 0.02	0.012	0.0115	0.012	0.017	0.012	0.013	0.013	0.0118	0.012	0.015	0.014
Phosphorus (Metal) Dissolved	0.05 to 0.3							<0.05				
Potassium (Dissolved)	0.1 to 4.0	23.8	26.1	25.3	24.9	26.1	26.8	31.2	25.4	24.5	24.7	25.5
Selenium (Dissolved)	0.0001 to 0.02	0.031	0.0293	0.029	0.042	0.029	0.032	0.0505	0.0291	0.028	0.035	0.028
Silicon (Dissolved)	0.05							7.1				
Silver (Dissolved)	0.00001 to 0.0004	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.0001	<0.0002	<0.0002	<0.0002
Sodium (Dissolved)	0.1 to 4.0	194	200	190	195	198	201	206	200	193	197	198
Strontium (Dissolved)	0.0001 to 0.0004							4.35				
Sulphur (Dissolved)	0.0005							608				
Thallium (Dissolved)	0.00001 to 0.004	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.00001	<0.001	<0.002	<0.002	<0.002
Tin (Dissolved)	0.0001 to 0.01	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0025	<0.005	<0.005	<0.005
Titanium (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Uranium (Dissolved)	0.00001 to 0.004	0.0111	0.0102	0.0107	0.0118	0.0108	0.0114	0.0107	0.0103	0.0111	0.0111	0.0111
Vanadium (Dissolved)	0.001 to 0.06	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	0.0054	<0.03	<0.03	<0.01	<0.01
Zinc (Dissolved)	0.001 to 0.1	<0.05	<0.025	<0.05	<0.005	<0.005	<0.005	<0.001	<0.025	<0.05	<0.005	<0.005
Total Metals												
Aluminum (Total)	0.003 to 0.1	<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.003	<0.025	<0.05	<0.05	<0.05
Antimony (Total)	0.0001 to 0.01	0.0156	0.016	0.0163	0.0194	0.016	0.0174	0.0164	0.0143	0.0152	0.017	0.0142
Arsenic (Total)	0.0001 to 0.01	0.0237	0.0218	0.0209	0.0258	0.0231	0.0199	0.0174	0.0192	0.0186	0.0211	0.0176
Barium (Total)	0.00005 to 0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0153	<0.02	<0.02	<0.02	<0.02
Beryllium (Total)	0.0001 to 0.02	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.005	<0.01	<0.01	<0.01
Bismuth (Total)	0.0005 to 0.001							<0.0005				
Boron (Total)	0.01 to 0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.07	<0.1	<0.1	<0.1	<0.1
Cadmium (Total)	0.000085 to 0.005	0.00113	<0.005	<0.002	<0.002	0.00066	0.00069	<0.00008	<0.005	<0.002	<0.0008	0.00057
Calcium (Total)	0.05 to 0.2	217	230	213	219	217	227	241	230	212	222	221
Chromium (Total)	0.0001 to 0.02	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.005	<0.01	<0.01	<0.01
Cobalt (Total)	0.0001 to 0.006	<0.003	<0.0015	<0.003	<0.003	<0.003	<0.003	0.00065	<0.0015	<0.003	<0.003	<0.003
Copper (Total)	0.0005 to 0.04	0.031	0.0309	0.028	0.036	0.031	0.031	0.0331	0.0275	0.029	0.036	0.032
Iron (Total)	0.01 to 0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03

Site ID	MDL	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-D	AJWW-D	AJWW-D	AJWW-D
Date/Time Sampled		**5/3/2007**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/5/2008**	**5/1/2014**	**7/19/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**
Lead (Total)	0.00005 to 0.01	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.00005	<0.0025	<0.005	<0.005	<0.005
Lithium (Total)	0.0005 to 0.1	<0.05	0.044	<0.05	0.066	<0.05	<0.05	0.0489	0.045	0.05	0.057	0.051
Magnesium (Total)	0.1 to 0.2	273	291	261	287	279	286	304	287	261	292	281
Manganese (Total)	0.00005 to 0.006	0.0099	0.0107	0.0076	0.0102	0.0092	0.0073	0.00129	0.026	0.0357	0.0225	0.0235
Mercury (Total)	0.00001 to 0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum (Total)	0.00005 to 0.02	3.23	3.16	3.16	3.99	3.1	3.48	4.75	3.16	3.43	3.54	3.15
Nickel (Total)	0.0005 to 0.02	0.012	0.011	0.011	0.016	0.012	0.012	0.0135	0.0113	0.013	0.015	0.014
Phosphorus (Metal) Total	0.05 to 0.3							<0.05				
Potassium (Total)	0.1 to 4.0	24	26	26	24.9	26.3	26.6	29.6	25	24.4	24.6	25.7
Selenium (Total)	0.0001 to 0.02	0.027	0.0294	0.028	0.041	0.029	0.032	0.048	0.0284	0.029	0.033	0.028
Silicon (Total)	0.05							7.02				
Silver (Total)	0.00001 to 0.0004	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.0001	<0.0002	<0.0002	<0.0002
Sodium (Total)	0.1 to 4.0	196	200	196	196	199	199	206	198	191	195	199
Strontium (Total)	0.0001 to 0.0004							4.32				
Sulphur (Total)	0.5							614				
Thallium (Total)	0.00001 to 0.004	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.00001	<0.001	<0.002	<0.002	<0.002
Tin (Total)	0.0001 to 0.01	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0025	<0.005	<0.005	<0.005
Titanium (Total)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium (Total)	0.00001 to 0.004	0.0109	0.0101	0.0101	0.0116	0.0105	0.0114	0.0106	0.0101	0.0118	0.0115	0.0107
Vanadium (Total)	0.001 to 0.06	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	0.0054	<0.03	<0.03	<0.01	<0.01
Zinc (Total)	0.003 to 0.1	<0.05	<0.025	<0.05	<0.005	<0.005	<0.005	<0.003	<0.025	<0.05	<0.005	<0.005
Organics												
Carbon Organic (Dissolved)	0.5	2.67	2.5	2.38	2.43	2.16	1.56	1.43	2.59	2.51	2.45	2.29
Carbon Organic (Total)	0.5							1.41				
Nitrogen Organic (Dissolved)	4.5 to 6.3											
Nitrogen Organic (Total)	0.06 to 0.5											

Notes:
(a) Units are mg/L/ unless otherwise stated
(b) Detection limit values displayed with less than symbol (<); statistics calculated using the detection limit value.

Site ID	MDL	AJWW-D	AJWW-D	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S
Date/Time Sampled		**9/5/2008**	**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**
In Situ Parameters												
Conductivity (In Situ) µS/cm	...	2150	2321	1535	2406	2204	1692	2718	2264	1883	2553	1938
Oxygen Dissolved (In Situ %)	...	17.5	65.7				92.7	81.1	106	91.3	91.5	139
Oxygen Dissolved (In Situ)%	...	2.14	7.37	10.7	8.79	9.22	11.3	7.5	10.5	10.4	8.16	15.4
pH (In Situ) pH	...	7.71	8	8.4	7.89	8.26	8.11	8.01	8.39	8.49	8.3	8.37
Redox Potential (In Situ) mV	...	-65	110		-68.8			-99.4		218	191	90.9
Salinity (In Situ) ppt	...		1.71		1.36					1.4		1.45
Specific Conductivity (In Situ) µS/cm	...	3406	3254	2254	2623	2703	2620	2887	2753	2689	2826	2777
Temperature (In Situ) °C	...	5.67	10.1	8.29	20.7	15.3	6.48	18.7	15.7	9.31	19.9	9.17
Total Dissolved Solids (In Situ) ppt	...		2100		1701					1748		1805
Turbidity (In Situ) NTU	...		-3.1							0.2		0.2
Physical Tests												
Acidity to pH 8.3 (as CaCO3)	1		162				2.8					<1
Alkalinity (Total as CaCO3)	1.0 to 2.0	165		170	165	162	191	157	154	144	149	146
Bicarbonate Alkalinity	1.0 to 2.0	165	162				191			144	149	146
Carbonate Alkalinity	1.0 to 2.0	<2	<2				<2			<1	<1	<1
Color TCU	5	<5			<5	<5	<5	<5	<5	<5	<5	<5
Conductivity µS/cm	2	3410		2530	2630	2680	2620	2670	2770	2650	2650	2780
Hardness as CaCO3 (Dissolved)	0.5 to 1.0	1710	1930	1170	1250	1130	1160	1180	1290	1250	1290	1340
Hydroxide Alkalinity	1.0 to 2.0	<2	<2				<2			<1	<1	<1
pH pH	0.01 to 0.1	8.14	8.07	8.21	8.27	8.36	8.17	8.39	8.39	8.31	8.33	8.3
Specific Conductivity µS/cm			3520									
Total Dissolved Solids	10 to 40	3140	3390	2210	2220	2250	2100	2200	2310	2270	2480	2260
Total Suspended Solids	3	<3	6	<3	<3	<3	4.2	<3	<3	<3	<3	<3
Turbidity NTU	0.1	0.39	0.29				0.31	0.31	0.19	0.22	0.25	0.17
Dissolved Anions												
Bromide (Dissolved)	0.1 to 5.0	<2.5	<1	<0.25	<5	<0.5	<2.5	<0.05	<2.5	<1	<1	<1
Chloride (Dissolved)	0.5 to 50	39	38	25.3	<50	24.6	<25	24.6	30	25	30	29
Fluoride (Dissolved)	0.0 to 1.0	<1	<0.4	0.38		0.21	1.4	0.154	<1	<0.4	<0.4	<0.4
Sulphate (Dissolved)	2.5 to 50	1770	1980	1340	1300	1380	1280	1400	1500	1450	1520	1560
Sulphite (Dissolved)	5							<5				
Nutrients												
Ammonia (Total)	0.005 to 0.02	0.028	<0.005	0.023	0.03	<0.005	<0.02	0.039	0.023	0.0064	<0.005	0.0051
Nitrate (as N)	0.005 to 0.5	79	71.4	23.2	21.8	23.1	20.8	20.3	22.4	19.8	19.2	21.2
Nitrite (as N)	0.001 to 0.1	0.138	0.036	0.0456	0.22	0.09	0.127	0.143	0.242	0.101	0.162	0.028
Nitrogen (Dissolved)	0.1									25	29.7	22.6
Nitrogen (Total)	0.013 to 0.51									19.9	19.4	21.2
Nitrogen Kjeldahl (Total)	0.05 to 0.5	0.239	<0.05	<0.05	0.212	<0.05	0.153	0.33	0.34	<0.05	<0.05	<0.05
Orthophosphate (Dissolved)	0.001		0.0011	0.0014	0.0027	0.0028	0.0028	0.0024				0.0015
Phosphorus (Nutrient) Dissolved	0.002		<0.002							0.002	<0.002	<0.002
Phosphorus (Nutrient) Total	0.002		<0.002	0.0024	<0.002	0.0069	0.0024	0.0039		<0.002	0.0023	<0.002
Cyanide												
Cyanide (Free)	0.005		<0.005				<0.005	<0.005		<0.005	<0.005	<0.005
Cyanide (Total)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
Cyanide (WAD)	0.005		<0.005				<0.005	<0.005		<0.005	<0.005	<0.005

Site ID	MDL	AJWW-D	AJWW-D	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S
Date/Time Sampled		**9/5/2008**	**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**
Dissolved Metals												
Aluminum (Dissolved)	0.001 to 0.1	<0.025	<0.002	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.003	<0.002	0.0012
Antimony (Dissolved)	0.0001 to 0.01	0.0157	0.0171	0.0209	0.0187	0.0207	0.0225	0.0183	0.0186	0.0184	0.0196	0.0194
Arsenic (Dissolved)	0.0001 to 0.01	0.0193	0.0178	0.0727	0.0614	0.0657	0.0763	0.0599	0.0613	0.0549	0.0547	0.0561
Barium (Dissolved)	0.00005 to 0.04	<0.02	0.0137	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0158	0.0174	0.0196
Beryllium (Dissolved)	0.0001 to 0.02	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001
Bismuth (Dissolved)	0.0005 to 0.001		<0.001							<0.0005	<0.001	<0.0005
Boron (Dissolved)	0.01 to 0.2	<0.1	0.066	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.108	0.095	0.088
Cadmium (Dissolved)	0.000085 to 0.005	0.000914	<0.00008	0.000342	<0.003	<0.001	<0.0006	0.000467	0.00048	<0.0004	<0.002	<0.00053
Calcium (Dissolved)	0.05 to 0.2	225	255	152	162	153	150	153	170	160	169	171
Chromium (Dissolved)	0.0001 to 0.02	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001
Cobalt (Dissolved)	0.0001 to 0.006	<0.0015	0.00089	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.00122	0.00115	0.00116
Copper (Dissolved)	0.0002 to 0.04	0.0265	0.0384	0.0213	0.0172	0.0163	0.0276	0.0193	0.0169	0.0197	0.0177	0.0178
Iron (Dissolved)	0.01 to 0.06	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01
Lead (Dissolved)	0.00005 to 0.01	<0.0025	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.00005	<0.0001	<0.00005
Lithium (Dissolved)	0.0005 to 0.1	0.045	0.0505	0.04	0.045	0.041	0.054	0.039	0.04	0.0426	0.04	0.038
Magnesium (Dissolved)	0.1 to 0.2	279	314	192	205	181	191	193	211	205	212	223
Manganese (Dissolved)	0.00005 to 0.006	0.0278	0.00317	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.000648	0.0008	0.00116
Mercury (Dissolved)	0.00001 to 0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001
Molybdenum (Dissolved)	0.00005 to 0.02	3.37	4.84	2.21	2.03	2.26	2.47	1.93	1.99	2.16	2.33	2.17
Nickel (Dissolved)	0.0005 to 0.02	0.0135	0.0149	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	0.00344	0.0038	0.00324
Phosphorus (Metal) Dissolved	0.05 to 0.3		<0.05							<0.3	<0.3	<0.05
Potassium (Dissolved)	0.1 to 4.0	25.1	31.9	19.1	17.5	19	17.6	19.7	21.6	19.3	20.1	21.8
Selenium (Dissolved)	0.0001 to 0.02	0.0321	0.0522	0.0165	0.0165	0.0177	0.0221	0.0159	0.0153	0.0174	0.0163	0.0178
Silicon (Dissolved)	0.05		7.19							8.05	8.86	8.6
Silver (Dissolved)	0.00001 to 0.0004	<0.0001	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00002	<0.00001
Sodium (Dissolved)	0.1 to 4.0	183	214	198	192	191	190	200	211	211	199	206
Strontium (Dissolved)	0.0001 to 0.0004		4.46							2.65	2.83	2.67
Sulphur (Dissolved)	0.0005		616									0.483
Thallium (Dissolved)	0.00001 to 0.004	<0.001	<0.00002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00001	<0.00002	<0.00001
Tin (Dissolved)	0.0001 to 0.01	<0.0025	<0.0002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0002	<0.0001
Titanium (Dissolved)	0.01 to 0.02	0.012	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01
Uranium (Dissolved)	0.00001 to 0.004	0.0109	0.0109	0.0097	0.0104	0.0101	0.0121	0.0099	0.0098	0.00962	0.0105	0.00979
Vanadium (Dissolved)	0.001 to 0.06	0.005	0.0046	<0.03	<0.03	<0.03	0.0109	0.01	0.0089	0.0076	0.008	0.008
Zinc (Dissolved)	0.001 to 0.1	<0.005	<0.002	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.003	0.0048	<0.001
Total Metals												
Aluminum (Total)	0.003 to 0.1	<0.025	0.0088	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.007	<0.006	0.0033
Antimony (Total)	0.0001 to 0.01	0.0156	0.017	0.0204	0.0193	0.0208	0.0173	0.0179	0.0187	0.0184	0.0205	0.0198
Arsenic (Total)	0.0001 to 0.01	0.0196	0.0177	0.0715	0.0628	0.0654	0.0597	0.0588	0.0608	0.0545	0.0517	0.0567
Barium (Total)	0.00005 to 0.04	<0.02	0.0136	<0.02	<0.02	<0.02	<0.02	<0.02	0.021	0.016	0.0173	0.0199
Beryllium (Total)	0.0001 to 0.02	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001
Bismuth (Total)	0.0005 to 0.001		<0.001							<0.0005	<0.001	<0.0005
Boron (Total)	0.01 to 0.2	<0.1	0.071	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.117	0.086	0.094
Cadmium (Total)	0.000085 to 0.005	0.000887	<0.00008	0.000135	<0.003	<0.001	<0.0005	0.000449	0.000439	<0.0004	<0.0005	<0.00056
Calcium (Total)	0.05 to 0.2	222	245	158	160	151	148	153	175	163	163	171
Chromium (Total)	0.0001 to 0.02	<0.005	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00012	<0.0002	<0.0001
Cobalt (Total)	0.0001 to 0.006	<0.0015	0.00093	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.00131	0.00111	0.00122
Copper (Total)	0.0005 to 0.04	0.0274	0.0438	0.0218	0.0187	0.0173	0.0221	0.02	0.0172	0.0206	0.0178	0.0186
Iron (Total)	0.01 to 0.06	<0.03	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01

Site ID	MDL	AJWW-D	AJWW-D	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S
Date/Time Sampled		**9/5/2008**	**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**
Lead (Total)	0.00005 to 0.01	<0.0025	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.00005	<0.0001	<0.00005
Lithium (Total)	0.0005 to 0.1	0.046	0.0516	0.04	0.048	0.042	0.04	0.038	0.04	0.0433	0.043	0.0396
Magnesium (Total)	0.1 to 0.2	277	310	201	202	179	193	195	222	212	206	225
Manganese (Total)	0.00005 to 0.006	0.0278	0.00326	<0.0015	<0.0015	0.0016	<0.0015	<0.0015	<0.0015	0.000913	0.00076	0.00136
Mercury (Total)	0.00001 to 0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001
Molybdenum (Total)	0.00005 to 0.02	3.4	4.97	2.18	2.08	2.27	1.89	1.88	1.96	2.21	2.51	2.33
Nickel (Total)	0.0005 to 0.02	0.0135	0.0153	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00358	0.0036	0.00332
Phosphorus (Metal) Total	0.05 to 0.3		<0.05							<0.3	<0.3	<0.05
Potassium (Total)	0.1 to 4.0	24.3	30.3	19.1	17.3	18.7	17.8	19.8	23.9	19.5	18.6	21.9
Selenium (Total)	0.0001 to 0.02	0.031	0.05	0.0168	0.0167	0.0168	0.0165	0.0154	0.0154	0.0168	0.0149	0.018
Silicon (Total)	0.05		7.08							8.3	8.67	8.75
Silver (Total)	0.00001 to 0.0004	<0.0001	<0.00002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00002	<0.00001
Sodium (Total)	0.1 to 4.0	183	217	197	193	187	192	202	229	211	192	211
Strontium (Total)	0.0001 to 0.0004		4.49							2.68	3.1	2.86
Sulphur (Total)	0.5		624									501
Thallium (Total)	0.00001 to 0.004	<0.001	<0.00002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00001	<0.00002	<0.00001
Tin (Total)	0.0001 to 0.01	<0.0025	<0.0002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0002	<0.0001
Titanium (Total)	0.01 to 0.02	0.011	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01
Uranium (Total)	0.00001 to 0.004	0.0111	0.0111	0.0094	0.0101	0.0102	0.0094	0.0097	0.0097	0.00983	0.011	0.0102
Vanadium (Total)	0.001 to 0.06	0.0051	0.0048	<0.03	<0.03	<0.03	0.0085	0.0101	0.0088	0.0079	0.008	0.0083
Zinc (Total)	0.003 to 0.1	<0.005	<0.006	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.003	<0.006	<0.003
Organics												
Carbon Organic (Dissolved)	0.5	2.4	1.45	1.57	1.57	1.48	1.88	2.08	1.47	1.1	1.31	1.73
Carbon Organic (Total)	0.5		1.57							1.14	1.16	1.67
Nitrogen Organic (Dissolved)	4.5 to 6.3									5.1	10.3	<4.5
Nitrogen Organic (Total)	0.06 to 0.5									<0.06	<0.06	<0.06

Notes:
(a) Units are mg/L/ unless otherwise stated
(b) Detection limit values displayed with less than symbol (<); statistics calculated using the detection limit value.

Site ID	MDL	AJWE-S	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D
Date/Time Sampled		**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**	**5/1/2014**
In Situ Parameters												
Conductivity (In Situ) µS/cm	...	13	1871	1989	2037	1715	1820	1906	1837	2000	1939	13
Oxygen Dissolved (In Situ %)	...	90.4				79.9	66.3	77.8	85.8	93.8	125	90.1
Oxygen Dissolved (In Situ)%	...	10.3	11.2	11.5	9.29	10.2	7.94	8.85	10.7	10.9	14.4	10.3
pH (In Situ) pH	...	8.01	8.01	8.05	8.25	8.19	8.19	8.11	8.51	8.38	8.37	8.01
Redox Potential (In Situ) mV	...	82.2		-75.8			-107		247	237	130	82.2
Salinity (In Situ) ppt	...	0.01		1.43					1.52		1.45	0.01
Specific Conductivity (In Situ) µS/cm	...	18	2669	2748	2771	2798	2763	2720	2927	2929	2779	18
Temperature (In Situ) °C	...	9.81	9.34	10.4	11.2	4.73	7.13	9.35	5.5	8.38	9.18	9.81
Total Dissolved Solids (In Situ) ppt	...	12		1788					1903		1806	12
Turbidity (In Situ) NTU	...	-2.4							0.1		0.2	-2.4
Physical Tests												
Acidity to pH 8.3 (as CaCO3)	1	151				3.1					<1	166
Alkalinity (Total as CaCO3)	1.0 to 2.0		168	165	167	177	161	152	163	163	150	
Bicarbonate Alkalinity	1.0 to 2.0	151				177			163	163	150	166
Carbonate Alkalinity	1.0 to 2.0	<2				<2			<2	<2	<1	<2
Color TCU	5			<5	<5	<5	<5	<5	<5	<5	<5	
Conductivity µS/cm	2		2620	2740	2720	2780	2730	2750	2850	2740	2790	
Hardness as CaCO3 (Dissolved)	0.5 to 1.0	1060	1280	1290	1160	1240	1190	1230	1380	1330	1340	1360
Hydroxide Alkalinity	1.0 to 2.0	<2				<2			<2	<2	<1	<2
pH pH	0.01 to 0.1	8.24	8.21	8.21	8.27	8.16	8.32	8.31	8.29	8.3	8.32	8.22
Specific Conductivity µS/cm		2240										2800
Total Dissolved Solids	10 to 40	1910	2240	2270	2260	2250	2270	2270	2510	2650	2440	2600
Total Suspended Solids	3	<3	<3	<3	<3	<3	<3	<3	<3	4	<3	5.2
Turbidity NTU	0.1	0.45				0.23	0.19	0.14	0.18	0.36	1.29	0.45
Dissolved Anions												
Bromide (Dissolved)	0.1 to 5.0	<1	<0.25	<5	<0.5	<2.5	<0.05	<2.5	<1	<1	<1	<1
Chloride (Dissolved)	0.5 to 50	20	26.6	<50	25.3	<25	24.1	34	30	31	30	31
Fluoride (Dissolved)	0.0 to 1.0	<0.4	0.37		0.22	1.2	0.144	<1	<0.4	<0.4	<0.4	<0.4
Sulphate (Dissolved)	2.5 to 50	1200	1390	1350	1400	1360	1410	1480	1590	1600	1560	1600
Sulphite (Dissolved)	5						<5					
Nutrients												
Ammonia (Total)	0.005 to 0.02	<0.005	0.027	0.041	0.0073	<0.02	<0.02	<0.02	<0.005	<0.005	0.0051	<0.005
Nitrate (as N)	0.005 to 0.5	13.7	24.4	24	23.8	22.5	20.8	22.7	22	20.6	21.1	18.8
Nitrite (as N)	0.001 to 0.1	0.116	0.0128	0.16	0.022	0.091	0.0079	0.134	0.029	0.025	0.046	0.031
Nitrogen (Dissolved)	0.1								28.5	31.4	23.9	
Nitrogen (Total)	0.013 to 0.51								22.2	20.8	21.2	
Nitrogen Kjeldahl (Total)	0.05 to 0.5	<0.05	<0.05	0.258	0.209	0.176	0.17	0.222	0.177	0.126	<0.5	<0.05
Orthophosphate (Dissolved)	0.001	0.0017	<0.001	<0.001	0.0027	0.0025	0.0014				0.0019	0.0021
Phosphorus (Nutrient) Dissolved	0.002	<0.002							<0.002	0.0034	<0.002	<0.002
Phosphorus (Nutrient) Total	0.002	<0.002	0.003	0.0032	0.0043	<0.002	0.0022		0.0021	0.0029	<0.002	0.0102
Cyanide												
Cyanide (Free)	0.005	<0.005				<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
Cyanide (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005	<0.005				<0.005	<0.005		<0.005	<0.005	<0.005	<0.005

Site ID	MDL	AJWE-S	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D
Date/Time Sampled		**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**	**5/1/2014**
Dissolved Metals												
Aluminum (Dissolved)	0.001 to 0.1	0.001	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.006	<0.002	0.0021	0.0012
Antimony (Dissolved)	0.0001 to 0.01	0.0135	0.0225	0.0247	0.0237	0.0209	0.0206	0.021	0.0211	0.0222	0.02	0.0194
Arsenic (Dissolved)	0.0001 to 0.01	0.0381	0.0793	0.0829	0.0757	0.0714	0.0691	0.0725	0.0633	0.0612	0.0572	0.0533
Barium (Dissolved)	0.00005 to 0.04	0.0149	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0167	0.0162	0.0201	0.0185
Beryllium (Dissolved)	0.0001 to 0.02	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001
Bismuth (Dissolved)	0.0005 to 0.001	<0.0005							<0.001	<0.001	<0.0005	<0.0005
Boron (Dissolved)	0.01 to 0.2	0.076	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.114	0.097	0.091	0.098
Cadmium (Dissolved)	0.000085 to 0.005	<0.00004	0.00111	<0.003	<0.001	0.000479	0.000355	0.00059	<0.0004	<0.0022	<0.00055	<0.00006
Calcium (Dissolved)	0.05 to 0.2	140	164	169	154	157	157	160	175	174	172	177
Chromium (Dissolved)	0.0001 to 0.02	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001
Cobalt (Dissolved)	0.0001 to 0.006	0.00097	<0.0015	0.0017	0.0016	<0.0015	<0.0015	0.0017	0.00162	0.00191	0.00119	0.00124
Copper (Dissolved)	0.0002 to 0.04	0.0206	0.0292	0.0414	0.0365	<0.03	0.0296	0.0364	0.0249	0.03	0.0175	0.0203
Iron (Dissolved)	0.01 to 0.06	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01
Lead (Dissolved)	0.00005 to 0.01	<0.00005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0001	<0.00005	<0.00005
Lithium (Dissolved)	0.0005 to 0.1	0.0313	0.045	0.053	0.042	0.052	0.042	0.04	0.0462	0.0412	0.0397	0.0439
Magnesium (Dissolved)	0.1 to 0.2	173	212	212	188	207	194	203	229	218	222	222
Manganese (Dissolved)	0.00005 to 0.006	0.000841	0.0019	0.0018	0.002	<0.0015	<0.0015	<0.0015	0.00105	0.00136	0.00118	0.000689
Mercury (Dissolved)	0.00001 to 0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001
Molybdenum (Dissolved)	0.00005 to 0.02	1.98	2.25	2.24	2.17	2.18	1.95	1.99	2.35	2.34	2.19	2.67
Nickel (Dissolved)	0.0005 to 0.02	0.00345	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0036	0.0039	0.00334	0.00415
Phosphorus (Metal) Dissolved	0.05 to 0.3	<0.05							<0.3	<0.3	<0.05	<0.05
Potassium (Dissolved)	0.1 to 4.0	17.3	20.1	17.8	19.9	19.2	19.7	18.2	21.3	20.4	21.9	21.6
Selenium (Dissolved)	0.0001 to 0.02	0.0158	0.0175	0.017	0.0164	0.0189	0.0155	0.0156	0.0195	0.0162	0.0182	0.0205
Silicon (Dissolved)	0.05	7.22							8.77	9.01	8.65	8.64
Silver (Dissolved)	0.00001 to 0.0004	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00002	<0.00002	<0.00001	<0.00001
Sodium (Dissolved)	0.1 to 4.0	164	210	212	206	208	207	188	235	206	205	218
Strontium (Dissolved)	0.0001 to 0.0004	2.52							2.87	2.89	2.77	3.34
Sulphur (Dissolved)	0.0005	379									0.488	496
Thallium (Dissolved)	0.00001 to 0.004	<0.00001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002	<0.00002	0.000016	<0.00001
Tin (Dissolved)	0.0001 to 0.01	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0002	<0.0002	<0.0001	<0.0001
Titanium (Dissolved)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01
Uranium (Dissolved)	0.00001 to 0.004	0.00784	0.0102	0.0107	0.0095	0.0103	0.0098	0.0094	0.0105	0.0109	0.00979	0.00988
Vanadium (Dissolved)	0.001 to 0.06	0.008	<0.03	<0.03	<0.03	0.0086	0.0081	0.0069	0.008	0.007	0.008	0.0078
Zinc (Dissolved)	0.001 to 0.1	<0.001	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.006	0.0025	<0.001	0.0015
Total Metals												
Aluminum (Total)	0.003 to 0.1	0.0089	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0097	0.0063	0.0699	0.0076
Antimony (Total)	0.0001 to 0.01	0.0134	0.0217	0.0241	0.0234	0.0206	0.021	0.0199	0.0215	0.0223	0.02	0.0191
Arsenic (Total)	0.0001 to 0.01	0.0363	0.0745	0.0811	0.0758	0.0702	0.0726	0.0693	0.064	0.0641	0.0572	0.0518
Barium (Total)	0.00005 to 0.04	0.0145	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0172	0.0171	0.0205	0.0184
Beryllium (Total)	0.0001 to 0.02	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001
Bismuth (Total)	0.0005 to 0.001	<0.0005							<0.001	<0.001	<0.0005	<0.0005
Boron (Total)	0.01 to 0.2	0.08	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	0.105	0.095	0.104
Cadmium (Total)	0.000085 to 0.005	<0.00004	0.000645	<0.003	<0.001	0.000472	0.000614	0.000493	<0.0004	<0.0022	<0.00057	<0.00006
Calcium (Total)	0.05 to 0.2	135	157	170	155	157	155	161	182	175	169	173
Chromium (Total)	0.0001 to 0.02	0.00011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	0.00046	0.00013
Cobalt (Total)	0.0001 to 0.006	0.00098	<0.0015	0.0016	0.0017	<0.0015	<0.0015	0.0015	0.00168	0.00198	0.00134	0.00129
Copper (Total)	0.0005 to 0.04	0.0216	0.0311	0.0407	0.0372	<0.03	0.0313	0.0349	0.0262	0.0327	0.023	0.0221
Iron (Total)	0.01 to 0.06	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	0.087	<0.01

Site ID	MDL	AJWE-S	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D
Date/Time Sampled		**5/1/2014**	**5/3/2007**	**7/17/2007**	**9/18/2007**	**4/29/2008**	**7/7/2008**	**9/6/2008**	**5/9/2012**	**7/11/2012**	**11/6/2012**	**5/1/2014**
Lead (Total)	0.00005 to 0.01	<0.00005	0.0027	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0001	0.000057	<0.00005
Lithium (Total)	0.0005 to 0.1	0.0314	0.041	0.049	0.041	0.049	0.04	0.041	0.0486	0.0419	0.0398	0.0441
Magnesium (Total)	0.1 to 0.2	169	201	215	188	207	195	191	239	222	224	217
Manganese (Total)	0.00005 to 0.006	0.00099	0.0024	0.0018	0.002	<0.0015	<0.0015	<0.0015	0.00122	0.00147	0.00304	0.000896
Mercury (Total)	0.00001 to 0.00002	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001
Molybdenum (Total)	0.00005 to 0.02	2	2.16	2.2	2.14	2.11	2.01	1.89	2.48	2.45	2.32	2.73
Nickel (Total)	0.0005 to 0.02	0.00347	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0037	0.0039	0.00386	0.0038
Phosphorus (Metal) Total	0.05 to 0.3	<0.05							<0.3	<0.3	<0.05	<0.05
Potassium (Total)	0.1 to 4.0	16.6	19.5	17.8	20	18.6	19.3	18.3	21.9	21.2	21.8	21.1
Selenium (Total)	0.0001 to 0.02	0.0147	0.0162	0.0165	0.016	0.0178	0.0176	0.0153	0.02	0.0172	0.0183	0.0191
Silicon (Total)	0.05	7.15							9.28	9.19	8.88	8.72
Silver (Total)	0.00001 to 0.0004	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00002	<0.00002	<0.00001	<0.00001
Sodium (Total)	0.1 to 4.0	165	205	215	205	202	201	189	244	213	213	216
Strontium (Total)	0.0001 to 0.0004	2.49							3.03	3	2.89	3.36
Sulphur (Total)	0.5	385									497	499
Thallium (Total)	0.00001 to 0.004	<0.00001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002	<0.00002	0.000011	<0.00001
Tin (Total)	0.0001 to 0.01	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0002	<0.0002	<0.0001	<0.0001
Titanium (Total)	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Uranium (Total)	0.00001 to 0.004	0.00785	0.0098	0.0105	0.0095	0.0101	0.01	0.0092	0.0111	0.011	0.0103	0.0102
Vanadium (Total)	0.001 to 0.06	0.0081	<0.03	<0.03	<0.03	0.0084	0.0085	0.0066	0.0083	0.0079	0.0087	0.008
Zinc (Total)	0.003 to 0.1	<0.003	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.006	<0.006	<0.003	<0.003
Organics												
Carbon Organic (Dissolved)	0.5	1.31	1.74	1.71	1.58	1.55	1.46	1.1	1.49	1.2	1.29	0.92
Carbon Organic (Total)	0.5	1.5							1.4	1.15	1.16	0.99
Nitrogen Organic (Dissolved)	4.5 to 6.3								6.5	10.8	<4.8	
Nitrogen Organic (Total)	0.06 to 0.5								0.177	0.126	<0.5	

Notes:
(a) Units are mg/L/ unless otherwise stated
(b) Detection limit values displayed with less than symbol (<); statistics calculated using the detection limit value.

Site ID	MDL	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-02	MW12-02
Date/Time Sampled		**2-Dec-12**	**10-Mar-13**	**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**2-Dec-12**	**10-Mar-13**
In Situ Parameters											
Conductivity (In Situ) mS/cm	...		2229	2558	2855	3330	3431	2379	2406		2122
Depth to Bottom (below ground surface) m	...				39.1						
Depth to Bottom (below top of PVC) m	...		39								17.7
Depth to Water (below top of PVC) m	...		12.3		11.5						12.5
Measured Stick-up m	...		0.7		0.79						0.772
Oxygen Dissolved (In Situ %) %	...		1.5	2	29.3	2.9	79.9	12	6.1		11.2
Oxygen Dissolved (In Situ)	...	1.8	0.21	0.22	3.24	0.34	9.15	1.35	0.68	3.56	1.25
pH (In Situ)	...	7.25	7.22	7.38	7.48	7.49	7.64	7.47	7.49	7.36	7.29
Redox Potential (In Situ) mV	...	130	191	224	236	38.2	71.4	99.3	101	167	165
Salinity (In Situ) ppt	...		1.71	1.95	2.11	1.75	1.81	1.78	1.78		1.62
Specific Conductivity (In Situ) µS/cm	...	3229	3265	3695	3976	2270	2343	3385	3376	3156	3090
Temperature (In Situ) °C	...	8.5	8.4	8.9	10.3	8.22	8.42	9.44	9.96	7.36	8.54
Total Dissolved Solids (In Situ)	...		2121	2403	2582	2166	2230	2201	2196		2011
Turbidity (In Situ) NTU	...		-1.8	0	1.5	-2.2	1.9	2	1.6		-3.9
Physical Tests											
Acidity to pH 8.3 (as CaCO3)	1				<1						
Alkalinity (Total as CaCO3)	2	175	178	173	177	189	183	185		171	171
Bicarbonate Alkalinity	2		178	173	177	189	183	185			171
Carbonate Alkalinity	2		<2	<2	<2	<2	<2	<2			<2
Color TCU	5		<5	<5	<5						<5
Conductivity µS/cm	2	3190	3340		3260	3290		1860		3120	3290
Hardness as CaCO3 (Dissolved)	0.5	1760	1620	1810	1830	1870	1950	<2		1730	1740
Hydroxide Alkalinity	2		<2	<2	<2	<2	<2	8.1			<2
pH (unitless)	0.1	8.05	7.98	7.98	8.06	7.88	8.07			8.1	8.05
Specific Conductivity µS/cm	2			3280			3350	3440			
Total Dissolved Solids	10 to 30	3160	3070	3350	3270	3200	3290	3420		3390	1470
Total Suspended Solids	3	<3	<3	8.7	7.3			7.3		<3	<3
Turbidity NTU	0.1	0.46	0.43	0.19	0.19			0.5		0.72	0.78
Dissolved Anions											
Bromide (Dissolved)	0.5 to 1.0	<1	<1	<1	<1	<1	<1	<1		<1	<1
Chloride (Dissolved)	5.0 to 10.0	18	17	19	17	20	17	19		15	15
Fluoride (Dissolved)	0.2 to 0.4	<0.4	0.47	<0.4	0.46	<0.4	<0.4	0.189		<0.4	0.49
Hydrogen Sulphide	0.002	<0.002								<0.002	
Sulphate (Dissolved)	5.0 to 10.0	1670	1660	1700	1720	1730	1790	1790		1650	1710
Nutrients											
Ammonia (Total)	0.005	<0.005	0.0213	0.0058	<0.005	<0.005	<0.005	<0.005		0.0055	0.0203
Nitrate (as N)	0.05 to 0.1	88.2	80.6	88.4	89.4	88.5	90.3	88		76.3	69.6
Nitrite (as N)	0.01 to 0.02	0.334	0.429	0.318	0.204	0.163	0.194	0.097		0.527	0.426
Nitrogen (Dissolved)	0.1 to 5.0		85.9								73.5
Nitrogen (Total)	0.1 to 5.0	88.5	110	83.5	83.5					76.8	70.1
Nitrogen Kjeldahl (Total)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Orthophosphate (Dissolved)	0.001 to 0.01	0.0037				0.0154	0.0165	0.0183		0.0079	
Phosphorus (Nutrient) Dissolved	0.002 to 0.02		0.0153	0.0183	0.0192	0.0194	0.0186	0.0191			0.019
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0047	0.0153	0.0184	0.0182	0.0193	0.0185	0.0202		0.0075	0.0212
Cyanide											
Cyanide (Free)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005

Site ID	MDL	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-02	MW12-02
Date/Time Sampled		**2-Dec-12**	**10-Mar-13**	**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**2-Dec-12**	**10-Mar-13**
Cyanide (Total)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005
Cyanide (WAD)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005
Dissolved Metals											
Aluminum	0.001 to 0.002	0.0022	0.0042	0.0031	0.0021	0.0023	0.0031	0.0041		<0.002	0.0017
Antimony	0.0001 to 0.0002	0.00398	0.00372	0.00412	0.00353	0.00372	0.00371	0.00396		0.0169	0.0108
Arsenic	0.0001 to 0.0002	0.00578	0.0043	0.00521	0.00503	0.00488	0.00472	0.00525		0.0229	0.0104
Barium	0.00005 to 0.0001	0.0315	0.0487	0.0404	0.0347	0.0364	0.0326	0.0297		0.0212	0.0334
Beryllium	0.0001 to 0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.0002	<0.0001
Bismuth	0.0005 to 0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		<0.001	<0.0005
Boron	0.01 to 0.02	0.115	0.098	0.109	0.101	0.12	0.115	0.105		0.117	0.094
Cadmium	0.00001 to 0.0015	<0.0007	<0.001	0.000712	<0.0008	<0.0015	<0.0012	<0.001		<0.00068	<0.001
Dissolved Cadmium (by saltwater extraction)	0.00002 to 0.00015						<0.00015	<0.00015			
Calcium	0.05	245	243	238	242	240	258	254		233	235
Chromium	0.0001 to 0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.0002	<0.0001
Cobalt	0.0001 to 0.0002	0.00192	0.00122	0.00092	0.00088	0.00081	0.00074	0.00073		0.00275	0.00187
Copper	0.0002 to 0.0004	0.00712	0.003	0.00311	0.00335	0.00301	0.00271	0.00312		0.0173	0.00744
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Lead	0.00005 to 0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001		<0.0001	<0.00005
Lithium	0.0005 to 0.001	0.0296	0.0328	0.0294	0.0282	0.033	0.0331	0.028		0.0301	0.0341
Magnesium	0.1	279	247	295	296	310	317	298		278	279
Manganese	0.00005 to 0.0001	0.0875	0.0879	0.068	0.0598	0.0545	0.0529	0.0458		0.11	0.121
Mercury	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		0.000022	<0.00001
Molybdenum	0.00005 to 0.0001	3.42	3.37	3.26	3.1	3.41	3.59	3.62		3.33	3.33
Nickel	0.0005 to 0.001	0.0148	0.01	0.00999	0.0124	0.0128	0.0123	0.0142		0.0282	0.0265
Phosphorus (Metal)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Potassium	0.1	41.7	41.2	41.3	44.1	49.5	46.8	45.8		38.1	44.8
Selenium	0.0001 to 0.0002	0.0405	0.0425	0.0423	0.0414	0.0437	0.044	0.0463		0.04	0.0396
Silicon	0.05	7.35	6.93	6.92	7.23	7.36	7.33	7.19		7.29	6.97
Silver	0.00001 to 0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002		<0.00002	<0.00001
Sodium	0.05 to 0.1	151	147	145	144	150	151	132		153	160
Strontium	0.0002 to 0.0004	3.51	3.58	3.35	3.01	3.4	3.44	3.51		3.65	3.46
Sulphur	0.5	541	448	532	538	553	553	561		539	510
Thallium	0.00001 to 0.00002	<0.00002	0.000019	0.000015	0.000017	0.000012	0.000012	<0.00002		0.000042	0.000037
Tin	0.0001 to 0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.0002	0.00012
Titanium	0.01 to 0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		<0.02	<0.01
Uranium	0.00001 to 0.00002	0.0146	0.0141	0.0138	0.0138	0.0142	0.0145	0.0153		0.0117	0.0109
Vanadium	0.001 to 0.002	0.004	0.0026	0.0031	0.003	0.0028	0.0027	0.0029		0.0039	0.0018
Zinc	0.001 to 0.002	<0.002	0.0024	0.0022	0.0024	0.0027	0.0038	<0.002		<0.002	0.001
Total Metals											
Aluminum	0.003 to 0.006	0.0154	0.0084	0.0072	0.0036	0.0045	0.0056	0.0168		0.0264	0.0294
Antimony	0.0001 to 0.0002	0.00401	0.00392	0.00434	0.00354	0.00389	0.00377	0.00412		0.0163	0.0107
Arsenic	0.0001 to 0.0002	0.00586	0.00434	0.0053	0.00494	0.00506	0.00486	0.00531		0.0226	0.0102
Barium	0.00005 to 0.0001	0.0312	0.0497	0.0422	0.0365	0.0359	0.0314	0.0284		0.0221	0.0328
Beryllium	0.0001 to 0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.0002	<0.0001
Bismuth	0.0005 to 0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		<0.001	<0.0005
Boron	0.01 to 0.02	0.117	0.104	0.124	0.108	0.132	0.127	0.112		0.11	0.094
Cadmium	0.00003 to 0.0016	<0.0007	<0.001	<0.0009	<0.0008	0.0016	<0.0012	<0.001		<0.00068	<0.001

Site ID	MDL	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-02	MW12-02
Date/Time Sampled		**2-Dec-12**	**10-Mar-13**	**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**2-Dec-12**	**10-Mar-13**
Total Cadmium (by saltwater extraction)	0.00002 to 0.00015						<0.00015	<0.00015			
Calcium	0.05	240	247	236	242	234	254	242		225	222
Chromium	0.0001 to 0.0002	<0.0002	0.00016	<0.0002	0.00023	0.00012	<0.0002	0.00024		0.00037	0.00035
Cobalt	0.0001 to 0.0002	0.0019	0.0013	0.00101	0.00093	0.00084	0.00081	0.00091		0.00283	0.002
Copper	0.0005 to 0.001	0.0094	0.00371	0.00486	0.0035	0.00346	0.00309	0.004		0.0205	0.00945
Iron	0.01	0.028	0.045	0.029	0.016	0.014	0.033	0.102		0.036	0.043
Lead	0.00005 to 0.00015	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00015	0.00034		<0.0001	<0.00005
Lithium	0.0005 to 0.001	0.0299	0.0352	0.0336	0.0279	0.0341	0.0338	0.0287		0.0277	0.0343
Magnesium	0.1	275	255	300	298	308	314	297		270	275
Manganese	0.00005 to 0.0001	0.0871	0.0934	0.0751	0.0606	0.0563	0.0539	0.0499		0.111	0.123
Mercury	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		0.000056	<0.00001
Molybdenum	0.00005 to 0.0001	3.36	3.62	3.54	3.13	3.64	3.57	3.71		3.12	3.26
Nickel	0.0005 to 0.001	0.0148	0.0105	0.0114	0.0122	0.0131	0.0129	0.0139		0.0293	0.0283
Phosphorus (Metal)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05
Potassium	0.1	40.7	40.7	42.3	43.5	50.3	45.7	44.1		36.4	42.5
Selenium	0.0001 to 0.0002	0.0395	0.0437	0.0447	0.0413	0.0443	0.0431	0.0454		0.0388	0.038
Silicon	0.05	7.33	7.13	6.99	7.25	7.39	7.31	7.13		7.16	6.9
Silver	0.00001 to 0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002		<0.00002	<0.00001
Sodium	0.05 to 0.1	146	153	152	144	154	145	131		154	162
Strontium	0.0002 to 0.0004	3.46	3.71	3.62	2.98	3.57	3.41	3.62		3.36	3.49
Sulphur	0.5	543	473	540	552	564	561	563		533	518
Thallium	0.00001 to 0.00002	0.00002	0.000019	0.000023	0.000021	0.000014	0.000015	<0.00002		0.000039	0.000036
Tin	0.0001 to 0.0002	<0.0002	0.00026	0.00019	0.00018	0.00011	0.00046	0.00148		<0.0002	0.00017
Titanium	0.01 to 0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		<0.02	<0.01
Uranium	0.00001 to 0.00002	0.0142	0.0148	0.0146	0.0141	0.0153	0.0148	0.016		0.0112	0.0106
Vanadium	0.001 to 0.002	0.004	0.0027	0.0033	0.0033	0.0032	0.003	0.0032		0.0041	0.0019
Zinc	0.003 to 0.006	<0.006	0.0035	<0.003	0.0032	0.0031	<0.003	<0.006		<0.006	0.0039
Organics											
Carbon Organic (Dissolved)	0.5	2.69	2.72	2.51	2.72	2.59				2.49	2.71
Carbon Organic (Total)	0.5	2.69	2.45	2.42	2.82	2.41	2.34	2.25		2.44	2.5

Site ID	MDL	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP
Date/Time Sampled		**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**3/28/2011**	**4/10/2012**	**4/25/2012**	**5/24/2012**
In Situ Parameters											
Conductivity (In Situ) mS/cm	...	2540	3924	3250	3401	2469	2435	1674	1113	1480	1930
Depth to Bottom (below ground surface) m	...		17.8								
Depth to Bottom (below top of PVC) m	...										
Depth to Water (below top of PVC) m	...		11.7								
Measured Stick-up m	...		0.877								
Oxygen Dissolved (In Situ %) %	...	28.3	35.8	2.4	24.1	17.1	2	13.9	95.3	39	76.2
Oxygen Dissolved (In Situ)	...	3.29	4.09	0.27	2.84	1.85	0.22	1.56	10.1	3.86	7.75
pH (In Situ)	...	7.33	7.59	7.53	7.79	7.56	7.58	7.26	8.38	7.6	8.24
Redox Potential (In Situ) mV	...	171	221	63.7	30.4	119	87.8	8	84.7	116	114
Salinity (In Situ) ppt	...	1.92	2.08	1.7	1.79	1.76	1.76		0.74	0.92	1.26
Specific Conductivity (In Situ) µS/cm	...	3640	3924	2180	2281	3340	3343	2363	1460	1804	2420
Temperature (In Situ) °C	...	9.17	9.56	7.94	7.76	11.4	10.8	9.73	12.6	15.6	14.3
Total Dissolved Solids (In Situ)	...	2366	2550	2100	2212	2172	2171	1540	949	1173	1579
Turbidity (In Situ) NTU	...	0	2.5	-1.9	2.1	2.7	2			1.9	2.8
Physical Tests											
Acidity to pH 8.3 (as CaCO3)	1		4.7								
Alkalinity (Total as CaCO3)	2	176	174	186	169	188			206	247	386
Bicarbonate Alkalinity	2	176	174	186	169	188			199	247	366
Carbonate Alkalinity	2	<2	<2	<2	<2	<2			7.7	<2	20.4
Color TCU	5	<5	<5					566	29.3	32.4	30.1
Conductivity µS/cm	2		3240	3260		1810		2380	1460	1760	2380
Hardness as CaCO3 (Dissolved)	0.5	1780	1800	1830	1890	<2		522	715	900	1230
Hydroxide Alkalinity	2	<2	<2	<2	<2	8.13			<1	<2	<1
pH (unitless)	0.1	7.95	8.09	7.92	8.1			7.52	8.42	8.22	8.37
Specific Conductivity µS/cm	2	3260			3340	3360					
Total Dissolved Solids	10 to 30	2890	3240	3130	3190	3160		2100	1130	1460	2060
Total Suspended Solids	3	10	8.6			5.2		18.7	11.3	<3	<3
Turbidity NTU	0.1	0.28	0.74			0.78			3.15	1.87	3.48
Dissolved Anions											
Bromide (Dissolved)	0.5 to 1.0	<1	<1	<1	<1	<1			<0.5	<0.5	<1
Chloride (Dissolved)	5.0 to 10.0	17	15	19	15	16			9.9	13.1	17
Fluoride (Dissolved)	0.2 to 0.4	<0.4	<0.4	<0.4	<0.4	0.186			<0.2	<0.2	<0.4
Hydrogen Sulphide	0.002										
Sulphate (Dissolved)	5.0 to 10.0	1720	1740	1720	1800	1790			635	844	1200
Nutrients											
Ammonia (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005			0.0375	0.102	0.128
Nitrate (as N)	0.05 to 0.1	83.4	82.6	77.7	77.7	83.3			4.13	1.39	0.18
Nitrite (as N)	0.01 to 0.02	0.545	0.533	0.37	0.28	0.451			0.062	0.071	<0.02
Nitrogen (Dissolved)	0.1 to 5.0								5.13	2.72	1.8
Nitrogen (Total)	0.1 to 5.0	77.5	73.6						5.27	3.07	2
Nitrogen Kjeldahl (Total)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05			1.08	1.6	1.83
Orthophosphate (Dissolved)	0.001 to 0.01			0.018	0.0277	0.0269		2.47			
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.023	0.0185	0.0213	0.0321	0.0253			0.0187	0.0245	0.0336
Phosphorus (Nutrient) Total	0.002 to 0.02	0.0219	0.0206	0.0216	0.0317	0.0274		3.16	0.0472	0.0377	0.0489
Cyanide											
Cyanide (Free)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005

Site ID	MDL	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP
Date/Time Sampled		**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**3/28/2011**	**4/10/2012**	**4/25/2012**	**5/24/2012**
Cyanide (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.0215	0.0077	<0.005	<0.005
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
Dissolved Metals											
Aluminum	0.001 to 0.002	0.0015	0.0017	0.0016	0.002	0.0041		<0.01	<0.003	0.0031	0.0035
Antimony	0.0001 to 0.0002	0.0107	0.00953	0.00821	0.0075	0.0196		<0.001	0.00143	0.00147	0.00108
Arsenic	0.0001 to 0.0002	0.0139	0.0159	0.0138	0.011	0.0224		<0.001	0.00285	0.00369	0.00483
Barium	0.00005 to 0.0001	0.0304	0.023	0.026	0.0275	0.0217		0.053	0.0211	0.0256	0.0315
Beryllium	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.002	<0.0001	<0.0001	<0.0001
Bismuth	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		<0.2	<0.0005	<0.0005	<0.0005
Boron	0.01 to 0.02	0.116	0.102	0.12	0.116	0.114		0.17	0.155	0.214	0.35
Cadmium	0.00001 to 0.0015	<0.001	<0.0008	<0.0014	<0.0012	<0.001		<0.0005	<0.0003	<0.0011	<0.00038
Dissolved Cadmium (by saltwater extraction)	0.00002 to 0.00015				<0.00015	<0.00015					
Calcium	0.05	232	243	235	230	238		43.8	92.8	113	134
Chromium	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.002	<0.0001	<0.0001	<0.0001
Cobalt	0.0001 to 0.0002	0.00171	0.00179	0.00166	0.00098	0.00159		<0.0006	0.0001	0.00021	0.00045
Copper	0.0002 to 0.0004	0.00654	0.00851	0.00798	0.00331	0.00579		0.0086	0.0135	0.0189	0.0127
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		0.03	<0.03	0.035	0.162
Lead	0.00005 to 0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001		<0.001	<0.00005	<0.00005	<0.00005
Lithium	0.0005 to 0.001	0.0311	0.0288	0.0336	0.0343	0.0305		<0.01	0.00796	0.00975	0.0139
Magnesium	0.1	291	291	303	321	296		100	117	150	218
Manganese	0.00005 to 0.0001	0.109	0.101	0.1	0.0752	0.0845		0.923	0.00404	0.02	0.0337
Mercury	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	0.00005 to 0.0001	3.32	3.03	3.32	3.39	3.48		0.14	0.981	1.35	2.03
Nickel	0.0005 to 0.001	0.0224	0.0232	0.0214	0.0271	0.0235		0.0022	0.00202	0.00355	0.00696
Phosphorus (Metal)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05		2.12	<0.3	<0.3	<0.3
Potassium	0.1	39.4	37.9	42.4	56.9	44.2		86.3	24.9	31.1	41.6
Selenium	0.0001 to 0.0002	0.0395	0.0371	0.0401	0.0418	0.0414		<0.002	0.0272	0.0264	0.0149
Silicon	0.05	7.13	7.45	7.52	7.98	7.31		12.3	6.71	4.09	2.21
Silver	0.00001 to 0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002		<0.00004	<0.00001	<0.00001	<0.00001
Sodium	0.05 to 0.1	159	145	154	154	135		113	73.7	93.3	145
Strontium	0.0002 to 0.0004	3.63	3.28	3.61	3.47	3.69		0.877	1.19	1.48	2.02
Sulphur	0.5	529	531	553	562	550					
Thallium	0.00001 to 0.00002	0.000031	0.000025	0.000025	0.00003	0.000021		<0.0004	<0.00001	<0.00001	<0.00001
Tin	0.0001 to 0.0002	0.00017	<0.0001	<0.0001	0.00015	<0.0002		<0.001	<0.0001	<0.0001	<0.0001
Titanium	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.02		<0.01	<0.01	<0.01	<0.01
Uranium	0.00001 to 0.00002	0.0131	0.0127	0.0131	0.0103	0.0135		0.00094	0.00535	0.00711	0.0111
Vanadium	0.001 to 0.002	0.0023	0.0032	0.0031	0.0022	0.0023		<0.002	0.0035	0.0037	0.0056
Zinc	0.001 to 0.002	0.0021	0.0014	0.0011	0.0016	0.0044		<0.005	0.0144	<0.003	0.0035
Total Metals											
Aluminum	0.003 to 0.006	0.017	0.0151	0.004	0.0201	0.0406		<0.01	0.121	0.0355	0.0402
Antimony	0.0001 to 0.0002	0.0109	0.00938	0.00865	0.00753	0.0191		<0.001	0.00146	0.00143	0.00105
Arsenic	0.0001 to 0.0002	0.0135	0.016	0.0138	0.0112	0.0227		0.001	0.00281	0.00364	0.00481
Barium	0.00005 to 0.0001	0.0298	0.0239	0.026	0.0273	0.0225		0.053	0.0219	0.0266	0.0308
Beryllium	0.0001 to 0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002		<0.002	<0.0001	<0.0001	<0.0001
Bismuth	0.0005 to 0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		<0.2	<0.0005	<0.0005	<0.0005
Boron	0.01 to 0.02	0.127	0.108	0.132	0.125	0.14		0.18	0.166	0.214	0.369
Cadmium	0.00003 to 0.0016	<0.001	<0.00085	<0.0015	<0.0012	<0.001		<0.0003	<0.0003	<0.0012	<0.00038

Site ID	MDL	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP
Date/Time Sampled		**28-May-13**	**15-Aug-13**	**20-Nov-13**	**21-Mar-14**	**22-Jun-14**	**7-Sep-14**	**3/28/2011**	**4/10/2012**	**4/25/2012**	**5/24/2012**
Total Cadmium (by saltwater extraction)	0.00002 to 0.00015				<0.00015	<0.00015					
Calcium	0.05	228	241	228	224	233		43.4	92.5	112	130
Chromium	0.0001 to 0.0002	0.00023	0.00034	0.00015	0.00021	0.00043		<0.002	0.00066	0.00039	0.00037
Cobalt	0.0001 to 0.0002	0.0018	0.00182	0.0017	0.00102	0.00165		<0.0006	0.00022	0.00024	0.00047
Copper	0.0005 to 0.001	0.00734	0.0102	0.00838	0.00451	0.0083		0.0123	0.0164	0.0209	0.0145
Iron	0.01	0.026	0.024	0.012	0.029	0.082		0.032	0.166	0.083	0.264
Lead	0.00005 to 0.00015	0.000062	<0.00005	<0.00005	<0.00005	<0.0001		<0.001	<0.00005	<0.00005	<0.00005
Lithium	0.0005 to 0.001	0.0342	0.0296	0.0345	0.0343	0.0325		<0.01	0.00777	0.00938	0.0145
Magnesium	0.1	284	294	302	317	300		103	117	151	205
Manganese	0.00005 to 0.0001	0.114	0.103	0.101	0.0767	0.0892		0.908	0.0175	0.0242	0.0346
Mercury	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		0.000015	<0.00001	<0.00001	<0.00001
Molybdenum	0.00005 to 0.0001	3.44	3.05	3.44	3.42	3.46		0.153	1.08	1.33	2.01
Nickel	0.0005 to 0.001	0.0228	0.0241	0.0222	0.028	0.0247		0.003	0.00255	0.00374	0.00696
Phosphorus (Metal)	0.05	<0.05	<0.05	<0.05	<0.05			2.55	<0.3	<0.3	<0.3
Potassium	0.1	38.6	38.2	43.2	55.4	43.3		90.9	24.7	31.8	39.2
Selenium	0.0001 to 0.0002	0.0376	0.0377	0.0396	0.0418	0.0406		<0.002	0.0245	0.0256	0.0146
Silicon	0.05	7.12	7.67	7.55	7.96	7.43		12.7	6.89	4.13	2.2
Silver	0.00001 to 0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002		<0.00004	<0.00001	<0.00001	<0.00001
Sodium	0.05 to 0.1	157	150	160	156	142		119	72.6	96.4	138
Strontium	0.0002 to 0.0004	3.74	3.11	3.73	3.47	3.7		0.882	1.29	1.46	1.98
Sulphur	0.5	526	553	572	571	569					
Thallium	0.00001 to 0.00002	0.000035	0.000026	0.000023	0.00003	0.000022		<0.0004	<0.00001	<0.00001	<0.00001
Tin	0.0001 to 0.0002	0.00027	<0.0001	<0.0001	0.00024	<0.0002		<0.001	<0.0001	<0.0001	<0.0001
Titanium	0.01 to 0.02	<0.01	<0.01	<0.01	<0.01	<0.02		<0.01	0.013	<0.01	<0.01
Uranium	0.00001 to 0.00002	0.0139	0.0129	0.0132	0.0101	0.0134		0.00102	0.00596	0.00717	0.0113
Vanadium	0.001 to 0.002	0.0025	0.0036	0.0034	0.0026	0.0028		<0.002	0.004	0.0041	0.0061
Zinc	0.003 to 0.006	<0.003	<0.003	<0.003	<0.003	<0.006		<0.005	0.0128	0.0043	0.0033
Organics											
Carbon Organic (Dissolved)	0.5	2.72	2.58	2.6					10.4	13.2	18.3
Carbon Organic (Total)	0.5	2.57	2.63	2.48	2.24	2.28			11.4	13.9	17.9

Site ID	MDL	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP
Date/Time Sampled		**7/11/2012**	**8/7/2012**	**6/5/2013**	**7/3/2013**	**11/7/2013**	**4/10/2014**	**5/8/2014**	**6/4/2014**	**7/3/2014**	**7/28/2014**
In Situ Parameters											
Conductivity (In Situ) mS/cm	...		1250	11220	3426		853	1180	1548	2812	3539
Depth to Bottom (below ground surface) m	...										
Depth to Bottom (below top of PVC) m	...										
Depth to Water (below top of PVC) m	...										
Measured Stick-up m	...										
Oxygen Dissolved (In Situ %) %	...		84.2		89.2		95.3	68.1	102	105	90.6
Oxygen Dissolved (In Situ)	...		7.04		7.87		9.9	7.12	9.15	7.85	7.07
pH (In Situ)	...		7.73	8.83	8.36		8.4	8.46	8.52	8.52	8.64
Redox Potential (In Situ) mV	...		167	191	72.7		-60	58.7	85.7	79.6	89.7
Salinity (In Situ) ppt	...		0.63	7.18	1.96		0.54	0.77	0.84	1.33	1.75
Specific Conductivity (In Situ) µS/cm	...		1270	12500	3709		1092	1520	1669	2603	3366
Temperature (In Situ) °C	...		24.2	19.6	21		13.6	13.3	21.8	29.9	27.7
Total Dissolved Solids (In Situ)	...		825	8120	2411		709	988	1085	1693	2188
Turbidity (In Situ) NTU	...		3.3	4.6	3.3						
Physical Tests											
Acidity to pH 8.3 (as CaCO3)	1										
Alkalinity (Total as CaCO3)	2	228	204	123	135	97.7	105	143	99.3	144	98.2
Bicarbonate Alkalinity	2	152	204	123	128	97.7	105	143	94.9	133	89.8
Carbonate Alkalinity	2	76.4	<1	<2	7.1	<2	<2	<2	4.4	10.6	8.4
Color TCU	5	36.5	27.2	11.3	17.2						
Conductivity µS/cm	2	2430	1260	3990	4270	3860	1090	1470	1750	2410	3310
Hardness as CaCO3 (Dissolved)	0.5		609	1970	2090	2400	516	705	840	1190	1560
Hydroxide Alkalinity	2	<1	<1	<2	<1	<2	<2	<2	<1	<1	<1
pH (unitless)	0.1	8.96	8.15	8.17	8.39	7.86	8.26	8.21	8.33	8.48	8.75
Specific Conductivity µS/cm	2										
Total Dissolved Solids	10 to 30	2160	1020	3770	2960	3570	862	1220	1450	2030	2990
Total Suspended Solids	3	10	3.9	11.6	13.7	7.7	5.4	4.5	<3	6.1	10.2
Turbidity NTU	0.1	16	3.59	2.12	1.56	1.96	5.51	2.35	2.17	2.71	3.36
Dissolved Anions											
Bromide (Dissolved)	0.5 to 1.0	<1	<0.5	1.2	1	<1	<0.5	<0.5	<0.5	<1	<1
Chloride (Dissolved)	5.0 to 10.0	22	8.4	202	219	174	29.9	43.8	62.1	102	155
Fluoride (Dissolved)	0.2 to 0.4	<0.4	<0.2	0.42	<0.4	<0.4	<0.2	<0.2	0.18	0.21	0.217
Hydrogen Sulphide	0.002										
Sulphate (Dissolved)	5.0 to 10.0	1380	557	2340	2390	2240	475	669	839	1280	1860
Nutrients											
Ammonia (Total)	0.005	0.0735	0.0649	0.016	0.0219	0.63	0.0083	0.0144	0.0097	0.019	0.0184
Nitrate (as N)	0.05 to 0.1	<0.1	0.394	<0.1	<0.1	1.92	<0.05	<0.05	<0.05	<0.1	0.1
Nitrite (as N)	0.01 to 0.02	<0.02	0.034	<0.02	<0.02	0.091	<0.01	<0.01	<0.01	<0.02	<0.02
Nitrogen (Dissolved)	0.1 to 5.0		1.28								
Nitrogen (Total)	0.1 to 5.0	2.62	1.44	1.37	1.61	5.29					
Nitrogen Kjeldahl (Total)	0.05	2.62	1.01	1.38	1.61	2.85	0.505	0.802	1.05	1.99	1.92
Orthophosphate (Dissolved)	0.001 to 0.01			<0.001	<0.001	0.0029	<0.001	0.0019	<0.001	<0.001	<0.001
Phosphorus (Nutrient) Dissolved	0.002 to 0.02	0.0321	0.012	0.0152	0.0127	0.0157	0.0091	0.0146	0.0108	0.0175	0.0144
Phosphorus (Nutrient) Total	0.002 to 0.02	0.066	0.037	0.0264	0.0211	0.032	0.0237	0.0193	0.017	0.0312	0.0425
Cyanide											
Cyanide (Free)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

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Date/Time Sampled		**7/11/2012**	**8/7/2012**	**6/5/2013**	**7/3/2013**	**11/7/2013**	**4/10/2014**	**5/8/2014**	**6/4/2014**	**7/3/2014**	**7/28/2014**
Cyanide (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals											
Aluminum	0.001 to 0.002		0.0016	0.0029	0.0024	0.057	0.0027	0.006	0.0058	0.0071	0.0032
Antimony	0.0001 to 0.0002		0.00121	0.0006	0.00046	0.00162	0.00048	0.0006	0.00062	0.00054	0.00047
Arsenic	0.0001 to 0.0002		0.00325	0.00172	0.00236	0.00295	0.00112	0.00127	0.00151	0.0033	0.00334
Barium	0.00005 to 0.0001		0.0684	0.0488	0.0483	0.0258	0.0357	0.0425	0.0378	0.0426	0.0449
Beryllium	0.0001 to 0.0002		<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth	0.0005 to 0.001		<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Boron	0.01 to 0.02		0.223	0.338	0.375	0.165	0.082	0.153	0.183	0.313	0.302
Cadmium	0.00001 to 0.0015		<0.00075	<0.00004	<0.00005	<0.00025	<0.00002	<0.00003	<0.00004	<0.00005	<0.00005
Dissolved Cadmium (by saltwater extraction)	0.00002 to 0.00015						<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Calcium	0.05		82.9	290	265	331	116	148	133	173	183
Chromium	0.0001 to 0.0002		<0.0001	<0.0002	<0.0002	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cobalt	0.0001 to 0.0002		0.00015	<0.0002	<0.0002	0.00051	<0.0001	<0.0001	<0.0001	0.00011	0.00015
Copper	0.0002 to 0.0004		0.0137	0.0124	0.0175	0.0637	0.0126	0.0133	0.0126	0.0194	0.0176
Iron	0.01		0.014	0.017	0.024	0.085	<0.01	0.013	0.023	0.027	0.016
Lead	0.00005 to 0.0001		<0.00005	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Lithium	0.0005 to 0.001		0.00734	0.0787	0.0955	0.0779	0.0136	0.0235	0.03	0.0577	0.0903
Magnesium	0.1		97.6	302	347	383	54.9	81.7	123	185	268
Manganese	0.00005 to 0.0001		0.0145	0.0173	0.0182	0.131	0.00137	0.00518	0.00393	0.00742	0.0119
Mercury	0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	0.00005 to 0.0001		0.952	0.166	0.12	0.525	0.0554	0.102	0.13	0.131	0.114
Nickel	0.0005 to 0.001		0.00268	0.0025	0.0029	0.0058	0.00107	0.00142	0.00161	0.0023	0.00231
Phosphorus (Metal)	0.05		<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	0.1		21.2	58.1	69	64.6	17.1	23.4	31.8	48.9	63.5
Selenium	0.0001 to 0.0002		0.0194	0.00152	0.00145	0.0381	0.00197	0.0023	0.00158	0.0015	0.00154
Silicon	0.05		3.54	0.237	1.01	3.6	3.62	3.89	4.71	3.32	0.474
Silver	0.00001 to 0.00002		<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.05 to 0.1		56.1	263	276	293	39	61.3	89.1	139	208
Strontium	0.0002 to 0.0004		1.32	5.58	5.12	6.56	1.69	2.23	2.58	3.54	4.56
Sulphur	0.5			725	725	821	160	207	281	425	575
Thallium	0.00001 to 0.00002		<0.00001	<0.00002	<0.00002	0.000031	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin	0.0001 to 0.0002		<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	0.01 to 0.02		<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	0.00001 to 0.00002		0.00353	0.0071	0.00511	0.0237	0.00461	0.00657	0.00582	0.00605	0.00461
Vanadium	0.001 to 0.002		0.0037	<0.002	<0.002	<0.002	0.001	0.0011	0.0025	0.0017	0.0013
Zinc	0.001 to 0.002		0.0017	<0.002	<0.002	<0.002	<0.001	<0.001	0.0019	<0.001	0.0011
Total Metals											
Aluminum	0.003 to 0.006	0.268	0.0479	0.0408	0.0167	<0.006	0.171	0.0981	0.0458	0.0465	0.0913
Antimony	0.0001 to 0.0002	0.00145	0.00121	0.0006	0.00048	0.00131	0.00049	0.00061	0.00061	0.00049	0.0005
Arsenic	0.0001 to 0.0002	0.00813	0.0034	0.00176	0.00223	0.00249	0.0012	0.00137	0.00157	0.0033	0.00343
Barium	0.00005 to 0.0001	0.0267	0.0685	0.0476	0.0483	0.023	0.0359	0.0434	0.0376	0.0413	0.0455
Beryllium	0.0001 to 0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Bismuth	0.0005 to 0.001	<0.001	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Boron	0.01 to 0.02	0.279	0.229	0.331	0.403	0.147	0.086	0.169	0.191	0.291	0.308
Cadmium	0.00003 to 0.0016	<0.0003	<0.00075	<0.00004	<0.00005	<0.00025	<0.00003	<0.00004	<0.00004	<0.0001	<0.00005

Site ID	**MDL**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**	**WR-SEEP**
Date/Time Sampled		**7/11/2012**	**8/7/2012**	**6/5/2013**	**7/3/2013**	**11/7/2013**	**4/10/2014**	**5/8/2014**	**6/4/2014**	**7/3/2014**	**7/28/2014**
Total Cadmium (by saltwater extraction)	0.00002 to 0.00015						<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Calcium	0.05	42.8	79.9	291	261	302	111	146	132	160	177
Chromium	0.0001 to 0.0002	0.00155	0.00031	<0.0002	0.00022	0.00036	0.00041	0.00027	0.00016	0.00029	0.00031
Cobalt	0.0001 to 0.0002	0.00073	0.00024	<0.0002	<0.0002	0.00039	0.00018	0.00013	0.00011	0.00016	0.00023
Copper	0.0005 to 0.001	0.0312	0.0161	0.0137	0.0182	0.0503	0.0152	0.0152	0.0136	0.0203	0.0195
Iron	0.01	0.468	0.1	0.071	0.051	<0.01	0.225	0.123	0.083	0.081	0.118
Lead	0.00005 to 0.00015	<0.0001	<0.00005	<0.0001	<0.0001	<0.0001	0.000056	<0.00005	<0.00005	<0.00005	<0.00005
Lithium	0.0005 to 0.001	0.0156	0.00725	0.0798	0.1	0.0612	0.0135	0.0241	0.0305	0.0495	0.0888
Magnesium	0.1	252	95.3	303	349	321	52.3	81.3	123	176	265
Manganese	0.00005 to 0.0001	0.0264	0.0512	0.0193	0.0303	0.12	0.00801	0.0113	0.0169	0.0236	0.0196
Mercury	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	0.00005 to 0.0001	1.49	0.936	0.167	0.119	0.434	0.057	0.102	0.134	0.116	0.112
Nickel	0.0005 to 0.001	0.0078	0.00287	0.0029	0.0031	0.0045	0.0024	0.0017	0.00166	0.00237	0.00266
Phosphorus (Metal)	0.05	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Potassium	0.1	38.1	21.1	57.7	68.1	57	15.8	23.6	30.7	45	62.7
Selenium	0.0001 to 0.0002	0.0181	0.0186	0.00153	0.00152	0.0327	0.00193	0.00192	0.00143	0.00138	0.00164
Silicon	0.05	4.25	3.55	0.32	1.04	3.03	3.84	4.05	4.76	3.29	0.636
Silver	0.00001 to 0.00002	<0.00002	<0.00001	<0.00002	<0.00002	<0.00002	0.000012	<0.00001	0.00007	<0.00001	<0.00001
Sodium	0.05 to 0.1	172	55.2	268	282	242	37.7	63.1	92	137	214
Strontium	0.0002 to 0.0004	0.704	1.32	5.49	5.02	5.85	1.69	2.21	2.64	2.99	4.48
Sulphur	0.5			707	727	731	155	206	279	405	571
Thallium	0.00001 to 0.00002	<0.00002	<0.00001	<0.00002	<0.00002	0.000026	<0.00001	0.00001	<0.00001	<0.00001	<0.00001
Tin	0.0001 to 0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	0.01 to 0.02	0.014	0.011	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	0.00001 to 0.00002	0.00477	0.00351	0.0072	0.00513	0.0186	0.00457	0.00661	0.00593	0.00549	0.00456
Vanadium	0.001 to 0.002	0.0139	0.0044	<0.002	<0.002	<0.002	0.0017	0.0015	0.0027	0.0022	0.0019
Zinc	0.003 to 0.006	<0.006	0.0037	<0.006	<0.006	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003
Organics											
Carbon Organic (Dissolved)	0.5		9.81	17.4	26.3	14.6	10.2	10.6	13.9	23.6	27.6
Carbon Organic (Total)	0.5	24.1	10.1	17.7	27.5	22.6	10.4	10.7	14.1	23.4	28.4