Preliminary Report

Geochemical Assessment of Waste Material - Christmas Creek Mine

03/06/14

Prepared for

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Date: **03/06/14**
Reference: 42908001/TESG0295/
Status: 0
FINAL

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Table of Contents

Table of Contents

Tables (in text)

Table of Contents

Tables (attached)

Figures

Charts

Appendices

1

Introduction

1.1 General

URS Australia Pty Ltd (URS) were commissioned by Fortescue Metals Group Limited (Fortescue) Christmas Creek Operations (Christmas Creek) to complete a preliminary geochemical waste assessment for the Christmas Creek Life of Mine (LOM) Project (the Project).

This report is in accordance with Stage 1 of URS proposal no: 3106096/TESG0238/1, dated 19 January 2012 along with Variation 001 revision 2 (TESG0244_V001), dated 6 August 2012 and Variation 002 (TESGO0244_V002) dated 14 April 2014.

1.2 Objectives

The overall objective of the project was to provide a broad understanding of the geochemical characteristics of mined waste material and tailings at Christmas Creek Mine to assist with the identification and management of potential environmental impacts, with focus on waste materials identified as having a higher risk of potentially generating acid and metalliferous drainage (AMD).

This report presents the findings of the preliminary geochemical assessment program along. It should be noted that this is a preliminary report, and as such additional information may be required in order to develop more a more conclusive interpretation of the geochemical characteristics of the waste materials and tailings.

1.3 Scope of Works

The technical tasks relating to this report are:

- Preliminary Geochemical Assessment
  - Sampling program design;
  - Laboratory analytical program – static testing;
  - Reporting (preliminary assessment).

2

Background

2.1 Project Description

The Christmas Creek LOM Project is a component of the Fortescue Chichester operations and is located in the Pilbara Region of Western Australia, approximately 111 km north of the town of Newman. The approximate centre of the mining area is on Australian Map Grid (AMG) co-ordinates 7,522,000m north and 780,000m east (**Figure 1**).

The mine site is within the Hillside and Roy Hill pastoral leases and is located approximately 2.5 km from the Fortescue Marsh at its closest point.

The Christmas Creek LOM Project is estimated to have reserves of up to 1,000 million tonnes (Mt) of iron ore at a target grade of 55% to 65% Fe (iron). This will generate approximately 112 million tonnes per annum (Mtpa) of overburden waste utilising either continuous mining machinery or traditional truck and shovel mining methods. The waste is deposited to overburden placement areas initially, after which the overburden will be used to progressively backfill selected pits (FMG, 2005). The Project commenced operations in May 2009 with a planned life of mine of approximately 22 years, producing high grade iron ores for direct shipping, as well as lower grade ores. Ore from Christmas Creek is exported via the East-West Railway then North-South Railway to the Herb Elliott Port in Port Hedland for shipment.

Waste materials are anticipated to be generated and/or stored from the following operational areas of the Project:

- Open mine pits;
- In-pit Tailings Storage Facilities (TSFs);
- Borrow pits;
- Permanent waste landforms;
- Run Of Mine (ROM) Pads and a central Ore Processing Facility (OPF) ROM Pad;
- Low grade ore stockpiles.

2.2 Geology

2.2.1 Regional Geology

The Christmas Creek iron ore deposit lies within the Hamersley Basin, where granitoid rocks of the Archaean Pilbara Craton are overlain by metasedimentary groups and volcanogenic rock types. Granitoid rocks of the Pilbara Craton are overlain by the Archaean Fortescue Group, which is overlain by the Archaean- Proterozoic Hamersley Group.

Mineralisation at Christmas Creek is confined to the Nammuldi Member of the Marra Mamba Formation (MMF), the lowermost formation of the Hamersley Group. The Jeerinah Formation is the youngest formation within the Fortescue Group, and marks the base of the main ore body. The Jeerinah is sub-divided into a number of members, of which the Roy Hill Shale Member is the uppermost.

The Marra Mamba Formation is overlain by the Wittenoom Formation (predominately Paraburdoo Member). In the area of iron mineralisation, the Paraburdoo Member is largely absent and at these locations the MMF is mostly overlain and concealed below tertiary deposits, though at some locations, especially in the north or the Project area, the MMF outcrops.

2 Background

The succession of alluvium overlying the MMF comprises Quaternary and Tertiary deposits that are generally referred to as Tertiary Detritals.

This succession thickens beneath the Fortescue Marsh and Fortescue River System as a palaeovalley infill succession comprising Quaternary and Tertiary alluvial, colluvial and lacustrine sediments. The palaeovalley was incised in the Hamersley Group formations, in particular the Wittenoom Formation.

Between the mine site and Fortescue Marsh, the alluvial deposits increase in thickness reaching a maximum thickness of approximately 70 m. Along the ephemeral creeks and riverbeds that cross the Fortescue Plain, the alluvial sequence typically comprises of unconsolidated silt, sand and gravel, whereas finer-grained sediments including clays predominate across the adjacent flood plains.

2.2.2 Local Geology

The stratigraphy at the Chichester Range (of which Christmas Creek is part) is composed mainly of cherty Banded Iron Formation (BIF) with intermittent layers of thin shales. The stratigraphy encountered at Christmas Creek is made up of units (labelled as U series) and shales (labelled as US series). The following stratigraphic units and shales were encountered and sampled as part of this geochemical assessment program:

- OVER (overburden, upper most layer);
- U8;
- U7U;
- US12 (thin shale);
- U7L;
- US11 (thin shale);
- U6;
- US10 (thin shale);
- U6L;
- US9 (thin shale);
- U5;
- US8 (thin shale);
- U5L (deepest layer).

The main zones of ore grade mineralisation are U7U, U7L and U6 while the other U-series stratigraphy and various shale layers are waste rock. It is unclear which of the stratigraphic units are separated out as waste and stored in waste landforms during mining of the main ore body.

Specific lithological information on U and US stratigraphic units defined in the mining area is unavailable. Additional information on the mineralogy and lithology represented by the different series is required for a detailed interpretation of the geochemical results.

2.3 Previous Work

Previous and current technical studies associated with mine closure planning at Christmas Creek have identified the need for Fortescue to undertake geochemical characterisation of waste materials (including overburden) in order to understand the potential for generation of AMD throughout the life of mine.

It is understood that at the time of preparation of this report, only limited geochemical characterisation work has been undertaken for Christmas Creek.

Historical reports that provide information on the geochemical properties of the waste materials at Christmas Creek, and the adjacent Fortescue site of Cloudbreak Mine (collectively known as the Fortescue Chichester Operations) are:

- *Geochemical Characterisation of Mine-Waste Samples* (Graeme Campbell and Associates Pty Ltd, 2005 (Campbell, 2005));
- *Geological Studies for Cloudbreak Project* (Snowden, 2006);
- *Landform and Geology Investigations for Chichester Operations* (PB, 2011);
- *Tertiary Detrital Sequences of the Chichester Range: Overburden Characteristic Study* (Fortescue, 2005);
- *Cloud Break Preliminary Acid and Metalliferous Drainage (AMD) Risk Assessment and Gap Analysis* (Version: Final Draft) (Equinox, 2011).

Geochemical characterisation work carried out by Graeme Campbell and Associates Pty Ltd (Campbell, 2005) at the exploration and feasibility stages of mining at Christmas Creek found that the regolith and waste bedrocks at the Chichester Operations generally had low sulfide content and were therefore unlikely to have the potential to generate acid on exposure. The only geological unit where acid generation potential was identified (through the presence of mineralogical pyrite) was the Roy Hill Shale unit which underlies the main iron ore formations. The current mine plan has been developed to prevent intersection of the Roy Hill Shale unit during mining activities, however de-watering activities may result in de-watering of the Roy Hill Shale unit. Other regolith and mine waste materials tested were found to be enriched in metals, metalloids and other elements (including iron (Fe), manganese (Mn), mercury (Hg), arsenic (As), antimony (Sb), selenium (Se), bismuth (Bi) and boron (B)).

Golder Associates (Golder, 2012) conducted a preliminary static geochemical assessment of the potential for AMD from tailings, and waste rock that would be used to construct the in-pit TSF (IPTSF) embankment at Christmas Creek. Three tailings samples were taken from the existing ore processing facility (OPF) while 18 waste rock samples were obtained from waste stockpiles; identified for use as candidate sources of construction material for the IPTSF embankment. Waste rock samples were classified as either non-acid forming (NAF) or Uncertain-Potentially Acid Forming (PAF) while the tailings samples were classified as NAF. As total sulfur concentrations were low, the uncertainty in the classifications was due to the low concentration of ANC measured. Five elements (Sb, As, Fe, Mn and silver (Ag)) were measured in tailings and waste rock samples at concentrations greater than three times the average crustal abundance (Golder, 2012).

Preliminary geochemical assessments have been carried out at the Cloudbreak Mine (Snowden 2006), which is assumed to have a similar lithology to Christmas Creek. Geochemical characterisation of waste materials present at Cloudbreak Mine have supported the conclusion that with the exception of the Roy Hill Shales, the overburden and waste materials are unlikely to generate acid on exposure during mining.

It was identified that the overburden and waste materials may contain elevated levels of metals and metalloids; including aluminium (Al), B, copper (Cu), Fe, chromium (Cr), As and Se. The elevated metal and metalloid content of the waste materials indicates that they may have the potential to generate metalliferous drainage due to exposure during mining.

Tetra Tech recently conducted a geochemical characterisation assessment at the Cloudbreak Mine (Tetra Tech 2005, where 58 waste rock samples were collected from three waste rock dumps (WRDs) across the site. Visual inspection by Tetra Tech of the collected cores showed homogeneity with respect to lithological/mineralogical components.

Waste rock materials were found to be very unlikely to generate acidic conditions, with the large majority considered non-acid generating with relatively low sulfide sulfur values.

Total elemental concentrations suggested oxyanions of Se and As as the only elements of possible concern. Leachate results for As and Se were significantly below the EPA maximum concentration level (MCL) primary guidelines (US Environmental Protection Agency Drinking Water Quality Guidelines (US EPA guidelines, FMG 2012b). Long term weathering test showed only Fe and Al concentrations as above or near nominated guidelines (FMG, 2012b).

2.4 Relevant Guidance Documentation

The relevant guidance documentation referred to in this report available from Western Australia government or industry organisations is as follows:

- International Network for Acid Prevention (INAP). *Global Acid Rock Drainage Guide*. 2009 (http://www.gardguide.com);
- Department of Industry, Tourism and Resources (cf. Department of Resources Energy and Tourism). *Leading Practice Sustainable Development Program for the Mining Industry – Managing Acid and Metalliferous Drainage*. February 2007;
- Department of Mines and Petroleum. *Environmental Notes on Mining - Acid Mine Drainage*. September 2009;
- Water and Rivers Commission (cf. Department of Environment and Conservation). *Water Quality Protection Guidelines for Mining and Mineral Processing – Acid mine drainage*. 2000.

The Fortescue Governance and Sustainability guideline *Planning for Closure – Characterisation of Mineral Waste Rock and Soils* (FMG 2011) has been developed to assist the organisation in the identification, management and monitoring of the risks associated with the presence of mineral waste rock and soils across the life of mine at the Fortescue mining operations. The guideline recognises that adequate characterisation of materials and soils is fundamental to managing successful mine closure and progressive rehabilitation.

Current industry and regulatory guideline documentation (INAP *Global Acid Rock Drainage Guide (INAP, 2011)*) provides some guidance on sampling and testing requirements for geochemical characterisation materials. The sampling guidance is adopted from the *Leading Practice Sustainable Development Program for the Mining Industry – Managing Acid and Metalliferous Drainage* document.

2 Background

The documentation recommends that:

- Drill hole samples be tested for sulfur and pathfinder elements as part of the resource definition and exploration stages of drilling and sampling. It is also recommended that 3 to 5 representative samples of key material types be submitted for static testing and some analysis of groundwater and surface water;
- Several hundred samples of ore, waste rock and tailings are collected at pre-feasibility stage and subject to sulfur and static testing. It was recommended that at this stage, at least one to two representative samples of materials be subject to kinetic testing;
- During mine planning and operational phases static and kinetic testing is continued for the purposes of geochemical model refinement and confirmatory testing.

Previous geochemical investigations for Christmas Creek carried out by Graeme Campbell and Associates Pty Ltd (Campbell, 2005) at the exploration and feasibility stages of mining included one to three replicates of representative samples of waste rock making a total of 19 samples characterised.

Test work completed included sulfur analysis, acid base accounting (ABA) and geochemical abundance index analysis for multi-elements. This test program is considered to be equivalent to the early stage characterisation recommended by the guideline documentation listed above.

Although the Project is currently operational, it is considered that early stage testing is required as a precursor to development of a more robust and focused ongoing sampling program that will enable Fortescue to identify risk associated with their mining operations as the Mine Plan changes over the proposed 22 year mine life.

3

Methodology

This section describes the analysis process undertaken to assess the chemical properties of the samples.

3.1 Sampling Program

The sampling program design task comprised the following:

- Review of Fortescue supplied information including but not limited to drill logs, block models, planned drilling programs, geological information and maps. Data was generally supplied in electronic format and comprised the latest versions of data available.
- Preparation of geochemical sampling program, in consultation with Fortescue Geologists on 15 March 2012, exploration and feasibility drill hole logs and geological information.
- Provision to Fortescue of a sampling and analysis letter (on 27 March 2012) detailing the sampling locations, number of samples per locations, instructions on selecting samples for collection, specifications for field quality control and quality assurance (QAQC) sampling (at a rate of one in 10 samples), sample volume required and sample dispatch details to URS and other relevant sampling instructions.
- Coordination of field sampling activities in collaboration with Fortescue site personnel;
- The following field sampling activities were undertaken by Fortescue:
  - Collection of two tailings sample from the OPF.
  - Collection of a total of 208 waste rock samples (approximately 5% of planned drill holes) with selection of alternative sampling locations, targeted at key overburden lithologies. These samples included QAQC samples and were obtained from reverse circulation (RC) drill chip samples. The number of samples collected was based on the expected range of waste rock that would be generated during the mine life and previous URS experience on similar projects. The intention of the sampling program was to obtain representative samples that reflected (as close as possible) the spatial area and depth of mining planned at Christmas Creek over the two months following the sampling.
- Samples were dispatched by Fortescue to URS in two batches. Thirty one (31) primary and QAQC samples were received by URS in Batch 1 and 177 primary and QAQC samples were received in Batch 2. The tailings samples were provided in two 5 L buckets while the waste rock samples were provided in calico sample bags.

3.2 Laboratory Analytical Program - Static Testing

Static laboratory tests were conducted to evaluate the AMD generation potential of the sample materials. Based on the geology of the waste materials mined at Christmas Creek, and the predicted low risk for generation of acidic drainage, the test work focused on the characterisation of the potential to generate metalliferous drainage. It was recognised that acid-base accounting to characterise the potential for acidic drainage was required to confirm the actual risk for formation of acidic drainage.

The following process took place as part of the static testing laboratory program:

Each of the 208 waste rock samples was split into two bags of which one was sent for static tests and one was retained at URS. Standard static geochemical tests and multi-element tests consisted of analyses listed in **Table 3-1** and **Table 3-2** below.

3 Methodology

These samples were sent by URS in four batches (see **Table 3-3**) to Australian Laboratory Services (ALS) Environmental in Perth. Samples were crushed by the laboratory to nominal 4 mm size, then riffle split to produce sub-samples for pulverising to <75 µm for geochemical testing.

Analyses as listed in **Table 3-2** were conducted by ALS Minerals Laboratory in Brisbane. The tailings sample was provided in two buckets. One bucket was sent for standard static geochemical tests and multi-element tests, as per the waste rock samples, while another bucket was retained at URS.

Table 3-1 Static Geochemical Analyses (ALS Environmental Perth)

Analytical group	Analysis	Analytical method code
pH and EC	pH and Conductivity (1:5)	EA010 and EA002
Acid Base Accounting	Total sulfur (LECO)	ED042T
	Sulfate sulfur	ED040T
	Chromium reducible sulfur	EA026
	NAG	EA011
	ANC	EA013
	Total Carbon	EP003TC
Multi Element Solids	Near Total digest	ME-MS61
ICP/MS leachable metals	ICP/MS metals incl. digestion : (Sb, Al, As, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Ni, Mn, Mo, Se, Ag, U, V, Zn, Hg)	EG020W
	ASLP Leach	EN60-DI
	Hg – incl. digestion	EG035W
Multi-element leachate	Major Cations (Ca, Mg, Na, K, SO4, Cl)	ED093W
	TDS	EA015H
	pH	EA005
	Conductivity	EA010
Other	CEC/ESP	ED007
	SAR	ED093
	Soluble SO4 and Cl	ED045G/ED040S

Table 3-2 XRF and ICP-MS Analyses (ALS Minerals Brisbane)

Analysis	Analytical method code
Iron Ore by XRF Fusion	ME-XRF21n
H2O/LOI by TGA furnace	ME-GRA05
48 element four acid ICP-MS	ME-MS61

Table 3-3 Samples analysed by batch (including QAQC)

Batch	Number of waste rock samples	Number of tailings samples	Number of tailings supernatant samples
EP1204221	31	1	1
EP1205051	57	0	0
EP1205053	48	0	0
EP1205053	72	0	0
Total	208	1	1

Laboratory results for the standard static geochemical tests and multi-element tests as listed above were received and verified by URS.

Reported laboratory results were checked by URS for QAQC (see **Section 4** below). It was found that several samples were inadvertently collected and analysed in replicates and that there were some inconsistencies in sample labelling.

Discrepancies were resolved and redundant results were excluded from interpretation. **Table 3-4** shows the number of redundant samples excluded and the final number of samples reported in results tables and used for interpretation. **Table 3-5** shows the final number of waste rock samples used for interpretation, by lithology.

Table 3-4 Final reported results (including QAQC)

Number of waste rock samples reported	Excluded waste rock samples (including redundant samples)	Final number of waste rock samples used for interpretation
208	14	194

Table 3-5 Number of Waste rock samples by lithology

Lithology	Number of primary waste rock samples	Number of QAQC samples	Number of waste rock samples (including QAQC)
OVER	50	3	53
U8	13	2	15
U7u	30	2	32
US12	12		12
U7l	1	2	3
US11	5	1	6
U6	24		24
US10	15	1	16
U6l	6		6
US9	9	1	10
U5	4		4
US8	3	1	4
U5l	6	3	9
Total	178	16	194

3.3 Classification Criteria

The geochemical assessment and analysis of laboratory analytical results is conducted in accordance with the *Global Acid Rock Drainage (GARD) Guide* (INAP 2011), and Department of Industry, Tourism and Resources – *Leading Practice Sustainable Development Program for the Mining Industry: Acid and Metalliferous Drainage* (DITR 2007), that are the current standard industry practice for the analysis and reporting of data relevant to potential acid and metalliferous drainage and/or geochemical assessments.

3.3.1 Acid Base Accounting

A number of procedures have been developed to assess the AMD characteristics of mine waste materials. However, ultimately the overall acid generation assessments for mine materials are mainly carried out using the following static testing methods:

- Acid Base Accounting (ABA); and/or
- Net Acid Generation (NAG).

The testwork carried out for the Christmas Creek follows the ABA methodology. It calculates the acid generation capacity of the sample material by determining the maximum potential acidity (MPA) that can be generated from the oxidation of sulfide minerals relative to its acid neutralising capacity (ANC) due mainly to the presence of carbonate minerals and to lesser extent silicate minerals. The difference between the MPA and ANC value is referred to as net acid producing potential (NAPP).

3 Methodology

For the purposes of this assessment, total sulfur concentration (%S) has been used to calculate maximum potential acidity (MPA) on the basis that all sulfur present is in the mineral form of pyrite (FeS_2). It is noted that this represents a conservative approach to the estimation of NAPP and is likely to over-estimate the MPA produced from waste lithologies and tailings materials. This is supported by the geochemical assessments conducted to date at Christmas Creek and Cloudbreak mines, which found minute/negligible occurrences of sulphide minerals (e.g. pyrite).

The use of a conservative approach enables the assessment to be undertaken as a reasonable worst case scenario. As the objective of this assessment is to provide an overview of the geochemical characterisation to highlight lithologies or areas of the mining operations where AMD may be a higher risk, an assessment based on a reasonable worst case scenario is considered appropriate to enable this objective to be fulfilled.

On the basis of the ABA and NAG results, samples may be classified into one of the following categories (AMIRA 2002):

- **Barren:** where samples have minimal acid neutralising capacity and low total sulfur content (generally <0.1 %S). This category mostly applies to highly weathered materials and criteria may vary between sites.
- **Non-acid Forming (NAF):** where samples may have significant sulfur content, but acid neutralising capacity is present and is able to neutralise the potential acidity that could be produced by oxidising sulfur. In general NAF materials have negative NAPP and final NAG pH of >4.5.
- **Potentially Acid Forming (PAF):** where samples have significant sulfur content and the potential to general acidity in exceedance of the available acid neutralising capacity. In general PAF materials have positive NAPP and a final NAG pH <4.5.
- **Uncertain:** where the NAPP and NAG results are not in agreement. Further kinetic testwork or field oxidation trials are usually recommended to determine the acid forming characteristics of these materials.

According to DMP's environmental notes on mining entitled Acid Mine Drainage, classification criteria often used at mining operations include (DMP, 2009):

- **Non-acid Forming (NAF)**:ANC/MPA ratio ≥ 2
- **Potentially Acid Forming (PAF)**: ANC/MPA ratio < 2

Where MPA is calculated from (Total %S) x 30.6 and MPA (like ANC) is expressed in kg H_2SO_4/tonne.

3.3.2 Multi-element Composition

To assess the potential for elemental enrichment, tailings solid samples were tested for multi-element composition. The results are compared to standard median soil abundance values (Bowen 1979 and Berkman 1976) to evaluate the extent of elemental enrichment, which is reported as a geochemical abundance index (GAI) value. In general, a GAI of 3 or greater is considered as enrichment to a level that may warrant further examination to assess their environmental significance.

In addition to the GAI, multi-element analyses for the total metals concentration of waste materials have been compared to Department of Environment and Conservation (DEC) Contaminated Sites Management Series Guidelines – *Assessment Levels for Soil, Sediment and Water* (DEC, 2010).

3 Methodology

The criteria chosen are the interim sediment quality guideline values (ISQG) for both low and high probability of causing biological effects. The trigger values are tabulated in **Table 3-6**.

Table 3-6 DEC Assessment Levels for Soils and Sediment (DEC, 2010)

Element	ISQG – Low[1] (mg/kg)	ISQG – High[2] (mg/kg)
Ag	1.0	3.7
As	20	70
Cd	1.5	10
Cr	80	370
Cu	65	270
Ni	21	52
Pb	50	220
Sb	2.0	25
Zn	200	410

Notes:
[1] ISQG – Low: probable effects concentrations above which biological effects rarely occur.
[2] ISQG – High: probable effects concentrations above which biological effects would possibly occur.

Static leach test methodology for multi-element analysis varies widely. The method used for the two samples subjected to multi-element leach testing involved a single leach of the solid material with deionised water (utilising the Australian Standard Leaching Procedure). The resulting leachate is generally analysed for major ions and a selected suite of metals.

The leachate values have been compared to the Australian and New Zealand Environment and Conservation Council (ANZECC) *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000). A search of existing information surface water quality objectives for Christmas Creek did not identify and specific ANZECC trigger criteria currently utilised on the site. The trigger values chosen for this study have been chosen to be appropriate to the likely receiving environment based on climatic characterisation, as outlined in *Guidelines for Mining in Arid Environments* (WA MOD 1996) and the steps for determining appropriate trigger values described in the ANZECC Guidelines (ANZECC 2000). Based on these guideline documents, this study utilises the ANZECC *Upland Rivers* in Tropical Australia (includes North-West Western Australia) trigger levels for slightly to moderately disturbed ecosystems which choose either 99% protection of species, or 95% protection of species depending on appropriate ecosystem toxicity. The selected trigger values are considered to be conservative on the basis that inland rivers in the Pilbara region are often classified as ephemeral, and have a wide range of water quality variation depending on seasonal changes and flow rates. The vegetation and low storage capacity of the shallow, sandy soils lead to creek flow after relatively little rainfall, and vegetation and fauna in the area survive in intermittent rainfall and surface water availability.

The values the adopted ANZECC trigger values are tabulated in **Table 3-7**.

3 Methodology

Table 3-7 Assessment Levels for Leachate (ANZECC 2000)

Element	ANZECC trigger value (mg/L)[1]
Ag	0.00005
Al	0.055
As	0.024
B	0.37
Cd	0.0002
Cr	0.001
Cu	0.0014
Hg	0.00006
Mn	1.9
Ni	0.011
Pb	0.0034
Se	0.005
Zn	0.008

Note:
[1]ANZECC trigger values for the protection of freshwater species in slightly to moderately disturbed ecosystems in upland rivers

4

Quality Control and Quality Assurance (QAQC)

For QAQC purposes, validation of analytical data was used to assess whether the data gathered were in compliance with method requirements and project specifications. The primary objectives of this process were to ensure that: (i) data of known quality are reported; and (ii) the data can be used to fulfil the overall project objectives.

The data validation guidelines used are based on guidance documents published by the United States Environmental Protection Agency (US EPA). These include:

- Contract Laboratory Program for Organic Data Review (October 1999).
- Contract Laboratory Program for Inorganic Data Review (July 2002).
- Guidance on Environmental Data Verification and Data Validation (November 2002).

The validation process, for both the field sampling procedures and the laboratory analytical programmes, involves checking the compliance of analytical procedures and assessing the accuracy and precision of analytical data from a range of quality control measurements.

The data validation protocols employed by URS are compliant with and exceed those specified in the National Environment Protection (assessment of site contamination) Measure (NEPM 2013), with additional reference to the quality control specifications detailed in section 5 of the Australian and New Zealand Standard (AS/NZS) 5667.1.1998. *Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples* (AS/NZS 1998).

Specific elements of the analytical programmes checked and assessed for this project include:

- Sample holding times.
- Use of appropriate analytical procedures.
- Required limits of reporting (LOR).
- Frequency of conducting quality control measurements.
- Laboratory blank results.
- Precision [(Relative Percent Difference (RPD)] of laboratory duplicate results.
- Matrix spike results.

All quality assurance reports received from the laboratory are included in **Appendix A**. The contracted laboratory (ALS Environmental Division) is National Association of Testing Authorities (NATA) accredited for all analyses conducted as part of this analytical program.

The X-ray Fluorescence (XRF) testing was conducted by ALS – Minerals Division. This XRF analysis is not covered under the NATA accreditation process.

4.1 Laboratory Analysis Validation

Laboratory data validation consists of four types of QAQC samples:

- Laboratory duplicate - to determine the reproducibility of results (intra-laboratory precision).
- Laboratory control sample - to indicate the potential for bias within the analysis method, or due to analytical equipment.
- Method blank - to assess the potential for cross-contamination during the analytical process.
- Matrix spike - to indicate the potential bias within the sample results due to the interferences within the sample matrix.

The assessment of these types of QAQC samples allows an overall determination of the quality of laboratory analytical data.

4 Quality Control and Quality Assurance (QAQC)

Laboratory data validation also includes the assessment of sample preservation and storage parameters, and compliance with maximum recommended holding times.

Detailed laboratory QAQC data (reported by the laboratory) are presented in the analytical reports in **Appendix A**. The validation of the laboratory data carried out as part of this assessment is presented in tables in **Appendix B**.

Based on validation of laboratory QAQC data, the overall quality of the analytical results is considered to be generally acceptable for interpretive use. Exceptions are discussed below.

4.1.1 Frequency of Laboratory QAQC - Non Compliances

The reported frequency of Laboratory QAQC non compliances are as follows:

- Laboratory duplicates were reported below the ALS internally specific QAQC required frequency rate (1 in 10) for:
  - Exchangeable Cations in batch EP1204221.
  - Sodium Absorption Ratio (SAR) in batches EP1205051, EP1205053 and EP1205056.

  Therefore, assessment of precision may be limited for the above-mentioned analytes in the respective batches.
- LCS were reported below the ALS internally specific QAQC required frequency rate (1 in 20) for:
  - SAR in batch EP1205056.

  Therefore, assessment of accuracy may be limited for this analyte.
- Method blanks were reported below the ALS internally specific QAQC required frequency rate (1 in 20) for:
  - Acid neutralising capacity in batches EP1205056, EP1205053 and EP1205051.
- Matrix spikes were either not performed or anonymous samples were used for the following in batch EP1204221: Major ions and metals. Where anonymous samples are used, these are not considered representative of the field sample. Therefore, no assessment of the impact of the field sample matrix on the accuracy of these methods can be performed.

4.1.2 Sample Handling and Preservation – Non Compliances

Temperature on receipt was recorded at 20°C for batch EP1204221 and 12.7°C for batches EP1205051, EP1205053 and EP1205056. Elevated temperatures (above 4°C) are not considered to affect data quality as volatile compounds were not included in the suite to be analysed.

4.1.3 Holding Time – Exceedances

The following holding time exceedances were noted for the four sample batches.

EP1204221

- All solid samples for pH analysis exceeded extraction holding times by 7 days.
- All leachate samples for pH analysis exceeded analysis holding times by a minimum of 2 days.
- All solid samples for conductivity exceeded extraction holding times by 7 days.

- Samples PRGC01553-1-2, PRGC01553-7-8, PRGC00759-2-3 and YPGC12764-38-39 for Total Dissolved Solids exceeded analysis holding times by 13 days.
- All solid samples for Sulfur as SO42- exceeded extraction holding times by 6 days.
- All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 7 days.
- Leachate sample DH031551 for pH exceeded analysis holding times by 6 days for pH and 5 days for TDS.

EP1205051

- All solid samples for pH analysis exceeded extraction holding times by 3 days and analysis holding times by 2 days.
- All leachate samples for pH analysis exceeded analysis holding times by a minimum of 1 day.
- All solid samples for conductivity exceeded extraction holding times by 3 days.
- All solid samples for Sulfur as SO42- exceeded extraction holding times by 14 days.
- All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 3 days.

EP1205053 and EP1205056

- All solid samples for pH analysis exceeded extraction holding times by 5 days and analysis holding times by 1 day.
- All leachate samples for pH analysis exceeded analysis holding times by a minimum of 1 day.
- All solid samples for conductivity exceeded extraction holding times by 5 days.
- All solid samples for Sulfur as SO42- exceeded extraction holding times by 14 days.
- All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 5 days.

4.1.4 Matrix Spikes

Matrix spike recoveries were not determined for Sulfate as SO4 - Turbimetric and Chloride in sample DH 031551 in batch EP1204221 due to the background level greater than or equal to four times the spike level. Therefore, assessment of the accuracy of analytical methods for these analytes may be limited within this batch.

Matrix spike recoveries were less than lower data quality objective in anonymous samples in batch EP1204221. As these samples are not URS samples, data quality is not likely to be affected.

4.1.5 Limits of Reporting

The protocol LORs exceed adopted guideline values for the following metals (leachable): Silver, Selenium, Mercury. These analytes, where reported less than the LOR, may exceed adopted guideline values.

4.1.6 Summary of Laboratory QAQC Results

The majority of QAQC issues outlined above are considered unlikely to have a significant effect on the precision and accuracy of reported results for the following reasons:

- Generally, laboratory QA/QC was reported at an appropriate frequency to indicate that the data has been generated with acceptable accuracy and precision.
- No volatile compounds were analysed, therefore it is unlikely that the excessive sample temperature will affect the reported analyte concentrations.

4 Quality Control and Quality Assurance (QAQC)

- The exceedance of holding times for analysis of some parameters (pH, soluble sulfate and chloride) is not considered to affect the interpretation of the results as the parameters are not considered to be of high importance in assessing the overall potential of impact from the residue materials. The additional holdings times are not thought to have had an adverse effect on the pH values.

4 Quality Control and Quality Assurance (QAQC)

The purpose of this preliminary geochemical assessment is to highlight a potential for environmental impact, and to establish technically appropriate protocols for ongoing detailed geochemical assessment at Christmas Creek to address identified data gaps. On the basis of the assessment objectives and the laboratory analytical data validation, the overall quality of the analytical results is considered to be acceptable for interpretive use.

5

Analysis Results

5.1 Acid Forming Characteristics

Table 1 presents the ABA results on the waste rock samples and tailings sample in alphabetically order. In **Table 1**, the predicted MPA generation based on the %S values, ANC, calculated NAPP values, calculated ANC/MPA ratios, NAGpH values and other parameters are presented.

Calculated NAPP and reported NAGpH were plotted graphically (see **Chart 5-1** below) to assist in ABA classification. Waste rock samples are presented by lithological group. As shown on the chart, the majority of the waste rock samples are classified as NAF-Uncertain (65) and Uncertain (112) while one waste rock sample (YPRD05790_7_8) is classified as NAF. The tailings sample is classified as NAF-Uncertain.

The majority of the waste rock samples (162) and the tailings sample are also classified as Barren due to low total sulfur content.

Chart 5-1 ABA Classification Plot

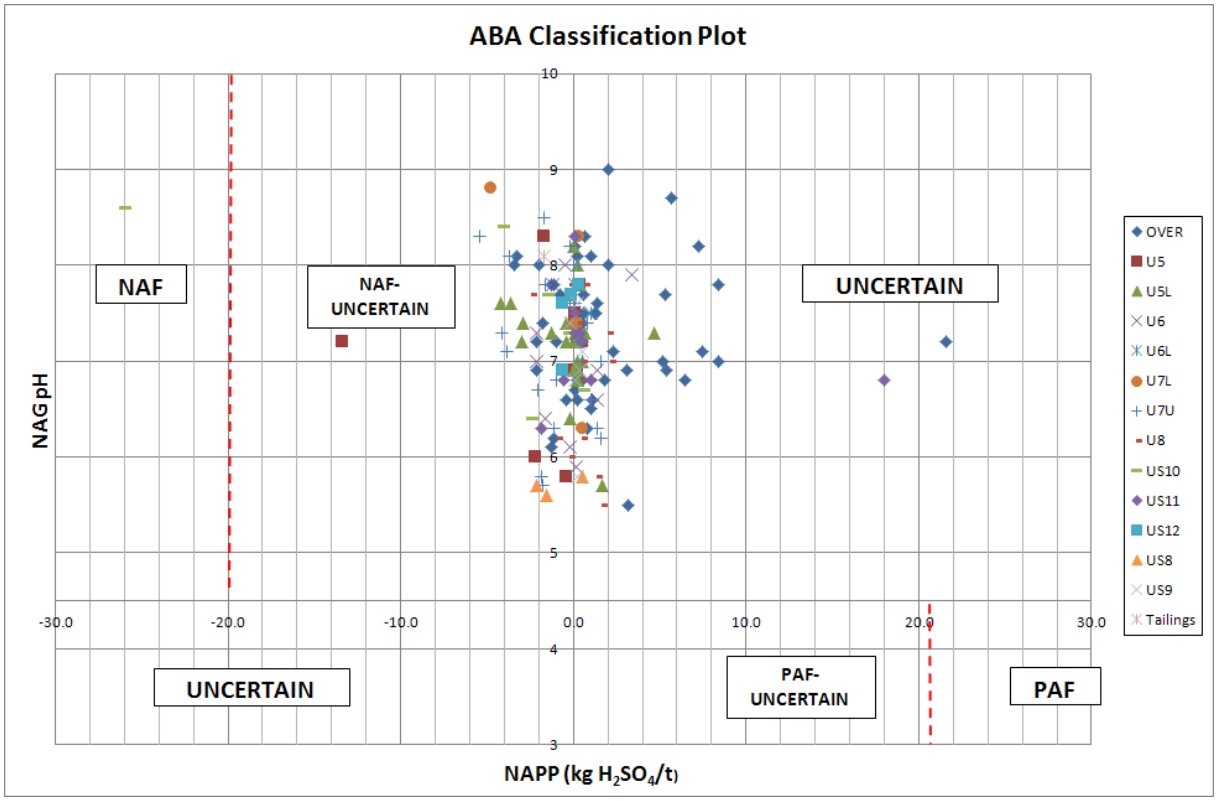

Table 5-1 presents an overall summary of ABA classifications for the waste rock samples and tailings sample.

5 Analysis Results

Table 5-1 Overall Summary of Sample Classification

Sample Classification	Number of samples
Waste Rock (178 samples)	
NAF-Barren	1
NAF-Uncertain-Barren	65
Uncertain	15
Uncertain-Barren	97
Tailings (1 sample)	
NAF-Uncertain-Barren	1

Table 5-2 presents the ABA classifications by lithological group.

Table 5-2 Waste Rock Sample Classifications by Lithology

Sample Classification	Number of samples
OVER (50 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	14
Uncertain	13
Uncertain-Barren	23
U8 (15 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	4
Uncertain	0
Uncertain-Barren	11
U7U (24 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	13
Uncertain	0
Uncertain-Barren	11
US12 (4 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	3
Uncertain	0
Uncertain-Barren	1
U7L (5 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	1
Uncertain	0
Uncertain-Barren	4
US11 (9 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	2
Uncertain	0
Uncertain-Barren	7

5 Analysis Results

Sample Classification	Number of samples
U6 (12 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	6
Uncertain	1
Uncertain-Barren	5
US10 (6 samples)	
NAF-Barren	1
NAF-Uncertain-Barren	4
Uncertain	0
Uncertain-Barren	1
U6L (1 sample)	
NAF-Barren	0
NAF-Uncertain-Barren	1
Uncertain	0
Uncertain-Barren	0
US9 (6 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	1
Uncertain	0
Uncertain-Barren	5
U5 (13 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	5
Uncertain	0
Uncertain-Barren	8
US8 (3 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	2
Uncertain	0
Uncertain-Barren	1
U5L (30 samples)	
NAF-Barren	0
NAF-Uncertain-Barren	9
Uncertain	1
Uncertain-Barren	20

Table 5-3 presents a statistical summary on waste rock acid base accounting results by lithology.

5 Analysis Results

Table 5-3 Acid Base Accounting Results Statistical Summary

Statistics	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO_4^{2-}	MPA	ANC as H_2SO_4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)
	pH Unit	µS/cm	%	mg/kg	kg H_2SO_4 equiv./t				pH Unit	kg H_2SO_4 /t	kg H_2SO_4 /t
OVER											
Mean	7.1	108	0.10	75	3.0	1.3	1.8	1.0	7.3	<0.1	0.8
Median	7.1	49	0.04	40	1.2	0.4	0.6	0.3	7.4	<0.1	0.3
Minimum	4.9	8	0.02	10	0.6	0.1	-3.4	0.0	5.5	<0.1	0.2
Maximum	9.7	625	0.71	390	21.7	4.6	21.6	3.9	9.0	<0.1	5.8
U8											
Mean	6.9	38	0.04	36	1.2	0.7	0.6	0.9	6.8	<0.1	0.5
Median	6.9	33	0.03	30	0.9	0.2	0.5	0.3	7.0	<0.1	0.6
Minimum	5.4	18	0.01	10	0.3	0.1	-2.4	0.0	5.5	<0.1	0.2
Maximum	8.1	88	0.08	70	2.4	3.0	2.2	4.9	7.8	<0.1	0.9
U7U											
Mean	6.8	93	0.03	90	0.9	2.2	-0.7	3.3	7.2	<0.1	1.1
Median	6.9	57	0.02	50	0.6	2.0	-0.1	2.5	7.3	<0.1	0.5
Minimum	5.4	7	0.01	20	0.3	0.2	-5.4	0.1	5.7	<0.1	0.2
Maximum	8.6	573	0.07	470	2.1	5.7	1.6	18.6	8.5	<0.1	2.8
US12											
Mean	6.8	28	0.02	25	0.7	0.9	-0.2	1.3	7.5	<0.1	0.2
Median	6.9	21	0.02	25	0.6	0.8	-0.3	1.4	7.7	<0.1	0.2
Minimum	6.1	19	0.01	10	0.3	0.3	-0.6	0.5	6.9	<0.1	0.2
Maximum	7.5	51	0.04	40	1.2	1.8	0.3	2.0	7.8	<0.1	0.2
U7L											
Mean	7.4	166	0.02	122	0.5	1.4	-0.7	8.6	7.6	<0.1	0.5
Median	6.9	68	0.02	60	0.6	0.3	0.2	8.6	7.4	<0.1	0.5
Minimum	6.4	37	0.01	30	0.3	0.1	-4.8	0.5	6.3	<0.1	0.5
Maximum	8.8	507	0.02	410	0.6	5.1	0.5	16.7	8.8	<0.1	0.5

5 Analysis Results

Statistics	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO_4^{2-}	MPA	ANC as H_2SO_4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)
US11											
Mean	6.9	119	0.04	151	1.1	1.1	2.0	0.9	7.1	<0.1	0.5
Median	6.8	43	0.03	50	0.9	0.2	0.1	0.7	7.2	<0.1	0.2
Minimum	6.1	23	0.01	20	0.3	0.2	-1.9	0.3	6.3	<0.1	0.2
Maximum	8.2	652	0.07	860	2.1	4.0	18.0	1.9	8.3	<0.1	1.1
U6											
Mean	7.0	51	0.05	45	1.5	1.9	-0.1	3.6	7.1	<0.1	0.5
Median	6.9	37	0.02	40	0.6	2.3	0.1	2.9	7.2	<0.1	0.3
Minimum	6.0	22	0.01	20	0.3	0.2	-2.1	0.4	5.9	<0.1	0.2
Maximum	8.2	138	0.20	100	6.1	2.7	3.4	7.8	8.0	<0.1	1.0
US10											
Mean	7.4	120	0.03	85	0.8	7.3	-7.9	24.1	7.5	<0.1	0.8
Median	6.9	87	0.03	50	0.8	3.6	-3.2	5.2	7.5	<0.1	0.8
Minimum	6.2	30	0.01	20	0.3	0.2	-25.9	0.2	6.4	<0.1	0.8
Maximum	9.3	372	0.04	290	1.2	26.2	0.7	85.6	8.6	<0.1	0.8
U6L											
Mean	6.9	26	0.01	20	0.3	3.3	-3.0	10.8	7.5	<0.1	<0.1
Median	6.9	26	0.01	20	0.3	3.3	-3.0	10.8	7.5	<0.1	<0.1
Minimum	6.9	26	0.01	20	0.3	3.3	-3.0	10.8	7.5	<0.1	<0.1
Maximum	6.9	26	0.01	20	0.3	3.3	-3.0	10.8	7.5	<0.1	<0.1
US9											
Mean	6.4	59	0.02	42	0.6	0.2	0.3	0.2	6.9	<0.1	1.5
Median	6.7	46	0.02	40	0.6	0.2	0.2	0.2	7.0	<0.1	1.5
Minimum	4.9	24	0.02	20	0.6	0.1	0.1	0.2	5.8	<0.1	1.5
Maximum	7.3	138	0.02	60	0.6	0.2	0.5	0.3	7.6	<0.1	1.5
U5											
Mean	6.9	122	0.01	98	0.4	2.2	-1.3	9.4	7.1	<0.1	1.7
Median	6.7	53	0.01	40	0.3	0.2	0.1	1.5	7.2	<0.1	1.7
Minimum	6.0	16	0.01	10	0.3	0.1	-13.4	0.3	5.8	<0.1	0.3

5 Analysis Results

Statistics	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO_4^{2-}	MPA	ANC as H_2SO_4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)
Maximum	8.9	434	0.02	370	0.6	13.7	0.5	44.8	8.3	<0.1	3.2
US8											
Mean	7.6	62	0.02	27	0.6	1.7	-1.1	3.6	5.7	<0.1	1.8
Median	8.2	33	0.02	20	0.6	2.4	-1.6	2.7	5.7	<0.1	1.7
Minimum	6.2	22	0.01	20	0.3	0.1	-2.1	0.2	5.6	<0.1	0.4
Maximum	8.3	131	0.03	40	0.9	2.5	0.5	7.8	5.8	<0.1	3.3
U5L											
Mean	7.1	81	0.06	48	1.7	1.2	0.3	1.8	7.2	<0.1	0.5
Median	7.1	42	0.04	30	1.2	0.3	0.2	1.3	7.3	<0.1	0.5
Minimum	5.8	11	0.01	10	0.3	0.1	-4.2	0.1	5.7	<0.1	0.4
Maximum	8.6	601	0.17	140	5.2	5.4	4.7	4.4	8.2	<0.1	0.5

5.2 Multi-Element Composition of Waste Materials

5.2.1 Multi-element solids

Screening of waste rock analytical results was undertaken by comparing the results with the DEC ISQG low and high trigger values.

Attached Tables 2a and **2b** present the complete waste rock analytical results. **Table 2a** results have been compared against the adopted DEC (now Department of Environment Regulation) guideline criteria.

General Observations on Metals

The 178 waste rock samples analysed reported metal concentrations below the ISQG criteria for both low and high probability for causing biological effects, with the following exceptions:

- Arsenic (As) concentrations were reported above the ISQG low trigger value in 84 samples and above the ISQG high trigger value in two OVER samples, one U5L sample and one US12 sample;
- Cadmium (Cd) concentration was reported above the ISQG low trigger value in the U7L lithological unit near the eastern section of the pit;
- Chromium (Cr) concentrations were reported above the ISQG low trigger value in 82 samples;
- Copper (Cu) concentrations were reported above the ISQG low trigger value in four samples from the OVER lithological unit and generally located in the south-western section of the pit;
- Nickel (Ni) concentrations were reported above ISQG low trigger value in 98 samples and above the ISQG high trigger value in 39 samples;
- Lead (Pb) concentrations were reported above the ISQG low trigger value in three U7U samples generally in the southern section of the pit;
- Antimony (Sb) concentrations were reported above the ISQG low trigger value in 61 samples.

Attached **Table 3** presents a statistical summary of the waste rock metal results by lithology.

The following section describes the analytical results by lithology starting from the uppermost layer.

Observations on Metals by Lithological Unit

OVER (50 samples)

The following observations can be made on the OVER waste rock samples:

- The majority of the samples analysed (39) reported As concentrations slightly to moderately above the ISQG low trigger value of 20 mg/kg. Reported As concentrations ranged from 3.7 to 47.1 mg/kg.
- The majority of the samples (40) reported Cr concentrations moderately above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 13 to 237 mg/kg.

5 Analysis Results

- Four samples reported Cu concentrations marginally to moderately above the ISQG low trigger value of 65 mg/kg. Three of the samples were located in the south-western section. The location of sample YPGC04543 has not been provided by Fortescue at the time of reporting. Reported Cu concentrations ranged from 3.3 to 80.3 mg/kg.
- The majority of the samples (41) reported Ni concentrations above the ISQG low trigger value of 21 mg/kg and 19 samples were reported above the ISQG high trigger value of 52 mg/kg. Reported Ni concentrations ranged from 5.3 to 83.9 mg/kg.
- Almost half of the samples analysed (22) reported Sb concentrations marginally to moderately above the ISQG low trigger value of 2 mg/kg. Reported Sb concentrations ranged from 0.22 to 4.46 mg/kg.

U8 (15 samples)

The following observations can be made on the U8 waste rock samples:

- Nine of the samples reported As concentrations slightly above the ISQG low trigger value of 20 mg/kg. These samples were from the southern section of the pit. Reported As concentrations ranged from 5.9 to 34 mg/kg.
- Eight samples, generally from the southern section of the pit, reported Cr concentrations significantly above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 24 to 284 mg/kg.
- Nine samples, generally from the southern section of the pit, reported Ni concentrations moderately above the ISQG low trigger value of 21 mg/kg. Reported Ni concentrations ranged from 4.2 to 38 mg/kg.
- Eight samples, generally from the southern section of the pit with one sample from the north-western section of the pit, reported Sb concentration slightly above the ISQG low trigger value of 2 mg/kg. Reported Sb concentrations ranged from 0.52 to 2.89 mg/kg.

The location of sample YPGC04543, which reported exceedances for all elements listed above, has not been provided by Fortescue at the time of reporting.

U7U (24 samples)

U7U constitutes one of the main ore lithologies. The following observations can be made on the rock samples from this lithological unit:

- Fourteen of the 24 samples reported As concentrations above the ISQG low trigger value of 20 mg/kg and one sample from the southern part of the pit reported As concentrations marginally above the ISQG high trigger value of 70 mg/kg. Reported As concentrations ranged from 4.2 to 70.3 mg/kg.
- Ten samples from across the pit reported Cr concentrations moderately above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 12 to 207 mg/kg.
- Fourteen samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg and six samples (all located in the southern section, although the locations of sample YPGC04543 and YPRD06017 have not been provided by Fortescue at the time of reporting) reported Ni concentrations above the ISQG high trigger value of 52 mg/kg.

5 Analysis Results

Reported Ni concentrations ranged from 4.5 to 1330 mg/kg. The highest Ni concentration (1330 mg/kg) was detected at CAGC30291 which is located at the southern portion of the pit.

- Three samples from the southern section of the pit reported Pb concentrations above the ISQG low trigger value of 50 mg/kg. These are the only samples from the entire pit that reported Pb concentrations above an ISQG trigger value. Reported Pb concentrations ranged from 2.2 to 129 mg/kg.
- Half of the samples reported Sb concentrations moderately above the ISQG low trigger value of 2 mg/kg. Reported Sb concentrations ranged from 0.39 to 6.95 mg/kg.

US12 (4 samples)

The following observations can be made on the samples taken from this shale layer:

- Two of the four samples (both of which are located in the southern portion of the pit) reported As concentrations above the ISQG high trigger value of 70 mg/kg. Reported As concentration ranged from 5.3 to 759 mg/kg (more than ten times the ISQG high trigger value).
- Two samples reported Ni concentrations significantly above the ISQG high trigger value of 52 mg/kg. Reported Ni concentrations ranged from 15.1 to 240 mg/kg.
- Two samples reported Sb concentrations slightly above the ISQG low trigger value of 2 mg/kg. Reported concentrations ranged from 0.34 to 3.85 mg/kg.

U7L (5 samples)

U7L constitutes one of the main ore lithologies. The following observations can be made on the rock samples from this lithological unit:

- Cd concentration was reported slightly above the ISQG low trigger value of 1.5 mg/kg at one location at the central eastern part of the pit. This is the only location where Cd concentration was reported above the ISQG low trigger value.
- Cr concentration was reported at 97 mg/kg in one sample (The location of sample YPRD05790 has not been provided by Fortescue at the time of reporting), which was above the ISQG low trigger value of 80 mg/kg.
- Three samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg and one located at the central eastern part of the pit reported Ni concentrations above the ISQG high trigger value of 52 mg/kg. Reported Ni concentrations ranged between 15 and 79.8 mg/kg.
- One sample located in the north-eastern corner of the pit reported Sb concentrations marginally above the ISQG low trigger value of 2 mg/kg.

US11 (9 samples)

The following observations can be made on the samples taken from this shale layer:

- Two samples reported As concentrations above the ISQG low trigger value of 20 mg/kg. Reported As concentrations ranged from 6.7 to 43.9 mg/kg.
- One sample from the northern section of the pit reported Cr concentrations marginally above the ISQG low trigger value of 80 mg/kg.

5 Analysis Results

- Three samples generally from the southern section of the pit reported Ni concentrations slightly above the ISQG low trigger value of 21 mg/kg. Reported Ni concentrations ranged from 5.2 and 30.8 mg/kg.
- Two samples reported Sb concentrations slightly above the ISQG low trigger value of 2 mg/kg.

U6 (12 samples)

U6 constitutes one of the main ore lithologies. The following observations can be made on the rock samples from this lithological unit:

- Five samples from the central and western sections (it is noted that the location of one sample YPRD06017 has not been provided by Fortescue at the time of reporting) of the pit reported As concentrations slightly to moderately above the ISQG low trigger value of 20 mg/kg. Reported As concentrations ranged from 4 to 33 mg/kg.
- Two samples reported Cr concentrations moderately above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 13 to 111 mg/kg.
- Six samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg while four of these samples (generally from the central south-western part of the pit) reported Ni concentrations above the ISQG high trigger value of 52 mg/kg. Reported Ni concentrations ranged from 6.3 to 95.8 mg/kg.
- Two samples reported Sb concentrations marginally above the ISQG low trigger value of 2 mg/kg.

US10 (6 samples)

The following observations can be made on the samples taken from this shale layer:

- One samples reported As concentrations above the ISQG low trigger value of 20 mg/kg. Reported As concentrations ranged from 4.8 to 42 mg/kg.
- Two samples reported Cr concentrations above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 12 to 102 mg/kg.
- Half of the samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg. Reported Ni concentrations ranged from 10.8 to 43.3 mg/kg.
- One sample reported Sb concentrations marginally above the ISQG low trigger value.

The location of samples RRGC01553, YPRD05790, YPGC02056, and, YPGC11249 which reported exceedances for some of the elements listed above, have not been provided by Fortescue at the time of reporting.

U6L (1 sample)

Only one U6L waste rock sample was collected and analysed. No exceedance of any ISQG low or high trigger values was reported.

5 Analysis Results

US9 (6 samples)

The following observations can be made on the samples taken from this shale layer:

- One of the six samples reported As concentrations marginally above the ISQG low trigger value of 20 mg/kg.
- Two samples reported Cr concentrations moderately above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 10 to 184 mg/kg.
- Four samples reported Ni concentrations moderately above the ISQG low trigger value of 21 mg/kg. Reported Ni concentrations ranged from 15.9 to 51.9 mg/kg.
- Three samples reported Sb concentrations marginally above the ISQG low trigger value of 2 mg/kg.

The location of samples YPGC06605, YPRD06576, and YPGC06879 which reported exceedances for some of the elements listed above, have not been provided by Fortescue at the time of reporting.

U5 (13 samples)

The following observations can be made on the U5 waste rock samples:

- Approximately half of the samples reported As concentrations moderately above the ISQG low trigger value of 20 mg/kg. These samples are generally from the south-western and central south-western sections of the pit. Reported As concentrations ranged from 2.4 to 52.6 mg/kg.
- Approximately half of the samples reported Cr concentrations moderately above the ISQG low trigger value of 80 mg/kg. These samples are generally from the south-western section of the pit (the location of samples YPGC06017 and YPRD06576 have not been provided by Fortescue at the time of reporting). Reported Cr concentrations ranged from 3 to 103 mg/kg.
- Approximately half of the samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg while four of these reported concentrations above the ISQG high trigger value of 52 mg/kg. The locations where Ni concentrations were reported above the ISQG high trigger value include the central and south-western parts of the pit. Reported Ni concentrations ranged from 2.2 to 119.5 mg/kg.
- Approximately half of the samples reported Sb concentrations generally slightly above the ISQG low trigger value of 2 mg/kg.

US8 (3 samples)

The following observations can be made on the samples taken from this shale layer:

- One sample reported Cr concentrations slightly above the ISQG low trigger value of 80 mg/kg.

U5L (30 samples)

The following observations can be made on the U5L waste rock samples:

- Five samples reported As concentrations above the ISQG low trigger value of 20 mg/kg. These were generally from the southern and central parts of the pit. One sample reported As concentrations more than ten times above the ISQG high trigger value of mg/kg. Reported As concentrations ranged from 2.6 to 240 mg/kg.

- Ten samples reported Cr concentrations above the ISQG low trigger value of 80 mg/kg. Reported Cr concentrations ranged from 11 to 204 mg/kg.
- Seven samples reported Ni concentrations above the ISQG low trigger value of 21 mg/kg and three of these (from the central and southern parts of the pit) reported Ni concentrations above the ISQG high trigger value of 52 mg/kg. Reported Ni concentrations ranged from 2.2 to 62.8 mg/kg.
- Three samples reported Sb concentrations above the ISQG low trigger value of 2 mg/kg.

5.2.2 Multi-element leachate

Metal and major ion leachability tests, using deionised water extractions were conducted to predict the potential for metalliferous or saline drainage. The results of the multi-element leachate analysis of the waste rock samples compared against the ANZECC Trigger Values are presented in **Table 4** (attached).

The limit of reporting (LOR) was higher than the criteria values for Se and Ag. This may lead to an inaccurate determination of potential impacts from leachate. The analyses that were below detection limit for this element have not been highlighted; however results have been interpreted with caution.

Electrical conductivity ranged from 7 µS/cm (QC03_24/05/2012 duplicate of YPGC11055_25_26) to 262 µS/cm (TRRD33437_14_15). TDS ranged from less than LOR of 10 mg/L (various samples) to 194 mg/L (QC4 duplicate of YPRD13687_1_2). This indicates that the leachates generated from interaction with fresh water are generally fresh.

Reported pH ranged from 6.08 (YPRD11438_13_14) to 9.04 (RRGC01521_1_2) indicating slightly acidic to moderately alkaline conditions in the leachates.

General Observations on Metals

The waste rock leachates reported metal concentrations below the ANZECC criteria, with the following exceptions:

- Aluminium (Al) concentrations, which were reported above the ANZECC criteria in several samples in all lithologies except U6L.
- As concentration which was reported above the ANZECC criteria in one OVER sample.
- Boron (B) concentrations, which were reported above the ANZECC criteria in several samples in all lithologies except U6L.
- Cd concentrations, which were reported above the ANZECC criteria in several samples in the following lithologies: OVER, U8, U7U, US12, U7L, US11, U6, US9, U5 and U5L.
- Cr concentrations, which were reported above the ANZECC criteria in several samples across most lithologies.
- Cu concentrations, which were reported above the ANZECC criteria in several samples in most lithologies.
- Pb concentrations, which were reported above the ANZECC criteria in four OVER samples and one US12 sample.

5 Analysis Results

- Manganese (Mn) concentrations, which were reported above the ANZECC criteria in one U7L sample and one US11 sample.
- Mercury (Hg) concentrations, which were reported above the ANZECC criteria in one OVER sample and one U7U sample.
- Ni concentrations, which were reported above the ANZECC criteria mainly in the OVER lithology (nine samples) and in one sample in the US12 shale layer.
- Zinc (Zn) concentrations, which were reported above the ANZECC criteria in all samples in all lithologies.

Observations on Metals by Lithological Unit

OVER (50 samples)

The following observations can be made on metals in the OVER leachate samples:

- Most of the samples reported Al concentrations significantly above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from <LOR to 25.9 mg/L.
- Most of the samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.09 to 3.63 mg/L.
- Sixteen samples reported Cd concentrations at or generally slightly above the ANZECC trigger value of 0.0002 mg/L. Reported concentrations ranged from <LOR and 0.0092 mg/L.
- Approximately two thirds of the samples reported Cr concentrations at or generally moderately above the ANZECC trigger value of 0.001 mg/L. Reported concentrations ranged from <LOR to 0.088 mg/L.
- A large majority of the samples reported Cu concentrations moderately above the ANZECC trigger value of 0.0014 mg/L. Reported concentrations ranged from <LOR 0.944 mg/L.
- One sample reported Hg concentration (0.0001 mg/L) above the ANZECC trigger value of 0.00006 mg/L.
- Nine samples reported Ni concentrations above the ANZECC trigger value of 0.011 mg/L. Reported concentrations ranged from 0.001 to 0.09 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.07 to 1.34 mg/L.

U8 (15 samples)

The following observations can be made on the U8 leachate samples:

- Most of the samples reported Al concentrations significantly above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from <LOR to 3.62 mg/L.
- Most of the samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.24 and 2.74 mg/L.

5 Analysis Results

- Two samples reported Cd concentrations at the ANZECC trigger value of 0.0002 mg/L. One sample was from the west south-western area while the other was from the south-eastern section of the pit.
- Ten samples reported Cr concentrations at or marginally above the ANZECC trigger value of 0.001 mg/L.
- Ten samples reported Cu concentrations slightly above the ANZECC trigger value of 0.0014 mg/L. Reported Cu concentrations ranged from <LOR to 0.02 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.062 to 0.861 mg/L.

U7U (24 samples)

The following observations can be made on the U7U leachate samples:

- Seventeen of the samples reported Al concentrations significantly above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from <LOR to 17.3 mg/L.
- Sixteen samples reported B concentrations slightly to moderately above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.11 to 3.13 mg/L.
- Six samples reported Cd concentrations marginally above the ANZECC trigger value of 0.0002 mg/L.
- Nine samples reported Cr concentrations at or slightly above the ANZECC trigger value of 0.001 mg/L. Reported Cr concentrations ranged from <LOR to 0.012 mg/L.
- Seven samples reported Cu concentrations slightly to moderately above the ANZECC trigger value of 0.0014 mg/L. Reported Cu concentrations ranged from 0.001 to 0.019 mg/L.
- One sample reported Hg concentration of 0.0006 mg/L, ten times above the ANZECC trigger value of 0.00006 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.043 to 0.934 mg/L.

US12 (4 samples)

The following observations can be made of the leachate samples from this shale layer:

- All samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.21 to 2.17 mg/L.
- Three samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.49 to 1.8 mg/L.
- One sample reported Cd concentration at the ANZECC trigger value of 0.0002 mg/L.
- Two samples from the southern part of the pit reported Cr concentrations two to three times above the ANZECC trigger value of 0.001 mg/L.
- Two samples reported Cu concentrations above the ANZECC trigger value of 0.0014 mg/L.

5 Analysis Results

- One sample reported Pb concentration of 0.004 mg/L, above the ANZECC trigger value of 0.0034 mg/L.
- One sample reported Ni concentration of 0.016 mg/L, above the ANZECC trigger value of 0.011 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.099 to 0.677 mg/L.

U7L (5 samples)

The following observations can be made on the U7L leachate samples:

- All samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.07 to 0.89 mg/L.
- Four samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.32 to 1.65 mg/L.
- One sample reported Cd concentration of 0.0002 mg/L, at the ANZECC trigger value.
- Three samples reported Cu concentration of 0.002 mg/L, above the ANZECC trigger value of 0.0014 mg/L.
- One sample reported Mn concentration of 2.78 mg/L, above the ANZECC trigger value of 1.9 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.101 to 0.38 mg/L.

US11 (9 samples)

The following observations can be made of the leachate samples from this shale layer:

- The majority of the samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.03 to 1.69 mg/L.
- Five samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.14 to 1.76 mg/L.
- Three samples reported Cd concentration at the ANZECC trigger value of 0.0002 mg/L while one sample reported Cd concentration exceeding the trigger value.
- Five samples reported Cr concentration at or slightly above the ANZECC trigger value of 0.001 mg/L.
- Three samples reported Cu concentrations ranging between 0.003 and 0.004 mg/L, above the ANZECC trigger value of 0.0014 mg/L.
- One sample reported Mn concentration of 1.94 mg/L, slightly above the ANZECC trigger value of 1.9 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.05 to 0.489 mg/L.

5 Analysis Results

U6 (12 samples)

The following observations can be made on the U6 leachate samples:

- Eight samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.01 to 2.48 mg/L.
- Seven samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.08 to 1.75 mg/L.
- One sample reported Cd concentration at the ANZECC trigger value of 0.0002 mg/L.
- One sample reported Cr concentrations at the ANZECC trigger value of 0.001 mg/L and five samples reported Cr concentrations above the trigger value.
- Five samples reported Cu concentrations ranging between 0.001 and 0.005 mg/L, above the ANZECC trigger value of 0.0014 mg/L.
- All samples reported Zn concentrations significantly above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.041 to 0.699 mg/L.

US10 (6 samples)

The following observations can be made of the leachate samples from this shale layer:

- Four samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L.
- Three samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.49 to 2.15 mg/L.
- One sample reported Cr concentrations at the ANZECC trigger value of 0.001 mg/L and another reported Cr concentrations above the trigger value.
- All samples reported Zn concentrations above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.059 to 0.355 mg/L.

U6L (1 sample)

For this single U6 leachate sample, only Zn concentration was reported above the ANZECC trigger value (0.008 mg/L).

US9 (6 samples)

The following observations can be made of the leachate samples from this shale layer:

- All samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.06 to 4.1 mg/L.
- Five samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.33 to 2.32 mg/L.
- One sample reported Cd concentration at the ANZECC trigger value of 0.0002 mg/L while another sample reported Cd concentration above the trigger value.
- One sample reported Cr concentration at the ANZECC trigger value of 0.001 mg/L while another sample reported Cr concentration above the trigger value.

5 Analysis Results

- Three samples reported Cu concentrations above the ANZECC trigger value of 0.0014 mg/L.
- All samples reported Zn concentrations above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.121 to 0.692 mg/L.

U5 (13 samples)

The following observations can be made on the U5 leachate samples:

- Four samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.01 to 1.11 mg/L.
- Ten samples reported B concentrations above the ANZECC trigger value of 0.37 mg/L. Reported B concentrations ranged from 0.16 to 3.17 mg/L.
- Three samples reported Cd concentration at or just above the ANZECC trigger value of 0.0002 mg/L.
- Three samples reported Cr concentration at or just above the ANZECC trigger value of 0.001 mg/L.
- Only one sample reported Cu concentration above the ANZECC trigger value of 0.0014 mg/L.
- All samples reported Zn concentrations above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.031 to 0.614 mg/L.

US8 (3 samples)

The following observations can be made of the leachate samples from this shale layer:

- One sample reported Al concentration of 3.77 mg/L significantly above the ANZECC trigger value of 0.055 mg/L.
- One sample reported B concentration of 1.07 mg/L above the ANZECC trigger value of 0.37 mg/L.
- One sample reported Cr concentration of 0.004 mg/L above the ANZECC trigger value of 0.001 mg/L.
- One sample reported Cu concentration of 0.003 mg/L above the ANZECC trigger value of 0.0014 mg/L.
- All samples reported Zn concentrations above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.031 to 0.614 mg/L.

U5L (30 samples)

The following observations can be made on the U5L leachate samples:

- Twenty samples reported Al concentrations above the ANZECC trigger value of 0.055 mg/L. Reported Al concentrations ranged from 0.01 to 5.16 mg/L.
- Twenty three samples reported B concentration above the ANZECC trigger value of 0.37 mg/L. Reported B concentration ranged from 0.06 to 3.47 mg/L.
- Four samples reported Cd concentrations at the ANZECC trigger value of 0.0002 mg/L.

- Eight samples reported Cr concentrations at or moderately above the ANZECC trigger value of 0.001 mg/L. Reported Cr concentrations ranged from 0.001 ato 0.004 mg/L.
- Nine samples reported Cu concentrations above the ANZECC trigger value of 0.0014 mg/L. Reported Cu concentrations ranged from 0.001 to 0.01 mg/L.
- All samples reported Zn concentrations above the ANZECC trigger value of 0.008 mg/L. Reported concentrations ranged from 0.019 to 1.01 mg/L.

5.2.3 Geochemical Abundance Index

Statistical analyses by lithology were conducted on multi-element solid metal results and presented in **Table 3** (attached). The median results for each of the 13 lithologies were used to calculate the GAI. The results of the GAI analysis are presented in attached **Table 5** (attached).

The results indicate that the only element present in enriched concentrations in the different lithologies of the waste materials is Fe. Fe was found to be enriched in the U6, U7L, U7U, U8, US9, US10, US11 and US12 lithologies. Fe is expected to be enriched in this area as it is the mined element. This is particularly true for the main ore lithologies: U7U, U7L and U6.

As the Christmas Creek mine is located in the Pilbara region, where Fe and some metals are preferentially enriched in soils and rock, elevated Fe in the waste materials is considered to be representative of background conditions. Therefore, it is considered unlikely to have substantial environmental impact risks with regards to metals.

5.3 Multi-Element Composition of Tailings

5.3.1 Multi-element solids

Screening of residue tailings results was undertaken by initially comparing the results with the ISQG low and high values.

Tables 6a and **6b** (attached) present the tailings analytical results. **Table 6a** results are compared against the adopted DEC guideline criteria.

The tailings sample reported metal concentrations below the ISQG criteria for both low and high probability for causing biological effects, with the following exceptions:

- As, which reported a concentration of 22.2 mg/kg, above the ISQG low trigger value of 20 mg/kg.
- Ni, which reported a concentration of 38 mg/kg, above the ISQG low trigger value of 21 mg/kg.

5.3.2 Multi-element leachate and supernatant

While the ABA test results provided an indication of the potential for acid generation in the tailings sample, additional test work was required to predict the potential for metalliferous or saline drainage. In view of this, metal and major ion leachability tests using deionised water extractions were conducted. The results of the multi-element leachate analysis of the tailings residue samples are presented in **Table 7** (attached).

5 Analysis Results

The tailings leachate reported concentrations below the ANZECC criteria, with the following exception:

- Zn concentration (0.143 mg/L), which was reported above the ANZECC trigger value of 0.008 mg/L.

This indicates that although As and Ni are present in elevated concentrations in the tailings, these elements do not appear to be readily leached by water using static geochemical leach tests.

Table 8 (attached) presents the tailings supernatant analytical results compared against the ANZECC Trigger Values.

The tailings supernatant reported concentrations below the ANZECC criteria, with the following exceptions:

- Al, B, Cr, Cu and Zn concentrations, which were reported above the ANZECC criteria.

This indicates that given a longer period of leaching, metals such as Al, B, Cr, Cu and Zn can leach out of the tailings and cause metalliferous drainage.

6

Conclusions

Samples from waste rock materials and tailings at the Christmas Creek mine were subjected for ABA, multi-element solids and leachate analysis as part of the preliminary geochemical assessment of the materials to assist with the identification and management of potential environmental impacts, with focus on the potential for the samples materials to generate AMD.

6.1.1 Waste Rock

Based on the review of the analytical results for ABA, one waste rock sample was classified as NAF (YPRD05790_7_8 [US10]) while the rest of the samples were classified as NAF (Uncertain). The majority of samples also had total sulfur values below 0.1%S, and were therefore classified as Barren.

The waste rock materials represented by the samples analysed are therefore considered unlikely to generate acid drainage resulting in environmental impact or requiring management.

Median concentrations calculated for the different waste material lithologies show that there is enrichment in Fe. Fe was found to be enriched in both ore and waste including the U6, U7L, U7U, U8, US9, US10, US11 and US12 lithologies.

As the Christmas Creek mine is located in the Pilbara region, where Fe and some metals are preferentially enriched in soils and rock, elevated Fe in the waste materials is considered to be representative of background conditions locally. Therefore, it is considered unlikely to have substantial environmental impact risks provided the waste materials do not enter the waterways as suspended solid load, thereby transporting sediment enriched in Fe to areas where sediment may be less enriched in Fe.

The waste rock materials tested did not exceed WA DEC ISQG low or ISQG high trigger values for soils and sediments for the majority of metals. The only exceptions were:

- As was reported above the ISQG low trigger value in more than three samples and above the ISQG high trigger value in three samples (CAGC30291_13_14 [OVER], CAGC30291_19_20 [OVER] and YPGC05415_25_26 [US12]).
- Cr was reported above the ISQG low trigger value in several samples.
- Ni was reported above the ISQG low trigger value in several samples and above the ISQG high trigger value in 39 samples.
- Pb was reported above the ISQG low trigger value in three samples (CAGC30291_13_14, YPGC02807_31_32 and YPGC11249_19_20).
- Sb was reported above the ISQG low trigger value in several samples.

The metals and metalloids identified as exceeding ISQG criteria are commonly found enriched in the vicinity of the ore zones of iron ore deposits and BIF materials in the Pilbara.

Potential environmental impacts may occur where waste materials enter the waterways as suspended solid load, thereby transporting sediment containing in certain metals and metalloids from localised areas to more widespread areas. Sediment may be less enriched in those elements and/or ecosystems may be impacted by elevated levels of metals and metalloids in sediment.

In addition to the NAG and NAPP values (and ANC/MPA ratio) which provide an indication of the potential for acid generation from a sample, metal leachability tests (deionised water extractions) were conducted to predict the potential for metalliferous and/or saline drainage.

6 Conclusions

TDS ranged from less than LOR to 194 mg/L indicating that the leachates are non-saline. The pH ranged from 6.08 to 9.04 indicating neutral to moderately alkaline conditions in the leachates. This is an indication that the waste rock materials tested are considered unlikely to cause saline or acidic drainage.

The leachate testing was carried out using a method that resulted in the LOR of Se and Ag being higher than the ANZECC (2000) trigger value. This means that the results require interpretation with caution. Silver (Ag) is less likely to occur in environmentally significant concentrations in iron ore deposits, therefore, it is recommended that Ag be included within the analytical suite of any further geochemical assessments at Christmas Creek, and that the analytical methodology be adjusted to achieve a smaller LOR and enable a more thorough assessment of the potential impacts associated with Ag in the residue samples.

The results of the leachate testing indicated that the waste rock samples reported concentrations below the ANZECC trigger values except for Al, As, B, Cd, Cr, Cu, Pb, Mn, Hg, Ni and Zn. It is noted that As, Cr, Ni and Pb were also reported above the ISQG criteria in the waste rock material.

It is also noted that concentrations of some metals (Al, B, Cd, Cu, Mn and Zn) were not reported above the ISQG criteria but were detected above the ANZECC criteria in the leachate. Hg was not analysed in waste rock material but was analysed in the waste rock leachates.

This indicates that Al, As, B, Cd, Cr, Cu, Pb, Mn, Hg, Ni and Zn may have the potential for the generation of metalliferous drainage resulting in potential short-term impacts to surface water ecosystems (based on the ANZECC screening trigger values), if run-off and infiltration are not managed appropriately. Further interpretation is required on the lithologies of the key higher-risk waste materials, methods of mining and separating, and potential waste scheduling opportunities.

6.1.2 Tailings

Based on the review of analytical results for ABA, the tailings sample was classified as NAF (Uncertain). As the total sulfur content is below 0.1%S, the sample was also classified as Barren.

The tailings sample did not exceed WA DEC ISQG low or ISQG high trigger values for soils and sediments for the majority of metals. The only exceptions were As and Ni concentrations, which were reported above the ISQG low trigger value.

The results of the leachate testing indicated that the tailings samples reported concentrations below the ANZECC trigger values, except Zn concentration, which was reported above the ANZECC criteria.

The tailings supernatant sample was tested with the same analytical suite as the tailings leachate and compared to the ANZECC trigger values. Al, B, Cr, Cu and Zn concentrations were reported above the ANZECC criteria. This indicates that short-term and initial infiltration of tailings pore water has the potential to impact groundwater ecosystems and down-stream surface water ecosystems if the tailings dams are operated at less than optimal solid to supernatant ratios.

7

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8

Limitations

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Fortescue and only those third parties who have been authorised in writing by URS to rely on the report.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the contract 100-CO-EN-0038 dated 25 October 2011, and in Variation 001 revision 2 (TESG0244_V001), dated 6 August 2012 and Variation 002 (TESGO0244_V002) dated 14 April 2014.

The methodology adopted and sources of information used by URS are outlined in this the Report.

Where this report indicates that information has been provided to URS by third parties, URS has made no independent verification of this information unless required as part of the agreed scope of work. URS assumes no liability for any inaccuracies in or omissions to that information.

This Report was prepared between January 2012 and April 2014.The information in this report is considered to be accurate at the date of issue and is in accordance with conditions at the site at the dates sampled (as detailed in the report). Opinions and recommendations presented herein apply to the site existing at the time of our investigation and cannot necessarily apply to site changes of which URS is not aware and has not had the opportunity to evaluate. This document and the information contained herein should only be regarded as validly representing the site conditions at the time of the investigation unless otherwise explicitly stated in a preceding section of this report. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This report contains information obtained by inspection, sampling, testing or other means of investigation. This information is directly relevant only to the points in the ground where they were obtained at the time of the assessment. The borehole logs indicate the inferred ground conditions only at the specific locations tested. The precision with which conditions are indicated depends largely on the uniformity of conditions and on the frequency and method of sampling as constrained by the project budget limitations. The behaviour of groundwater and some aspects of contaminants in soil and groundwater are complex. Our conclusions are based upon the analytical data presented in this report and our experience. Future advances in regard to the understanding of chemicals and their behaviour, and changes in regulations affecting their management, could impact on our conclusions and recommendations regarding their potential presence on this site.

Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, URS must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

Whilst to the best of our knowledge information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

8 Limitations

Except as required by law, no third party may use or rely on, this Report unless otherwise agreed by URS in writing. Where such agreement is provided, URS will provide a letter of reliance to the agreed third party in the form required by URS.

To the extent permitted by law, URS expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. URS does not admit that any action, liability or claim may exist or be available to any third party.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Report. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

Tables

Table 1
Acid Base Accounting Results - Christmas Creek Waste Rock and Tailings
FMG Christmas Creek

Lithology	Sample ID	Sample Type	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO4 2-	MPA	ANC as H2SO4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)	Sample Classification[3]
			pH Unit	µS/cm	%	mg/kg	kg H2SO4 equiv./t				pH Unit	kg H2SO4/t	kg H2SO4/t	
U7U	CAGC30291_13_14	Waste Rock	**6.9**	**47**	**0.04**	**50**	**1.2**	**4.9**	**-3.7**	**4.0**	**8.1**	<0.1	<0.1	NAF-Uncertain-Barren
US12	CAGC30291_19_20	Waste Rock	**7**	**51**	**0.02**	**40**	**0.6**	**0.3**	**0.3**	**0.5**	**7.8**	<0.1	<0.1	Uncertain-Barren
U6	CAGC30291_25_26	Waste Rock	**6.9**	**22**	<0.01	**20**	<0.3	<0.1	**0.2***	<LOR	**7.3**	<0.1	<0.1	Uncertain-Barren
U5L	CAGC30291_43_44	Waste Rock	**7.4**	**23**	<0.01	**20**	<0.3	**0.2**	**0.1***	<LOR	**7.3**	<0.1	<0.1	Uncertain-Barren
OVER	CAGC30291_7_8	Waste Rock	**7.3**	**338**	**0.04**	**170**	**1.2**	**4.6**	**-3.4**	**3.8**	**8**	<0.1	<0.1	NAF-Uncertain-Barren
U8	RRGC00463_1_2	Waste Rock	**6.1**	**18**	**0.04**	**10**	**1.2**	**2.1**	**-0.9**	**1.7**	**6.2**	<0.1	**0.9**	NAF-Uncertain-Barren
U5	RRGC00463_13_14	Waste Rock	**6.1**	**45**	**0.01**	**30**	**0.3**	**2.5**	**-2.2**	**8.2**	**6**	<0.1	**1.7**	NAF-Uncertain-Barren
U5L	RRGC00463_19_20	Waste Rock	**6.2**	**234**	**0.01**	**130**	**0.3**	**0.7**	**-0.4**	**2.3**	**7.2**	<0.1	<0.1	NAF-Uncertain-Barren
U6	RRGC00463_7_8	Waste Rock	**6**	**30**	**0.09**	**40**	**2.8**	**2.6**	**0.2**	**0.9**	**5.9**	<0.1	**1**	Uncertain-Barren
U7U	RRGC00759_1_2	Waste Rock	**5.6**	**16**	**0.04**	<10	**1.2**	**3.3**	**-2.1**	**2.7**	**6.7**	<0.1	**0.2**	NAF-Uncertain-Barren
U5	RRGC00759_13_14	Waste Rock	**6.2**	**77**	**0.01**	**40**	**0.3**	**0.7**	**-0.4**	**2.3**	**5.8**	<0.1	**3.2**	NAF-Uncertain-Barren
US11	RRGC00759_7_9	Waste Rock	**6.1**	**23**	**0.07**	**20**	**2.1**	**2.7**	**-0.6**	**1.3**	**6.8**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	RRGC01421_1_2	Waste Rock	**6.1**	**41**	**0.05**	**40**	**1.5**	**3.4**	**-1.9**	**2.2**	**5.8**	<0.1	**2.8**	NAF-Uncertain-Barren
US10	RRGC01421_13_14	Waste Rock	**6.7**	**35**	**0.04**	**30**	**1.2**	**3.6**	**-2.4**	**2.9**	**6.4**	<0.1	**0.8**	NAF-Uncertain-Barren
US8	RRGC01421_19_20	Waste Rock	**6.2**	**131**	**0.03**	**40**	**0.9**	**2.5**	**-1.6**	**2.7**	**5.6**	<0.1	**1.7**	NAF-Uncertain-Barren
US11	RRGC01421_7_8	Waste Rock	**6.5**	**37**	**0.07**	**60**	**2.1**	**4**	**-1.9**	**1.9**	**6.3**	<0.1	**1.1**	NAF-Uncertain-Barren
U5	RRGC01521_1_2	Waste Rock	**8.9**	**100**	**0.01**	**20**	**0.3**	**13.7**	**-13.4**	**44.8**	**7.2**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	RRGC01521_7_8	Waste Rock	**8.6**	**186**	**0.04**	**140**	**1.2**	**5.4**	**-4.2**	**4.4**	**7.6**	<0.1	<0.1	NAF-Uncertain-Barren
US10	RRGC01553_1_2	Waste Rock	**8.6**	**109**	**0.02**	**20**	**0.6**	**4.6**	**-4.0**	**7.5**	**8.4**	<0.1	<0.1	NAF-Uncertain-Barren
US8	RRGC01553_7_8	Waste Rock	**8.2**	**33**	**0.01**	**20**	**0.3**	**2.4**	**-2.1**	**7.8**	**5.7**	<0.1	**3.3**	NAF-Uncertain-Barren
OVER	TRRD33379_1_2	Waste Rock	**7.5**	**45**	**0.02**	**40**	**0.6**	<0.1	**0.5***	<LOR	**6.8**	<0.1	<0.1	Uncertain-Barren
U8	TRRD33379_3_4	Waste Rock	**8.1**	**59**	**0.02**	**30**	**0.6**	<0.1	**0.5***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren
U7L	TRRD33379_7_8	Waste Rock	**8.8**	**149**	**0.01**	**70**	**0.3**	**5.1**	**-4.8**	**16.7**	**8.8**	<0.1	<0.1	NAF-Uncertain-Barren
U6	TRRD33379_9_10	Waste Rock	**7.6**	**138**	<0.01	**100**	<0.3	**0.2**	**0.1***	<LOR	**7.8**	<0.1	<0.1	Uncertain-Barren
U8	TRRD33437_1_2	Waste Rock	**5.4**	**21**	**0.02**	**30**	**0.6**	<0.1	**0.5***	<LOR	**6.2**	<0.1	**0.2**	Uncertain-Barren
US11	TRRD33437_14_15	Waste Rock	**6.5**	**652**	**0.05**	**860**	**1.5**	<0.5	**1.0***	<LOR	**6.8**	<0.1	**0.2**	Uncertain-Barren
U8	TRRD33437_3_4	Waste Rock	**6.5**	**18**	**0.03**	**20**	**0.9**	**0.4**	**0.5**	**0.4**	**6.8**	<0.1	<0.1	Uncertain-Barren
U7U	TRRD33437_7_8	Waste Rock	**6.3**	**573**	**0.06**	**470**	**1.8**	**0.2**	**1.6**	**0.1**	**6.2**	<0.1	**0.3**	Uncertain-Barren
U7U	TRRD33437_9_10	Waste Rock	**5.4**	**346**	**0.03**	**390**	**0.9**	**2.7**	**-1.8**	**2.9**	**5.7**	<0.1	**1.1**	NAF-Uncertain-Barren
U7U	TRRD34136_1_2	Waste Rock	**8.6**	**102**	**0.01**	**50**	**0.3**	**5.7**	**-5.4**	**18.6**	**8.3**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	TRRD34136_3_4	Waste Rock	**6.8**	**31**	**0.05**	**40**	**1.5**	<0.1	**1.4***	<LOR	**6.3**	<0.1	**0.3**	Uncertain-Barren
US11	TRRD34136_7_8	Waste Rock	**6.8**	**43**	**0.03**	**30**	**0.9**	<0.5	**18***	<LOR	**6.8**	<0.1	**0.2**	Uncertain-Barren
U6	TRRD34136_9_10	Waste Rock	**7.8**	**28**	**0.01**	**20**	**0.3**	<0.5	**-0.2***	<LOR	**6.1**	<0.1	**0.3**	NAF-Uncertain-Barren
OVER	YPGC00027_1_2	Waste Rock	**7.5**	**23**	**0.25**	**20**	**7.7**	**0.2**	**7.5**	**0.0**	**7.1**	<0.1	<0.1	Uncertain
U6	YPGC00027_13_14	Waste Rock	**7.6**	**22**	**0.05**	**40**	**1.5**	<0.1	**1.4***	<LOR	**6.6**	<0.1	**0.2**	Uncertain-Barren
U5L	YPGC00027_25_26	Waste Rock	**7.4**	**34**	<0.01	**30**	<0.3	**0.1**	**0.2***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC00027_7_8	Waste Rock	**7.6**	**66**	**0.03**	**60**	**0.9**	<0.1	**0.8***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC00576_1_2	Waste Rock	**8.1**	**156**	**0.2**	**100**	**6.1**	**0.4**	**5.7**	**0.1**	**8.7**	<0.1	<0.1	Uncertain
US9	YPGC00576_19_20	Waste Rock	**7.2**	**31**	**0.02**	**30**	**0.6**	**0.2**	**0.4**	**0.3**	**6.9**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC00576_25_26	Waste Rock	**7.9**	**17**	<0.01	**10**	<0.3	<0.1	**0.2***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren

Table 1
Acid Base Accounting Results - Christmas Creek Waste Rock and Tailings
FMG Christmas Creek

Lithology	Sample ID	Sample Type	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO4 2-	MPA	ANC as H2SO4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)	Sample Classification[3]
			pH Unit	µS/cm	%	mg/kg	kg H2SO4 equiv./t				pH Unit	kg H2SO4/t	kg H2SO4/t	
U5L	YPGC00576_31_32	Waste Rock	**7.5**	**19**	<0.01	**20**	<0.3	<0.1	**0.2***	<LOR	**6.9**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC00576_37_38	Waste Rock	**7.8**	**21**	<0.01	**20**	<0.3	<0.5	**-0.2***	<LOR	**6.4**	<0.1	**0.4**	NAF-Uncertain-Barren
OVER	YPGC00576_7_8	Waste Rock	**4.9**	**32**	**0.11**	**40**	**3.4**	**0.2**	**3.2**	**0.1**	**5.5**	<0.1	**0.4**	Uncertain
OVER	YPGC01657_13_14	Waste Rock	**6.5**	**49**	**0.06**	**70**	**1.8**	**2.2**	**-0.4**	**1.2**	**6.6**	<0.1	**0.2**	NAF-Uncertain-Barren
U8	YPGC01657_19_20	Waste Rock	**6.5**	**33**	**0.06**	**40**	**1.8**	**0.1**	**1.7**	**0.1**	**5.5**	<0.1	**0.7**	Uncertain-Barren
U7L	YPGC01657_31_32	Waste Rock	**6.9**	**37**	**0.02**	**40**	**0.6**	<0.1	**0.5***	<LOR	**6.3**	<0.1	**0.5**	Uncertain-Barren
U6	YPGC01657_37_38	Waste Rock	**6.8**	**29**	**0.01**	**40**	**0.3**	**2.4**	**-2.1**	**7.8**	**7**	<0.1	<0.1	NAF-Uncertain-Barren
U5	YPGC01657_43_44	Waste Rock	**7.3**	**33**	<0.01	**30**	<0.3	<0.1	**0.2***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC01657_7_8	Waste Rock	**5.8**	**52**	**0.03**	**30**	**0.9**	**0.1**	**0.8**	**0.1**	**6.3**	<0.1	**0.2**	Uncertain-Barren
OVER	YPGC02056_1_2	Waste Rock	**8**	**72**	**0.29**	**50**	**8.9**	**0.5**	**8.4**	**0.1**	**7.8**	<0.1	<0.1	Uncertain
OVER	YPGC02056_13_14	Waste Rock	**6.5**	**44**	**0.05**	**40**	**1.5**	<0.1	**1.4***	<LOR	**7.6**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC02056_14_15	Waste Rock	**6.6**	**64**	**0.02**	**40**	**0.6**	<0.5	**0.1***	<LOR	**6.7**	<0.1	**0.3**	Uncertain-Barren
OVER	YPGC02056_19_20	Waste Rock	**7.5**	**8**	<0.01	<10	<0.3	**0.1**	**0.2***	<LOR	**6.6**	<0.1	**0.6**	Uncertain-Barren
U7U	YPGC02056_25_26	Waste Rock	**7.1**	**7**	**0.02**	<10	**0.6**	**0.2**	**0.4**	**0.3**	**7.3**	<0.1	<0.1	Uncertain-Barren
US10	YPGC02056_37_38	Waste Rock	**6.2**	**30**	**0.03**	**40**	**0.9**	**0.2**	**0.7**	**0.2**	**6.7**	<0.1	<0.1	Uncertain-Barren
U5	YPGC02056_44_45	Waste Rock	**6**	**33**	**0.01**	**40**	**0.3**	<0.1	**0.2***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC02056_7_8	Waste Rock	**6.3**	**16**	**0.18**	**20**	**5.5**	**0.3**	**5.2**	**0.1**	**7**	<0.1	**0.2**	Uncertain
OVER	YPGC02807_1_2	Waste Rock	**7**	**625**	**0.13**	**380**	**4.0**	**2.2**	**1.8**	**0.6**	**6.8**	<0.1	**0.2**	Uncertain
OVER	YPGC02807_13_14	Waste Rock	**7.6**	**18**	**0.04**	<10	**1.2**	**2.5**	**-1.3**	**2.0**	**7.8**	<0.1	<0.1	NAF-Uncertain-Barren
U8	YPGC02807_19_20	Waste Rock	**6.9**	**37**	<0.01	**50**	<0.3	<0.5	**-0.2***	<LOR	**6**	<0.1	**0.6**	NAF-Uncertain-Barren
U8	YPGC02807_25_26	Waste Rock	**7.3**	**18**	**0.01**	<10	**0.3**	**0.2**	**0.1**	**0.7**	**7.3**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC02807_31_32	Waste Rock	**6.9**	**32**	**0.02**	**20**	**0.6**	**2.2**	**-1.6**	**3.6**	**7.8**	<0.1	<0.1	NAF-Uncertain-Barren
US11	YPGC02807_37_38	Waste Rock	**6.8**	**26**	**0.01**	**30**	**0.3**	**0.2**	**0.1**	**0.7**	**7.3**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC03152_1_2	Waste Rock	**7**	**26**	**0.28**	**20**	**8.6**	**0.2**	**8.4**	**0.0**	**7**	<0.1	<0.1	Uncertain
OVER	YPGC03152_13_14	Waste Rock	**6.2**	**24**	**0.04**	**30**	**1.2**	<0.1	**1.1***	<LOR	**6.6**	<0.1	**0.2**	Uncertain-Barren
U8	YPGC03152_19_20	Waste Rock	**5.6**	**30**	**0.05**	**50**	**1.5**	<0.1	**1.4***	<LOR	**5.8**	<0.1	**0.3**	Uncertain-Barren
U8	YPGC03152_25_26	Waste Rock	**6.4**	**41**	**0.08**	**30**	**2.4**	**0.2**	**2.2**	**0.1**	**7**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC03152_31_32	Waste Rock	**6.4**	**19**	**0.01**	**20**	**0.3**	**0.3**	**0.0**	**1.0**	**8**	<0.1	<0.1	Uncertain-Barren
U6L	YPGC03152_43_44	Waste Rock	**6.9**	**26**	**0.01**	**20**	**0.3**	**3.3**	**-3.0**	**10.8**	**7.5**	<0.1	<0.1	NAF-Uncertain-Barren
U5	YPGC03152_49_50	Waste Rock	**6**	**16**	**0.02**	**20**	**0.6**	<0.1	**0.5***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC03152_7_8	Waste Rock	**5.5**	**36**	**0.08**	**50**	**2.4**	<0.1	**2.3***	<LOR	**7.1**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC04543_1_2	Waste Rock	**6.1**	**25**	**0.23**	**30**	**7.0**	<0.5	**6.5***	<LOR	**6.8**	<0.1	<0.1	Uncertain
OVER	YPGC04543_13_14	Waste Rock	**7.6**	**43**	**0.04**	**50**	**1.2**	**0.2**	**1.0**	**0.2**	**8.1**	<0.1	<0.1	Uncertain-Barren
U8	YPGC04543_21_22	Waste Rock	**7.9**	**22**	**0.03**	**20**	**0.9**	**0.2**	**0.7**	**0.2**	**7.8**	<0.1	<0.1	Uncertain-Barren
U8	YPGC04543_25_26	Waste Rock	**7.8**	**88**	**0.02**	**70**	**0.6**	**0.3**	**0.3**	**0.5**	**7.4**	<0.1	<0.1	Uncertain-Barren
U8	YPGC04543_31_32	Waste Rock	**7.7**	**39**	<0.01	**30**	<0.3	<0.5	**-0.2***	<LOR	**7.8**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	YPGC04543_37_38	Waste Rock	**7.5**	**22**	**0.04**	**20**	**1.2**	**2.8**	**-1.6**	**2.3**	**7.1**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPGC04543_7_8	Waste Rock	**7.5**	**29**	**0.71**	**40**	**21.7**	<0.1	**21.6***	**0.005**	**7.2**	<0.1	<0.1	Uncertain
OVER	YPGC05415_1_2	Waste Rock	**7.1**	**20**	**0.12**	**20**	**3.7**	**0.6**	**3.1**	**0.2**	**6.9**	<0.1	<0.1	Uncertain
OVER	YPGC05415_13_14	Waste Rock	**7.2**	**18**	**0.03**	**10**	**0.9**	**3**	**-2.1**	**3.3**	**6.9**	<0.1	**0.5**	NAF-Uncertain-Barren

Table 1
Acid Base Accounting Results - Christmas Creek Waste Rock and Tailings
FMG Christmas Creek

Lithology	Sample ID	Sample Type	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO4 2-	MPA	ANC as H2SO4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)	Sample Classification[3]
			pH Unit	µS/cm	%	mg/kg	kg H2SO4 equiv./t				pH Unit	kg H2SO4/t	kg H2SO4/t	
U7U	YPGC05415_19_20	Waste Rock	**7.6**	**26**	**0.04**	**20**	**1.2**	**0.2**	**1.0**	**0.2**	**6.6**	<0.1	**0.5**	Uncertain-Barren
US12	YPGC05415_25_26	Waste Rock	**6.7**	**19**	**0.01**	**10**	**0.3**	**0.4**	**-0.1**	**1.3**	**7.7**	<0.1	<0.1	NAF-Uncertain-Barren
U6	YPGC05415_31_23	Waste Rock	**6.9**	**35**	**0.02**	**30**	**0.6**	**1.1**	**-0.5**	**1.8**	**8**	<0.1	<0.1	NAF-Uncertain-Barren
U5	YPGC05415_37_38	Waste Rock	**6.7**	**53**	<0.01	**40**	<0.3	**0.2**	**0.1***	<LOR	**7.5**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC06143_1_2	Waste Rock	**7.8**	**560**	**0.02**	**160**	**0.6**	**0.5**	**0.1**	**0.8**	**8.2**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC06143_13_14	Waste Rock	**6.8**	**96**	**0.02**	**80**	**0.6**	**4.7**	**-4.1**	**7.7**	**7.3**	<0.1	<0.1	NAF-Uncertain-Barren
U6	YPGC06143_19_20	Waste Rock	**6.4**	**54**	**0.05**	**50**	**1.5**	<0.1	**1.4***	<LOR	**6.9**	<0.1	<0.1	Uncertain-Barren
U5	YPGC06143_25_26	Waste Rock	**7**	**41**	**0.01**	**40**	**0.3**	**0.1**	**0.2**	**0.3**	**6.9**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC06143_31_32	Waste Rock	**6.7**	**18**	<0.01	**10**	<0.3	**0.3**	**0***	<LOR	**6.9**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC06143_37_38	Waste Rock	**6.7**	**79**	**0.17**	**70**	**5.2**	**0.5**	**4.7**	**0.1**	**7.3**	<0.1	<0.1	Uncertain
OVER	YPGC06143_7_8	Waste Rock	**6.4**	**164**	**0.05**	**180**	**1.5**	**0.3**	**1.2**	**0.2**	**7.5**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC06605_1_2	Waste Rock	**7.8**	**441**	**0.25**	**390**	**7.7**	**0.4**	**7.3**	**0.1**	**8.2**	<0.1	<0.1	Uncertain
US11	YPGC06605_13_14	Waste Rock	**6.2**	**60**	**0.03**	**60**	**0.9**	**0.4**	**0.5**	**0.4**	**7.2**	<0.1	<0.1	Uncertain-Barren
US9	YPGC06605_19_20	Waste Rock	**6.6**	**58**	**0.02**	**60**	**0.6**	**0.1**	**0.5**	**0.2**	**7.1**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC06605_25_26	Waste Rock	**6.8**	**31**	<0.01	**30**	<0.3	**2**	**1.7***	<LOR	**5.7**	<0.1	**0.5**	Uncertain-Barren
U5L	YPGC06605_31_32	Waste Rock	**6.3**	**26**	<0.01	**20**	<0.3	<0.1	**0.2***	<LOR	**7.3**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC06605_7_8	Waste Rock	**6.5**	**132**	**0.07**	**110**	**2.1**	<0.5	**1.6***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC06879_1_2	Waste Rock	**7.3**	**10**	**0.18**	**10**	**5.5**	**0.1**	**5.4**	**0.0**	**6.9**	<0.1	<0.1	Uncertain
U7U	YPGC06879_19_20	Waste Rock	**7**	**44**	**0.02**	**40**	**0.6**	**0.3**	**0.3**	**0.5**	**8**	<0.1	<0.1	Uncertain-Barren
US11	YPGC06879_25_26	Waste Rock	**7.7**	**42**	**0.02**	**40**	**0.6**	**0.2**	**0.4**	**0.3**	**7.3**	<0.1	<0.1	Uncertain-Barren
US9	YPGC06879_31_32	Waste Rock	**6.8**	**34**	<0.01	**30**	<0.3	<0.5	**-0.2***	<LOR	**7.4**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPGC06879_37_38	Waste Rock	**6.8**	**40**	<0.01	**30**	<0.3	**0.1**	**0.2***	<LOR	**6.8**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC06879_43_44	Waste Rock	**7.1**	**50**	<0.01	**40**	<0.3	**0.7**	**-0.4***	<LOR	**7.4**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPGC06879_7_8	Waste Rock	**8**	**45**	**0.05**	**30**	**1.5**	**0.2**	**1.3**	**0.1**	**7.5**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC08967_1_2	Waste Rock	**6.8**	**102**	<0.01	**80**	<0.3	**0.3**	**0***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
US11	YPGC08967_13_14	Waste Rock	**6.9**	**143**	**0.01**	**110**	**0.3**	**0.2**	**0.1**	**0.7**	**8.3**	<0.1	<0.1	Uncertain-Barren
US9	YPGC08967_19_20	Waste Rock	**7.3**	**68**	<0.01	**50**	<0.3	**0.1**	**0.2***	<LOR	**7.6**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC08967_25_26	Waste Rock	**7.3**	**40**	<0.01	**20**	<0.3	<0.1	**0.2***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC08967_31_32	Waste Rock	**6.9**	**64**	<0.01	**40**	<0.3	<0.1	**0.2***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC08967_38_39	Waste Rock	**6.3**	**153**	<0.01	**120**	<0.3	<0.1	**0.2***	<LOR	**8**	<0.1	<0.1	Uncertain-Barren
U7U	YPGC08967_7_8	Waste Rock	**6.7**	**106**	<0.01	**50**	<0.3	<0.1	**0.2***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC10846_1_2	Waste Rock	**9.7**	**177**	**0.26**	**40**	**8.0**	**2.7**	**5.3**	**0.3**	**7.7**	<0.1	<0.1	Uncertain
OVER	YPGC10846_13_14	Waste Rock	**6.9**	**164**	**0.02**	**120**	**0.6**	**0.3**	**0.3**	**0.5**	**7.5**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC10846_19_20	Waste Rock	**6.9**	**54**	**0.04**	**60**	**1.2**	**2.2**	**-1.0**	**1.8**	**7.2**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	YPGC10846_25_26	Waste Rock	**6**	**59**	**0.02**	**50**	**0.6**	<0.5	**0.1***	<LOR	**7.6**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC10846_43_44	Waste Rock	**7.4**	**11**	<0.01	**10**	<0.3	<0.1	**0.2***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC10846_8_9	Waste Rock	**7.5**	**53**	**0.03**	**50**	**0.9**	**0.3**	**0.6**	**0.3**	**7.5**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC11055_1_2	Waste Rock	**5.7**	**25**	**0.03**	<10	**0.9**	**2**	**-1.1**	**2.2**	**6.2**	<0.1	**1.1**	NAF-Uncertain-Barren
U6	YPGC11055_13_14	Waste Rock	**6.4**	**38**	**0.02**	**30**	**0.6**	**2.2**	**-1.6**	**3.6**	**6.4**	<0.1	<0.1	NAF-Uncertain-Barren
U5	YPGC11055_19_20	Waste Rock	**8.4**	**26**	<0.01	**10**	<0.3	**2**	**-1.7***	<LOR	**8.3**	<0.1	<0.1	NAF-Uncertain-Barren

Table 1
Acid Base Accounting Results - Christmas Creek Waste Rock and Tailings
FMG Christmas Creek

Lithology	Sample ID	Sample Type	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO4 2-	MPA	ANC as H2SO4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)	Sample Classification[3]
			pH Unit	µS/cm	%	mg/kg	kg H2SO4 equiv./t				pH Unit	kg H2SO4/t	kg H2SO4/t	
U5L	YPGC11055_25_26	Waste Rock	**7.8**	**13**	<0.01	<10	<0.3	**3.9**	**-3.6***	<LOR	**7.6**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPGC11055_31_32	Waste Rock	**7.3**	**58**	<0.01	**40**	<0.3	**3.2**	**-2.9***	<LOR	**7.4**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPGC11055_37_38	Waste Rock	**7.1**	**21**	<0.01	**10**	<0.3	**3.3**	**-3.0***	<LOR	**7.2**	<0.1	<0.1	NAF-Uncertain-Barren
US12	YPGC11055_7_8	Waste Rock	**6.1**	**19**	**0.04**	**20**	**1.2**	**1.8**	**-0.6**	**1.5**	**7.6**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPGC11249_1_2	Waste Rock	**6.2**	**150**	**0.06**	**120**	**1.8**	**1.9**	**-0.1**	**1.0**	**7.4**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	YPGC11249_19_20	Waste Rock	**7.3**	**85**	**0.01**	**70**	**0.3**	**0.5**	**-0.2**	**1.6**	**8.2**	<0.1	<0.1	NAF-Uncertain-Barren
U7L	YPGC11249_25_26	Waste Rock	**6.9**	**68**	<0.01	**60**	<0.3	**0.2**	**0.1***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
US10	YPGC11249_31_32	Waste Rock	**6.7**	**89**	<0.01	**70**	<0.3	**1.7**	**-1.4***	<LOR	**7.7**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPGC11249_37_38	Waste Rock	**6.3**	**40**	<0.01	**30**	<0.3	**0.3**	**0***	<LOR	**8.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC11249_7_8	Waste Rock	**7.5**	**48**	**0.02**	**40**	**0.6**	**1.7**	**-1.1**	**2.8**	**7.8**	<0.1	<0.1	NAF-Uncertain-Barren
U8	YPGC1249_13_14	Waste Rock	**6.9**	**65**	**0.04**	**40**	**1.2**	**0.2**	**1.0**	**0.2**	**6.8**	<0.1	<0.1	Uncertain-Barren
U5L	YPGC1249_43_44	Waste Rock	**6.9**	**44**	<0.01	**30**	<0.3	**0.2**	**0.1***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
OVER	YPGC12764_1_2	Waste Rock	**6.1**	**31**	**0.06**	**30**	**1.8**	**3.9**	**-2.1**	**2.1**	**7.2**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPGC12764_13_14	Waste Rock	**7.7**	**25**	**0.02**	<10	**0.6**	**1.9**	**-1.3**	**3.1**	**6.1**	<0.1	**5.8**	NAF-Uncertain-Barren
U7U	YPGC12764_25_26	Waste Rock	**7.4**	**56**	**0.02**	**40**	**0.6**	**1.7**	**-1.1**	**2.8**	**6.3**	<0.1	**2.3**	NAF-Uncertain-Barren
U6	YPGC12764_37_38	Waste Rock	**7.2**	**72**	**0.2**	**60**	**6.1**	**2.7**	**3.4**	**0.4**	**7.9**	<0.1	<0.1	Uncertain
U5L	YPGC12764_49_50	Waste Rock	**7.2**	**601**	<0.01	**60**	<0.3	**1.6**	**-1.3***	<LOR	**7.3**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPGC12764_7_8	Waste Rock	**7.4**	**24**	**0.06**	**10**	**1.8**	**3.8**	**-2.0**	**2.1**	**8**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPRD04911_1_2	Waste Rock	**6.2**	**92**	<0.01	**40**	<0.3	**2.3**	**2***	<LOR	**9**	<0.1	<0.1	Uncertain-Barren
U5L	YPRD04911_10_11	Waste Rock	**6.5**	**44**	<0.01	**50**	<0.3	**0.1**	**0.2***	<LOR	**6.8**	<0.1	<0.1	Uncertain-Barren
U5L	YPRD04911_13_14	Waste Rock	**6.7**	**81**	**0.04**	**80**	**1.2**	<0.5	**0.7***	<LOR	**7.3**	<0.1	<0.1	Uncertain-Barren
OVER	YPRD04911_3_4	Waste Rock	**8.3**	**90**	<0.01	**30**	<0.3	<0.1	**0.2***	<LOR	**6.8**	<0.1	**0.3**	Uncertain-Barren
US8	YPRD04911_7_8	Waste Rock	**8.3**	**22**	**0.02**	**20**	**0.6**	**0.1**	**0.5**	**0.2**	**5.8**	<0.1	**0.4**	Uncertain-Barren
U7L	YPRD05790_1_2	Waste Rock	**7.8**	**68**	<0.01	**30**	<0.3	**0.1**	**0.2***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
U5	YPRD05790_10_11	Waste Rock	**7**	**421**	<0.01	**370**	<0.3	**0.2**	**0.1***	<LOR	**6.9**	<0.1	<0.1	Uncertain-Barren
US11	YPRD05790_3_4	Waste Rock	**8.2**	**49**	<0.01	<10	<0.3	**0.2**	**0.1***	<LOR	**7.5**	<0.1	<0.1	Uncertain-Barren
US10	YPRD05790_7_8	Waste Rock	**9.3**	**372**	**0.01**	**290**	**0.3**	**26.2**	**-25.9**	**85.6**	**8.6**	<0.1	<0.1	NAF-Barren
OVER	YPRD06017_1_2	Waste Rock	**6.9**	**241**	**0.03**	**100**	**0.9**	**0.3**	**0.6**	**0.3**	**7.7**	<0.1	<0.1	Uncertain-Barren
U6	YPRD06017_14_15	Waste Rock	**6.7**	**88**	**0.02**	**80**	**0.6**	**1.8**	**-1.2**	**2.9**	**7.8**	<0.1	<0.1	NAF-Uncertain-Barren
U5	YPRD06017_19_20	Waste Rock	**6.3**	**201**	**0.02**	**180**	**0.6**	**0.2**	**0.4**	**0.3**	**7.8**	<0.1	<0.1	Uncertain-Barren
U5L	YPRD06017_25_26	Waste Rock	**7.6**	**86**	**0.02**	**90**	**0.6**	**0.2**	**0.4**	**0.3**	**7.8**	<0.1	<0.1	Uncertain-Barren
U7U	YPRD06017_7_8	Waste Rock	**6.6**	**58**	**0.02**	**70**	**0.6**	**1.6**	**-1.0**	**2.6**	**6.8**	<0.1	<0.1	NAF-Uncertain-Barren
US9	YPRD06576_0_1	Waste Rock	**4.9**	**138**	<0.01	**60**	<0.3	**0.2**	**0.1***	<LOR	**6.8**	<0.1	<0.1	Uncertain-Barren
US9	YPRD06576_1_2	Waste Rock	**5.4**	**24**	<0.01	**20**	<0.3	<0.1	**0.2***	<LOR	**5.8**	<0.1	**1.5**	Uncertain-Barren
U5L	YPRD06576_10_11	Waste Rock	**5.8**	**60**	<0.01	**60**	<0.3	**0.2**	**0.1***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
U5	YPRD06576_3_4	Waste Rock	**7.1**	**107**	**0.01**	**110**	**0.3**	<0.5	**-0.2***	<LOR	**6.9**	<0.1	**0.3**	NAF-Uncertain-Barren
OVER	YPRD10638_1_2	Waste Rock	**8.3**	**293**	**0.02**	**90**	**0.6**	**0.4**	**0.2**	**0.7**	**8.1**	<0.1	<0.1	Uncertain-Barren
U5	YPRD10638_13_14	Waste Rock	**6.5**	**434**	**0.01**	**340**	**0.3**	**0.2**	**0.1**	**0.7**	**7.4**	<0.1	<0.1	Uncertain-Barren
U5L	YPRD10638_19_20	Waste Rock	**6.8**	**166**	<0.01	**80**	<0.3	<0.5	**-0.2***	<LOR	**7.7**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPRD10638_25_26	Waste Rock	**7**	**148**	<0.01	**70**	<0.3	<0.1	**0.2***	<LOR	**6.8**	<0.1	<0.1	Uncertain-Barren

Table 1
Acid Base Accounting Results - Christmas Creek Waste Rock and Tailings
FMG Christmas Creek

Lithology	Sample ID	Sample Type	pH Value[1]	Electrical Conductivity @ 25°C[1]	Sulfur - Total as S (LECO)	Soluble Sulfate as SO4 2-	MPA	ANC as H2SO4	NAPP[2]	ANC/MPA	pH (OX)	NAG (pH 4.5)	NAG (pH 7.0)	Sample Classification[3]
			pH Unit	µS/cm	%	mg/kg	kg H2SO4 equiv./t				pH Unit	kg H2SO4/t	kg H2SO4/t	
U6	YPRD10638_7_8	Waste Rock	**8.2**	**53**	**0.01**	**30**	**0.3**	**2.4**	**-2.1**	**7.8**	**7.3**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPRD11438_1_2	Waste Rock	**6.3**	**32**	**0.04**	**40**	**1.2**	**0.2**	**1.0**	**0.2**	**6.5**	<0.1	<0.1	Uncertain-Barren
U7L	YPRD11438_13_14	Waste Rock	**6.4**	**507**	**0.02**	**410**	**0.6**	**0.3**	**0.3**	**0.5**	**8.3**	<0.1	<0.1	Uncertain-Barren
US10	YPRD11438_19_20	Waste Rock	**7.1**	**84**	<0.01	**60**	<0.3	<0.5	**-0.2***	<LOR	**7.3**	<0.1	<0.1	NAF-Uncertain-Barren
U5L	YPRD11438_25_26	Waste Rock	**7.6**	**28**	<0.01	**20**	<0.3	**0.2**	**0.1***	<LOR	**7.2**	<0.1	<0.1	Uncertain-Barren
U7U	YPRD11438_7_8	Waste Rock	**7**	**135**	**0.02**	**90**	**0.6**	<0.1	**0.5***	<LOR	**7**	<0.1	<0.1	Uncertain-Barren
OVER	YPRD13687_1_2	Waste Rock	**7**	**408**	**0.04**	**290**	**1.2**	**2**	**-0.8**	**1.6**	**7.7**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPRD13687_13_14	Waste Rock	**7.6**	**50**	**0.02**	**30**	**0.6**	**0.2**	**0.4**	**0.3**	**6.8**	<0.1	<0.1	Uncertain-Barren
OVER	YPRD13687_19_20	Waste Rock	**7.9**	**38**	<0.01	**30**	<0.3	**3.6**	**-3.3***	<LOR	**8.1**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	YPRD13687_33_34	Waste Rock	**6.6**	**95**	<0.01	**160**	<0.3	**2**	**-1.7***	<LOR	**8.5**	<0.1	<0.1	NAF-Uncertain-Barren
U7U	YPRD13687_37_38	Waste Rock	**7.1**	**48**	**0.01**	**40**	**0.3**	<0.5	**-0.2***	<LOR	**7.6**	<0.1	<0.1	NAF-Uncertain-Barren
OVER	YPRD13687_7_8	Waste Rock	**7.1**	**49**	**0.03**	**40**	**0.9**	**0.2**	**0.7**	**0.2**	**8.3**	<0.1	<0.1	Uncertain-Barren
OVER	YPRD14197_1_2	Waste Rock	**5.9**	**59**	**0.02**	**40**	**0.6**	<0.1	**0.5***	<LOR	**7.4**	<0.1	<0.1	Uncertain-Barren
OVER	YPRD14197_13_14	Waste Rock	**7.1**	**189**	**0.02**	**100**	**0.6**	**2.4**	**-1.8**	**3.9**	**7.4**	<0.1	<0.1	NAF-Uncertain-Barren
U8	YPRD14197_19_20	Waste Rock	**7.9**	**22**	**0.02**	**20**	**0.6**	**3**	**-2.4**	**4.9**	**7.7**	<0.1	<0.1	NAF-Uncertain-Barren
U8	YPRD14197_25_26	Waste Rock	**6.8**	**52**	**0.07**	**70**	**2.1**	**0.1**	**2.0**	**0.0**	**7.3**	<0.1	<0.1	Uncertain-Barren
US12	YPRD14197_37_38	Waste Rock	**7.5**	**23**	**0.02**	**30**	**0.6**	**1.2**	**-0.6**	**2.0**	**6.9**	<0.1	**0.2**	NAF-Uncertain-Barren
OVER	YPRD14197_7_8	Waste Rock	**7.3**	**47**	**0.07**	**40**	**2.1**	**0.1**	**2.0**	**0.0**	**8**	<0.1	<0.1	Uncertain-Barren
	DH 031551	Tailings	**6.9**	**588**	**0.03**	**460**	**0.9**	**2.6**	**-1.7**	**2.83**	**8.1**	<0.1	<0.1	NAF-Uncertain-Barren

Notes:
* denotes MPA and/or ANC is/are less than detection limit. The detection limit(s) was/were used for the NAPP calculation.

MPA = Maximum Potential Acidity
ANC = Acid Neutralising Capacity
NAPP = Net Acid Producing Potential
PAF = Potentially Acid Forming
NAF = Non-Acid Forming
UC = Uncertain
MPA = Total Sulfur x 30.6

1. Natural pH and EC provided for 1:5 sample:water extracts
2. NAPP = MPA - ANC
3. Samples classified as PAF if NAPP is >20 kg H2SO4/t and NAGpH is <4.5
   Samples classified as PAF-Uncertain if 0<NAPP<= 20 kg H2SO4/t and NAGpH is <4.5
   Samples classified as NAF if NAPP is <20 kg H2SO4/t and NAGpH is >=4.5
   Samples classified as NAF-Uncertain if -20 kg H2SO4/t<=NAPP<0 and NAGpH is >=4.5
   Samples classified as Uncertain if NAPP is > 0 kg H2SO4/t and NAGpH >= 4.5 or NAPP is < 0 kg H2SO4/t and NAGpH <4.5
   Samples classified as Barren if Total Sulfur is <0.10%

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					CAGC30291_7_8	CAGC30291_13_14	CAGC30291_19_20	CAGC30291_25_26	CAGC30291_43_44	RRGC00463_1_2	RRGC00463_7_8	RRGC00463_13_14	RRGC00463_19_20	RRGC00759_1_2	RRGC00759_7_8	RRGC00759_13_14	RRGC01421_1_2	RRGC01421_7_8	RRGC01421_13_14	QC01_24/05/2012	RRGC01421_19_20	RRGC01521_1_2	RRGC01521_7_8	RRGC01553_1_2	RRGC01553_7_8	TRRD33379_1_2
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					OVER	U7U	UST2	U6	U5L	U8	U6	U5	U5L	U7U	UST1	U5	U7U	UST1	UST0	UST0	UST8	U5	U5L	UST0	UST8	OVER
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.3	0.06	0.04	0.04	0.04	0.12	0.09	0.04	0.02	0.23	0.07	0.04	0.08	0.09	0.06	0.06	0.05	0.05	0.05	0.2	0.03	0.09
Al	0.01	%			4.91	2.82	1.69	0.3	0.45	1.61	1.63	0.22	0.67	4.32	4.25	0.4	1.64	2.8	0.91	0.85	1.25	4.5	0.55	2.33	0.54	1.27
Al2O3	0.01	%			9.9	5.54	3.19	0.57	0.94	3.07	3.05	0.41	1.32	8.75	8.48	0.74	3.04	5.1	1.72	1.63	2.4	8.81	0.99	4.63	1.06	2.49
As	0.001	%			0.004	0.008	0.077	0.002	0.001	<0.001	0.001	<0.001	<0.001	0.003	0.001	<0.001	0.001	0.001	0.001	<0.001	0.001	0.002	<0.001	0.005	<0.001	0.003
As	0.001	ppm	20	70	25.1	70.3	759	7.5	4.4	7.6	9.4	3	5	28.7	13.4	2.4	7.3	12.4	5.5	5.4	9.4	17.2	3.5	42	5.2	17.4
Ba	0.001	%			0.056	0.086	0.114	<0.001	<0.001	0.003	0.004	<0.001	<0.001	0.01	0.01	0.004	0.022	<0.001	<0.001	<0.001	<0.001	0.007	<0.001	0.014	<0.001	0.014
Ba	10	ppm			540	770	1080	20	10	80	120	20	20	160	170	130	300	80	60	50	40	160	30	170	50	150
Be	0.05	ppm			2.13	2.33	2.35	0.61	0.61	0.32	0.44	0.48	0.41	1.01	0.37	0.3	0.31	0.23	0.55	0.35	1.18	1.36	1.13	0.75	0.67	0.61
Bi	0.01	ppm			0.77	0.21	0.23	0.03	0.07	0.13	0.15	0.13	0.1	0.5	0.18	0.06	0.12	0.33	0.06	0.19	0.1	0.41	0.06	0.22	0.06	0.31
Ca	0.01	%			0.14	0.09	0.08	0.02	0.02	0.01	0.03	0.01	0.01	0.01	0.04	0.01	0.04	0.03	0.03	0.02	0.01	0.47	0.1	0.1	0.01	0.05
CaO	0.01	%			0.19	0.12	0.09	0.02	0.02	0.01	0.09	0.02	0.01	0.03	0.06	0.01	0.04	0.04	0.02	0.03	0.01	0.66	0.13	0.14	0.01	0.06
Cd	0.02	ppm	1.5	10	0.16	0.14	0.14	0.02	0.07	<0.02	<0.02	<0.02	<0.02	0.04	0.02	<0.02	<0.02	<0.02	0.02	0.02	0.02	<0.02	0.03	0.12	0.03	0.03
Ce	0.01	ppm			80.5	248	52.8	4.52	8.25	14.8	14.6	5.3	6.98	22.2	65.4	3.42	22.6	26.3	8.21	7.84	10.35	10.65	12.2	42.5	4.77	12.25
Cl	0.001	%			0.046	0.004	0.003	<0.001	<0.001	0.002	0.004	0.007	0.015	0.002	0.004	0.008	0.003	0.004	0.004	0.004	0.015	0.002	0.013	0.007	0.002	0.004
Co	0.001	%			0.004	0.021	0.006	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001
Co	0.1	ppm			25.2	186	48.5	1.9	3.4	1.6	3	1.6	1.3	5.5	4.2	0.5	2.1	0.9	7.1	6.6	2	1	3.3	8.4	2.4	2.8
Cr	1	ppm	80	370	129	58	28	40	84	24	25	6	12	139	41	5	34	59	12	12	29	79	11	94	12	68
Cr2O3	0.0006	%			0.0222	0.0116	0.0122	0.0118	0.02	0.0026	0.0019	<0.0006	0.0007	0.0245	0.0059	<0.0006	0.0025	0.0073	<0.0006	0.002	0.0018	0.0098	<0.0006	0.0254	<0.0006	0.0134
Cs	0.05	ppm			2.03	0.32	0.39	0.12	0.1	0.16	0.08	0.09	0.09	0.44	0.2	0.1	0.16	0.07	0.11	0.1	0.17	0.65	0.08	0.75	0.11	0.53
Cu	0.001	%			0.004	0.002	0.001	<0.001	<0.001	0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001
Cu	0.2	ppm	65	270	41.6	21	22.2	2.4	7.3	5.5	6.5	2.5	3.4	14	7.1	1.5	4.3	4.4	6.2	6.3	8.2	9.7	8.7	23	4.8	9.9
Fe	0.01	%			35.1	43.2	44.6	28.5	20.4	>50	>50	25.9	10.45	43.5	38.7	22.7	45.1	48.3	35.6	34.5	25.2	9.72	22.8	41.7	15.95	47.9
Ga	0.05	ppm			23.3	5.99	6.5	1	1.55	3.96	2.56	0.62	1.39	17.45	4.35	0.44	5.73	9.77	1.78	1.73	3.57	13.05	1.27	7.51	1.38	7.1
Ge	0.05	ppm			0.93	1.19	1.14	0.29	0.17	1.8	3.76	0.2	0.09	2.41	1.71	0.19	1.12	2.33	0.45	0.51	0.28	0.09	0.18	1.38	0.13	3.76
Hf	0.1	ppm			5	1.1	1.2	0.1	0.2	0.9	0.6	0.1	0.2	3.7	1.1	0.1	1.2	1.8	0.3	0.3	0.5	2	0.2	1.4	0.2	1.1
In	0.005	ppm			0.083	0.024	0.022	<0.005	0.015	0.023	0.018	<0.005	0.005	0.117	0.027	<0.005	0.028	0.05	0.009	0.008	0.017	0.045	0.016	0.048	0.019	0.031
K	0.01	%			0.4	0.33	0.23	0.02	0.02	0.02	0.01	0.01	0.02	0.05	0.04	0.01	0.02	0.01	0.02	0.02	0.03	0.18	0.02	0.12	0.02	0.06
K2O	0.001	%			0.481	0.399	0.253	0.013	0.014	0.021	0.012	0.013	0.022	0.059	0.045	0.012	0.022	0.01	0.018	0.021	0.044	0.236	0.018	0.16	0.024	0.067
La	0.5	ppm			34.4	24.6	24.4	2.6	4.4	2.6	4	2.3	2.7	8	7.1	1.2	5.1	11.2	7.2	7.2	4.5	7.3	6.7	13.8	2.9	6.5
Li	0.2	ppm			13.8	5	1.7	2.9	3	1.4	0.8	2.6	7.5	5.3	9	2.5	2	5.3	2.5	1.7	4	16.3	3.8	3.9	3.4	1.7
LOI	0.01	%			8.73	10.74	9.64	1.08	2.51	6.06	7.39	3.42	1.29	7.68	8.1	1.19	5.22	12.11	5.94	5.81	4.84	4.81	5.33	6.92	2.01	7.07
Mg	0.01	%			0.23	0.09	0.21	0.03	0.04	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.18	0.07	0.06	0.03	0.05
MgO	0.01	%			0.4	0.16	0.33	0.04	0.05	0.01	0.06	0.02	0.01	0.03	0.03	0.02	0.04	0.02	0.01	0.02	0.02	0.03	0.11	0.11	0.04	0.07
Mn	0.001	%			1.235	3.31	2.92	0.229	0.104	0.448	0.405	0.035	0.069	0.222	0.094	0.033	0.572	0.017	0.075	0.074	0.025	0.003	0.055	0.746	0.051	0.114
Mn	5	ppm			11800	31600	29600	2260	965	3900	3590	369	710	1860	838	356	5140	176	723	698	273	62	585	6920	500	1070
Mo	0.05	ppm			1.07	0.78	1.15	1.01	0.85	0.53	0.5	0.53	0.81	1.92	0.75	0.64	0.88	1.14	0.54	0.64	0.93	1.22	0.84	0.81	0.66	1.21
Na	0.01	%			0.06	0.04	0.03	0.01	0.01	<0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.02	0.03	0.02	0.01	0.02	0.03	0.02	0.01	0.04
Na2O	0.005	%			0.061	0.037	0.017	<0.005	<0.005	0.027	0.037	0.028	0.027	0.03	0.069	0.028	0.03	0.037	0.041	0.042	0.02	0.027	0.034	0.041	0.011	0.027
Nb	0.1	ppm			11.2	2.9	3.7	0.6	0.8	2.9	1.7	0.5	0.8	11.3	2.9	0.4	4	6.8	1.2	1.2	1.8	6.3	0.8	4	0.8	3.5
Ni	0.001	%			0.007	0.14	0.023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.01	<0.001	<0.001
Ni	0.2	ppm	21	52	83.9	1330	240	12	16.6	5.9	8.4	6.1	2.2	19.1	8.5	2.2	6.3	5.2	10.8	10.8	15.8	9.6	10.7	31.1	12.6	19.8
P	0.001	%			0.035	0.042	0.038	0.014	0.005	0.028	0.033	0.043	0.01	0.033	0.029	0.007	0.025	0.022	0.051	0.051	0.062	0.011	0.011	0.041	0.008	0.053
P	10	ppm			330	410	380	140	50	260	290	400	100	290	250	70	230	200	490	480	560	100	100	360	80	510
Pb	0.001	%			<0.001	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Pb	0.5	ppm	50	220	32.9	129	43.6	2.7	3.3	12.2	28.6	0.9	1.7	17.2	6.6	0.8	30.1	16.9	4.1	4.1	9.4	19.7	10.8	18.4	3.5	9.1
Rb	0.1	ppm			30.6	6.8	4.6	1.1	1	1.3	0.4	0.8	1.1	3.9	1.8	0.8	1.1	0.4	0.8	0.9	2	10.2	0.8	9	1.2	3.9
Re	0.002	ppm			0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002
S	0.01	%			0.04	0.05	0.03	0.01	0.01	0.04	0.09	0.01	0.01	0.03	0.06	0.01	0.05	0.07	0.04	0.04	0.03	0.01	0.03	0.02	0.01	0.03
Sb	0.05	ppm	2	25	1.96	4.08	3.85	0.45	0.56	0.89	1.32	0.45	0.52	3.21	1.55	0.17	1.16	2.32	1.04	0.93	1.59	2.86	0.8	1.61	0.65	2.29
Sc	0.1	ppm			16.2	9.9	6.8	0.8	1.8	4.9	4.4	1	1.2	12.1	5.6	0.7	4.9	7.5	2.5	2.3	4.3	11.8	3.1	7.2	2.5	6.4
Se	1	ppm			2	2	1	<1	<1	1	1	<1	<1	3	2	<1	2	1	1	1	<1	1	<1	1	<1	1
SiO2	0.01	%			23.5	13.05	18.45	51.8	66.4	5.64	8.4	54.7	81.1	8.18	17.45	61.9	11.8	6.81	35.6	36.6	50.9	69.6	58.6	14.6	71.9	19.2
Sn	0.001	%			<0.001	0.002	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sn	0.2	ppm			2.5	0.6	0.8	0.2	0.3	0.6	0.3	<0.2	0.2	2.4	0.6	<0.2	0.9	1.5	0.3	0.3	0.4	1.7	0.3	0.9	0.3	0.8
Sr	0.001	%			0.003	0.01	0.005	<0.001	<0.001	0.001	0.001	0.002	0.001	<0.001	0.003	0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001
Sr	0.2	ppm			37.1	78.8	55.9	5.4	1.5	3.8	8.7	2.3	3.9	5.1	27.3	2.4	10.5	7.3	4.6	4.4	1.9	34.4	9	19.2	1.7	11.4
Ta	0.05	ppm			0.81	0.21	0.28	<0.05	0.05	0.21	0.11	<0.05	0.06	0.91	0.23	<0.05	0.34	0.59	0.09	0.08	0.14	0.55	0.06	0.3	0.06	0.26
Te	0.05	ppm			0.37	0.44	0.17	<0.05	<0.05	0.12	0.18	<0.05	<0.05	0.36	0.2	<0.05	0.12	0.12	0.07	0.05	0.06	0.16	0.07	0.16	<0.05	0.22
Th	0.2	ppm			23.3	3.7	4.6	0.6	0.8	5.2	3.9	0.3	0.8	24.2	5.9	0.4	7.1	8.9	1.4	1.3	2	7.4	0.8	8.2	0.8	5.3
Ti	0.005	%			0.378	0.092	0.133	0.015	0.025	0.086	0.051	0.009	0.026	0.35	0.09	0.007	0.131	0.232	0.033	0.03	0.068	0.268	0.024	0.131	0.026	0.109
TiO2	0.01	%			0.78	0.18	0.24	0.03	0.05	0.16	0.09	0.01	0.04	0.72	0.17	0.01	0.25	0.46	0.06	0.05	0.12	0.48	0.04	0.27	0.04	0.2
Tl	0.02	ppm			0.52	1.02	0.56	0.05	<0.02	0.03	0.04	<0.02	0.05	0.31	0.09	0.02	0.08	0.02	0.05	0.05	<0.02	0.08	0.02	0.52	0.02	0.06
Total	0.01	%			100.05	100	99.96	99.99	99.98	100	100	100	100.05	99.99	100	100	99.99	100	99.96	100.05	99.97	100	100.05	100	99.97	99.97
U	0.1	ppm			3	2.8	1.6	0.4	0.2	0.9	1.2	0.2	0.1	3.4	1	0.1	0.7	1.5	0.5	0.5	0.8	1.5	0.4	1.7	0.4	1.1
V	0.001	%			0.018	0.006	0.004	0.002	0.002	0.002	<0.001	<0.001	<0.001	0.014	0.004	<0.001	0.002	0.005	<0.001	<0.001	0.002	0.004	<0.001	0.008	<0.001	0.005
V	1	ppm			176	41	39	6	10	24	20	4	6	134	39	3	34	60	11	10	31	56	9	80	10	48
W	0.1	ppm			1.6	1.2	1.4	2.2	1.7	1	0.8	0.7	1.5	1.9	1.2	1.3	1	1.7	1	0.9	1.4	1.8	1.7	1	0.7	2
Y	0.1	ppm			25.5	39.3	25.3	3.7	7.2	3.4	6.2	5.5	1.5	7	3.8	1.9	5.6	9.1	6.3	6.6	8.1	14	14	14.1	4.3	10.7
Zn	0.001	%			0.002	0.002	0.004	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001
Zn	2	ppm	200	410	34	23	60	9	41	4	12	6	2	8	8	2	4	<2	16	16	21	11	16	35	16	21
Zr	0.001	%			0.027	0.009	0.005	<0.001	<0.001	0.006	0.003	0.003	0.003	0.02	0.006	0.003	0.006	0.01	0.003	0.003	0.004	0.006	0.004	0.009	0.004	0.004
Zr	0.5	ppm			183.5	57	47.3	5.5	9.4	32.4	21	2.9	7.5	133	37.8	2.7	39.8	61.3	11.2	10.4	18.7	74	7.9	50.4	7.9	43.7

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					TRRD33379_3_4	TRRD33379_7_8	TRRD33379_9_10	TRRD33437_1_2	QC5	TRRD33437_3_4	TRRD33437_7_8	QC7	TRRD33437_9_10	TRRD33437_14_15	TRRD34136_1_2	QC12	TRRD34136_3_4	TRRD34136_7_8	QC11	TRRD34136_9_10	YPGC00027_1_2	YPGC00027_7_8	YPGC00027_13_14	YPGC00027_25_26	YPGC00576_1_2	YPGC00576_7_8
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					U8	U7L	U6	U8	U8	U8	U7U	U7U	U7U	US11	U7U	U7U	U7U	US11	US11	U6	OVER	U7U	U6	U5L	OVER	OVER
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.05	0.04	0.04	0.05	0.03	0.06	0.06	0.07	0.04	0.05	0.03	0.07	0.05	0.04	0.07	0.01	0.12	0.07	0.07	0.03	0.1	0.15
Al	0.01	%			1.72	2.18	0.77	1.12	1	0.98	2.07	2.24	0.6	0.52	3.71	3.96	3.49	3.5	3.05	1.31	2.04	1.66	1.64	1.83	3.07	4.48
Al2O3	0.01	%			3.39	4.31	1.48	2.2	2.03	1.86	4.16	4.5	1.16	1.04	7.37	7.97	6.71	6.86	6.03	2.6	4.1	3.3	3.19	3.58	6.21	9.17
As	0.001	%			0.003	0.003	0.002	<0.001	0.002	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.004	0.004	0.003	<0.001	0.004	0.002	0.003	0.001	0.003	0.003
As	0.001	ppm	20	70	15.8	11.7	4.3	5.9	4.5	10.4	15.4	15.6	4.2	6.7	22.6	22.4	32.8	17.6	17.2	4	38.5	11.5	20.9	6.2	25.5	31.7
Ba	0.001	%			0.004	0.017	0.002	0.003	0.002	0.009	0.03	0.039	0.003	<0.001	0.007	<0.001	<0.001	0.007	<0.001	0.003	0.006	<0.001	<0.001	<0.001	0.009	0.015
Ba	10	ppm			160	180	50	40	40	90	260	330	40	30	90	80	50	90	60	60	140	50	70	30	170	160
Be	0.05	ppm			0.86	0.7	1.07	0.26	0.19	0.33	0.51	0.44	0.44	0.52	0.52	0.69	0.78	0.53	0.53	0.24	1.07	0.64	0.4	0.61	1.02	1.04
Bi	0.01	ppm			0.25	0.16	0.07	0.09	0.09	0.11	0.25	0.28	0.05	0.05	0.43	0.38	0.28	0.31	0.26	0.07	0.18	0.14	0.27	0.21	0.23	0.38
Ca	0.01	%			0.08	0.16	0.05	0.02	0.01	0.02	0.03	0.03	0.01	0.04	0.31	0.31	0.05	0.06	0.05	0.02	0.07	0.03	0.05	0.02	0.18	0.05
CaO	0.01	%			0.13	0.25	0.05	0.02	0.02	0.01	0.04	0.04	0.02	0.07	0.45	0.46	0.08	0.07	0.08	0.02	0.1	0.06	0.08	0.02	0.26	0.05
Cd	0.02	ppm	1.5	10	0.02	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.03	0.03	0.02	0.02	<0.02	<0.02	0.15	0.09	0.02	0.02	0.14	0.09
Ce	0.01	ppm			9.32	8.69	10.55	21.8	18.7	17.35	21.1	22.9	7.58	5.18	12	12.75	21.7	9.94	11.15	3.38	23.2	20.9	15	10.3	30.1	48.8
Cl	0.001	%			0.008	0.008	0.006	0.005	0.004	0.003	0.056	0.051	0.029	0.033	0.001	0.007	0.003	0.001	0.005	<0.001	0.004	0.005	0.003	<0.001	0.005	0.001
Co	0.001	%			<0.001	0.001	0.001	0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001
Co	0.1	ppm			2.5	2.2	4.1	1.3	1	3.4	8.1	8.2	1.8	1.6	2.9	3.2	8.5	2.2	2.6	0.8	10.2	4.3	4.8	1.6	14.8	9.8
Cr	1	ppm	80	370	50	41	61	31	28	47	45	45	14	21	107	114	50	82	78	89	110	70	45	99	117	169
Cr2O3	0.0006	%			0.0247	0.0102	0.0126	0.0088	0.006	0.0114	0.0091	0.0086	0.0043	0.0045	0.02	0.0206	0.012	0.0146	0.017	0.0145	0.0229	0.0133	0.0178	0.0196	0.0229	0.0323
Cs	0.05	ppm			0.44	0.19	0.09	0.05	0.05	0.08	0.64	0.06	0.09	0.06	0.16	0.21	1.36	0.12	0.11	0.09	1.25	0.16	0.12	0.26	2.31	2.73
Cu	0.001	%			0.002	<0.001	<0.001	0.002	0.001	<0.001	0.002	0.002	0.001	<0.001	<0.001	0.001	0.002	<0.001	0.002	<0.001	0.004	0.002	0.002	<0.001	0.005	0.004
Cu	0.2	ppm	65	270	13.4	5	7	4.5	3.5	7.4	11.2	10.9	4.4	6.7	7.3	9.3	19.3	14.9	14.2	4.2	39.6	8.8	11.1	7.3	47	53.3
Fe	0.01	%			39	46.8	32.1	>50	>50	>50	48.7	49.2	>50	>50	47.1	43.6	47.1	40.5	41.6	13.65	24.1	47.4	>50	19.3	18.3	20.6
Ga	0.05	ppm			6.73	5.22	2.06	2.48	1.97	3.62	5.63	6.14	1.41	1.62	16.4	16.65	8.73	9.1	7.87	2.64	6.83	6.73	6.33	5.56	8.93	14.05
Ge	0.05	ppm			2.85	2.54	1.55	0.99	1.42	1.57	2.65	2.33	1.85	7.55	2.37	2.3	3.19	3.67	3.84	0.18	0.38	3.12	3.58	0.16	0.34	0.26
Hf	0.1	ppm			1.2	0.9	0.3	0.6	0.5	0.6	1.4	1.6	0.2	0.2	3.1	3	1.6	2.1	1.8	0.6	1.2	1.3	1.2	0.8	1.7	2.7
In	0.005	ppm			0.027	0.02	0.027	0.013	0.014	0.017	0.026	0.032	0.01	0.011	0.073	0.061	0.04	0.049	0.037	0.019	0.063	0.035	0.027	0.017	0.073	0.111
K	0.01	%			0.06	0.03	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.03	0.06	0.03	0.03	0.02	0.02	0.41	0.03	0.03	0.06	0.68	0.54
K2O	0.001	%			0.073	0.035	0.017	0.008	0.002	0.012	0.007	0.011	0.008	0.023	0.029	0.068	0.038	0.028	0.028	0.011	0.503	0.031	0.029	0.056	0.837	0.685
La	0.5	ppm			3.7	3.4	2.3	1	0.9	1.4	2.8	3	1.4	1.7	4.4	5.5	8.4	4	4.3	1.9	11.3	4	3.2	5.4	13.8	23.9
Li	0.2	ppm			0.8	4	4	0.7	0.6	0.4	0.6	0.8	1	0.7	5	6	3.9	7.6	5.3	4.7	7.8	4.8	1.5	4	11.2	13.2
LOI	0.01	%			7.93	4.32	3.4	5	4.57	6.29	8.69	8.63	3.85	5.62	8.77	8.8	11.55	7.63	7.56	2.91	4.24	6.49	7.86	3.75	4.36	5.71
Mg	0.01	%			0.11	0.05	0.03	0.03	0.03	0.05	0.08	0.08	0.02	0.03	0.05	0.05	0.04	0.03	0.03	0.03	0.12	0.04	0.06	0.03	0.23	0.15
MgO	0.01	%			0.17	0.07	0.04	0.07	0.04	0.09	0.15	0.15	0.02	0.03	0.07	0.08	0.05	0.01	0.02	0.01	0.16	0.07	0.09	0.03	0.35	0.24
Mn	0.001	%			0.206	0.167	0.154	0.675	0.623	0.736	0.451	0.483	0.17	0.161	0.082	0.083	0.161	0.036	0.064	0.009	0.126	0.312	0.41	0.034	0.099	0.044
Mn	5	ppm			1880	1600	1540	6290	5510	7070	4060	4360	1500	1400	694	721	1440	340	595	134	1160	2710	3700	479	1200	476
Mo	0.05	ppm			1.08	0.66	0.63	0.43	0.32	0.4	0.77	0.79	0.34	0.42	1.95	2	1.6	1.18	1.24	0.36	1.55	1.11	1.52	1.89	2	1.85
Na	0.01	%			0.08	0.02	0.02	0.01	0.01	0.03	0.06	0.06	0.02	0.04	0.01	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.01	0.06	0.03
Na2O	0.005	%			0.045	0.014	<0.005	0.006	<0.005	0.017	0.079	0.077	0.025	0.04	0.008	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008
Nb	0.1	ppm			3.8	2.9	1.2	1.5	1.3	2.1	3.5	3.6	1.1	1.3	12.9	12.6	5.4	7.1	6.1	1.6	3.3	4.2	3.7	2.5	4.9	7.5
Ni	0.001	%			0.007	0.002	<0.001	0.001	0.001	<0.001	0.001	<0.001	0.001	0.001	0.002	0.002	0.006	0.002	0.003	<0.001	0.01	0.002	0.017	<0.001	0.007	0.002
Ni	0.2	ppm	21	52	15.3	15	9.6	4.2	3.2	6.2	14.4	14.5	4.5	9.1	11.2	13.4	22.8	20.2	20.3	6.3	49.6	15.8	12.5	7.9	61.2	43.5
P	0.001	%			0.022	0.009	0.009	0.022	0.022	0.021	0.026	0.024	0.059	0.046	0.03	0.03	0.043	0.042	0.044	0.006	0.027	0.03	0.039	0.011	0.024	0.035
P	10	ppm			200	90	100	220	200	210	240	230	530	410	280	270	400	390	380	60	250	260	350	110	220	340
Pb	0.001	%			<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	0.003	<0.001	<0.001	<0.001
Pb	0.5	ppm	50	220	8.6	10.2	6.5	5.4	5	6	11.8	12.7	3	3	15.3	14	10.3	15.9	13.4	4.7	13.3	12.4	12.1	4.7	15.2	22
Rb	0.1	ppm			2.4	1.5	1	0.2	0.3	0.5	0.2	0.4	0.8	0.8	2	3.1	1.6	1.4	1.2	1.3	15.9	1.6	0.9	3.7	31.3	35.5
Re	0.002	ppm			<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002
S	0.01	%			0.04	0.02	0.01	0.03	0.03	0.04	0.1	0.1	0.04	0.05	0.04	0.04	0.08	0.04	0.04	0.02	0.26	0.04	0.06	0.01	0.21	0.12
Sb	0.05	ppm	2	25	2.52	2.1	0.85	0.52	0.39	1.02	2.19	2.12	0.39	0.61	3.45	3.07	3.61	2.43	2.06	0.74	2.35	1.28	2.74	1.53	1.61	2.15
Sc	0.1	ppm			15.6	5.8	3	5.4	4.6	4.7	10.8	10.8	5.6	2.5	8	7	7.3	6.9	6.1	2.3	6.9	5.1	8.4	4.2	8.5	12.1
Se	1	ppm			<1	<1	<1	1	<1	1	2	1	<1	<1	3	2	2	2	2	1	1	1	2	<1	1	2
SiO2	0.01	%			27.8	18.8	48	9.88	8.62	14.85	10	9.99	8.36	5.32	9.8	13.25	10.3	22.7	21.5	75.6	54.8	6.58	9.18	66	60.8	53.3
Sn	0.001	%			<0.001	0.002	0.002	0.002	0.001	0.002	0.002	0.004	0.002	0.001	0.002	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Sn	0.2	ppm			0.8	0.6	0.4	0.3	0.2	0.4	0.6	0.7	0.2	0.2	2.3	2.2	1	1.5	1.2	0.4	0.9	0.8	0.7	0.7	1.2	2.1
Sr	0.001	%			<0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.002	0.004
Sr	0.2	ppm			12.9	15.3	8.8	2.9	2.8	5.4	7.2	7.7	2.6	7	14.7	13.7	7.9	12.3	10	5.1	24.9	5.6	6.8	4.2	34.5	45.8
Ta	0.05	ppm			0.27	0.2	0.08	0.08	0.08	0.13	0.24	0.25	0.07	0.06	0.99	0.98	0.39	0.52	0.43	0.12	0.23	0.26	0.25	0.2	0.35	0.58
Te	0.05	ppm			0.27	0.31	0.14	0.3	0.29	0.27	0.56	0.6	0.23	0.28	0.35	0.31	0.33	0.3	0.25	0.06	0.23	0.37	0.53	0.05	0.23	0.26
Th	0.2	ppm			4.4	3	1.3	3.1	2.6	3	6.9	7.5	1.2	1	12.7	12.1	6.2	9.5	8.3	2.8	3.9	6.2	5.3	3.4	5.3	10.2
Ti	0.005	%			0.131	0.1	0.036	0.036	0.031	0.059	0.123	0.127	0.026	0.026	0.432	0.423	0.194	0.239	0.202	0.051	0.115	0.122	0.123	0.091	0.19	0.273
TiO2	0.01	%			0.24	0.19	0.07	0.08	0.07	0.11	0.24	0.25	0.06	0.06	0.88	0.87	0.36	0.48	0.39	0.09	0.22	0.24	0.22	0.16	0.37	0.53
Tl	0.02	ppm			0.15	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.44	0.11	0.03	0.03	0.57	0.36
Total	0.01	%			100	100	100	99.99	100	99.99	100	99.99	100	100	100	99.99	100	99.98	100	99.98	99.98	100	100	100.05	99.99	99.97
U	0.1	ppm			0.8	0.7	0.3	0.7	0.6	0.5	1.3	1.4	0.4	0.4	1.7	1.8	1.7	1.4	1.3	0.4	0.9	1	1.1	0.6	1.3	1.9
V	0.001	%			0.003	0.003	0.002	0.002	<0.001	0.002	0.004	0.005	<0.001	<0.001	0.015	0.012	0.008	0.006	0.004	<0.001	0.006	0.004	0.003	0.003	0.006	0.013
V	1	ppm			47	35	14	15	13	19	39	42	9	11	132	122	82	73	62	13	74	46	38	27	72	114
W	0.1	ppm			1.3	1.1	1.3	1	0.8	1.3	1.6	1.9	1	1.1	2.7	3	1.5	2.1	1.9	1.3	1	1.2	1.6	2	2.9	2
Y	0.1	ppm			7.2	6.2	4.6	1.7	1.8	2.3	5.2	5	3.8	6	5.4	6.1	6.1	5.5	5.9	1.6	11.2	6.8	5.3	7.9	10.9	12.4
Zn	0.001	%			0.002	0.001	0.002	<0.001	<0.001	<0.001	0.001	0.002	<0.001	0.001	<0.001	0.001	0.002	0.002	0.002	0.001	0.011	0.002	0.002	<0.001	0.01	0.01
Zn	2	ppm	200	410	24	17	23	3	4	5	15	17	9	18	12	12	34	35	32	7	109	23	23	15	96	101
Zr	0.001	%			0.004	0.002	<0.001	0.005	<0.001	0.002	0.007	0.009	<0.001	<0.001	0.023	0.02	0.007	0.011	0.01	<0.001	0.007	0.006	0.004	0.001	0.012	0.015
Zr	0.5	ppm			47.2	33.5	12.9	19.9	17.7	22.9	52.2	55.8	9.5	8.8	113.5	115.5	60.1	76.6	69	22.8	43.4	48.6	45.9	32.5	66.3	104.5

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPGC00576_19_20	YPGC00576_25_26	YPGC00576_31_32	YPGC00576_37_38	YPGC01657_7_8	YPGC01657_13_14	YPGC01657_19_20	YPGC01657_31_32	YPGC01657_37_38	YPGC01657_43_44	YPGC02056_1_2	YPGC02056_7_8	YPGC02056_13_14	YPGC02056_14_15	QC3	YPGC02056_19_20	YPGC02056_25_26	YPGC02056_37_38	YPGC02056_44_45	YPGC02807_1_2	YPGC02807_13_14	YPGC02807_19_20
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					US9	U5L	U5L	U5L	OVER	OVER	U8	U7L	U6	U5	OVER	OVER	OVER	OVER	OVER	OVER	OVER	US10	U5	OVER	OVER	U8
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.11	0.04	0.05	0.03	0.1	0.05	0.07	0.06	0.05	0.1	0.11	0.14	0.14	0.09	0.09	0.13	0.2	0.08	0.07	0.05	0.12	0.07
Al	0.01	%			3.62	0.45	0.4	0.87	6.72	3.43	3.97	2.4	0.74	1.73	2.59	3.98	4.99	6.59	6.39	5	4.8	1.34	2.45	1.53	6.84	7.63
Al2O3	0.01	%			7.37	0.88	0.79	1.73	13.8	6.74	7.8	4.83	1.48	3.52	5.26	7.86	10.25	13.95	13.5	10.75	9.49	2.74	4.89	3.29	13.75	16.65
As	0.001	%			0.003	0.001	0.001	0.001	0.002	0.004	0.004	0.003	0.004	0.002	0.003	0.004	0.004	0.003	0.003	0.003	0.004	0.002	0.003	0.003	0.004	0.002
As	0.001	ppm	20	70	18.9	7.6	5.2	6.9	26.6	21.3	28.3	19	21	20.5	24.9	35.5	41.5	29.2	31.1	27.3	36.8	16.2	18.3	12.6	38.8	25.8
Ba	0.001	%			<0.001	0.004	0.002	<0.001	0.021	0.013	0.01	<0.001	<0.001	<0.001	0.015	0.023	0.009	0.011	0.009	0.005	0.014	0.002	0.002	0.003	0.02	0.012
Ba	10	ppm			70	130	40	40	220	120	70	10	30	30	230	210	160	130	120	120	160	20	40	50	220	120
Be	0.05	ppm			1.63	0.5	0.68	0.64	1.57	0.9	0.65	0.62	1.44	0.66	1.19	1.28	0.93	0.98	0.9	0.91	0.93	0.82	0.85	1.59	1.27	0.96
Bi	0.01	ppm			0.3	0.03	0.02	0.08	0.43	0.22	0.53	0.18	0.03	0.21	0.22	0.3	0.55	0.56	0.55	0.45	0.44	0.15	0.29	0.15	0.63	0.58
Ca	0.01	%			0.05	0.01	0.01	0.01	0.1	0.04	0.05	0.03	0.01	0.02	0.13	0.09	0.09	0.09	0.09	0.07	0.06	0.02	0.01	0.03	0.13	0.12
CaO	0.01	%			0.09	0.02	0.02	0.01	0.12	0.06	0.06	0.05	0.02	0.03	0.2	0.11	0.14	0.12	0.12	0.11	0.08	0.02	0.01	0.04	0.17	0.16
Cd	0.02	ppm	1.5	10	0.08	0.05	0.04	0.02	0.07	0.1	0.06	0.06	0.03	<0.02	0.19	0.12	0.08	0.07	0.08	0.02	0.07	0.05	0.05	0.16	0.14	0.05
Ce	0.01	ppm			33.2	19.1	16.95	11	64.9	12.8	92.5	33	22	18.05	40.4	37	49	50.5	50.6	33	39.3	9.06	41.1	18.45	59.3	42
Cl	0.001	%			0.006	0.003	0.002	<0.001	0.005	0.001	0.005	0.004	<0.001	0.005	0.006	<0.001	0.004	0.001	0.005	0.002	<0.001	<0.001	0.005	0.087	<0.001	<0.001
Co	0.001	%			<0.001	<0.001	<0.001	0.001	0.001	0.002	0.002	<0.001	0.002	<0.001	<0.001	0.002	<0.001	0.001	0.001	<0.001	0.001	0.002	0.001	0.002	0.001	<0.001
Co	0.1	ppm			14.3	4.5	3.3	1.9	14	4.9	24.5	8	13.9	3.5	14.1	12	7.8	7.8	8.1	6.5	9.4	8.5	10.2	10.5	11.2	8.2
Cr	1	ppm	80	370	60	39	54	204	156	64	68	33	19	80	161	170	183	163	174	180	190	25	72	60	201	149
Cr2O3	0.0006	%			0.0102	0.0512	0.0084	0.0184	0.0352	0.011	0.016	0.0049	0.0047	0.0156	0.0247	0.0266	0.0282	0.0292	0.0294	0.029	0.0334	0.0071	0.0145	0.012	0.0327	0.0248
Cs	0.05	ppm			1.26	0.32	0.07	0.12	4.24	0.36	0.11	0.05	<0.05	0.44	1.32	1.96	2.71	3.5	3.43	2.52	1.38	0.07	0.06	0.56	3.77	4.06
Cu	0.001	%			0.003	0.002	0.002	<0.001	0.005	0.001	<0.001	0.001	0.001	0.002	0.005	0.004	0.006	0.006	0.006	0.005	0.004	0.001	0.001	<0.001	0.007	0.006
Cu	0.2	ppm	65	270	31	4.2	5.2	9.5	67.6	12.3	8.7	7.7	3.7	14.5	37.1	53.3	65.6	62.8	63.1	47.2	44.6	13.4	23.9	18.3	80.3	60.6
Fe	0.01	%			43.4	31.3	41.3	19.5	13.25	47.8	45.7	49.8	>50	16.15	27.4	20.9	18.55	15.3	15.65	18.75	43.1	>50	>50	29.8	16.4	14.25
Ga	0.05	ppm			9.79	1.29	1.33	2.34	20.2	9.17	11	3.46	1.48	4.61	8.03	11.7	17.45	19.35	19.2	16.6	18	2.97	8.19	4.79	20.7	22.1
Ge	0.05	ppm			2.77	0.44	1.89	0.22	0.38	3.09	2.21	2.78	1.94	0.25	0.78	0.3	0.68	0.54	0.8	0.4	3	5.44	2.16	0.58	0.28	0.49
Hf	0.1	ppm			1.5	0.1	0.1	0.4	4.1	2.1	2.7	0.8	0.2	0.8	1.4	2.1	3.9	4.3	4.3	3.5	3.7	0.6	1.4	0.8	4.6	4.9
In	0.005	ppm			0.041	<0.005	<0.005	0.011	0.117	0.044	0.061	0.019	<0.005	0.042	0.069	0.092	0.159	0.152	0.151	0.113	0.111	0.016	0.033	0.038	0.179	0.153
K	0.01	%			0.15	0.03	0.01	0.03	0.82	0.05	0.04	0.01	0.01	0.28	0.47	0.45	0.49	0.51	0.48	0.33	0.14	0.01	0.02	0.2	0.69	0.56
K2O	0.001	%			0.178	0.028	0.015	0.026	0.998	0.059	0.041	0.011	0.009	0.341	0.584	0.544	0.614	0.652	0.615	0.407	0.152	0.007	0.021	0.256	0.842	0.708
La	0.5	ppm			8.2	5.8	13.2	3.9	31.5	4.2	17.4	13.1	37.9	13.7	16.4	17.4	23.4	25.8	25.7	16	11.4	6.1	26.6	11.2	28.1	24.3
Li	0.2	ppm			5.7	1.6	1.3	4.6	22.2	4.3	1	3.3	0.3	5.1	12.2	14.5	11.5	17	16.2	16.1	8.9	1	2.7	7.7	20.9	21.9
LOI	0.01	%			10.43	3.09	6.28	3.34	6.65	9.37	8.59	10.53	10.53	3.3	5.14	5.71	5.57	6.32	6.33	5.11	6.58	9.12	10.63	4.59	6.67	6.85
Mg	0.01	%			0.1	0.02	0.01	0.02	0.25	0.03	0.03	0.07	0.02	0.08	0.12	0.16	0.17	0.18	0.17	0.1	0.05	0.03	0.03	0.06	0.24	0.17
MgO	0.01	%			0.16	0.01	0.02	<0.01	0.4	0.03	0.04	0.11	0.01	0.08	0.19	0.26	0.25	0.3	0.27	0.12	0.08	0.04	0.05	0.08	0.38	0.28
Mn	0.001	%			0.32	0.253	0.15	0.054	0.054	0.051	0.877	0.498	0.338	0.049	0.659	0.121	0.106	0.062	0.064	0.071	0.293	0.16	0.275	0.52	0.097	0.092
Mn	5	ppm			2810	2340	1380	557	602	488	8580	4370	3010	460	5970	1260	1000	607	606	663	2880	1440	2650	4330	1050	842
Mo	0.05	ppm			1.56	0.84	1.49	1.22	1.79	2.6	1.33	0.88	2.19	2.53	3.09	1.89	2.28	1.83	1.87	1.87	1.93	0.84	1.15	3.64	2.25	1.89
Na	0.01	%			0.02	0.01	0.01	0.01	0.05	0.01	0.01	0.01	<0.01	0.01	0.04	0.03	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.07	0.04	0.04
Na2O	0.005	%			<0.005	<0.005	<0.005	<0.005	0.033	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	0.014	0.016	<0.005	0.008	<0.005	<0.005	0.078	0.028	0.02
Nb	0.1	ppm			4.7	0.7	0.9	1.4	11.3	9	6.1	2	0.9	2.1	5.6	9.8	12.2	12	9.8	9.7	2	3.7	2.6	12.3	15.2	
Ni	0.001	%			0.003	0.018	0.001	<0.001	0.005	0.002	0.001	0.006	0.006	0.005	0.01	0.002	0.004	0.004	0.003	0.002	0.001	0.002	0.003	0.002	0.005	0.003
Ni	0.2	ppm	21	52	48.9	5.5	11.6	6.7	61.2	18	22.3	35.7	45.8	20.8	54.4	50	41.8	40.9	40.5	26.9	27.6	36.8	39.6	33.5	52.5	38
P	0.001	%			0.026	0.046	0.072	0.024	0.034	0.045	0.021	0.019	0.108	0.014	0.034	0.033	0.031	0.03	0.03	0.032	0.036	0.028	0.078	0.025	0.031	0.031
P	10	ppm			230	420	670	230	340	410	210	170	990	130	310	310	290	280	290	280	360	270	710	210	300	280
Pb	0.001	%			<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	0.002	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
Pb	0.5	ppm	50	220	9.4	1.4	2.8	5.1	23.7	18.4	17.3	8.5	7.8	4.9	6	22.1	16.8	25.9	25.7	24.8	21	23	15.3	20.4	8.5	28.7	26.3
Rb	0.1	ppm			13	1.4	0.7	2	58.2	3.5	1.1	0.5	0.3	9.6	16.5	26.5	31.3	38.7	37.3	25	11.6	0.4	0.5	7.4	47.1	42.2
Re	0.002	ppm			0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002
S	0.01	%			0.04	0.01	0.01	0.01	0.05	0.08	0.09	0.04	0.03	0.01	0.3	0.18	0.06	0.02	0.02	0.02	0.03	0.04	0.02	0.14	0.05	0.02
Sb	0.05	ppm	2	25	2.74	0.28	1.25	1.8	1.61	1.33	1.5	0.76	0.54	2.59	1.93	2.09	2.67	2.14	2.24	1.92	2.86	0.89	2.35	1.4	2.63	2
Sc	0.1	ppm			10.1	1.4	1.5	4.7	16.7	10.3	11	7.3	2	6	7	10.7	14.2	17.6	16.7	12.1	16.3	6.5	17.8	4.5	17.1	18
Se	1	ppm			<1	<1	<1	<1	2	1	1	1	1	1	2	2	2	2	1	2	3	2	2	1	2	1
SiO2	0.01	%			11.45	47	29.2	67.3	58.3	9.73	12.05	5.34	2.72	67.1	42.5	55	54.9	54.9	54.4	53.9	19.05	4.11	3.04	41.4	53.4	52.8
Sn	0.001	%			<0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	<0.001	0.002	0.002	0.003
Sn	0.2	ppm			1.2	0.2	<0.2	0.3	2.9	1.7	1.3	0.4	0.2	0.8	1.1	1.6	2.8	3.3	3.2	2.4	2	0.4	0.8	0.8	3.5	3.6
Sr	0.001	%			<0.001	<0.001	0.005	<0.001	0.008	<0.001	0.001	<0.001	<0.001	<0.001	0.003	0.005	0.005	0.003	0.003	0.001	0.001	<0.001	0.001	<0.001	0.006	0.003
Sr	0.2	ppm			9.7	5.3	37.8	2.7	86.4	10.4	9.4	2.5	2.3	4	31.3	55.9	60.8	44.9	42.2	25.1	14.2	1.8	5	12.5	68.2	39.4
Ta	0.05	ppm			0.34	<0.05	<0.05	0.1	0.87	0.68	0.47	0.12	<0.05	0.15	0.29	0.43	0.73	0.93	0.92	0.74	0.73	0.14	0.28	0.17	0.94	1.15
Te	0.05	ppm			0.29	0.12	0.2	0.06	0.25	0.29	0.52	0.39	0.39	0.14	0.31	0.22	0.42	0.33	0.37	0.28	0.41	0.3	0.4	0.25	0.61	0.34
Th	0.2	ppm			6.1	0.5	0.5	1.7	12.6	7.5	12.1	3.7	1	3.3	5.4	8	13.2	14.1	14.4	11.5	19.7	3.1	6.4	2.9	14.4	14.1
Ti	0.005	%			0.163	0.014	0.015	0.047	0.438	0.299	0.204	0.056	0.015	0.076	0.151	0.22	0.353	0.46	0.441	0.377	0.341	0.053	0.126	0.089	0.474	0.571
TiO2	0.01	%			0.31	0.02	0.04	0.08	0.83	0.58	0.4	0.1	0.04	0.15	0.29	0.4	0.69	0.91	0.88	0.75	0.64	0.11	0.25	0.18	0.9	1.14
Tl	0.02	ppm			0.2	0.17	<0.02	0.02	0.49	0.14	0.06	0.02	0.11	0.05	0.76	0.42	0.35	0.38	0.35	0.4	0.4	<0.02	<0.02	0.18	0.64	0.33
Total	0.01	%			100	100	99.99	100	100.05	99.99	100	100	99.99	100	99.97	99.96	99.96	100	100.05	99.99	100	100	100	99.96	99.95	100
U	0.1	ppm			2.1	0.3	0.9	0.7	2.2	2.1	2.6	2	1.6	1.5	1.3	1.7	2.4	2.7	2.8	2.4	3.9	2.1	3.8	1.1	2.8	2.7
V	0.001	%			0.004	<0.001	0.002	<0.001	0.013	0.004	0.008	0.002	<0.001	0.005	0.007	0.011	0.014	0.013	0.015	0.013	0.016	0.002	0.008	0.002	0.017	0.017
V	1	ppm			55	4	6	22	127	55	69	32	8	58	83	97	142	145	149	135	153	18	65	32	167	158
W	0.1	ppm			2	1.3	1.3	1.9	2.2	1.7	3.1	1.6	1.4	3.8	3.1	1.6	2	2.1	1.9	2	1.9	1.1	4.8	7.1	2	2.4
Y	0.1	ppm			8.9	4.4	6.6	7.3	16.3	8.2	7.2	14.8	60.4	10.7	15.3	13.5	15.3	15.7	15.4	10.9	11.5	10.2	13.4	14.2	19.2	15.2
Zn	0.001	%			0.006	<0.001	0.002	<0.001	0.008	0.002	0.002	0.004	0.002	0.002	0.009	0.011	0.008	0.007	0.006	0.005	0.005	0.002	0.002	0.005	0.01	0.006
Zn	2	ppm	200	410	62	5	14	12	91	23	42	42	26	15	86	125	79	73	74	48	57	38	35	54	103	68
Zr	0.001	%			0.005	0.001	0.004	<0.001	0.026	0.014	0.013	0.002	<0.001	0.004	0.008	0.01	0.021	0.023	0.021	0.019	0.019	0.003	0.005	0.003	0.023	0.027
Zr	0.5	ppm			58.6	5.7	5.3	14.8	152	79.6	97.6	30.6	7.5	31.2	52.4	77.7	145.5	161	158	128.5	140	21.6	49.3	30.1	169.5	177.5

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPGC02807_25_26	YPGC02807_31_32	YPGC02807_37_38	YPGC03152_1_2	YPGC03152_7_8	YPGC03152_13_14	YPGC03152_19_20	YPGC03152_25_26	YPGC03152_31_32	YPGC03152_43_44	YPGC03152_49_50	YPGC04543_1_2	YPGC04543_7_8	YPGC04543_13_14	YPGC04543_21_22	YPGC04543_25_26	YPGC04543_31_32	YPGC04543_37_38	YPGC05415_1_2	YPGC05415_13_14	YPGC05415_19_20	YPGC05415_25_26
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					U8	U7U	US11	OVER	OVER	OVER	U8	U8	U7U	U6L	U5	OVER	OVER	OVER	U8	U8	U8	U7U	OVER	OVER	U7U	US12
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.13	0.11	0.05	0.13	0.12	0.07	0.09	0.11	0.11	0.05	0.06	0.09	0.17	0.14	0.12	0.19	0.06	0.05	0.13	0.25	0.15	0.08
Al	0.01	%			5.94	3.58	0.8	2.2	4.31	1.65	1.35	3.95	1.4	0.42	0.88	1.6	3.54	6.48	4.93	4.38	5.87	2.64	2.02	4.11	3.77	4.82
Al2O3	0.01	%			12.5	6.95	1.56	4.51	8.45	3.3	2.8	7.89	2.97	0.83	1.76	3.15	7	13.1	10	8.44	12	5.28	3.98	8.41	7.37	9.62
As	0.001	%			0.005	0.004	0.003	0.004	0.003	0.002	0.003	0.002	0.001	0.002	0.002	0.002	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.004	0.008
As	0.001	ppm	20	70	34	21.2	16.6	28.6	23.6	8.8	18.1	11.7	9.3	4.9	8.3	19.3	34.3	44.6	32.3	33.3	25.2	25.1	26.8	44.3	27.1	72.2
Ba	0.001	%			0.012	0.095	0.004	0.008	0.012	0.024	<0.001	0.004	0.07	<0.001	0.002	0.008	0.013	0.007	0.016	0.011	0.055	0.001	0.007	0.014	0.02	0.041
Ba	10	ppm			110	860	50	90	170	200	50	30	570	30	30	140	210	150	150	210	500	40	80	170	280	380
Be	0.05	ppm			0.66	1.93	1.84	0.98	1.19	0.82	0.59	0.36	1.05	0.59	0.84	0.69	1.31	1.04	1.2	0.84	0.9	1.36	1.08	1.38	1.25	1.15
Bi	0.01	ppm			1.27	0.31	0.04	0.34	0.3	0.04	0.14	0.43	0.16	0.02	0.07	0.12	0.29	0.64	0.46	0.45	0.64	0.36	0.18	0.48	0.38	0.82
Ca	0.01	%			0.08	0.06	0.04	0.04	0.07	0.04	0.03	0.05	0.04	0.01	0.02	0.02	0.08	0.11	0.08	0.09	0.1	0.05	0.03	0.07	0.05	0.07
CaO	0.01	%			0.11	0.08	0.05	0.04	0.1	0.04	0.06	0.06	0.05	0.01	0.01	0.02	0.13	0.16	0.09	0.14	0.13	0.07	0.04	0.09	0.09	0.09
Cd	0.02	ppm	1.5	10	0.05	0.45	0.05	0.16	0.08	0.06	<0.02	0.02	1.29	0.02	0.04	0.08	0.14	0.12	0.11	0.1	0.12	0.02	0.13	0.06	0.09	0.36
Ce	0.01	ppm			44.8	61.9	13.45	25.7	39.2	32.8	11.7	18.6	67.6	8.73	12.3	18.85	33.6	55	50	37.6	63.9	15.15	20.8	51.9	49.4	41.6
Cl	0.001	%			<0.001	0.001	0.002	<0.001	0.003	0.002	0.002	0.006	<0.001	<0.001	<0.001	0.002	0.003	0.003	0.002	0.025	<0.001	0.001	0.001	<0.001	0.005	0.001
Co	0.001	%			0.001	0.007	0.002	0.002	<0.001	0.001	<0.001	0.001	0.016	0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	0.002	0.002	0.002	<0.001	<0.001	0.004
Co	0.1	ppm			7.7	49.8	12.4	10.1	11.4	11.9	15.1	2.3	107.5	2.9	3.9	7.8	10	10.4	11	13.3	14.2	8	9.3	7.6	13.8	40.2
Cr	1	ppm	80	370	210	72	28	115	129	13	35	91	34	63	103	114	175	236	160	189	223	69	106	187	171	53
Cr2O3	0.0006	%			0.0394	0.0114	0.0229	0.0224	0.0248	0.0046	0.0091	0.0194	0.0046	0.0128	0.0228	0.0178	0.0299	0.0349	0.0291	0.0329	0.0391	0.0125	0.0192	0.0302	0.024	0.0114
Cs	0.05	ppm			2.29	0.63	0.13	1.4	2.28	0.15	0.14	0.16	0.21	0.11	0.21	0.85	1.56	3.2	1.83	1.03	2.21	0.21	1	1.78	1.12	0.14
Cu	0.001	%			0.003	<0.001	<0.001	0.003	0.004	0.002	0.002	0.001	0.002	<0.001	<0.001	0.002	0.006	0.003	0.004	0.002	0.001	0.003	0.003	0.004	0.004	0.002
Cu	0.2	ppm	65	270	39.5	18.5	6.4	37.7	44.4	31.5	10.8	14.8	24.6	6	12.5	27.5	55	74.7	39.7	37.8	26.4	10.3	33.6	48.6	33.4	44.2
Fe	0.01	%			32.8	38.6	>50	26.7	19.25	>50	48.8	49.8	34	21	22.7	15	22.7	21.3	32.8	43.1	35.6	>50	31	24.9	36.2	44.9
Ga	0.05	ppm			20.9	13.85	2.74	7.57	12.3	1.65	3.03	11.7	10.3	1.65	2.5	4.93	9.85	22.8	16.85	15.75	26.2	8.84	5.96	15.85	13.65	14.05
Ge	0.05	ppm			1.4	1.42	1.75	0.33	0.81	4.32	3.39	1.79	0.92	0.36	0.27	0.22	0.44	1.11	1.4	2.94	1.25	2.42	0.81	0.7	0.78	2.8
Hf	0.1	ppm			4.4	2.2	0.4	1.2	2.5	0.3	0.6	2.5	0.7	0.2	0.4	0.8	1.9	4.5	3.6	3.8	6.2	2	1.1	3.5	3.2	2.9
In	0.005	ppm			0.133	0.06	0.009	0.073	0.082	0.008	0.022	0.075	0.017	<0.005	0.012	0.044	0.115	0.185	0.107	0.094	0.149	0.048	0.05	0.132	0.089	0.091
K	0.01	%			0.21	0.33	0.03	0.41	0.44	0.03	0.03	0.04	0.66	0.04	0.08	0.3	0.75	0.57	0.24	0.13	0.22	0.03	0.29	0.35	0.17	0.12
K2O	0.001	%			0.254	0.375	0.034	0.49	0.539	0.035	0.042	0.036	0.845	0.038	0.082	0.353	0.912	0.705	0.283	0.154	0.264	0.029	0.341	0.418	0.205	0.138
La	0.5	ppm			16.2	34.4	9	11.5	20	4.6	8.3	22.6	51.7	4.1	6.5	10	17.1	27.1	20.1	10.4	22.2	28.5	9.5	23.3	12.1	16.4
Li	0.2	ppm			9	20.7	1	6.2	21.4	1.1	0.8	5.3	20.5	4.4	4.5	7.2	10.5	17	10.9	7	21.4	4.4	7.5	13.3	12.3	14.3
LOI	0.01	%			6.42	10.53	10.52	4.68	5.75	9.35	8.32	6.24	10.32	3.13	3.59	2.98	6.89	6.53	5.89	6.65	4.83	9.75	4.82	5.42	5.42	9.98
Mg	0.01	%			0.08	0.08	0.07	0.1	0.16	0.04	0.05	0.03	0.02	0.02	0.04	0.06	0.17	0.23	0.09	0.08	0.1	0.08	0.1	0.1	0.06	0.12
MgO	0.01	%			0.13	0.11	0.12	0.17	0.23	0.06	0.07	0.05	0.03	<0.01	0.04	0.07	0.26	0.34	0.15	0.12	0.16	0.11	0.14	0.14	0.09	0.21
Mn	0.001	%			0.248	9.49	0.5	0.135	0.077	0.378	0.346	0.087	20.4	0.233	0.122	0.087	0.126	0.112	0.428	0.506	1.235	0.479	0.168	0.094	0.582	2.78
Mn	5	ppm			2130	84900	4600	1140	713	3270	2950	835	>100000	2210	1130	986	1060	1140	3780	4610	11450	4250	1440	926	4910	26300
Mo	0.05	ppm			2.03	1.47	0.87	2.31	1.78	1.05	1.12	1.09	0.71	0.84	1.27	1.12	1.67	2.9	2.38	1.59	2.19	1.28	1.64	2.41	3.62	1.94
Na	0.01	%			0.03	0.06	0.01	0.03	0.04	0.01	0.01	0.01	0.07	0.01	0.01	0.02	0.05	0.04	0.03	0.05	0.03	0.01	0.02	0.02	0.02	0.02
Na2O	0.005	%			0.011	0.066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.077	<0.005	<0.005	<0.005	<0.005	<0.005	0.021	0.014	0.03	<0.005	0.01	<0.005	<0.005	<0.005
Nb	0.1	ppm			12.5	6.3	1.2	3.6	6.9	1.4	2	5.7	2.1	0.8	1.3	2.4	4.9	12	9.6	9.2	17.4	5.1	3.3	8.3	8.5	7.5
Ni	0.001	%			0.001	0.001	0.014	0.004	0.012	<0.001	0.007	<0.001	0.003	0.001	0.001	0.002	0.007	0.005	0.001	0.004	0.002	0.007	0.005	0.002	0.003	0.006
Ni	0.2	ppm	21	52	30.7	28	30	54.7	50.6	13	23.3	12.7	58.8	11.5	16.5	29.5	48.2	62.1	35.4	29.6	30.9	62.1	47.1	28.6	24.4	87.4
P	0.001	%			0.035	0.028	0.026	0.039	0.036	0.019	0.023	0.055	0.132	0.017	0.018	0.021	0.032	0.033	0.037	0.037	0.03	0.051	0.039	0.032	0.029	0.021
P	10	ppm			320	270	260	360	340	180	200	510	1160	160	180	200	310	310	350	340	280	460	350	300	260	210
Pb	0.001	%			<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Pb	0.5	ppm	50	220	26.8	57.4	3.5	16.6	16.4	38	9.5	24.5	12.8	4.5	5.1	11.2	17.7	28.7	21.2	20	32.8	9.7	13.1	23.6	18.9	19
Rb	0.1	ppm			20	8.8	1.1	16	31.2	1.6	1.4	1.3	9.1	1.9	3.2	10.9	23.6	39.2	17.8	9.7	20.4	2	13.5	21.6	12	2.2
Re	0.002	ppm			<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002
S	0.01	%			0.02	0.03	0.04	0.26	0.11	0.06	0.07	0.08	0.01	0.01	0.02	0.24	0.73	0.05	0.04	0.04	0.01	0.05	0.12	0.04	0.05	0.02
Sb	0.05	ppm	2	25	2.89	1.91	0.62	1.97	1.54	0.48	1.09	1.57	1.36	0.42	0.67	1.26	2.11	2.91	2.64	2.7	2.49	1.61	1.92	3.21	1.97	3.45
Sc	0.1	ppm			16.7	10	3.6	7.1	11.5	6.2	6.2	12.3	5.7	1.9	3.3	5.4	10.3	17.2	14.2	13.4	17.6	5.3	6.5	12.1	10.9	18.9
Se	1	ppm			2	2	1	1	1	2	1	3	1	<1	1	1	2	2	2	3	2	3	1	2	2	1
SiO2	0.01	%			27.9	10.05	10.1	47.2	56.3	8.36	6.28	8.98	1.92	65	60.7	71.4	49	46.3	31.7	16.35	24.8	5.88	42.1	46.9	28.8	7.65
Sn	0.001	%			0.002	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.003	<0.001	0.003	0.001	<0.001	<0.001
Sn	0.2	ppm			2.7	1.3	0.2	1	1.7	0.2	0.4	1.3	0.5	0.2	0.3	0.7	1.4	3.4	2.1	1.8	3.7	1	0.8	2.5	1.8	1.9
Sr	0.001	%			0.002	0.006	0.001	0.002	0.002	0.001	<0.001	0.003	0.015	<0.001	<0.001	<0.001	0.003	0.003	0.002	0.001	0.002	<0.001	<0.001	0.003	0.001	0.005
Sr	0.2	ppm			19.8	73.7	5.4	20	38.1	7.8	5.2	24.3	130	2.3	3.7	23.8	42.9	56	22.8	16.1	34.8	6.8	12.4	41.9	18.4	55.5
Ta	0.05	ppm			0.96	0.44	0.07	0.27	0.53	0.08	0.12	0.46	0.16	<0.05	0.09	0.17	0.35	0.87	0.75	0.66	1.35	0.35	0.23	0.61	0.61	0.61
Te	0.05	ppm			0.3	0.6	0.19	0.18	0.21	0.51	0.41	0.61	0.18	0.09	0.09	0.12	0.3	0.51	0.27	0.47	0.39	0.38	0.25	0.56	0.39	0.4
Th	0.2	ppm			21.7	11.1	1.6	5.1	9.6	1.3	3.6	12.4	3.1	0.8	1.4	2.8	6.7	16.4	16.4	18.7	28.4	7.9	4.8	13.4	14.6	12.5
Ti	0.005	%			0.449	0.214	0.031	0.132	0.253	0.034	0.05	0.194	0.063	0.02	0.043	0.085	0.172	0.427	0.353	0.315	0.598	0.16	0.113	0.303	0.293	0.239
TiO2	0.01	%			0.91	0.42	0.07	0.26	0.49	0.08	0.1	0.36	0.14	0.04	0.08	0.15	0.33	0.83	0.68	0.62	1.2	0.32	0.22	0.61	0.6	0.48
Tl	0.02	ppm			0.2	1.53	0.09	0.43	0.26	0.1	0.02	<0.02	0.46	0.02	0.03	0.24	0.37	0.48	0.57	0.47	0.43	0.02	0.31	0.27	0.41	0.21
Total	0.01	%			99.98	99.52	100	100.05	100.05	100	100	100	99.56	100	100	100	100.05	99.95	99.96	99.99	100	100	99.96	100	100	100
U	0.1	ppm			3.6	1.9	1.1	1.1	1.8	1.8	1.5	2.1	2.3	0.7	1	0.7	1.5	2.8	3	3.3	3.5	2.2	1.1	2.1	2.5	4.8
V	0.001	%			0.02	0.007	0.002	0.01	0.008	0.002	0.001	0.009	0.003	<0.001	0.002	0.003	0.01	0.018	0.017	0.015	0.02	0.004	0.007	0.015	0.012	0.009
V	1	ppm			176	74	16	78	92	9	23	75	21	8	17	51	102	181	143	144	194	51	71	146	117	83
W	0.1	ppm			2.2	1.6	1.3	1.5	2.4	0.7	2.6	1.9	1.8	1.2	1.5	1	1.5	3.3	2.4	2	2.6	1.1	1.3	4.2	2.1	1.8
Y	0.1	ppm			12.7	29	21	10.8	21.4	7.3	9.9	5.6	34.5	11.2	12	6.2	15.4	17	18.9	11.5	18.2	42.3	11.1	13.1	9.3	17.9
Zn	0.001	%			0.004	0.005	0.002	0.011	0.006	<0.001	0.001	0.001	0.008	<0.001	0.001	0.006	0.01	0.01	0.005	0.006	0.004	0.002	0.012	0.006	0.005	0.006
Zn	2	ppm	200	410	51	44	27	108	69	21	23	13	58	11	19	64	102	106	56	58	42	24	120	66	48	74
Zr	0.001	%			0.027	0.01	<0.001	0.004	0.016	0.001	0.002	0.013	0.004	<0.001	<0.001	<0.001	0.01	0.023	0.02	0.018	0.035	0.008	0.005	0.016	0.018	0.012
Zr	0.5	ppm			167	81.6	13.3	49.9	92	11.4	24.2	92.3	25.5	7.4	14.3	30.3	68.5	166.5	136.5	135.5	212	71.5	42.2	129.5	117.5	111.5

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPGC05415_31_32	YPGC05415_37_38	YPGC06143_1_2	YPGC06143_7_8	YPGC06143_13_14	YPGC06143_19_20	YPGC06143_25_26	YPGC06143_31_32	YPGC06143_37_38	YPGC06605_1_2	YPGC06605_7_8	YPGC06605_13_14	YPGC06605_19_20	YPGC06605_25_26	YPGC06605_31_32	YPGC06879_1_2	YPGC06879_7_8	YPGC06879_19_20	YPGC06879_25_26	YPGC06879_31_32	YPGC06879_37_38	YPGC06879_43_44
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					U6	U5	OVER	OVER	U7U	U6	U5	U5L	U5L	OVER	U7U	US11	US9	U5L	U5L	OVER	OVER	U7U	US11	US9	U5L	U5L
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.03	0.11	0.1	0.1	0.16	0.12	0.15	0.12	0.07	0.13	0.07	0.08	0.06	0.03	0.03	0.09	0.21	0.08	0.08	0.07	0.11	0.03
Al	0.01	%			2.61	1.66	4.53	3.36	3.52	3.62	2.79	0.82	6.73	3.43	3.54	1.38	4.84	0.78	0.53	3.99	2.4	5.11	1.8	1.39	0.74	1.35
Al2O3	0.01	%			5.13	3.2	8.88	6.59	6.97	6.95	5.61	1.74	14.25	7.12	7.22	2.74	9.71	1.54	1.02	8.16	4.73	10.5	3.58	2.6	1.5	2.71
As	0.001	%			0.003	0.004	0.004	0.003	0.003	0.004	0.007	0.003	0.004	0.004	0.008	0.002	0.004	0.003	0.002	0.003	0.004	0.004	0.006	0.002	0.003	0.004
As	0.001	ppm	20	70	12.5	29.7	29.9	18.8	21.1	33.3	52.6	21.9	43.5	28.1	55	12.2	24	7.6	7.6	24.9	33.4	34.2	43.9	9.6	16.4	27.2
Ba	0.001	%			0.012	<0.001	0.028	0.061	0.131	<0.001	<0.001	<0.001	0.011	0.016	0.013	0.037	<0.001	<0.001	<0.001	0.016	0.018	0.033	<0.001	<0.001	<0.001	<0.001
Ba	10	ppm			150	20	240	580	1150	110	20	10	110	150	150	350	30	30	10	200	160	390	10	10	20	20
Be	0.05	ppm			1.13	1.04	1.12	0.87	1.43	0.71	0.85	0.83	1.29	1.03	1	0.69	0.79	0.51	0.75	1.24	1.3	0.92	1.06	0.69	1.46	1.32
Bi	0.01	ppm			0.21	0.2	0.59	0.21	0.16	0.7	0.32	0.08	0.79	0.75	0.72	0.22	0.34	0.06	0.04	0.27	0.22	0.56	0.22	0.09	0.07	0.16
Ca	0.01	%			0.06	0.04	0.18	0.11	0.13	0.05	0.03	0.02	0.18	0.16	0.07	0.04	0.04	0.02	0.01	0.07	0.06	0.09	0.05	0.03	0.01	0.03
CaO	0.01	%			0.07	0.04	0.26	0.13	0.19	0.08	0.06	0.02	0.23	0.21	0.09	0.05	0.07	0.02	0.01	0.1	0.07	0.13	0.07	0.04	0.01	0.03
Cd	0.02	ppm	1.5	10	0.07	0.04	0.12	0.47	1.37	0.21	0.05	0.09	0.03	0.11	0.06	0.16	0.02	0.02	0.02	0.07	0.11	0.14	0.03	0.07	0.07	0.07
Ce	0.01	ppm			45.5	29.2	54.6	107	151	46.6	26.1	68.6	112	40.2	34.2	88.5	24.5	7.8	8.16	35.6	32.5	82.6	11.25	10.55	19.85	20
Cl	0.001	%			0.002	0.004	0.053	0.012	0.007	0.006	0.003	<0.001	0.005	0.015	0.01	0.003	0.004	<0.001	<0.001	0.004	0.003	0.002	0.003	0.002	0.003	0.001
Co	0.001	%			0.003	0.002	0.001	0.009	0.026	<0.001	0.004	0.003	0.001	0.002	0.001	0.002	0.002	<0.001	0.002	<0.001	0.002	0.001	<0.001	0.002	<0.001	<0.001
Co	0.1	ppm			25.1	14.4	10.8	77.8	197.5	14.4	49	19.6	12.4	13.3	10.9	16.3	27.3	2.7	2.7	12.5	9.5	22.6	4.2	3.6	4.9	2.4
Cr	1	ppm	80	370	33	46	172	58	31	111	86	28	158	138	86	23	66	73	53	125	178	139	21	30	27	58
Cr2O3	0.0006	%			0.007	0.011	0.032	0.014	0.0035	0.0142	0.0255	0.0076	0.0292	0.0257	0.0148	0.0069	0.0132	0.0101	0.012	0.0217	0.0328	0.0291	0.0052	0.0063	0.0078	0.0114
Cs	0.05	ppm			0.07	0.07	1.52	0.11	0.12	0.15	0.05	0.08	3.7	2.05	0.36	0.25	0.13	0.11	0.1	2.62	0.63	1.93	0.13	0.08	<0.05	0.16
Cu	0.001	%			0.002	0.003	0.004	0.002	<0.001	0.002	0.002	0.001	0.005	0.005	0.001	0.001	0.002	<0.001	<0.001	0.005	0.002	0.004	0.001	0.002	0.001	0.001
Cu	0.2	ppm	65	270	20.7	38.4	29.1	27.6	11.2	15	18.1	12.7	64.8	40.2	14	10	13.7	3.9	4.7	46.5	29	40.5	20.8	8.9	9	17.8
Fe	0.01	%			45.3	49.1	39	46.7	33.5	>50	49.3	>50	8.85	22.6	45.4	49	43	28.7	30.8	17	31	31.9	47.6	>50	>50	22.6
Ga	0.05	ppm			5.18	4.8	14.5	6.69	10.8	12.3	6.89	2.72	24.2	10.4	10.1	3.62	9.32	1.56	1.54	10.75	8.16	18.9	3.21	2.56	2	4.34
Ge	0.05	ppm			2.2	2.62	2.41	3.1	1.33	1.54	2	2.68	0.21	0.4	1.98	3.96	2.49	0.4	0.32	0.36	0.36	1.83	1.84	3.57	2.11	0.45
Hf	0.1	ppm			0.9	0.6	2.8	1.3	1.6	2.9	1.4	0.4	4.1	1.8	2.5	0.5	1.8	0.3	0.2	2.1	1.5	4.3	0.8	0.6	0.3	0.7
In	0.005	ppm			0.044	0.021	0.094	0.039	0.039	0.048	0.034	0.011	0.053	0.085	0.053	0.017	0.038	0.012	0.006	0.074	0.055	0.106	0.02	0.015	0.009	0.023
K	0.01	%			0.07	0.01	0.28	0.12	0.33	0.06	0.01	0.02	2.36	0.53	0.14	0.15	0.03	0.02	0.02	0.6	0.14	0.29	0.02	0.02	0.01	0.03
K2O	0.001	%			0.074	0.005	0.33	0.132	0.384	0.067	0.014	0.018	3.01	0.688	0.154	0.171	0.036	0.023	0.017	0.772	0.155	0.356	0.02	0.011	0.001	0.029
La	0.5	ppm			18	8.6	24.6	12.7	67.8	13.3	14.1	30.2	50.8	20.4	10.8	7	7.6	3	4.9	18.7	11.3	24.1	4.5	6.2	12.1	10.4
Li	0.2	ppm			21.3	4.6	10.4	3.7	32.9	4.3	12.3	2.1	9.4	10.8	4.8	3.2	12.4	4.1	3.2	15.7	6.1	11.1	0.7	1.7	1.4	10.9
LOI	0.01	%			9.42	8.97	5	11.61	12.75	8.24	8.77	7.74	5.08	4.46	9.35	5.21	10.75	3.47	3.3	4.37	5.72	6.56	9.16	5.73	9.96	3.26
Mg	0.01	%			0.18	0.12	0.13	0.07	0.09	0.1	0.08	0.02	0.62	0.15	0.09	0.08	0.1	0.03	0.02	0.17	0.07	0.1	0.14	0.07	0.03	0.03
MgO	0.01	%			0.3	0.21	0.23	0.13	0.15	0.18	0.14	0.03	1.06	0.28	0.14	0.15	0.17	0.01	0.02	0.26	0.1	0.16	0.23	0.1	0.04	0.01
Mn	0.001	%			2.35	0.371	0.597	3.02	17.75	1.725	0.342	0.158	0.122	0.186	1.09	1.8	0.643	0.13	0.057	0.131	0.249	2.3	0.634	0.164	0.062	0.08
Mn	5	ppm			22700	3340	5220	30200	>100000	16150	2980	1340	1190	1320	9700	17400	5670	1180	570	1160	2360	20200	5710	1520	556	730
Mo	0.05	ppm			1.18	1.07	2.25	0.9	0.85	2.28	1.63	1.32	2.42	1.56	1.2	0.92	0.94	0.55	0.72	1.36	1.49	1.88	0.75	0.49	0.63	1.22
Na	0.01	%			0.03	0.01	0.07	0.04	0.06	0.02	0.01	<0.01	0.04	0.05	0.02	0.01	0.02	0.01	0.01	0.04	0.02	0.05	0.01	0.01	<0.01	0.01
Na2O	0.005	%			0.025	<0.005	0.063	0.033	0.073	<0.005	<0.005	<0.005	0.017	0.035	0.02	0.007	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nb	0.1	ppm			2.8	2.3	7.7	2.9	2.9	6.2	4.8	1.6	11.8	4.8	5.5	1.8	4.7	1	0.9	5.8	4.1	12.2	1.9	1.8	1.3	2.3
Ni	0.001	%			0.01	0.006	0.002	<0.001	0.009	0.009	0.028	0.006	0.004	0.003	0.003	<0.001	0.004	<0.001	<0.001	0.005	0.002	0.008	0.003	0.003	0.004	0.001
Ni	0.2	ppm	21	52	95.8	60.8	43.9	12.8	95.2	57.2	119.5	62.8	61.7	54.7	32.3	17.1	37.6	9.9	14.4	61.7	40.6	29.3	23.3	26	53.5	15.5
P	0.001	%			0.015	0.11	0.038	0.012	0.024	0.023	0.08	0.11	0.021	0.035	0.029	0.017	0.027	0.027	0.02	0.026	0.032	0.034	0.02	0.034	0.083	0.023
P	10	ppm			150	1030	360	120	220	220	720	960	200	350	260	160	250	260	200	230	300	320	190	310	750	210
Pb	0.001	%			<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001
Pb	0.5	ppm	50	220	11.6	9.5	25.7	24.3	38.5	25.6	29.5	10.4	34.3	18.6	18.4	12	16.4	4.8	3.8	16.8	17.2	26	13.9	14.4	6.4	15.5
Rb	0.1	ppm			1.2	0.3	22	2	4.6	1.9	0.4	0.7	88.1	27.5	5.7	4	1.3	1.4	1.2	36.6	8.2	20.6	1.2	0.8	0.1	1.9
Re	0.002	ppm			<0.002	<0.002	<0.002	<0.002	0.002	0.002	0.002	0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002
S	0.01	%			0.02	0.01	0.03	0.06	0.03	0.06	0.02	0.01	0.23	0.24	0.09	0.04	0.04	0.01	0.01	0.19	0.06	0.02	0.03	0.02	0.01	0.01
Sb	0.05	ppm	2	25	0.75	0.8	2.8	1.37	1.01	1.64	1.45	0.87	5.47	2.08	3.24	0.93	2.89	0.53	0.88	1.62	1.99	2.32	1.91	0.97	0.84	2.44
Sc	0.1	ppm			8	4.3	12.5	7.6	12.9	13.3	8.3	4.2	18.4	9.5	15	4.8	10.4	6.8	1.8	9.7	8.9	16.4	10.5	6.6	4.8	5.7
Se	1	ppm			<1	<1	2	2	1	1	1	2	2	1	2	1	1	<1	<1	1	2	2	1	1	1	1
SiO2	0.01	%			4.75	4.03	23.5	7.15	3.25	5.5	6.12	2.95	61.7	52.4	10.5	4.79	9.6	50.5	49.7	59.1	41.2	26.9	12	4.42	2.67	59.6
Sn	0.001	%			<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.003	0.001	0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	0.003	0.005	0.001
Sn	0.2	ppm			0.6	0.4	1.7	0.6	0.7	1.5	0.8	0.3	2.8	1.3	1.3	0.4	1.1	0.2	0.2	1.4	0.9	2.5	0.3	0.3	0.3	0.5
Sr	0.001	%			0.006	<0.001	0.004	0.006	0.01	<0.001	<0.001	0.001	0.003	0.004	<0.001	0.003	<0.001	<0.001	<0.001	0.003	0.001	0.004	<0.001	<0.001	<0.001	<0.001
Sr	0.2	ppm			75.5	4.2	37.5	66.3	96.2	10.8	7.3	4.4	39.2	35.7	19.5	20.7	6.4	3.8	2.1	34.2	15.1	53.3	4.2	2.9	1.1	3.8
Ta	0.05	ppm			0.21	0.17	0.58	0.22	0.21	0.44	0.35	0.1	0.98	0.37	0.4	0.12	0.35	0.07	0.06	0.42	0.32	0.88	0.12	0.1	0.07	0.16
Te	0.05	ppm			0.28	0.16	0.21	0.57	0.59	0.5	0.41	0.09	0.42	0.16	0.35	0.28	0.4	0.12	0.09	0.21	0.16	0.41	0.36	0.25	0.13	0.14
Th	0.2	ppm			3.6	2.6	14.3	6.1	7.4	12.9	5.6	1.6	14.7	8	12.3	2.6	8.1	1.1	0.9	6.8	9.4	18	3.9	2.4	1.2	2.9
Ti	0.005	%			0.097	0.067	0.26	0.086	0.085	0.2	0.15	0.037	0.485	0.188	0.163	0.051	0.161	0.028	0.025	0.216	0.136	0.426	0.054	0.051	0.021	0.079
TiO2	0.01	%			0.2	0.14	0.53	0.17	0.24	0.39	0.35	0.09	0.9	0.38	0.34	0.11	0.3	0.06	0.05	0.43	0.26	0.85	0.11	0.1	0.05	0.15
Tl	0.02	ppm			0.23	0.02	0.43	0.52	0.51	0.18	0.03	0.03	0.42	0.45	0.24	0.77	0.03	0.05	<0.02	0.46	0.36	0.48	0.02	<0.02	<0.02	<0.02
Total	0.01	%			99.99	100	99.96	100	100.1	100	100	99.99	99.98	99.97	100	100	100	99.96	99.99	100	100	99.94	99.99	100	100	100.05
U	0.1	ppm			3.3	2.8	2.1	2.7	4.3	5.3	4.5	1.5	3.3	1.5	2.4	1.2	2.8	0.5	0.5	1.4	2	3	1.9	1.2	2.3	1.3
V	0.001	%			0.002	0.003	0.02	0.006	0.006	0.006	0.008	0.003	0.013	0.011	0.006	0.003	0.004	<0.001	0.002	0.008	0.01	0.015	<0.001	0.001	0.002	0.004
V	1	ppm			27	26	167	53	58	72	84	20	118	102	65	20	52	11	10	88	92	150	24	20	12	43
W	0.1	ppm			1.5	6.7	2	1.3	1.9	2.6	2.5	1.7	3.9	1.6	1.8	3.1	2.1	1.1	1.8	1.4	1.2	2.3	1	1.1	0.8	1.6
Y	0.1	ppm			17.5	24.4	16.2	6.6	26	11.7	10.8	19.8	23.9	11.7	13.1	4.8	7	5.1	8.5	13	10.3	17.5	9.1	12.2	21.2	15.9
Zn	0.001	%			0.005	0.002	0.004	0.01	0.012	0.003	0.006	0.006	<0.001	0.008	0.002	0.002	0.003	<0.001	<0.001	0.008	0.004	0.003	0.002	0.004	0.005	0.002
Zn	2	ppm	200	410	48	43	39	115	97	52	61	56	13	77	27	22	39	10	15	73	51	42	38	41	56	25
Zr	0.001	%			0.002	0.002	0.019	0.005	0.007	0.01	0.007	<0.001	0.011	0.013	0.01	0.002	0.006	<0.001	<0.001	0.013	0.007	0.023	<0.001	0.002	<0.001	0.001
Zr	0.5	ppm			33	25.7	106	48.7	57.8	107.5	50	14.9	154	70.1	87.4	22.2	65.5	10	8.6	77.1	59.1	155.5	29.5	21	9.9	26.5

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPGC08967_1_2	YPGC08967_7_8	YPGC08967_13_14	YPGC08967_19_20	YPGC08967_25_26	YPGC08967_31_32	YPGC10846_1_2	YPGC10846_7_8	YPGC10846_13_14	YPGC10846_19_20	YPGC10846_25_26	YPGC10846_43_44	YPGC11055_1_2	YPGC11055_7_8	YPGC11055_13_14	YPGC11055_19_20	YPGC11055_25_26	QC03_24/05/2012	YPGC11055_31_32	YPGC11055_37_38	QC02_24/05/2012	YPGC11249_1_2
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					OVER	U7U	US11	US9	U5L	U5L	OVER	OVER	OVER	OVER	U7U	U5L	OVER	US12	U6	U5	U5L	U5L	U5L	U5L	U5L	OVER
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.13	0.05	0.04	0.05	0.03	0.04	0.07	0.21	0.13	0.11	0.06	0.03	0.1	0.08	0.07	0.1	0.05	0.06	0.06	0.04	0.04	0.1
Al	0.01	%			4.18	1.12	0.88	0.51	0.41	0.36	1.31	3.1	6.8	2.58	1.44	0.33	5.3	0.95	0.59	0.76	0.53	0.37	0.79	0.18	0.14	3.97
Al2O3	0.01	%			8.34	2.13	1.76	0.98	0.85	0.73	2.65	6.13	14.35	5.44	2.83	0.67	10.4	1.78	1.08	1.44	1.04	0.83	1.62	0.33	0.3	7.67
As	0.001	%			0.003	0.003	0.003	0.003	0.001	0.001	0.002	0.004	0.003	0.003	0.002	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
As	0.001	ppm	20	70	20.1	14.5	20.9	17.8	8.6	3.9	17.4	32.2	32.1	16.5	7.4	4.1	11.7	5.3	9.2	4.6	5.4	6	5.5	2.6	2.1	34.4
Ba	0.001	%			0.067	<0.001	0.007	0.007	<0.001	<0.001	0.008	0.015	0.014	0.024	<0.001	<0.001	<0.001	0.013	<0.001	0.023	<0.001	<0.001	<0.001	<0.001	<0.001	0.021
Ba	10	ppm			700	10	70	160	10	10	100	160	160	210	50	10	40	210	60	280	20	10	10	10	10	200
Be	0.05	ppm			2.6	1.18	1.48	0.67	0.59	0.45	0.93	1.08	0.95	0.68	0.55	0.49	0.53	0.61	0.73	0.56	0.38	0.42	0.83	0.51	0.54	1.18
Bi	0.01	ppm			0.32	0.05	0.05	0.02	0.04	0.02	0.08	0.29	0.65	0.24	0.11	0.04	0.32	0.04	0.04	0.04	0.04	0.17	0.26	0.07	0.05	0.24
Ca	0.01	%			0.08	0.03	0.09	0.05	0.02	0.01	0.07	0.07	0.07	0.04	0.03	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.03	0.01	0.01	0.08
CaO	0.01	%			0.13	0.05	0.13	0.09	0.05	0.02	0.09	0.08	0.1	0.06	0.04	0.01	0.01	0.03	0.01	0.03	0.11	0.02	0.04	<0.01	0.01	0.1
Cd	0.02	ppm	1.5	10	0.41	<0.02	0.2	0.3	<0.02	<0.02	0.09	0.14	0.11	0.05	0.04	0.04	<0.02	0.1	0.03	1.11	0.04	0.04	0.04	0.03	<0.02	0.1
Ce	0.01	ppm			101	6.4	51.4	13.95	6.32	9.35	17.3	30.5	63	29.6	14	5.82	14.1	53	22.1	36.8	13	14.05	10.35	3.95	3.46	48.4
Cl	0.001	%			0.012	0.01	0.017	0.008	0.005	0.006	0.002	0.001	0.012	0.004	0.003	<0.001	0.006	0.003	0.002	<0.001	0.002	0.002	0.005	0.003	0.004	0.009
Co	0.001	%			0.002	<0.001	0.002	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.002	0.002	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.002
Co	0.1	ppm			37.7	1.9	5	5.5	1.1	3.4	8	9	8.9	6.3	19.2	1.4	3.6	14.5	5.1	15.4	4.2	3.4	5	1.9	1.7	11.3
Cr	1	ppm	80	370	89	41	14	10	79	106	142	233	237	61	22	93	56	8	13	3	35	10	17	15	10	147
Cr2O3	0.0006	%			0.0186	0.0087	0.0033	0.0077	0.0167	0.0162	0.0286	0.0399	0.042	0.0122	0.0062	0.0179	0.0069	<0.0006	0.0032	0.0009	0.0082	0.0144	0.01	0.0275	0.013	0.0223
Cs	0.05	ppm			1.83	<0.05	0.11	0.08	0.07	0.07	0.57	1.41	3.61	0.24	<0.05	0.11	0.38	0.16	0.05	0.27	0.11	0.08	0.13	0.15	0.13	2.02
Cu	0.001	%			0.004	0.001	0.002	0.002	0.002	0.001	0.002	0.002	0.006	0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	0.002	0.002
Cu	0.2	ppm	65	270	34.1	4.6	5.2	3.2	3.9	6.6	20.6	34	50.4	14.2	8.1	3.7	9.8	7.1	4.8	3.7	4.1	2.8	8.6	2.8	1.7	31.4
Fe	0.01	%			33.1	>50	47.2	>50	22.4	9.88	19.2	33.8	21.8	>50	23	23.9	46.3	18.2	48.2	43.7	26.9	25.6	25.4	24.1	22	30.7
Ga	0.05	ppm			12.35	1.79	2.96	2.1	1.33	1.19	3.73	11.05	23.5	6.68	2.86	1.13	11.1	1.78	1.3	4.84	1.55	1.04	2.3	0.62	0.48	10.9
Ge	0.05	ppm			1.41	2.5	3.07	2.87	0.34	0.21	0.29	0.54	0.49	1.78	5.21	0.21	0.7	2.93	2.59	0.62	0.29	0.27	0.3	0.21	0.2	0.57
Hf	0.1	ppm			2.3	0.2	0.3	0.2	0.2	0.2	0.6	2.1	5.4	1.7	0.5	0.1	3.8	0.2	0.2	0.2	0.2	0.2	0.4	0.1	0.1	1.8
In	0.005	ppm			0.062	0.006	0.007	<0.005	0.005	<0.005	0.055	0.074	0.149	0.051	0.014	<0.005	0.044	0.007	0.008	0.007	0.006	<0.005	0.01	<0.005	<0.005	0.07
K	0.01	%			0.4	0.02	0.08	0.09	0.01	0.02	0.25	0.24	0.47	0.03	0.03	0.02	0.05	0.08	0.01	0.38	0.03	0.01	0.03	0.02	0.01	0.39
K2O	0.001	%			0.497	0.014	0.097	0.104	0.016	0.022	0.309	0.275	0.608	0.04	0.025	0.012	0.058	0.094	0.007	0.488	0.037	0.026	0.035	0.02	0.017	0.448
La	0.5	ppm			49.5	3.8	17.6	16.7	3.7	4.2	9.7	12	30.9	3.8	4.3	2.5	6.2	6.6	7.2	20	9.8	11.1	12.5	3.1	3	15.9
Li	0.2	ppm			15.6	1.9	6	5.7	3.1	4.4	5.8	8	15.3	6.3	0.6	6.3	11.3	1.4	0.3	1.7	2	1.3	5	3.7	4	17.4
LOI	0.01	%			8.58	7.79	8.62	5.29	1.91	0.86	3.73	5.85	7.28	7.01	7.01	2.06	7.74	7.17	8.25	5.77	3.92	3.99	3.83	1.98	2.08	5
Mg	0.01	%			0.13	0.05	0.11	0.07	0.02	0.02	0.08	0.11	0.13	0.03	0.04	0.02	0.02	0.06	0.05	0.02	0.09	0.02	0.03	0.02	0.02	0.15
MgO	0.01	%			0.21	0.08	0.2	0.15	<0.01	<0.01	0.11	0.18	0.23	0.04	0.04	0.02	0.02	0.1	0.07	0.03	0.15	0.03	0.05	0.01	0.02	0.27
Mn	0.001	%			4.87	0.235	4.15	3.62	0.174	0.093	0.122	0.244	0.301	0.566	0.867	0.042	0.052	1.72	0.19	11.6	0.196	0.215	0.12	0.132	0.059	0.47
Mn	5	ppm			43700	2100	39400	33100	1640	870	1130	2230	2810	4660	7660	403	516	15000	1770	93600	1980	1720	1060	1360	488	4600
Mo	0.05	ppm			1.69	0.51	1.04	0.58	1.14	0.94	0.71	1.9	2.1	1.51	0.63	3.23	0.88	0.74	0.72	0.63	1.09	1.11	0.81	2.38	1.51	1.55
Na	0.01	%			0.05	0.01	0.06	0.02	0.01	0.01	0.03	0.03	0.05	0.01	0.01	0.01	0.01	0.04	0.01	0.06	0.01	<0.01	0.01	0.01	<0.01	0.03
Na2O	0.005	%			<0.005	<0.005	0.075	0.009	<0.005	<0.005	0.013	0.011	0.035	0.009	0.005	<0.005	0.03	0.072	0.024	0.089	0.021	0.024	0.031	0.015	0.022	0.026
Nb	0.1	ppm			6.1	1.2	1.3	1	0.8	0.6	1.7	5.5	14.9	4.7	2.2	0.6	12.8	1.2	1	0.9	0.8	0.8	1.3	0.5	0.5	5.1
Ni	0.001	%			0.009	0.002	<0.001	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	<0.001	<0.001	<0.001	0.001	<0.001	0.006	0.013	0.008	0.026	0.011	0.005
Ni	0.2	ppm	21	52	67.7	16.9	30.8	16.3	7.4	7.5	33.5	38.8	54.3	15.4	13.7	11.8	15	15.1	17.2	11.5	20.9	14.6	26	7.1	6.5	56.6
P	0.001	%			0.036	0.051	0.054	0.063	0.018	0.005	0.025	0.041	0.035	0.031	0.024	0.036	0.019	0.017	0.03	0.062	0.052	0.052	0.13	0.038	0.04	0.031
P	10	ppm			310	460	500	570	150	60	230	410	320	270	230	360	180	160	280	550	460	440	1130	360	320	300
Pb	0.001	%			0.003	<0.001	0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001
Pb	0.5	ppm	50	220	27	2.2	2.4	1.5	2.1	1.7	8	16.6	26.5	17.9	4.7	1.5	15.2	6	5.7	1.2	1.1	0.9	3.3	<0.5	<0.5	17.9
Rb	0.1	ppm			25	0.6	1.9	1.5	0.8	1.4	8.7	16.7	41.1	1.8	0.5	1.2	3.6	2.1	0.3	7.3	1.7	0.8	1.7	1.3	1	26.9
Re	0.002	ppm			0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
S	0.01	%			0.02	0.01	0.02	0.01	<0.01	<0.01	0.25	0.04	0.02	0.05	0.03	0.01	0.02	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07
Sb	0.05	ppm	2	25	1.39	0.68	0.76	0.44	0.51	0.55	0.99	2	2.31	1.3	0.94	0.34	1.86	0.34	0.67	0.34	0.29	0.34	0.81	0.26	0.23	2.09
Sc	0.1	ppm			11	3	2.3	1.2	1.2	1.3	4.5	10.4	19	5.2	6.9	1	7.9	1.8	1.4	1.2	1.3	0.8	2	0.5	0.5	10
Se	1	ppm			1	<1	<1	<1	<1	<1	<1	2	2	4	1	<1	2	1	<1	<1	<1	4	<1	<1	<1	1
SiO2	0.01	%			22	9.29	5.33	2.16	64.2	84.6	64.2	33.7	42.1	6.66	3.65	63.5	41.8	12.2	15.85	4.49	48.5	46.5	48.8	58.2	57.3	36.9
Sn	0.001	%			<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.002	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Sn	0.2	ppm			1.3	0.2	0.2	<0.2	0.2	0.2	0.5	1.3	3.3	0.9	0.4	0.2	2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	<0.2	1.4
Sr	0.001	%			0.009	<0.001	0.015	0.007	<0.001	<0.001	0.001	0.003	0.005	<0.001	<0.001	<0.001	0.002	0.001	<0.001	0.005	<0.001	0.003	0.003	<0.001	0.003	0.004
Sr	0.2	ppm			90.6	6.8	140	64.4	5.9	3.1	20.4	27	31.6	8.3	8.4	2.1	4.1	20.1	2.6	66.2	3.5	2.8	4.5	2.6	1.8	22.1
Ta	0.05	ppm			0.43	0.06	0.07	<0.05	0.05	<0.05	0.11	0.41	1.17	0.33	0.15	<0.05	1.36	0.06	0.06	0.05	0.05	<0.05	0.09	<0.05	<0.05	0.38
Te	0.05	ppm			0.35	0.22	0.32	0.26	0.09	<0.05	0.12	0.25	0.27	0.73	0.31	<0.05	0.14	0.16	0.09	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	0.26
Th	0.2	ppm			9.4	1.2	1.2	0.8	0.7	0.6	2.5	10.9	23.5	7.3	2.2	0.5	11.7	1.1	0.9	0.9	0.7	0.6	1.3	0.3	0.2	7.6
Ti	0.005	%			0.21	0.027	0.03	0.018	0.022	0.019	0.058	0.199	0.504	0.152	0.063	0.016	0.469	0.026	0.024	0.017	0.025	0.016	0.042	0.01	0.008	0.192
TiO2	0.01	%			0.41	0.04	0.07	0.03	0.04	0.03	0.12	0.37	1.06	0.31	0.14	0.04	1.04	0.04	0.04	0.02	0.04	0.03	0.08	0.01	0.01	0.36
Tl	0.02	ppm			1.13	<0.02	0.21	0.31	<0.02	<0.02	0.2	0.41	0.4	0.06	0.04	<0.02	0.14	0.74	0.02	0.23	0.07	0.05	0.03	0.03	0.02	0.66
Total	0.01	%			99.99	100	99.43	100	99.97	99.96	99.98	100	99.93	100	99.99	99.97	100	100	99.99	101.65	100	100	100.05	100	99.99	100
U	0.1	ppm			2.5	0.9	2.1	1	0.3	0.2	0.7	2	3.6	1.4	0.9	0.3	1.5	0.9	0.8	1.1	0.7	0.8	0.5	0.1	0.1	1.2
V	0.001	%			0.011	<0.001	0.002	<0.001	<0.001	<0.001	0.003	0.013	0.02	0.005	0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.013
V	1	ppm			108	14	12	6	9	9	45	110	182	49	17	6	45	8	9	10	9	6	16	4	3	117
W	0.1	ppm			3.3	1.2	1.3	1.3	1.9	1.2	0.9	1.7	2.5	1.2	1.1	3.3	2.3	0.5	0.6	1	1.2	2.3	0.9	3.1	2.7	1.7
Y	0.1	ppm			32.5	9.4	24.9	10.9	5.2	3.8	8.4	10.5	21.3	5.3	6	5	7.3	5.4	10.4	13.2	10	10.6	24.2	8.6	8.8	10.4
Zn	0.001	%			0.003	<0.001	0.002	0.002	<0.001	<0.001	0.008	0.006	0.007	0.006	0.002	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	0.002	<0.001	<0.001	0.006
Zn	2	ppm	200	410	40	12	22	19	7	4	82	68	70	55	18	14	9	20	24	29	15	13	32	8	8	80
Zr	0.001	%			0.014	<0.001	0.004	<0.001	0.002	<0.001	<0.001	0.01	0.034	0.007	0.001	<0.001	0.034	<0.001	0.001	0.002	0.002	0.004	0.005	0.002	0.004	0.013
Zr	0.5	ppm			86.2	9.8	12.4	6.8	6.7	6.7	21.4	74.9	198	62.8	20	5.4	127.5	7.4	7	6.6	6.6	5.4	13.1	3	2.6	65

Legend:

Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPGC11249_7_8	YPGC11249_13_14	YPGC11249_19_20	YPGC11249_25_26	YPGC11249_31_32	YPGC11249_37_38	YPGC11249_43_44	YPGC12764_1_2	YPGC12764_7_8	YPGC12764_13_14	YPGC12764_25_26	YPGC12764_37_38	YPGC12764_49_50	YPRD04911_1_2	YPRD04911_3_4	YPRD04911_7_8	QC1	YPRD04911_10_11	YPRD04911_13_14	YPRD05790_1_2	QC8	YPRD05790_3_4
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					OVER	U8	U7U	U7L	US10	U5L	U5L	OVER	OVER	OVER	U7U	U6	U5L	OVER	OVER	US8	US8	U5L	U5L	U7L	U7L	US11
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.22	0.11	0.08	0.07	0.11	0.06	0.02	0.15	0.19	0.2	0.09	0.09	0.03	0.03	0.02	0.05	0.05	0.04	0.08	0.02	0.02	0.03
Al	0.01	%			4.92	3	6.29	1.32	1.81	1.16	0.19	3.75	4.09	6.52	5.84	1.55	0.54	0.4	0.14	0.23	0.25	0.37	1.51	1.07	0.99	0.54
Al2O3	0.01	%			9.97	6	12.7	2.57	3.43	2.22	0.38	7.19	8.02	13.8	21.2	2.86	1.02	0.8	0.28	0.44	0.48	0.78	2.92	2.16	2.04	1.11
As	0.001	%			0.005	0.003	0.007	0.001	0.002	0.001	0.001	0.003	0.003	0.003	0.001	0.001	<0.001	0.002	0.002	0.001	0.001	0.001	0.003	<0.001	0.001	0.001
As	0.001	ppm	20	70	25.5	20.7	50.7	6.7	8.1	9.3	2.9	27.2	29.7	28.5	15.8	7.2	3.8	3.7	4.7	4.9	3.5	4.1	15.1	6.6	5.4	7
Ba	0.001	%			0.059	0.065	0.026	0.016	0.028	0.073	<0.001	0.013	0.015	0.001	<0.001	0.036	<0.001	0.005	0.002	<0.001	<0.001	<0.001	<0.001	0.01	0.011	0.003
Ba	10	ppm			540	590	240	150	290	650	10	220	230	80	10	380	10	100	40	20	10	20	50	150	130	50
Be	0.05	ppm			1.61	0.73	0.59	0.64	0.48	0.83	0.45	1.36	1.15	0.92	0.38	0.65	0.82	0.47	0.41	0.27	0.3	0.85	0.75	1.79	1.54	0.74
Bi	0.01	ppm			0.36	0.34	1.25	0.08	0.08	0.07	<0.01	0.34	0.35	0.54	1.39	0.12	0.04	0.03	<0.01	0.17	0.04	0.04	0.14	0.07	0.07	0.04
Ca	0.01	%			0.1	0.08	0.12	0.02	0.11	0.03	0.01	0.05	0.1	0.07	0.04	0.03	0.02	0.17	0.03	0.01	0.01	0.01	0.01	0.02	0.05	0.08
CaO	0.01	%			0.13	0.1	0.17	0.03	0.15	0.04	0.01	0.06	0.19	0.09	0.09	0.07	0.02	0.24	0.03	<0.01	0.01	<0.01	0.01	0.02	0.09	0.12
Cd	0.02	ppm	1.5	10	0.31	0.1	0.05	0.11	0.23	0.47	0.03	0.19	0.36	0.07	0.02	0.2	0.03	0.03	<0.02	0.07	0.07	0.04	0.17	0.09	0.05	0.02
Ce	0.01	ppm			82.5	56.3	85.4	19.35	258	78	6.41	38.5	47	34.3	7.5	41.7	8.8	6.61	3.33	6.47	7.25	9.7	23	8.99	9.85	7.37
Cl	0.001	%			0.001	0.007	0.008	0.002	0.005	0.001	0.002	0.003	0.002	0.003	0.006	0.004	0.002	0.002	0.001	<0.001	<0.001	0.001	0.004	<0.001	0.002	<0.001
Co	0.001	%			0.002	0.003	0.003	0.002	0.006	0.008	0.001	0.001	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.002	0.001	<0.001	0.001
Co	0.1	ppm			18.9	20.4	30.6	6.3	40.9	52.4	2.7	15.7	12.4	6.2	4.8	12.3	2.6	2.3	1.1	2	2.1	3.2	8.4	6.8	6.5	2.9
Cr	1	ppm	80	370	222	115	164	16	26	15	52	111	168	233	148	24	11	73	122	93	123	74	71	97	106	71
Cr2O3	0.0006	%			0.0387	0.0217	0.0321	0.0045	0.0035	0.002	0.0151	0.0171	0.0279	0.0371	0.0231	0.0022	<0.0006	0.0184	0.0235	0.0186	0.0138	0.0158	0.0127	0.0244	0.0183	0.0177
Cs	0.05	ppm			1.97	0.43	0.18	0.05	0.15	0.18	0.07	2.56	2.67	2.94	0.23	0.42	0.21	0.14	0.09	0.12	0.12	0.16	0.11	0.12	0.18	0.09
Cu	0.001	%			0.002	0.001	<0.001	<0.001	0.003	<0.001	<0.001	0.004	0.004	0.005	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Cu	0.2	ppm	65	270	41.5	20	14.5	5.6	26.9	10.6	2.2	40.2	41.4	45.3	18	8.4	3.1	4.8	3.3	3.8	2.9	6.6	12.6	6.1	6.4	5.4
Fe	0.01	%			33.7	50	39.2	>50	46.7	43.8	22.6	22.8	24.9	21.9	21.6	48.6	19.2	27.1	21	23.8	23.4	23.8	25.6	10.5	8.03	29.9
Ga	0.05	ppm			14.6	13.55	34.2	2.42	4.78	6.43	0.92	10.9	12.8	22.6	38.3	4.16	1.14	1.27	0.67	0.69	0.7	1.33	3.85	1.88	2.95	1.49
Ge	0.05	ppm			0.95	2.68	1.49	5.23	3.13	0.92	0.22	0.46	0.58	0.98	1.53	2.73	0.16	0.34	0.36	0.34	0.27	0.25	0.32	0.16	0.22	0.36
Hf	0.1	ppm			3.4	2.8	6.7	0.4	0.4	0.3	0.1	1.8	2.7	5	7.9	0.7	0.2	0.2	0.1	0.1	0.1	0.2	0.8	0.5	0.5	0.2
In	0.005	ppm			0.095	0.064	0.165	0.012	0.014	0.008	<0.005	0.084	0.094	0.156	0.22	0.021	0.006	0.008	<0.005	0.007	0.006	0.005	0.019	0.007	0.008	0.005
K	0.01	%			0.36	0.05	0.05	0.02	0.26	0.52	0.02	0.46	0.44	0.38	0.03	0.12	0.02	0.03	0.02	0.01	0.01	0.02	0.04	0.02	0.03	0.02
K2O	0.001	%			0.436	0.053	0.053	0.02	0.287	0.625	0.018	0.625	0.596	0.518	0.052	0.15	0.03	0.03	0.012	0.009	0.008	0.024	0.038	0.019	0.043	0.019
La	0.5	ppm			27.4	21.9	17.6	8.8	9.1	9.9	2.5	16.6	20	18	3.2	12	5.4	2.5	1.5	2.4	2.6	5.4	13.4	5.2	5.7	3.4
Li	0.2	ppm			21.8	3.1	17.3	3.7	63.6	5.2	5.2	16.9	16.9	11.1	15.5	96.6	3.5	6.9	3	3	2.8	2.9	4	4.9	5.8	6.6	3.2
LOI	0.01	%			7.17	6.17	8.21	5.31	7.44	8.91	1.76	4.76	6.07	6.86	10.61	9.28	1.01	3.56	1.56	1.78	1.9	3.56	3.51	2.66	2.28	4.84
Mg	0.01	%			0.16	0.12	0.13	0.06	0.11	0.04	0.02	0.17	0.16	0.1	0.03	0.05	0.02	0.04	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03
MgO	0.01	%			0.26	0.22	0.23	0.1	0.17	0.06	0.02	0.3	0.27	0.18	0.09	0.08	0.01	0.03	0.03	0.03	0.04	0.02	<0.01	0.03	<0.01	0.04
Mn	0.001	%			0.586	0.339	5.17	0.897	10.75	14.15	0.224	0.269	0.249	0.174	0.067	2.08	0.05	0.172	0.005	0.044	0.05	0.052	0.324	0.088	0.093	0.028
Mn	5	ppm			5170	3070	49600	8550	98800	>100000	2310	2400	2250	1590	600	18750	538	1600	84	447	507	489	3280	904	954	293
Mo	0.05	ppm			1.36	2.57	1.44	0.85	1.55	0.66	1	2.25	1.57	2.08	2.69	1.28	0.8	0.81	0.55	2.44	0.9	0.75	1.66	0.48	0.83	0.91
Na	0.01	%			0.04	0.02	0.03	0.01	0.05	0.07	0.01	0.02	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01
Na2O	0.005	%			0.03	0.012	0.014	<0.005	0.05	0.08	<0.005	0.031	0.055	0.059	0.037	0.034	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nb	0.1	ppm			8.5	8.5	16.1	1.5	1.5	1.4	0.4	4.4	7.1	13	25.8	2.4	0.7	0.8	0.4	0.5	0.4	0.7	2.3	1	1	0.9
Ni	0.001	%			0.005	0.001	<0.001	0.002	0.003	<0.001	0.002	0.006	0.006	0.003	0.003	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.004	0.001	0.001
Ni	0.2	ppm	21	52	56.1	22.6	19.6	28	43.3	24.6	8.5	62.8	60.7	34.6	41.6	27.4	7.7	10.3	5.3	16.7	8.1	16.9	19.7	16.9	17.4	11.9
P	0.001	%			0.033	0.024	0.018	0.016	0.017	0.079	0.025	0.028	0.04	0.036	0.036	0.03	0.009	0.026	0.009	0.005	0.005	0.05	0.007	0.008	0.008	0.058
P	10	ppm			310	230	110	160	170	760	220	250	360	320	280	280	90	250	100	60	60	440	60	80	80	540
Pb	0.001	%			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Pb	0.5	ppm	50	220	25.6	22.9	72.3	8.8	5.2	3.7	0.9	17.9	17.4	24	23.9	4.5	0.6	2.6	1	3.5	3.3	2.8	7.7	5	5.4	4.1
Rb	0.1	ppm			29.4	3.2	1.3	0.5	4.4	9.6	1	30.6	31.6	26.3	1.4	4.7	2	2.2	1.1	1.4	1.2	1.8	2	1.6	2.2	1.2
Re	0.002	ppm			<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
S	0.01	%			0.03	0.04	0.02	0.02	0.01	<0.01	0.01	0.06	0.06	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.03	<0.01	0.04	0.01	0.01	0.01
Sb	0.05	ppm	2	25	1.45	2.05	6.95	0.65	0.88	0.72	0.25	1.99	2.15	2.33	4.69	0.91	0.35	0.4	0.22	0.35	0.29	0.81	1.52	0.93	1.01	0.89
Sc	0.1	ppm			14.4	8.6	15	5.7	7.5	3	0.7	9.7	11.3	15.3	5.8	3.9	1.1	4.2	0.7	0.9	0.9	1.3	6.1	4.5	3.5	3.2
Se	1	ppm			2	3	2	<1	<1	<1	<1	1	2	2	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
SiO2	0.01	%			26.2	10.9	10.6	2.92	3.99	2.48	65.8	47.8	40.5	40.2	25.3	8.52	67.1	52.6	65.7	63.6	63.3	59.2	55.7	80.4	84.1	48.3
Sn	0.001	%			0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.001	<0.001	<0.001	0.003	<0.001	<0.001	0.002
Sn	0.2	ppm			1.8	1.8	3.7	0.2	0.3	0.3	<0.2	1.5	1.9	3.5	6.2	0.6	0.2	0.2	<0.2	0.3	0.2	0.2	0.5	0.3	0.3	0.2
Sr	0.001	%			0.002	0.002	0.009	0.001	0.014	0.009	<0.001	0.003	0.005	0.004	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Sr	0.2	ppm			31.7	19	100.5	9.6	150.5	80.3	3.6	21.2	34.6	26.8	5.2	15.1	2.6	6.8	2.6	2	1.4	1.2	3	4.3	6.2	5.3
Ta	0.05	ppm			0.66	0.62	1.34	0.1	0.1	0.09	<0.05	0.38	0.61	1.13	3.13	0.18	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.07	0.08	0.05
Te	0.05	ppm			0.31	0.32	0.96	0.19	0.27	0.17	0.06	0.23	0.22	0.31	0.53	0.14	<0.05	0.1	0.05	<0.05	<0.05	<0.05	0.12	0.07	0.07	0.11
Th	0.2	ppm			18.5	12.9	44.5	1.9	1.9	1.4	0.3	7	11.5	18	13.2	3.5	0.8	0.7	0.3	0.4	0.4	0.7	2.9	2.3	2.1	0.8
Ti	0.005	%			0.306	0.287	0.554	0.038	0.045	0.038	0.009	0.174	0.262	0.497	0.86	0.078	0.021	0.019	0.009	0.012	0.012	0.015	0.078	0.034	0.035	0.023
TiO2	0.01	%			0.61	0.58	1.14	0.08	0.09	0.08	0.02	0.33	0.53	1	1.99	0.14	0.03	0.04	0.02	0.03	0.03	0.03	0.14	0.06	0.06	0.05
Tl	0.02	ppm			0.61	0.24	0.28	0.11	0.53	0.51	<0.02	0.95	0.49	0.3	0.04	1.77	0.05	0.02	<0.02	0.03	0.02	0.02	0.19	0.23	0.21	<0.02
Total	0.01	%			99.95	99.99	99.22	100	100.3	99.52	99.97	99.95	99.99	100.05	100	100	99.98	100	99.98	99.95	100	100.05	100.05	100.05	99.98	99.96
U	0.1	ppm			2.9	2.1	3	1.2	1.6	1.4	0.3	1.2	2.2	3	3	1.9	0.3	0.3	0.1	0.2	0.2	0.6	0.9	1.1	0.9	0.8
V	0.001	%			0.015	0.01	0.024	0.002	<0.001	0.002	<0.001	0.009	0.012	0.02	0.015	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.001	<0.001	0.002
V	1	ppm			154	92	218	12	16	13	4	96	114	190	144	26	8	9	4	5	5	6	29	21	19	9
W	0.1	ppm			1.4	1.8	3	1.2	2.6	1.2	1.7	1.4	1.4	2	4.4	1.5	28.6	1.4	1.4	1.8	2.2	1.7	1.9	1.3	1.3	1.4
Y	0.1	ppm			22.7	14.5	24.5	6.4	7.8	8.3	4.2	10.9	22.5	11.5	3.7	10.7	8.2	5.2	3	3.9	4.2	8.5	16.9	4.2	4	6.9
Zn	0.001	%			0.003	0.004	0.001	0.001	0.007	0.006	<0.001	0.01	0.01	0.006	0.002	0.002	<0.001	<0.001	<0.001	0.002	0.003	<0.001	0.002	<0.001	0.001	<0.001
Zn	2	ppm	200	410	44	47	18	19	59	58	7	111	107	68	28	38	6	13	5	34	44	15	37	8	9	11
Zr	0.001	%			0.018	0.016	0.041	<0.001	0.001	0.002	<0.001	0.012	0.019	0.032	0.045	0.004	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Zr	0.5	ppm			121	100	241	14	15.1	13.1	2.6	59.4	90.1	167.5	255	24.8	6.4	6.6	2.8	3.9	4	6.2	28.1	19.3	19.2	7.6

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPRD05790_7_8	YPRD05790_10_11	YPRD06017_1_2	YPRD06017_7_8	YPRD06017_14_15	YPRD06017_19_20	YPRD06017_25_26	YPRD06576_0_1	YPRD06576_1_2	QC10	YPRD06576_3_4	YPRD06576_10_11	YPRD10638_1_2	YPRD10638_7_8	YPRD10638_13_14	YPRD10638_19_20	QC3A	YPRD10638_25_26	YPRD11438_1_2	YPRD11438_7_8	YPRD11438_13_14	QC2
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					US10	U5	OVER	U7U	U6	U5	U5L	US9	US9	US9	U5	U5L	OVER	U6	U5	U5L	U5L	U5L	OVER	U7U	U7L	U7L
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																						
Ag	0.01	ppm	1	3.7	0.03	0.03	0.15	0.18	0.18	0.14	0.19	0.07	0.07	0.08	0.03	0.04	0.04	0.04	0.06	0.05	0.05	0.04	0.07	0.05	0.06	0.05
Al	0.01	%			1.44	0.28	5.12	4.98	4.52	4.89	4.22	1.32	1.27	1.85	2.03	0.53	2.75	1.67	1.21	1.11	0.79	0.34	2.73	0.71	2.12	2.1
Al2O3	0.01	%			2.87	0.54	10.2	9.84	9.13	9.89	8.53	2.5	2.53	3.62	4.32	1.06	5.67	3.41	2.28	2.22	1.52	0.75	5.43	1.35	3.98	3.99
As	0.001	%			0.001	0.001	0.005	0.006	0.005	0.005	0.024	0.002	0.002	0.002	0.004	0.001	0.005	0.009	0.005	0.005	0.004	<0.001	0.003	0.002	0.002	0.001
As	0.001	ppm	20	70	6.2	5.6	39.3	48.7	29.3	46.9	240	11.1	10	11.5	22.8	4.3	32.7	69.9	41.3	31.7	30.7	11.5	19.6	6.3	6.6	7.2
Ba	0.001	%			<0.001	<0.001	0.004	0.003	0.006	0.005	0.009	<0.001	<0.001	<0.001	<0.001	0.005	0.03	0.011	0.009	0.003	0.001	<0.001	0.038	<0.001	0.031	0.025
Ba	10	ppm			40	20	50	50	100	50	120	40	30	30	50	60	280	140	110	60	50	10	420	20	310	270
Be	0.05	ppm			0.89	0.68	1.92	1.76	2.49	1.33	0.88	0.86	0.88	1.18	1.5	0.5	1.18	1.46	0.77	0.94	0.83	0.48	0.33	0.87	2.01	2.03
Bi	0.01	ppm			0.16	0.01	0.56	0.56	0.54	0.53	0.94	0.07	0.1	0.15	0.21	0.06	0.23	0.27	0.1	0.09	0.06	0.04	0.23	0.04	0.05	0.03
Ca	0.01	%			0.67	0.02	0.06	0.03	0.04	0.07	0.06	0.02	0.01	0.01	0.01	0.01	0.19	0.05	0.03	0.04	0.03	0.02	0.04	0.03	0.13	0.12
CaO	0.01	%			0.92	0.01	0.07	0.03	0.06	0.09	0.08	0.01	0.02	0.02	0.01	<0.01	0.26	0.07	0.03	0.04	0.03	0.01	0.04	0.03	0.17	0.16
Cd	0.02	ppm	1.5	10	0.02	0.02	0.04	0.04	0.17	0.08	0.04	0.03	0.03	0.04	0.08	0.07	0.03	0.09	0.08	0.08	0.07	0.03	<0.02	0.02	1.92	1.63
Ce	0.01	ppm			10.6	16.45	19.65	36.4	65.7	26.7	42.8	15.8	9.31	16.3	35.5	15.8	52.6	54.7	38.3	48.8	38.7	11.05	13.3	103.5	252	225
Cl	0.001	%			0.029	0.025	0.017	0.001	0.007	0.019	0.005	0.007	0.002	0.004	0.01	0.001	0.029	0.007	0.047	0.016	0.001	0.008	<0.001	0.01	0.032	0.007
Co	0.001	%			<0.001	0.001	0.002	0.002	0.004	0.002	0.002	0.001	<0.001	<0.001	0.001	0.002	0.001	0.02	0.005	0.001	0.001	<0.001	<0.001	0.002	0.02	0.018
Co	0.1	ppm			1.9	5.3	8.5	16.2	38.6	13	5.9	6.7	2.4	4.7	4.2	4.7	17.1	172.5	38.2	6.5	4.3	2.8	2.5	20.1	155	146
Cr	1	ppm	80	370	102	50	160	207	67	93	141	97	82	184	97	91	58	30	27	94	68	142	56	14	23	14
Cr2O3	0.0006	%			0.0115	0.0115	0.0307	0.0365	0.0122	0.0193	0.0286	0.0186	0.0145	0.0116	0.0174	0.017	0.0103	0.0067	0.0065	0.0103	0.0117	0.0237	0.013	0.01	0.0042	0.0054
Cs	0.05	ppm			0.12	0.12	0.6	0.11	0.46	0.61	4.99	0.53	0.39	0.52	0.28	0.19	1.02	0.14	0.05	0.15	0.14	0.16	0.17	0.12	0.55	0.51
Cu	0.001	%			0.001	<0.001	0.002	0.003	<0.001	0.002	0.002	<0.001	0.002	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001
Cu	0.2	ppm	65	270	15.6	8.2	35.5	43.5	9.6	21.3	33.6	12.5	14	19.2	15.3	6.3	14	12.3	6.2	5.4	3.6	5.8	7.4	7.2	16	15.1
Fe	0.01	%			19.9	26.8	47	45.7	42.9	41.5	17.8	21.4	21.1	28.9	21.1	22.2	27.5	40.5	>50	28.6	23.2	11.4	48.8	>50	38.9	39.5
Ga	0.05	ppm			4.03	1.27	17.9	18.05	8.54	10.45	16.65	4.04	4.06	5.34	5.76	1.72	7.96	5.18	3.21	3.09	2.44	1.27	7.13	1.7	6.49	5.71
Ge	0.05	ppm			0.22	0.29	2.8	1.93	3.34	2.37	0.24	0.22	0.32	3.68	0.5	0.29	0.99	1.15	2.5	6.14	0.4	0.18	2.45	2.15	1.12	1.54
Hf	0.1	ppm			0.8	0.1	4.2	4	2.5	2	3.3	0.6	0.7	1	0.9	0.3	1.4	0.5	0.5	0.5	0.4	0.2	1.8	0.2	0.3	0.2
In	0.005	ppm			0.023	<0.005	0.107	0.103	0.033	0.057	0.101	0.02	0.018	0.028	0.028	0.017	0.034	0.02	0.013	0.02	0.012	0.005	0.033	0.005	0.009	0.007
K	0.01	%			0.05	0.03	0.09	0.02	0.15	0.12	1.84	0.09	0.05	0.08	0.08	0.02	0.19	0.06	0.03	0.04	0.04	0.03	0.03	0.02	0.8	0.65
K2O	0.001	%			0.051	0.022	0.106	0.019	0.175	0.135	2.27	0.098	0.064	0.095	0.092	0.022	0.237	0.066	0.025	0.037	0.035	0.026	0.028	0.016	0.913	0.766
La	0.5	ppm			5	5.5	9.6	22.5	26.2	30	21.4	5.9	5	8.4	9.3	4.2	8.5	14.4	15.5	11	7.8	5.9	4.7	5	69.3	60.2
Li	0.2	ppm			6.3	5.7	8.5	7.7	10.4	12.3	7.9	5.1	5	5.3	9.1	3.5	5.5	2.5	2.4	10.7	9.7	8	4.2	0.2	35.6	41.3
LOI	0.01	%			5.82	2.63	8.85	10.25	11.47	11.09	2.82	3.46	3.09	4.04	4.67	1.64	7.56	9.22	9	2.73	1.88	1.23	9.67	9.78	10.35	10.51
Mg	0.01	%			0.46	0.05	0.13	0.04	0.08	0.19	0.39	0.04	0.03	0.03	0.04	0.02	0.2	0.1	0.08	0.04	0.03	0.03	0.04	0.06	0.13	0.14
MgO	0.01	%			0.77	0.07	0.21	0.04	0.12	0.33	0.66	0.05	<0.01	0.01	0.04	0.01	0.35	0.15	0.13	0.03	0.02	0.03	0.05	0.1	0.22	0.23
Mn	0.001	%			0.015	0.192	0.091	0.136	0.84	0.18	0.193	0.279	0.027	0.043	0.05	0.244	0.359	0.217	0.478	0.249	0.198	0.054	0.058	0.374	15.15	12.7
Mn	5	ppm			171	1840	835	1270	7590	1600	1860	2900	277	392	461	2490	3260	1980	4570	2370	1840	500	542	3450	>100000	>100000
Mo	0.05	ppm			1.38	0.76	3.13	1.33	1.73	2.61	3.35	1.31	0.89	2.44	1.3	1.03	0.95	0.77	1.01	1.71	0.89	0.79	1	0.37	0.65	0.58
Na	0.01	%			0.05	0.03	0.02	0.02	0.04	0.02	0.03	0.02	0.01	0.01	0.02	0.01	0.08	0.04	0.03	0.02	0.01	0.01	0.01	0.04	0.19	0.14
Na2O	0.005	%			0.033	0.01	0.015	0.011	0.039	0.011	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	0.092	0.041	0.018	<0.005	<0.005	<0.005	<0.005	0.028	0.211	0.169
Nb	0.1	ppm			2.2	0.6	9.7	7	7.1	5.5	9.5	1.7	2.1	3.1	3.1	1.1	4.1	1.7	1.8	2	1.4	0.6	6.6	0.8	1	1
Ni	0.001	%			0.001	<0.001	0.002	0.009	0.006	0.009	0.001	0.001	0.001	0.002	0.002	<0.001	0.001	0.019	0.005	<0.001	<0.001	<0.001	<0.001	0.002	0.005	0.008
Ni	0.2	ppm	21	52	12.4	13.3	43.1	76.1	59.2	94.2	21.9	15.9	12	51.9	28.8	6.8	38	185.5	57.2	24.1	8.9	8.2	7	14.8	79.8	84.7
P	0.001	%			0.039	0.009	0.043	0.022	0.014	0.072	0.009	0.021	0.031	0.048	0.06	0.006	0.024	0.106	0.082	0.032	0.021	0.007	0.032	0.012	0.036	0.038
P	10	ppm			380	90	430	210	130	690	80	210	290	450	520	60	220	990	790	310	220	70	310	110	360	350
Pb	0.001	%			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Pb	0.5	ppm	50	220	7.6	9.2	19.1	34.4	14.3	11.8	43.8	5.9	3.1	10.8	14.7	14.5	3.5	15.3	10.5	6	5.5	3.9	1.5	15.1	4.1	3.1	2.5
Rb	0.1	ppm			2.3	1.5	7.5	1	4.4	4	64.3	6.9	4.6	6.1	5.1	1.1	10.4	1.9	0.5	1.8	1.9	1.8	1.9	0.7	12.2	10.2
Re	0.002	ppm			<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
S	0.01	%			0.02	0.02	0.04	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.02	0.01	0.03	0.02	0.02	0.01	0.01	0.01	0.07	0.04	0.02	0.02
Sb	0.05	ppm	2	25	2.06	0.58	4.46	3.32	1.25	2.29	7.73	1.03	1.82	2.1	4.4	0.66	0.86	2.22	1.25	0.76	0.7	0.48	1.41	0.5	0.84	0.75
Sc	0.1	ppm			8.5	2.7	18	25.6	9.1	17.6	15.4	3.9	4.5	7.4	8	2	8	4.4	3.2	4.3	2.9	1.2	7.4	3.5	3.9	4.1
Se	1	ppm			<1	<1	4	2	2	4	2	1	1	1	1	1	1	1	1	<1	<1	<1	2	1	1	1
SiO2	0.01	%			61.4	60	9.19	10.65	11.15	13.8	59.6	64.5	64.2	47.6	58.2	65.3	41.7	23.8	3.91	51.4	62.3	80.9	10.75	12.5	7.84	8.63
Sn	0.001	%			0.001	0.002	0.001	<0.001	0.001	0.002	0.002	<0.001	<0.001	<0.001	0.003	<0.001	0.002	<0.001	0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001
Sn	0.2	ppm			0.5	<0.2	2	1.4	1.3	1.2	5.9	0.5	0.5	0.7	0.7	0.3	0.8	0.6	0.3	0.5	0.3	0.3	1.1	<0.2	0.2	0.2
Sr	0.001	%			0.002	<0.001	0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.025	0.022
Sr	0.2	ppm			40.4	3.2	12.1	6.6	14.5	8.6	18.2	8.5	3.8	4.5	4.8	3.3	26	11.6	8.1	14.9	11	3.3	9.2	3.8	260	224
Ta	0.05	ppm			0.18	<0.05	0.73	0.52	0.55	0.42	0.81	0.12	0.15	0.21	0.22	0.06	0.31	0.1	0.12	0.13	0.09	<0.05	0.52	<0.05	0.07	0.07
Te	0.05	ppm			0.11	0.09	0.57	0.34	0.35	0.24	0.5	0.05	0.11	0.16	0.15	0.12	0.14	0.22	0.13	0.16	0.13	<0.05	0.28	0.24	0.49	0.45
Th	0.2	ppm			3.6	0.5	18.6	21.3	9.9	9.4	11.1	2.4	3	4.1	3.2	0.9	5.6	2.2	1.8	1.7	1.2	0.6	7.5	0.7	1	0.9
Ti	0.005	%			0.078	0.013	0.332	0.201	0.234	0.18	0.33	0.063	0.063	0.097	0.119	0.03	0.162	0.045	0.051	0.058	0.041	0.017	0.236	0.017	0.029	0.028
TiO2	0.01	%			0.14	0.03	0.63	0.49	0.52	0.38	0.59	0.11	0.11	0.18	0.23	0.06	0.33	0.12	0.11	0.12	0.08	0.04	0.46	0.04	0.07	0.06
Tl	0.02	ppm			<0.02	0.08	0.07	0.03	0.11	0.02	0.36	0.08	0.02	0.04	0.04	0.15	0.11	0.05	0.03	0.06	0.02	<0.02	0.02	0.02	0.29	0.25
Total	0.01	%			100	100	99.97	100	99.99	100	100.05	99.95	99.97	100	99.98	99.95	99.96	100.05	99.99	100	99.95	100.05	99.99	99.98	99.83	99.63
U	0.1	ppm			1.5	0.6	3.5	5.3	5.4	4.1	2.7	0.7	1	1.6	1.4	0.2	1.7	1.8	1.4	0.6	0.5	0.3	1.4	0.8	2.3	2.2
V	0.001	%			0.004	0.002	0.02	0.02	0.004	0.012	0.013	0.003	0.002	0.004	0.004	0.002	0.006	<0.001	0.002	<0.001	<0.001	<0.001	0.006	0.001	0.002	0.001
V	1	ppm			53	14	180	192	48	103	121	30	37	57	44	12	53	15	20	25	19	6	49	7	10	9
W	0.1	ppm			2.2	1.3	2.4	2.9	1.4	2.6	2.6	2.2	1.4	3	1.9	1.6	2.5	3.7	2.6	1.9	1.3	1.5	1.4	0.9	1.5	1.2
Y	0.1	ppm			9.3	7.7	9.2	51.1	26	31.5	18	6.3	7.5	12.5	13.9	5.8	9.2	17.2	16.7	15	10.5	6.6	4.5	5.5	35.7	32.4
Zn	0.001	%			0.002	0.002	0.001	0.02	0.002	0.001	<0.001	<0.001	0.003	0.002	0.003	<0.001	0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.012	0.01
Zn	2	ppm	200	410	25	26	17	199	24	26	12	16	22	37	35	16	18	33	20	16	9	7	7	15	107	96
Zr	0.001	%			<0.001	<0.001	0.021	0.017	0.01	0.007	0.01	<0.001	0.004	0.006	0.001	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	0.001	0.001
Zr	0.5	ppm			29.7	5.9	153.5	128.5	86.7	79.3	123	22.1	26.7	37.5	36	10.5	54	20.1	17.9	20.5	14.6	6.4	64.5	5.7	9.4	8.7

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2a
Waste Rock Analytical Results - Multi-Element solids
FMG Christmas Creek Mine

Sample ID					YPRD11438_19_20	YPRD11438_25_26	YPRD13687_1_2	QC4	YPRD13687_7_8	YPRD13687_13_14	YPRD13687_19_20	YPRD13687_33_34	YPRD13687_37_38	YPRD14197_1_2	YPRD14197_7_8	YPRD14197_13_14	QC6	YPRD14197_19_20	YPRD14197_25_26	QC9	YPRD14197_37_38
Sample Type					Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock	Waste Rock
Lithology					UST0	UST	OVER	OVER	OVER	OVER	OVER	U7U	U7U	OVER	OVER	OVER	OVER	U8	U8	U8	US12
Analyte	**LOR**	**Units**	**ISQG-Low**	**ISQG-High**																	
Ag	0.01	ppm	1	3.7	0.04	0.05	0.11	0.1	0.13	0.2	0.05	0.05	0.05	0.08	0.16	0.11	0.12	0.21	0.07	0.06	0.05
Al	0.01	%			0.54	0.26	5.22	2.37	6.52	4.52	7.01	6.44	5.98	4.69	4.07	5.6	5.82	5.15	2.78	2.59	1.71
Al2O3	0.01	%			1.06	0.54	10.35	4.63	13.3	8.74	15.1	13.05	12	9.88	8.24	11.45	11.85	10.5	5.56	5.44	3.52
As	0.001	%			0.001	0.001	0.002	0.004	0.002	0.005	0.002	0.002	0.004	0.003	0.004	0.003	0.004	0.005	0.004	0.004	0.001
As	0.001	ppm	20	70	4.8	3.9	31.3	47.1	24.5	36.8	27.7	9.3	24.1	27.6	30.3	33.9	32.2	32.7	22.4	20.8	7.1
Ba	0.001	%			0.018	<0.001	0.018	0.011	0.038	0.008	0.018	0.145	<0.001	0.014	0.017	0.007	0.003	0.005	<0.001	<0.001	0.004
Ba	10	ppm			130	20	200	120	380	100	170	1310	30	210	260	120	100	70	20	20	40
Be	0.05	ppm			0.62	0.36	1.43	1.14	1.69	1.11	1.58	1.34	0.47	1.56	1.17	1.29	1.29	0.91	0.47	0.48	0.48
Bi	0.01	ppm			0.09	0.05	0.28	0.15	0.39	0.37	0.54	0.27	1.1	0.31	0.33	0.45	0.5	0.51	0.34	0.21	0.14
Ca	0.01	%			0.03	0.02	0.14	0.08	0.13	0.07	0.08	0.69	0.08	0.09	0.1	0.07	0.06	0.06	0.08	0.08	0.03
CaO	0.01	%			0.04	0.01	0.18	0.1	0.16	0.08	0.11	0.97	0.11	0.14	0.15	0.08	0.1	0.09	0.11	0.12	0.04
Cd	0.02	ppm	1.5	10	0.32	0.05	0.08	0.06	0.15	0.06	0.07	0.76	0.05	0.1	0.24	0.05	0.06	0.04	0.09	0.04	0.04
Ce	0.01	ppm			45.2	18	40.5	21.8	65.8	33.1	50.9	103	88.7	42.2	43.1	35	34.2	32.1	8.21	6.99	9.9
Cl	0.001	%			0.005	<0.001	0.032	0.024	0.001	0.002	0.004	0.001	0.001	0.003	0.005	0.01	0.002	0.001	<0.001	0.002	0.002
Co	0.001	%			0.003	0.001	0.002	0.001	0.002	0.001	0.002	0.015	0.002	<0.001	0.001	0.001	<0.001	0.002	<0.001	<0.001	0.002
Co	0.1	ppm			14.6	2.6	14.2	8.3	20.7	7.3	10.7	83.9	13.6	14.3	16.3	7.5	8.2	5.5	6	4.6	3.8
Cr	1	ppm	80	370	16	47	150	180	180	199	170	12	88	152	170	206	181	284	57	54	23
Cr2O3	0.0006	%			0.0033	0.0119	0.0249	0.0286	0.0351	0.0465	0.0304	<0.0006	0.0176	0.0299	0.0303	0.033	0.0342	0.0482	0.0231	0.0094	0.0051
Cs	0.05	ppm			0.08	0.07	3.92	1.51	4.46	2.16	3.62	0.33	0.17	3.25	2.63	3.11	3.35	2.33	0.22	0.18	0.08
Cu	0.001	%			0.001	<0.001	0.004	0.002	0.004	0.003	0.005	0.002	<0.001	0.004	0.005	0.004	0.005	0.002	<0.001	0.001	0.001
Cu	0.2	ppm	65	270	3.2	2.3	42	28.3	58.9	47.5	49.5	6.8	6.5	40.7	50.6	52.2	52.5	31.1	10.5	9.7	4.2
Fe	0.01	%			>50	31.1	18.25	18.25	15.5	24.7	19.85	11.3	42.7	23.3	22.5	17.6	16.65	38.7	49.8	46.3	>50
Ga	0.05	ppm			2.7	0.85	14	6.64	18.35	14.45	23.6	15.05	20.8	13.95	13.2	16.55	18.3	24.7	6.73	6.53	3.5
Ge	0.05	ppm			1.33	0.31	0.33	0.29	0.33	0.68	0.52	1.08	1.86	1.26	0.48	0.38	0.43	1.79	2.74	3.01	5.05
Hf	0.1	ppm			0.2	0.1	2.3	1.1	3.6	3.1	5	1.7	4.9	2.4	2.5	3.8	4	4.9	1.9	1.8	0.8
In	0.005	ppm			0.008	0.005	0.091	0.05	0.109	0.112	0.13	0.038	0.118	0.088	0.085	0.124	0.126	0.137	0.037	0.035	0.014
K	0.01	%			0.18	0.02	0.59	0.28	0.82	0.35	0.36	0.83	0.03	0.57	0.58	0.52	0.53	0.19	0.02	0.01	0.01
K2O	0.001	%			0.219	0.015	0.704	0.328	0.988	0.403	0.444	0.997	0.025	0.739	0.722	0.634	0.625	0.222	0.018	0.014	0.015
La	0.5	ppm			11.1	4.7	21.3	11.5	28.7	16.6	22.7	22.3	13.8	20.3	17.8	20.5	21	13.1	1.9	1.3	3.1
Li	0.2	ppm			1.7	1.7	28.6	13.8	23.3	9.8	40.1	45.5	18.3	20.6	13.4	19.4	18.3	19.7	1.5	1.3	13
LOI	0.01	%			5.11	2.92	4.95	3.2	6.47	5.78	6.52	14.65	10.17	4.86	5.74	5.85	6.05	5.12	12.56	12.2	6.54
Mg	0.01	%			0.03	0.02	0.26	0.12	0.23	0.13	0.12	0.29	0.11	0.16	0.18	0.15	0.15	0.06	0.05	0.05	0.04
MgO	0.01	%			0.07	0.02	0.41	0.2	0.38	0.2	0.18	0.53	0.16	0.24	0.28	0.22	0.21	0.08	0.08	0.07	0.08
Mn	0.001	%			6.61	0.453	0.148	0.122	0.254	0.108	0.221	>25.0	0.767	0.422	0.706	0.092	0.077	0.196	0.248	0.079	0.466
Mn	5	ppm			57300	4110	1520	1180	2470	1100	2020	>100000	6970	3840	6500	906	757	1700	2340	689	4020
Mo	0.05	ppm			0.76	0.98	1.46	1.14	1.89	1.89	2.06	6.99	0.76	1.7	2.2	1.84	2.14	2.26	0.9	0.9	0.68
Na	0.01	%			0.04	0.01	0.07	0.04	0.07	0.03	0.04	0.05	0.01	0.03	0.05	0.04	0.03	0.03	0.01	0.01	0.01
Na2O	0.005	%			0.045	<0.005	0.061	0.026	0.06	0.014	0.037	0.05	<0.005	<0.005	<0.005	0.026	<0.005	0.026	<0.005	<0.005	0.012
Nb	0.1	ppm			1	0.5	6.3	2.9	10.1	8.1	15.1	7	12.4	6.6	10.3	11.1	12.1	12.1	2.7	2.9	2.6
Ni	0.001	%			<0.001	<0.001	0.007	0.002	0.006	0.01	0.004	0.016	0.002	0.013	0.007	0.003	0.006	0.002	0.009	0.002	0.002
Ni	0.2	ppm	21	52	10.9	9.6	68.8	42.1	70.4	36.9	38.8	201	25.3	61.8	64.5	43	46.3	25.4	17.4	15.1	15.1
P	0.001	%			0.058	0.062	0.022	0.017	0.035	0.027	0.038	0.009	0.013	0.03	0.032	0.028	0.029	0.045	0.025	0.024	0.019
P	10	ppm			530	580	220	180	330	280	340	100	130	270	310	270	270	400	230	200	180
Pb	0.001	%			0.002	<0.001	0.003	0.003	0.001	<0.001	0.004	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
Pb	0.5	ppm	50	220	1.7	2	16.3	12.9	21.2	17.1	26	14.1	37.3	19.8	20.7	20.7	21.1	21.4	10.8	9.6	12.7
Rb	0.1	ppm			2.7	0.8	48.3	18.9	59.8	24.5	32.6	7.2	1.2	44.4	37.1	36.8	36.8	18	0.9	0.7	0.5
Re	0.002	ppm			<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
S	0.01	%			0.01	<0.01	0.06	0.05	0.04	0.03	0.02	0.01	0.02	0.03	0.07	0.02	0.02	0.02	0.1	0.09	0.03
Sb	0.05	ppm	2	25	0.42	0.28	1.65	1.65	1.61	2.2	2.24	1.11	4.98	1.77	2.24	2.33	2.22	2.81	1.73	1.59	0.65
Sc	0.1	ppm			5.5	0.9	12.3	6.6	16.4	13.1	17.8	6.3	19	11.5	11.7	15.4	15.3	16.4	7.4	6.6	5.6
Se	1	ppm			<1	<1	1	1	1	2	1	1	1	1	2	2	2	2	2	2	<1
SiO2	0.01	%			2.71	48.4	56.5	65.9	54.9	47.9	46.2	11.95	10.65	46.9	50.4	55.3	55.2	21.7	5.99	5.93	3.95
Sn	0.001	%			<0.001	0.001	0.002	0.002	0.002	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.004
Sn	0.2	ppm			0.2	<0.2	1.9	0.9	2.6	2	3.2	1.2	2.7	1.8	1.7	2.5	2.8	2.7	0.6	0.6	0.5
Sr	0.001	%			0.008	0.001	0.002	0.003	0.005	0.002	0.003	0.12	<0.001	0.002	0.004	0.001	0.001	<0.001	<0.001	<0.001	0.003
Sr	0.2	ppm			39.6	4.9	36.9	19.6	59	25.2	29	1125	10.5	27.7	52.2	27.9	28.9	16.9	6.5	4.9	3
Ta	0.05	ppm			0.05	<0.05	0.49	0.22	0.78	0.6	1.27	0.62	1.09	0.48	0.51	0.8	0.83	0.87	0.2	0.2	0.16
Te	0.05	ppm			0.23	<0.05	0.26	0.2	0.19	0.28	0.37	0.69	0.43	0.24	0.25	0.3	0.3	0.48	0.28	0.52	0.5
Th	0.2	ppm			0.6	0.4	8	4.3	12.7	13	17.7	5.6	21.4	8.5	10.1	13.1	13.2	28.3	9.4	8.7	3.5
Ti	0.005	%			0.02	0.01	0.245	0.114	0.392	0.309	0.558	0.244	0.438	0.24	0.259	0.403	0.414	0.433	0.079	0.075	0.073
TiO2	0.01	%			0.05	0.03	0.45	0.21	0.74	0.57	1.12	0.52	0.89	0.49	0.5	0.77	0.8	0.86	0.15	0.14	0.16
Tl	0.02	ppm			0.12	<0.02	0.56	0.35	0.76	0.27	0.66	0.97	0.04	0.86	0.67	0.37	0.37	0.43	<0.02	<0.02	0.05
Total	0.01	%			99.83	100	99.98	100	99.95	100	100.05	100.25	100	99.97	99.99	100.05	100	100.05	100	100	100
U	0.1	ppm			1.2	0.3	1.4	0.9	2.4	1.9	2.7	7.6	4.1	1.5	2	2.2	2.2	3.6	2.7	2.5	2.2
V	0.001	%			0.001	0.001	0.01	0.008	0.014	0.013	0.018	0.005	0.012	0.011	0.011	0.012	0.015	0.02	0.004	0.002	0.002
V	1	ppm			5	4	108	74	127	125	163	39	130	115	111	138	142	196	42	39	14
W	0.1	ppm			1.5	2.2	2	1.2	2.2	1.8	2.2	1.7	2.6	2.6	2	2.3	2.2	2	1.1	1.4	1.3
Y	0.1	ppm			9.6	5.6	13.4	8.6	26.3	11	14.8	21.8	26.3	16.6	16.3	12.1	12	8.9	3.9	3.5	4.6
Zn	0.001	%			0.003	<0.001	0.006	0.006	0.01	0.007	0.006	0.013	0.003	0.007	0.012	0.009	0.01	0.003	0.002	0.003	0.002
Zn	2	ppm	200	410	17	17	74	59	113	78	60	93	38	70	122	97	93	35	42	36	15
Zr	0.001	%			0.004	<0.001	0.012	0.007	0.019	0.017	0.03	0.018	0.03	0.016	0.015	0.019	0.021	0.026	0.006	0.007	0.007
Zr	0.5	ppm			7	3.5	83.1	37.5	127.5	114.5	178	62.8	167.5	90.6	96.7	135	148	174	69.7	66.5	28.3

Legend:
Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)
Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	CAGC30291_7_8	CAGC30291_13_14	CAGC30291_19_20	CAGC30291_25_26	CAGC30291_43_44	RRGC00463_1_2	RRGC00463_7_8	RRGC00463_13_14	RRGC00463_19_20	RRGC00759_1_2	RRGC00759_7_8	RRGC00759_13_14	RRGC01421_1_2	RRGC01421_7_8	RRGC01421_13_14	RRGC01421_13_14	RRGC01421_19_20	RRGC01521_1_2
Sample ID	CAGC30291_7_8	CAGC30291_13_14	CAGC30291_19_20	CAGC30291_25_26	CAGC30291_43_44	RRGC00463_1_2	RRGC00463_7_8	RRGC00463_13_14	RRGC00463_19_20	RRGC00759_1_2	RRGC00759_7_9	RRGC00759_13_14	RRGC01421_1_2	RRGC01421_7_8	RRGC01421_13_14	QC01_24/05/2012	RRGC01421_19_20	RRGC01521_1_2
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample
Lithology	OVER	U7U	US12	U6	U5L	U8	U6	U5	U5L	U7U	US11	U5	U7U	US11	US10	US10	US8	U5

Analyte	LOR	Units																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	**5.4**	**3.9**	**6.7**	**2.6**	<1.0	**1.4**	**1.6**	<1	<1	**2.8**	**2.4**	<1	**1.6**	**1.6**	**1.2**	**1.2**	**3.2**	**2**
Electrical Conductivity @ 25°C	1	µS/cm	**338**	**47**	**51**	**22**	**23**	**18**	**30**	**45**	**234**	**16**	**23**	**77**	**41**	**37**	**35**	**42**	**131**	**100**
pH Value	0.1	pH Unit	**7.3**	**6.9**	**7.0**	**6.9**	**7.4**	**6.1**	**6**	**6.1**	**6.2**	**5.6**	**6.1**	**6.2**	**6.1**	**6.5**	**6.7**	**8**	**6.2**	**8.9**
Acid Base Accounting																			
Sulfur - Total as S (LECO)	0.01	%	**0.04**	**0.04**	**0.02**	<0.01	<0.01	**0.04**	**0.09**	**0.01**	**0.01**	**0.04**	**0.07**	**0.01**	**0.05**	**0.07**	**0.04**	**0.03**	**0.03**	**0.01**
Chromium Reducible Sulphur	0.005	%	**0.013**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.005**	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.5**	**0.5**	**3.1**	**0.9**	**1.8**	**0.2**	**0.3**	**0.2**	<0.1	**0.3**	**0.3**	<0.1	**0.4**	**0.4**	**0.4**	**0.1**	**0.2**	**1.4**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**4.6**	**4.9**	**0.3**	<0.1	**0.2**	**2.1**	**2.6**	**2.5**	**0.7**	**3.3**	**2.7**	**0.7**	**3.4**	**4**	**3.6**	**1.2**	**2.5**	**13.7**
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
pH (OX)	0.1	pH Unit	**8.0**	**8.1**	**7.8**	**7.3**	**7.3**	**6.2**	**5.9**	**6**	**7.2**	**6.7**	**6.8**	**5.8**	**5.8**	**6.3**	**6.4**	**6.2**	**5.6**	**7.2**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	**0.9**	**1**	**1.7**	<0.1	**0.2**	<0.1	**3.2**	**2.8**	**1.1**	**0.8**	**2.9**	**1.7**	<0.1
Total Carbon	0.02	%	**0.05**	**0.13**	**0.04**	<0.02	**0.03**	**0.06**	**0.08**	**0.02**	<0.02	**0.15**	**0.08**	<0.02	**0.05**	**0.3**	**0.04**	**0.06**	**0.03**	**0.15**
Major Ions																			
Sulfate as SO4 2-	100	mg/kg	**290**	**190**	<100	<100	<100	<100	**130**	<100	**190**	<100	<100	**100**	**270**	**210**	<100	<100	<100	**140**
Chloride	10	mg/kg	**350**	**40**	**50**	**20**	**20**	<10	**10**	**40**	**170**	<10	<10	**70**	**20**	<10	**20**	**20**	**140**	**10**
Other																			
Sodium Adsorption Ratio	0.01		**4.38**	**2.34**	**1.24**	**1.70**	**1.22**	**0.8**	**1.88**	**1.86**	**2.43**	**2.1**	**9.82**	**4.94**	**1.94**	**3.31**	**21.6**	**8.18**	**6.91**	**2.04**
Cation Exchange Capacity	0.1	meq/100g	**9.4**	**3.8**	**3.4**	**1.3**	**0.5**	**0.4**	**1**	**0.4**	**1.2**	**0.7**	**1.4**	**0.8**	**0.9**	**0.8**	**1**	**0.7**	**1.2**	**19.7**
Soluble Sulfate as SO4 2-	10	mg/kg	**170**	**50**	**40**	**20**	**20**	**10**	**40**	**30**	**130**	<10	**20**	**40**	**40**	**60**	**30**	**40**	**40**	**20**
Sulfur as S	10	mg/kg	**60**	**20**	**10**	<10	<10	-	-	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Calcium	0.1	meq/100g	**4.0**	**1.8**	**1.4**	**0.6**	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Magnesium	0.1	meq/100g	**3.7**	**1.3**	**1.3**	**0.5**	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Potassium	0.1	meq/100g	**0.6**	**0.5**	**0.4**	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Sodium	0.1	meq/100g	**1.1**	**0.2**	**0.2**	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium/Magnesium Ratio	0.1		**1.0**	**1.5**	**1.1**	**1.3**	**1.5**	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	RRGC01521_7_8	RRGC01553_1_2	RRGC01553_7_8	TRRD33379_1_2	TRRD33379_3_4	TRRD33379_7_8	TRRD33379_9_10	TRRD33437_1_2	TRRD33437_1_2	TRRD33437_3_4	TRRD33437_7_8	TRRD33437_7_8	TRRD33437_9_10	TRRD33437_14_15	TRRD34136_1_2	TRRD34136_1_2	TRRD34136_3_4	TRRD34136_7_8
Sample ID	RRGC01521_7_8	RRGC01553_1_2	RRGC01553_7_8	TRRD33379_1_2	TRRD33379_3_4	TRRD33379_7_8	TRRD33379_9_10	TRRD33437_1_2	QC5	TRRD33437_3_4	TRRD33437_7_8	QC7	TRRD33437_9_10	TRRD33437_14_15	TRRD34136_1_2	QC12	TRRD34136_3_4	TRRD34136_7_8
Date Sampled	24/05/2012	24/05/2012	24/05/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample
Lithology	U5L	US10	US8	OVER	U8	U7L	U6	U8	U8	U8	U7U	U7U	U7U	US11	U7U	U7U	U7U	US11
Analyte	**LOR**	**Units**																
Physico-Chemical Parameters																		
Moisture Content (dried @ 103°C)	1	%	<1	**1.6**	<1	**5.1**	**4.4**	**10.4**	**4.9**	**5.2**	**3.1**	**2.3**	**5.2**	**9.7**	**7.3**	**7.2**	**3.2**	**5.0**	**3.2**	**3.1**
Electrical Conductivity @ 25°C	1	µS/cm	**186**	**109**	**33**	**45**	**59**	**149**	**138**	**21**	**31**	**18**	**573**	**480**	**346**	**652**	**102**	**110**	**31**	**43**
pH Value	0.1	pH Unit	**8.6**	**8.6**	**8.2**	**7.5**	**8.1**	**8.8**	**7.6**	**5.4**	**5.6**	**6.5**	**6.3**	**6.1**	**5.4**	**6.5**	**8.6**	**8.5**	**6.8**	**6.8**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	**0.04**	**0.02**	**0.01**	**0.02**	**0.02**	**0.01**	<0.01	**0.02**	**0.02**	**0.03**	**0.06**	**0.08**	**0.03**	**0.05**	**0.01**	**0.02**	**0.05**	**0.03**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	**0.006**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.6**	**0.5**	**0.2**	**0.8**	<0.5	**0.5**	**2.2**	<0.5	<0.1	**3.5**	**1.9**	**0.6**	**0.3**	<0.1	**0.6**	**7.8**	<0.5	<0.1
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**5.4**	**4.6**	**2.4**	<0.1	<0.1	**5.1**	**0.2**	<0.1	<0.5	**0.4**	**0.2**	<0.1	**2.7**	<0.5	**5.7**	**0.8**	<0.1	<0.5
Fizz Rating		Fizz Unit	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**7.6**	**8.4**	**5.7**	**6.8**	**7.0**	**8.8**	**7.8**	**6.2**	**5.8**	**6.8**	**6.2**	**7.0**	**5.7**	**6.8**	**8.3**	**9.4**	**6.3**	**6.8**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	**3.3**	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.7**	<0.1	**0.3**	<0.1	**1.1**	**0.2**	<0.1	<0.1	**0.3**	**0.2**
Total Carbon	0.02	%	**0.09**	**0.09**	**0.05**	**0.04**	**0.03**	**0.04**	<0.02	**0.04**	**0.04**	**0.03**	**0.08**	**0.09**	<0.02	<0.02	**0.13**	**0.18**	**0.10**	**0.07**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	**250**	<100	<100	**110**	**100**	<100	<100	<100	<100	<100	**790**	**670**	**790**	**1180**	<100	**110**	**120**	**100**
Chloride	10	mg/kg	**130**	**40**	**20**	**40**	**20**	**90**	**120**	**10**	**30**	**10**	**580**	**450**	**270**	**470**	**20**	**20**	**10**	**20**
Other																				
Sodium Adsorption Ratio	0.01		**6.2**	**1.28**	**3.68**	**3.47**	**0.57**	**3.03**	**7.35**	**3.87**	**2.43**	**2.14**	**3.01**	**6.80**	**4.72**	**4.13**	**0.50**	**3.45**	**0.70**	**2.53**
Cation Exchange Capacity	0.1	meq/100g	**4.4**	**4.8**	**0.5**	**2.6**	**4.0**	**9.2**	**4.3**	**5.4**	**0.5**	**0.5**	**4.4**	**4.2**	**2.3**	**5.2**	**15.2**	**16.2**	**1.4**	**2.0**
Soluble Sulfate as SO4 2-	10	mg/kg	**140**	**20**	**20**	**40**	**30**	**70**	**100**	**30**	**30**	**20**	**470**	**460**	**390**	**860**	**50**	**70**	**40**	**30**
Sulfur as S	10	mg/kg	-	-	-	**10**	<10	**20**	**30**	**10**	<10	<10	**160**	**150**	**130**	**280**	**20**	**20**	**10**	**10**
Exchangeable Calcium	0.1	meq/100g	-	-	-	**1.3**	**2.8**	**6.2**	**1.8**	**4.4**	**0.2**	**0.1**	**0.6**	**0.6**	**0.4**	**1.8**	**14.0**	**14.1**	**0.9**	**1.1**
Exchangeable Magnesium	0.1	meq/100g	-	-	-	**0.7**	**0.5**	**2.1**	**1.4**	**0.5**	**0.2**	**0.1**	**1.6**	**1.5**	**0.7**	**1.4**	**0.9**	**1.0**	**0.2**	**0.5**
Exchangeable Potassium	0.1	meq/100g	-	-	-	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	**0.2**	<0.1	**0.2**
Exchangeable Sodium	0.1	meq/100g	-	-	-	**0.5**	**0.5**	**0.6**	**0.8**	**0.2**	**0.1**	**0.2**	**2.2**	**2.0**	**1.2**	**1.8**	**0.1**	**0.9**	**0.2**	**0.3**
Exchangeable Aluminium	0.1	meq/100g	-	-	-	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		-	-	-	**1.8**	**5.6**	**2.9**	**1.4**	**7.6**	**1.0**	**0.5**	**0.4**	**0.4**	**0.5**	**1.3**	**1.0**	**13.2**	**3.7**	**2.5**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	TRRD34136_7_8	TRRD34136_9_10	YPGC00027_1_2	YPGC00027_7_8	YPGC00027_13_14	YPGC00027_25_26	YPGC00576_1_2	YPGC00576_7_8	YPGC00576_19_20	YPGC00576_25_26	YPGC00576_31_32	YPGC00576_37_38	YPGC01657_7_8	YPGC01657_13_14	YPGC01657_19_20	YPGC01657_31_32	YPGC01657_37_38	YPGC01657_43_44
Sample ID	QC11	TRRD34136_9_10	YPGC00027_1_2	YPGC00027_7_8	YPGC00027_13_14	YPGC00027_25_26	YPGC00576_1_2	YPGC00576_7_8	YPGC00576_19_20	YPGC00576_25_26	YPGC00576_31_32	YPGC00576_37_38	YPGC01657_7_8	YPGC01657_13_14	YPGC01657_19_20	YPGC01657_31_32	YPGC01657_37_38	YPGC01657_43_44
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology	US11	U6	OVER	U7U	U6	U5L	OVER	OVER	US9	U5L	U5L	U5L	OVER	OVER	U8	U7L	U6	U5

Analyte	LOR	Units																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	**4.0**	**2.6**	**4.2**	**2.3**	**4.6**	**2.2**	**4.5**	**5.8**	**9.2**	**8.8**	**5.6**	**36.5**	**8.8**	**6.0**	**9.4**	**4.5**	**4.4**	**13.0**
Electrical Conductivity @ 25°C	1	µS/cm	**30**	**28**	**23**	**66**	**22**	**34**	**156**	**32**	**31**	**17**	**19**	**21**	**52**	**49**	**33**	**37**	**29**	**33**
pH Value	0.1	pH Unit	**7.5**	**7.8**	**7.5**	**7.6**	**7.6**	**7.4**	**8.1**	**4.9**	**7.2**	**7.9**	**7.5**	**7.8**	**5.8**	**6.5**	**6.5**	**6.9**	**6.8**	**7.3**
Acid Base Accounting																			
Sulfur - Total as S (LECO)	0.01	%	**0.03**	**0.01**	**0.25**	**0.03**	**0.05**	<0.01	**0.20**	**0.11**	**0.02**	<0.01	<0.01	<0.01	**0.03**	**0.06**	**0.06**	**0.02**	**0.01**	<0.01
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.008**	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.6**	<0.1	**1.6**	<0.5	<0.5	**1.3**	**3.8**	**1.7**	**1.6**	<0.5	**0.7**	<0.1	**1.1**	**0.2**	**1.2**	**0.6**	**0.2**	<0.5
ANC as H2SO4	0.5	kg H2SO4 equiv./t	<0.1	<0.5	**0.2**	<0.1	<0.1	**0.1**	**0.4**	**0.2**	**0.2**	<0.1	<0.1	<0.5	**0.1**	**2.2**	**0.1**	<0.1	**2.4**	<0.1
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**5.8**	**6.1**	**7.1**	**7.4**	**6.6**	**7.0**	**8.7**	**5.5**	**6.9**	**7.0**	**6.9**	**6.4**	**6.3**	**6.6**	**5.5**	**6.3**	**7.0**	**7.2**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	**0.7**	**0.3**	<0.1	<0.1	**0.2**	<0.1	<0.1	**0.4**	<0.1	<0.1	<0.1	**0.4**	**0.2**	**0.2**	**0.7**	**0.5**	<0.1	<0.1
Total Carbon	0.02	%	**0.08**	**0.04**	**0.03**	**0.08**	**0.07**	<0.02	**0.07**	**0.03**	**0.07**	<0.02	<0.02	<0.02	**0.02**	**0.19**	**0.09**	**0.10**	**0.08**	**0.06**
Major Ions																			
Sulfate as SO4 2-	100	mg/kg	<100	<100	**160**	**130**	**120**	<100	**210**	**160**	<100	<100	<100	<100	<100	**200**	**130**	<100	**140**	<100
Chloride	10	mg/kg	**20**	**20**	**20**	**40**	**10**	**20**	**40**	**20**	**20**	<10	**20**	**30**	**70**	**30**	**30**	**20**	**20**	**30**
Other																			
Sodium Adsorption Ratio	0.01		**5.78**	**3.94**	**2.30**	**9.89**	**5.26**		**0.89**	**3.23**	**3.29**	**1.61**	**4.19**	**1.67**	**4.19**	**1.03**	**2.12**	**2.91**	**0.98**	**4.86**
Cation Exchange Capacity	0.1	meq/100g	**2.1**	**0.9**	**8.6**	**2.0**	**2.1**	**1.4**	**12.3**	**4.5**	**3.2**	**0.5**	**0.4**	**0.7**	**7.5**	**1.3**	**1.3**	**1.2**	**0.3**	**1.0**
Soluble Sulfate as SO4 2-	10	mg/kg	**30**	**20**	**20**	**60**	**40**	**30**	**100**	**40**	**30**	**10**	**20**	**20**	**30**	**70**	**40**	**40**	**40**	**30**
Sulfur as S	10	mg/kg	<10	<10	<10	**20**	**10**	<10	**30**	**10**	**10**	<10	<10	<10	<10	**20**	**10**	**20**	**10**	**10**
Exchangeable Calcium	0.1	meq/100g	**0.8**	**0.4**	**4.8**	**0.7**	**0.8**	**0.5**	**8.2**	**1.4**	**1.2**	**0.2**	**0.2**	**0.3**	**2.9**	**0.6**	**0.5**	**0.4**	**0.2**	**0.4**
Exchangeable Magnesium	0.1	meq/100g	**0.4**	**0.2**	**2.5**	**0.5**	**0.5**	**0.5**	**3.0**	**2.4**	**1.2**	**0.1**	**0.1**	**0.2**	**3.4**	**0.4**	**0.4**	**0.3**	<0.1	**0.4**
Exchangeable Potassium	0.1	meq/100g	**0.2**	<0.1	**0.7**	**0.2**	**0.2**	<0.1	**0.7**	**0.5**	**0.3**	<0.1	<0.1	<0.1	**0.9**	**0.2**	**0.2**	<0.1	<0.1	<0.1
Exchangeable Sodium	0.1	meq/100g	**0.6**	**0.3**	**0.6**	**0.5**	**0.6**	**0.2**	**0.4**	**0.2**	**0.4**	**0.2**	**0.1**	<0.1	**0.4**	<0.1	**0.1**	**0.5**	<0.1	**0.2**
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**2.0**	**2.0**	**1.9**	**1.3**	**1.4**	**1.0**	**2.7**	**0.6**	**0.9**	**2.0**	**2.0**	**1.5**	**0.9**	**1.2**	**1.5**	**2.0**	**2.0**	**1.0**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location		YPGC02056_1_2	YPGC02056_7_8	YPGC02056_13_14	YPGC02056_14_15	YPGC02056_14_15	YPGC02056_19_20	YPGC02056_25_26	YPGC02056_37_38	YPGC02056_44_45	YPGC02807_1_2	YPGC02807_13_14	YPGC02807_19_20	YPGC02807_25_26	YPGC02807_31_32	YPGC02807_37_38	YPGC03152_1_2	YPGC03152_7_8	YPGC03152_13_14
Sample ID		YPGC02056_1_2	YPGC02056_7_8	YPGC02056_13_14	YPGC02056_14_15	QC3	YPGC02056_19_20	YPGC02056_25_26	YPGC02056_37_38	YPGC02056_44_45	YPGC02807_1_2	YPGC02807_13_14	YPGC02807_19_20	YPGC02807_25_26	YPGC02807_31_32	YPGC02807_37_38	YPGC03152_1_2	YPGC03152_7_8	YPGC03152_13_14
Date Sampled		22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type		Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology		OVER	OVER	OVER	OVER	OVER	OVER	U7U	US10	U5	OVER	OVER	U8	U8	U7U	US11	OVER	OVER	OVER
Analyte	**LOR**	**Units**																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	**4.6**	**10.2**	**5.8**	**5.1**	**8.6**	**7.3**	**7.6**	**9.0**	**2.5**	**9.7**	**11.6**	**16.6**	**3.6**	**4.2**	**5.3**	**3.6**	**7.6**	**7.6**
Electrical Conductivity @ 25°C	1	µS/cm	**72**	**16**	**44**	**64**	**56**	**8**	**7**	**30**	**33**	**625**	**18**	**37**	**18**	**32**	**26**	**26**	**36**	**24**
pH Value	0.1	pH Unit	**8.0**	**6.3**	**6.5**	**6.6**	**7.0**	**7.5**	**7.1**	**6.2**	**6.0**	**7.0**	**7.6**	**6.9**	**7.3**	**6.9**	**6.8**	**7.0**	**5.5**	**6.2**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	**0.29**	**0.18**	**0.05**	**0.02**	**0.02**	<0.01	**0.02**	**0.03**	**0.01**	**0.13**	**0.04**	<0.01	**0.01**	**0.02**	**0.01**	**0.28**	**0.08**	**0.04**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**4.9**	**2.8**	<0.5	<0.1	<0.1	**1.2**	**1.6**	**1.9**	**0.9**	**0.2**	**0.2**	<0.1	**2.4**	**0.2**	**1.9**	**1.8**	**1.0**	<0.5
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**0.5**	**0.3**	<0.1	<0.5	<0.5	**0.1**	**0.2**	**0.2**	<0.1	**2.2**	**2.5**	<0.5	**0.2**	**2.2**	**0.2**	**0.2**	<0.1	<0.1
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**7.8**	**7.0**	**7.6**	**6.7**	**6.5**	**6.6**	**7.3**	**6.7**	**7.2**	**6.8**	**7.8**	**6.0**	**7.3**	**7.8**	**7.3**	**7.0**	**7.1**	**6.6**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	**0.2**	<0.1	**0.3**	**0.4**	**0.6**	<0.1	<0.1	<0.1	**0.2**	<0.1	**0.6**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Total Carbon	0.02	%	**0.22**	**0.05**	**0.04**	**0.03**	**0.03**	**0.03**	**0.08**	**0.11**	**0.09**	**0.12**	**0.02**	**0.02**	**0.06**	**0.06**	**0.05**	**0.06**	**0.04**	**0.12**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	**140**	<100	<100	**100**	<100	<100	<100	<100	<100	**450**	<100	<100	<100	**110**	<100	**150**	**160**	<100
Chloride	10	mg/kg	**60**	<10	**30**	**40**	**40**	<10	<10	**20**	**20**	**830**	**10**	**20**	**10**	**30**	**20**	**10**	**20**	**20**
Other																				
Sodium Adsorption Ratio	0.01		**1.27**	**3.60**	**1.81**	**2.41**	**2.67**	**3.34**	**3.83**	**1.51**	**1.59**	**10.4**	**2.06**	**2.12**	**1.58**	**1.28**	**1.94**	**1.24**	**2.12**	**1.00**
Cation Exchange Capacity	0.1	meq/100g	**4.4**	**7.2**	**6.5**	**7.1**	**7.0**	**4.6**	**1.2**	**0.5**	**0.5**	**5.2**	**8.4**	**7.2**	**4.5**	**2.7**	**1.5**	**3.2**	**6.7**	**1.4**
Soluble Sulfate as SO4 2-	10	mg/kg	**50**	**20**	**40**	**40**	**40**	<10	<10	**40**	**40**	**380**	<10	**50**	<10	**20**	**30**	**20**	**50**	**30**
Sulfur as S	10	mg/kg	**20**	<10	**10**	**20**	**10**	<10	<10	**10**	**10**	**130**	<10	**20**	<10	<10	**10**	<10	**20**	**10**
Exchangeable Calcium	0.1	meq/100g	**3.0**	**3.4**	**3.2**	**3.4**	**3.3**	**2.0**	**0.5**	**0.2**	**0.2**	**1.0**	**4.5**	**3.7**	**2.2**	**1.5**	**0.7**	**1.8**	**2.4**	**0.7**
Exchangeable Magnesium	0.1	meq/100g	**0.9**	**2.7**	**2.5**	**2.8**	**2.7**	**1.7**	**0.4**	**0.2**	**0.2**	**1.2**	**2.9**	**2.5**	**1.7**	**1.0**	**0.6**	**1.0**	**3.2**	**0.4**
Exchangeable Potassium	0.1	meq/100g	**0.3**	**0.8**	**0.6**	**0.6**	**0.6**	**0.6**	<0.1	<0.1	<0.1	**0.2**	**0.7**	**0.7**	**0.4**	<0.1	<0.1	**0.3**	**0.8**	**0.1**
Exchangeable Sodium	0.1	meq/100g	**0.2**	**0.3**	**0.2**	**0.3**	**0.4**	**0.2**	**0.2**	<0.1	<0.1	**2.7**	**0.2**	**0.2**	**0.2**	<0.1	**0.1**	**0.1**	**0.3**	**0.2**
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**3.3**	**1.3**	**1.3**	**1.2**	**1.2**	**1.2**	**1.2**	**1.0**	**1.0**	**0.8**	**1.5**	**1.5**	**1.3**	**1.4**	**1.4**	**1.7**	**0.7**	**2.0**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	YPGC03152_19_20	YPGC03152_25_26	YPGC03152_31_32	YPGC03152_43_44	YPGC03152_49_50	YPGC04543_1_2	YPGC04543_7_8	YPGC04543_13_14	YPGC04543_21_22	YPGC04543_25_26	YPGC04543_31_32	YPGC04543_37_38	YPGC05415_1_2	YPGC05415_13_14	YPGC05415_19_20	YPGC05415_25_26	YPGC05415_31_32	YPGC05415_37_38
Sample ID	YPGC03152_19_20	YPGC03152_25_26	YPGC03152_31_32	YPGC03152_43_44	YPGC03152_49_50	YPGC04543_1_2	YPGC04543_7_8	YPGC04543_13_14	YPGC04543_21_22	YPGC04543_25_26	YPGC04543_31_32	YPGC04543_37_38	YPGC05415_1_2	YPGC05415_13_14	YPGC05415_19_20	YPGC05415_25_26	YPGC05415_31_23	YPGC05415_37_38
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology	U8	U8	U7U	U6L	U5	OVER	OVER	OVER	U8	U8	U8	U7U	OVER	OVER	U7U	US12	U6	U5
Analyte	**LOR**	**Units**																
Physico-Chemical Parameters																		
Moisture Content (dried @ 103°C)	1	%	**2.6**	**5.5**	**2.2**	**1.6**	**5.2**	**4.4**	**3.8**	**6.3**	**11.1**	**5.8**	**5.7**	**7.3**	**5.1**	**3.6**	**11.0**	**11.5**	**7.2**	**11.5**
Electrical Conductivity @ 25°C	1	µS/cm	**30**	**41**	**19**	**26**	**16**	**25**	**29**	**43**	**22**	**88**	**39**	**22**	**20**	**18**	**26**	**19**	**35**	**53**
pH Value	0.1	pH Unit	**5.6**	**6.4**	**6.4**	**6.9**	**6.0**	**6.1**	**7.5**	**7.6**	**7.9**	**7.8**	**7.7**	**7.5**	**7.1**	**7.2**	**7.6**	**6.7**	**6.9**	**6.7**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	**0.05**	**0.08**	**0.01**	**0.01**	**0.02**	**0.23**	**0.71**	**0.04**	**0.03**	**0.02**	<0.01	**0.04**	**0.12**	**0.03**	**0.04**	**0.01**	**0.02**	<0.01
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	**0.012**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	<0.5	**1.5**	**2.6**	**0.3**	**0.7**	<0.1	<0.5	**1.8**	**1.9**	**2.6**	<0.1	**0.3**	<0.1	**0.3**	**1.8**	**3.4**	**0.1**	**1.7**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	<0.1	**0.2**	**0.3**	**3.3**	<0.1	<0.5	<0.1	**0.2**	**0.2**	**0.3**	<0.5	**2.8**	**0.6**	**3.0**	**0.2**	**0.4**	**1.1**	**0.2**
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**5.8**	**7.0**	**8.0**	**7.5**	**7.2**	**6.8**	**7.2**	**8.1**	**7.8**	**7.4**	**7.8**	**7.1**	**6.9**	**6.9**	**6.6**	**7.7**	**8.0**	**7.5**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.5**	**0.5**	<0.1	<0.1	<0.1
Total Carbon	0.02	%	**0.09**	**0.14**	**0.03**	<0.02	**0.03**	**0.02**	**0.03**	**0.04**	**0.07**	**0.09**	**0.04**	**0.08**	**0.10**	**0.05**	**0.39**	**0.06**	**0.07**	**0.04**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	**130**	**130**	<100	<100	<100	<100	**230**	<100	<100	**110**	<100	<100	**120**	<100	<100	<100	<100	<100
Chloride	10	mg/kg	**10**	**30**	**10**	**20**	**10**	**20**	**10**	**20**	**20**	**70**	**30**	**20**	**20**	**10**	**30**	**20**	**30**	**50**
Other																				
Sodium Adsorption Ratio	0.01		**0.40**	**1.67**	**0.75**	**1.65**	**1.23**	**4.44**	**3.31**	**5.11**	**3.89**	**8.88**	**6.39**	**2.91**	**3.45**	**1.12**	**4.60**	**1.94**	**2.72**	**1.67**
Cation Exchange Capacity	0.1	meq/100g	**1.2**	**1.9**	**0.6**	**0.5**	**0.7**	**2.9**	**8.3**	**8.0**	**5.1**	**7.9**	**5.7**	**2.0**	**2.4**	**5.4**	**3.3**	**3.9**	**2.8**	**2.1**
Soluble Sulfate as SO4 2-	10	mg/kg	**50**	**30**	**20**	**20**	**20**	**30**	**40**	**50**	**20**	**70**	**30**	**20**	**20**	**10**	**20**	**10**	**30**	**40**
Sulfur as S	10	mg/kg	**20**	**10**	<10	<10	<10	<10	**10**	**20**	<10	**20**	<10	<10	<10	<10	<10	<10	<10	**10**
Exchangeable Calcium	0.1	meq/100g	**0.6**	**0.9**	**0.3**	**0.2**	**0.3**	**1.3**	**3.6**	**3.7**	**2.4**	**2.5**	**2.7**	**1.0**	**1.4**	**2.8**	**1.6**	**1.6**	**1.4**	**1.0**
Exchangeable Magnesium	0.1	meq/100g	**0.4**	**0.6**	**0.1**	**0.1**	**0.2**	**1.1**	**3.5**	**3.0**	**1.8**	**2.4**	**2.2**	**0.8**	**0.7**	**2.0**	**1.1**	**1.5**	**1.1**	**0.9**
Exchangeable Potassium	0.1	meq/100g	**0.1**	**0.2**	<0.1	<0.1	<0.1	**0.2**	**0.6**	**0.7**	**0.4**	**0.8**	**0.4**	<0.1	**0.2**	**0.4**	**0.2**	**0.5**	**0.1**	<0.1
Exchangeable Sodium	0.1	meq/100g	<0.1	**0.1**	<0.1	<0.1	<0.1	**0.3**	**0.5**	**0.6**	**0.5**	**2.2**	**0.4**	**0.2**	**0.2**	<0.1	**0.3**	**0.3**	**0.2**	**0.2**
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**1.2**	**1.6**	**4.0**	**1.5**	**2.0**	**1.2**	**1.0**	**1.2**	**1.3**	**1.1**	**1.3**	**1.2**	**2.0**	**1.4**	**1.5**	**1.1**	**1.2**	**1.1**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	YPGC06143_1_2	YPGC06143_7_8	YPGC06143_13_14	YPGC06143_19_20	YPGC06143_25_26	YPGC06143_31_32	YPGC06143_37_38	YPGC06605_1_2	YPGC06605_7_8	YPGC06605_13_14	YPGC06605_19_20	YPGC06605_25_26	YPGC06605_31_32	YPGC06879_1_2	YPGC06879_7_8	YPGC06879_19_20	YPGC06879_25_26	YPGC06879_31_32
Sample ID	YPGC06143_1_2	YPGC06143_7_8	YPGC06143_13_14	YPGC06143_19_20	YPGC06143_25_26	YPGC06143_31_32	YPGC06143_37_38	YPGC06605_1_2	YPGC06605_7_8	YPGC06605_13_14	YPGC06605_19_20	YPGC06605_25_26	YPGC06605_31_32	YPGC06879_1_2	YPGC06879_7_8	YPGC06879_19_20	YPGC06879_25_26	YPGC06879_31_32
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology	OVER	OVER	U7U	U6	U5	U5L	U5L	OVER	U7U	US11	US9	U5L	U5L	OVER	OVER	U7U	US11	US9
Analyte	**LOR**	**Units**																
Physico-Chemical Parameters																		
Moisture Content (dried @ 103°C)	1	%	**5.5**	**11.6**	**5.4**	**6.3**	**7.4**	**3.1**	**20.2**	**7.5**	**3.6**	**9.0**	**8.0**	**2.7**	<1.0	**10.9**	**3.3**	**7.0**	**8.3**	**1.9**
Electrical Conductivity @ 25°C	1	µS/cm	**560**	**164**	**96**	**54**	**41**	**18**	**79**	**441**	**132**	**60**	**58**	**31**	**26**	**10**	**45**	**44**	**42**	**34**
pH Value	0.1	pH Unit	**7.8**	**6.4**	**6.8**	**6.4**	**7.0**	**6.7**	**6.7**	**7.8**	**6.5**	**6.2**	**6.6**	**6.8**	**6.3**	**7.3**	**8.0**	**7.0**	**7.7**	**6.8**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	**0.02**	**0.05**	**0.02**	**0.05**	**0.01**	<0.01	**0.17**	**0.25**	**0.07**	**0.03**	**0.02**	<0.01	<0.01	**0.18**	**0.05**	**0.02**	**0.02**	<0.01
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**4.7**	**2.9**	**0.5**	<0.5	**1.0**	**2.7**	**4.7**	**4.4**	<0.1	**3.4**	**1.0**	**0.2**	**0.9**	**1.3**	**2.0**	**2.6**	**1.6**	<0.1
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**0.5**	**0.3**	**4.7**	<0.1	**0.1**	**0.3**	**0.5**	**0.4**	<0.5	**0.4**	**0.1**	**2.0**	<0.1	**0.1**	**0.2**	**0.3**	**0.2**	<0.5
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**8.2**	**7.5**	**7.3**	**6.9**	**6.9**	**6.9**	**7.3**	**8.2**	**7.0**	**7.2**	**7.1**	**5.7**	**7.3**	**6.9**	**7.5**	**8.0**	**7.3**	**7.4**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Carbon	0.02	%	**0.10**	**0.21**	**0.09**	**0.11**	**0.11**	**0.02**	**0.11**	**0.06**	**0.12**	**0.07**	**0.12**	<0.02	<0.02	**0.05**	**0.06**	**0.05**	**0.09**	**0.05**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	**150**	**160**	**110**	<100	<100	<100	**190**	**360**	**290**	**120**	<100	<100	<100	<100	<100	<100	<100	<100
Chloride	10	mg/kg	**640**	**100**	**70**	**40**	**30**	**10**	**80**	**170**	**70**	**50**	**40**	**20**	**20**	**10**	**30**	**30**	**30**	**20**
Other																				
Sodium Adsorption Ratio	0.01		**5.22**	**5.41**	**2.42**	**2.19**	**2.28**	**1.15**	**0.72**	**2.02**	**3.16**	**3.27**	**1.31**	**1.54**	**1.76**	**2.07**	**13.0**	**5.53**	**6.06**	**6.02**
Cation Exchange Capacity	0.1	meq/100g	**11.8**	**3.3**	**2.2**	**1.4**	**1.4**	**0.7**	**13.6**	**12.5**	**2.4**	**1.5**	**2.1**	**1.5**	**0.9**	**7.1**	**9.2**	**5.2**	**2.6**	**3.0**
Soluble Sulfate as SO4 2-	10	mg/kg	**160**	**180**	**80**	**50**	**40**	**10**	**70**	**390**	**110**	**60**	**60**	**30**	**20**	**10**	**30**	**40**	**40**	**30**
Sulfur as S	10	mg/kg	**50**	**60**	**30**	**20**	**10**	<10	**20**	**130**	**40**	**20**	**20**	<10	<10	<10	<10	**10**	**10**	<10
Exchangeable Calcium	0.1	meq/100g	**7.4**	**1.8**	**1.4**	**0.8**	**0.7**	**0.4**	**6.8**	**8.2**	**1.0**	**0.6**	**1.0**	**0.7**	**0.4**	**3.5**	**4.4**	**2.4**	**0.9**	**1.4**
Exchangeable Magnesium	0.1	meq/100g	**2.5**	**1.1**	**0.4**	**0.4**	**0.4**	**0.2**	**6.0**	**2.7**	**0.8**	**0.4**	**0.8**	**0.5**	**0.3**	**2.9**	**3.2**	**1.7**	**0.8**	**1.1**
Exchangeable Potassium	0.1	meq/100g	**0.3**	**0.2**	**0.1**	<0.1	<0.1	<0.1	**0.5**	**0.7**	**0.2**	**0.1**	<0.1	<0.1	<0.1	**0.4**	**0.6**	**0.4**	**0.2**	<0.1
Exchangeable Sodium	0.1	meq/100g	**1.7**	**0.2**	**0.3**	**0.2**	**0.2**	<0.1	**0.3**	**0.9**	**0.4**	**0.3**	**0.3**	<0.1	<0.1	**0.4**	**1.0**	**0.7**	**0.7**	**0.3**
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**3.0**	**1.6**	**4.0**	**1.8**	**1.6**	**1.5**	**1.1**	**3.1**	**1.1**	**1.5**	**1.1**	**1.3**	**1.3**	**1.2**	**1.4**	**1.5**	**1.1**	**1.2**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location		YPGC06879_37_38	YPGC06879_43_44	YPGC08967_1_2	YPGC08967_7_8	YPGC08967_12_13	YPGC08967_19_20	YPGC08967_25_26	YPGC08967_31_32	YPGC08967_37_38	YPGC10846_1_2	YPGC10846_7_8	YPGC10846_13_14	YPGC10846_19_20	YPGC10846_25_26	YPGC10846_43_44	YPGC11055_1_2	YPGC11055_7_8	YPGC11055_13_14
Sample ID		YPGC06879_37_38	YPGC06879_43_44	YPGC08967_1_2	YPGC08967_7_8	YPGC08967_12_13	YPGC08967_19_20	YPGC08967_25_26	YPGC08967_31_32	YPGC08967_37_38	YPGC10846_1_2	YPGC10846_7_8	YPGC10846_13_14	YPGC10846_19_20	YPGC10846_25_26	YPGC10846_43_44	YPGC11055_1_2	YPGC11055_7_8	YPGC11055_13_14
Date Sampled		22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type		Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology		U5L	U5L	OVER	U7U	US11	US9	U5L	U5L	U5L	OVER	OVER	OVER	OVER	U7U	U5L	OVER	US12	U6
Analyte	**LOR**	**Units**																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	**2.3**	**5.8**	**9.6**	**1.9**	**2.7**	**1.7**	<1.0	**1.7**	**5.4**	**3.1**	**4.6**	**8.8**	**4.0**	**2.6**	**4.0**	**1**	**1.5**	**1.5**
Electrical Conductivity @ 25°C	1	µS/cm	**40**	**50**	**102**	**106**	**143**	**68**	**40**	**64**	**153**	**177**	**53**	**164**	**54**	**59**	**11**	**25**	**19**	**38**
pH Value	0.1	pH Unit	**6.8**	**7.1**	**6.8**	**6.7**	**6.9**	**7.3**	**7.3**	**6.9**	**6.3**	**9.7**	**7.5**	**6.9**	**6.9**	**6.0**	**7.4**	**5.7**	**6.1**	**6.4**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	<0.01	<0.01	<0.01	<0.01	**0.01**	<0.01	<0.01	<0.01	<0.01	**0.26**	**0.03**	**0.02**	**0.04**	**0.02**	<0.01	**0.03**	**0.04**	**0.02**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.010**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**1.0**	<0.1	**2.6**	<0.5	**1.8**	**1.0**	**0.8**	<0.5	**0.9**	**0.3**	**3.1**	**2.8**	**0.2**	<0.1	**0.7**	**0.2**	**0.2**	**0.2**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**0.1**	**0.7**	**0.3**	<0.1	**0.2**	**0.1**	<0.1	<0.1	<0.1	**2.7**	**0.3**	**0.3**	**2.2**	<0.5	<0.1	**2**	**1.8**	**2.2**
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
pH (OX)	0.1	pH Unit	**6.8**	**7.4**	**7.4**	**7.2**	**8.3**	**7.6**	**7.4**	**7.0**	**8.0**	**7.7**	**7.5**	**7.5**	**7.2**	**7.6**	**7.2**	**6.2**	**7.6**	**6.4**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**1.1**	<0.1	<0.1
Total Carbon	0.02	%	**0.03**	<0.02	**0.10**	**0.08**	<0.02	<0.02	<0.02	<0.02	<0.02	**0.03**	**0.06**	**0.03**	**0.11**	**0.08**	<0.02	**0.09**	**0.14**	**0.05**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	<100	<100	<100	<100	**140**	<100	<100	<100	**190**	**200**	<100	**150**	**140**	<100	<100	<100	<100	<100
Chloride	10	mg/kg	**30**	**40**	**90**	**80**	**100**	**50**	**20**	**60**	**130**	**60**	**30**	**120**	**30**	**40**	<10	**20**	<10	**20**
Other																				
Sodium Adsorption Ratio	0.01		**2.94**	**3.31**	**2.17**	**2.29**	**4.21**	**2.41**	**2.24**	**3.40**	**3.94**	**2.10**	**9.43**	**4.20**	**2.29**	**1.08**	**1.03**	**4.21**	<0.05	**7.7**
Cation Exchange Capacity	0.1	meq/100g	**2.0**	**1.4**	**5.6**	**2.2**	**3.4**	**1.7**	**1.3**	**1.0**	**1.4**	**10.0**	**5.7**	**5.6**	**1.5**	**1.2**	**0.9**	**0.7**	**1**	**0.6**
Soluble Sulfate as SO4 2-	10	mg/kg	**30**	**40**	**80**	**50**	**110**	**50**	**20**	**40**	**120**	**40**	**50**	**120**	**60**	**50**	**10**	<10	**20**	**30**
Sulfur as S	10	mg/kg	**10**	**10**	**30**	**20**	**40**	**20**	<10	**10**	**40**	**20**	**20**	**40**	**20**	**20**	<10	-	-	-
Exchangeable Calcium	0.1	meq/100g	**1.0**	**0.6**	**3.3**	**0.7**	**1.5**	**1.1**	**0.6**	**0.4**	**0.5**	**7.7**	**2.6**	**2.3**	**0.7**	**0.6**	**0.5**	-	-	-
Exchangeable Magnesium	0.1	meq/100g	**0.7**	**0.5**	**1.7**	**1.0**	**0.8**	**0.3**	**0.4**	**0.3**	**0.4**	**1.5**	**2.1**	**2.1**	**0.5**	**0.4**	**0.3**	-	-	-
Exchangeable Potassium	0.1	meq/100g	**0.2**	<0.1	**0.2**	**0.1**	**0.2**	<0.1	<0.1	<0.1	<0.1	**0.4**	**0.4**	**0.4**	<0.1	<0.1	<0.1	-	-	-
Exchangeable Sodium	0.1	meq/100g	**0.1**	**0.2**	**0.3**	**0.4**	**0.9**	**0.2**	**0.2**	**0.3**	**0.3**	**0.4**	**0.6**	**0.7**	**0.2**	<0.1	<0.1	-	-	-
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	**0.2**	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	-	-	-
Calcium/Magnesium Ratio	0.1		**1.5**	**1.2**	**2.0**	**0.8**	**1.9**	**3.7**	**1.5**	**1.3**	**1.2**	**4.2**	**1.2**	**1.1**	**1.3**	**1.2**	**2.0**	-	-	-

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location		YPGC11055_19_20	YPGC11055_25_26	YPGC11055_25_26	YPGC11055_31_32	YPGC11055_37_38	YPGC11055_37_38	YPGC11249_1_2	YPGC11249_7_8	YPGC1249_13_14	YPGC11249_19_20	YPGC11249_25_26	YPGC11249_31_32	YPGC11249_37_38	YPGC1249_43_44	YPGC12764_1_2	YPGC12764_7_8	YPGC12764_13_14	YPGC12764_25_26
Sample ID		YPGC11055_19_20	YPGC11055_25_26	QC03_24/05/2012	YPGC11055_31_32	YPGC11055_37_38	QC02_24/05/2012	YPGC11249_1_2	YPGC11249_7_8	YPGC1249_13_14	YPGC11249_19_20	YPGC11249_25_26	YPGC11249_31_32	YPGC11249_37_38	YPGC1249_43_44	YPGC12764_1_2	YPGC12764_7_8	YPGC12764_13_14	YPGC12764_25_26
Date Sampled		24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type		Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology		U5	U5L	U5L	U5L	U5L	U5L	OVER	OVER	U8	U7U	U7L	US10	U5L	U5L	OVER	OVER	OVER	U7U
Analyte	**LOR**	**Units**																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	<1	<1	**1.1**	**2.2**	<1	<1	**10.6**	**10.4**	**7.0**	**10.8**	**9.4**	**6.8**	**5.7**	**4.9**	**3.8**	**3.4**	**3.5**	**4.4**
Electrical Conductivity @ 25°C	1	µS/cm	**26**	**13**	**14**	**58**	**21**	**21**	**150**	**48**	**65**	**85**	**68**	**89**	**40**	**44**	**31**	**24**	**25**	**56**
pH Value	0.1	pH Unit	**8.4**	**7.8**	**7.9**	**7.3**	**7.1**	**7.9**	**6.2**	**7.5**	**6.9**	**7.3**	**6.9**	**6.7**	**6.3**	**6.9**	**6.1**	**7.4**	**7.7**	**7.4**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.06**	**0.02**	**0.04**	**0.01**	<0.01	<0.01	<0.01	<0.01	**0.06**	**0.06**	**0.02**	**0.02**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.006**	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.2**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.2**	**0.2**	**1.9**	**5.2**	**2.5**	**0.2**	**2.9**	**1.6**	**0.4**	**0.4**	**0.2**	**0.2**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**2**	**3.9**	**2.7**	**3.2**	**3.3**	**4.5**	**1.9**	**1.7**	**0.2**	**0.5**	**0.2**	**1.7**	**0.3**	**0.2**	**3.9**	**3.8**	**1.9**	**1.7**
Fizz Rating		Fizz Unit	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**1**
pH (OX)	0.1	pH Unit	**8.3**	**7.6**	**7.3**	**7.4**	**7.2**	**7**	**7.4**	**7.8**	**6.8**	**8.2**	**7.4**	**7.7**	**8.2**	**7.2**	**7.2**	**8**	**6.1**	**6.3**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**5.8**	**2.3**
Total Carbon	0.02	%	**0.02**	**0.03**	**0.04**	**0.04**	**0.07**	**0.03**	**0.06**	**0.08**	**0.31**	**0.13**	**0.04**	**0.02**	<0.02	<0.02	**0.08**	**0.05**	**0.05**	**0.08**
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	<100	<100	<100	<100	<100	<100	**150**	<100	**130**	<100	<100	<100	<100	<100	<100	<100	<100	<100
Chloride	10	mg/kg	<10	<10	<10	**40**	**20**	**20**	**120**	**40**	**70**	**80**	**50**	**80**	**40**	**40**	**70**	**10**	**20**	**30**
Other																				
Sodium Adsorption Ratio	0.01		**2.53**	**3.33**	**8.03**	**9.33**	**1.7**	**1.9**	**2.13**	**10.6**	**5.60**	**6.53**	**3.30**	**2.27**	**1.66**	**3.05**	**4.7**	**7.57**	**11.1**	**4.56**
Cation Exchange Capacity	0.1	meq/100g	**0.5**	**1.7**	**0.6**	**0.3**	**0.8**	**0.4**	**7.0**	**9.0**	**4.8**	**5.7**	**1.7**	**4.6**	**0.8**	**0.9**	**5.3**	**5.9**	**4.2**	**4.1**
Soluble Sulfate as SO4 2-	10	mg/kg	**10**	<10	<10	**40**	**10**	**10**	**120**	**40**	**40**	**70**	**60**	**70**	**30**	**30**	**30**	**10**	<10	**40**
Sulfur as S	10	mg/kg	-	-	-	-	-	-	**40**	**10**	**10**	**20**	**20**	**20**	**10**	**10**	-	-	-	-
Exchangeable Calcium	0.1	meq/100g	-	-	-	-	-	-	**3.3**	**4.2**	**1.9**	**3.0**	**0.7**	**2.7**	**0.4**	**0.3**	-	-	-	-
Exchangeable Magnesium	0.1	meq/100g	-	-	-	-	-	-	**2.9**	**3.6**	**1.7**	**1.8**	**0.5**	**1.4**	**0.2**	**0.2**	-	-	-	-
Exchangeable Potassium	0.1	meq/100g	-	-	-	-	-	-	**0.4**	**0.5**	**0.4**	**0.3**	<0.1	**0.2**	<0.1	<0.1	-	-	-	-
Exchangeable Sodium	0.1	meq/100g	-	-	-	-	-	-	**0.3**	**0.7**	**0.8**	**0.6**	**0.3**	**0.3**	**0.2**	**0.2**	-	-	-	-
Exchangeable Aluminium	0.1	meq/100g	-	-	-	-	-	-	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-
Calcium/Magnesium Ratio	0.1		-	-	-	-	-	-	**1.2**	**1.2**	**1.1**	**1.7**	**1.4**	**1.9**	**2.0**	**1.3**	-	-	-	-

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	YPGC12764_37_38	YPGC12764_49_50	YPRD04911_1_2	YPRD04911_3_4	YPRD04911_7_8	YPRD04911_7_8	YPRD04911_10_11	YPRD04911_13_14	YPRD05790_1_2	YPRD05790_1_2	YPRD05790_3_4	YPRD05790_7_8	YPRD05790_10_11	YPRD06017_1_2	YPRD06017_7_8	YPRD06017_14_15	YPRD06017_19_20	YPRD06017_25_26
Sample ID	YPGC12764_37_38	YPGC12764_49_50	YPRD04911_1_2	YPRD04911_3_4	YPRD04911_7_8	QC1	YPRD04911_10_11	YPRD04911_13_14	YPRD05790_1_2	QC8	YPRD05790_3_4	YPRD05790_7_8	YPRD05790_10_11	YPRD06017_1_2	YPRD06017_7_8	YPRD06017_14_15	YPRD06017_19_20	YPRD06017_25_26
Date Sampled	24/05/2012	24/05/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Lithology	U6	U5L	OVER	OVER	US8	US8	U5L	U5L	U7L	U7L	US11	US10	U5	OVER	U7U	U6	U5	U5L
Analyte	**LOR**	**Units**																
Physico-Chemical Parameters																		
Moisture Content (dried @ 103°C)	1	%	**2.2**	<1	<1.0	**2.3**	<1.0	<1.0	**2.0**	**6.4**	**2.6**	**3.5**	**5.4**	**1.7**	**2.4**	**7.6**	**5.8**	**3.7**	**10.8**	**16.2**
Electrical Conductivity @ 25°C	1	µS/cm	**72**	**601**	**92**	**90**	**22**	**32**	**44**	**81**	**68**	**65**	**49**	**372**	**421**	**241**	**58**	**88**	**201**	**86**
pH Value	0.1	pH Unit	**7.2**	**7.2**	**6.2**	**8.3**	**8.3**	**8.4**	**6.5**	**6.7**	**7.8**	**8.3**	**8.2**	**9.3**	**7.0**	**6.9**	**6.6**	**6.7**	**6.3**	**7.6**
Acid Base Accounting																				
Sulfur - Total as S (LECO)	0.01	%	**0.2**	<0.01	<0.01	<0.01	**0.02**	**0.02**	<0.01	**0.04**	<0.01	<0.01	<0.01	**0.01**	<0.01	**0.03**	**0.02**	**0.02**	**0.02**	**0.02**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.006**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.3**	**0.2**	**0.2**	**0.7**	**1.2**	**0.9**	**1.0**	<0.1	**1.1**	**1.1**	**1.6**	**2.7**	**1.6**	**3.0**	**0.2**	**0.2**	**1.9**	**2.4**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**2.7**	**1.6**	**2.3**	<0.1	**0.1**	<0.1	**0.1**	<0.5	**0.1**	**0.1**	**0.2**	**26.2**	**0.2**	**0.3**	**1.6**	**1.8**	**0.2**	**0.2**
Fizz Rating		Fizz Unit	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**7.9**	**7.3**	**9.0**	**6.8**	**5.8**	**5.9**	**6.8**	**7.3**	**7.4**	**8.3**	**7.5**	**8.6**	**6.9**	**7.7**	**6.8**	**7.8**	**7.8**	**7.8**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	**0.3**	**0.4**	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Carbon	0.02	%	**0.07**	**0.03**	**0.10**	<0.02	**0.02**	<0.02	<0.02	**0.03**	**0.06**	**0.04**	**0.04**	**0.44**	**0.02**	**0.15**	**0.06**	**0.11**	**0.04**	<0.02
Major Ions																				
Sulfate as SO4 2-	100	mg/kg	<100	**140**	**160**	<100	<100	<100	<100	**170**	<100	<100	<100	**280**	**390**	**130**	**130**	**120**	**210**	<100
Chloride	10	mg/kg	**40**	**30**	**40**	**40**	**10**	**10**	**30**	**60**	**20**	**40**	**20**	**260**	**350**	**180**	**30**	**60**	**180**	**60**
Other																				
Sodium Adsorption Ratio	0.01		**3.03**	**1.91**	**0.90**	**1.28**	**1.32**	**0.85**	**2.62**	**3.38**	**1.15**	**1.86**	**1.07**	**10.3**	**6.69**	**1.42**	**3.10**	**5.95**	**3.64**	**4.84**
Cation Exchange Capacity	0.1	meq/100g	**1.5**	**1.1**	**14.2**	**4.2**	**0.5**	**0.8**	**0.9**	**1.0**	**2.1**	**2.1**	**0.7**	**9.7**	**2.9**	**4.1**	**1.6**	**2.1**	**5.9**	**4.7**
Soluble Sulfate as SO4 2-	10	mg/kg	**60**	**60**	**40**	**30**	**20**	**20**	**50**	**80**	**30**	**40**	<10	**290**	**370**	**100**	**70**	**80**	**180**	**90**
Sulfur as S	10	mg/kg	-	-	**10**	**10**	<10	<10	**20**	**20**	<10	**10**	<10	**100**	**120**	**30**	**20**	**30**	**60**	**30**
Exchangeable Calcium	0.1	meq/100g	-	-	**13.2**	**3.4**	**0.2**	**0.5**	**0.3**	**0.4**	**1.4**	**1.3**	**0.2**	**3.9**	**0.5**	**1.7**	**0.6**	**1.0**	**2.9**	**2.1**
Exchangeable Magnesium	0.1	meq/100g	-	-	**0.7**	**0.4**	**0.1**	**0.2**	**0.3**	**0.2**	**0.4**	**0.5**	**0.2**	**3.7**	**0.8**	**2.0**	**0.5**	**0.6**	**2.2**	**1.8**
Exchangeable Potassium	0.1	meq/100g	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.5**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.4**
Exchangeable Sodium	0.1	meq/100g	-	-	**0.2**	**0.3**	<0.1	<0.1	**0.2**	**0.3**	**0.2**	**0.2**	**0.2**	**1.6**	**1.4**	**0.3**	**0.3**	**0.4**	**0.6**	**0.5**
Exchangeable Aluminium	0.1	meq/100g	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		-	-	**18.4**	**7.6**	**2.0**	**2.0**	**1.0**	**1.3**	**3.4**	**2.7**	**1.0**	**1.0**	**0.6**	**0.8**	**1.2**	**1.8**	**1.3**	**1.2**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location	YPRD06576_0_1	YPRD06576_1_2	YPRD06576_1_2	YPRD06576_3_4	YPRD06576_10_11	YPRD10638_1_2	YPRD10638_7_8	YPRD10638_13_14	YPRD10638_19_20	YPRD10638_19_20	YPRD10638_25_26	YPRD11438_1_2	YPRD11438_7_8	YPRD11438_13_14	YPRD11438_13_14	YPRD11438_19_20	YPRD11438_25_26	YPRD13687_1_2
Sample ID	YPRD06576_0_1	YPRD06576_1_2	QC10	YPRD06576_3_4	YPRD06576_10_11	YPRD10638_1_2	YPRD10638_7_8	YPRD10638_13_14	YPRD10638_19_20	QC3A	YPRD10638_25_26	YPRD11438_1_2	YPRD11438_7_8	YPRD11438_13_14	QC2	YPRD11438_19_20	YPRD11438_25_26	YPRD13687_1_2
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Priimary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample
Lithology	US9	US9	US9	U5	U5L	OVER	U6	U5	U5L	U5L	U5L	OVER	U7U	U7L	U7L	US10	U5L	OVER

Analyte	LOR	Units																	
Physico-Chemical Parameters																			
Moisture Content (dried @ 103°C)	1	%	**2.3**	**2.1**	**3.7**	**3.4**	**4.6**	**6.9**	**16.2**	**9.8**	**8.7**	**8.7**	**7.1**	**4.9**	**6.3**	**6.0**	**18.2**	**2.6**	**2.2**	**14.8**
Electrical Conductivity @ 25°C	1	µS/cm	**138**	**24**	**40**	**107**	**60**	**293**	**53**	**434**	**166**	**51**	**148**	**32**	**135**	**507**	**145**	**84**	**28**	**408**
pH Value	0.1	pH Unit	**4.9**	**5.4**	**5.4**	**7.1**	**5.8**	**8.3**	**8.2**	**6.5**	**6.8**	**7.4**	**7.0**	**6.3**	**7.0**	**6.4**	**8.0**	**7.1**	**7.6**	**7.0**
Acid Base Accounting																			
Sulfur - Total as S (LECO)	0.01	%	<0.01	<0.01	<0.01	**0.01**	<0.01	**0.02**	**0.01**	**0.01**	<0.01	<0.01	<0.01	**0.04**	**0.02**	**0.02**	**0.02**	<0.01	<0.01	**0.04**
Chromium Reducible Sulphur	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.010**	<0.005	<0.005	<0.005	**0.005**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	**1.5**	<0.5	**2.6**	<0.1	**2.2**	**3.9**	**0.2**	**1.6**	<0.1	<0.1	**0.6**	**1.8**	**0.9**	**3.1**	**3.5**	<0.1	**1.7**	**0.2**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	**0.2**	<0.1	**0.3**	<0.5	**0.2**	**0.4**	**2.4**	**0.2**	<0.5	<0.5	<0.1	**0.2**	<0.1	**0.3**	**0.4**	<0.5	**0.2**	**2.0**
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**6.8**	**5.8**	**5.3**	**6.9**	**7.4**	**8.1**	**7.3**	**7.4**	**7.7**	**7.5**	**6.8**	**6.5**	**7.0**	**8.3**	**8.4**	**7.3**	**7.2**	**7.7**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	**1.5**	**2.5**	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Carbon	0.02	%	**0.21**	**0.04**	**0.07**	<0.02	<0.02	**0.16**	**0.07**	**0.03**	<0.02	<0.02	<0.02	**0.15**	**0.14**	<0.02	<0.02	<0.02	<0.02	**0.03**
Major Ions																			
Sulfate as SO4 2-	100	mg/kg	**190**	**110**	**120**	**130**	<100	**210**	**130**	**340**	<100	<100	<100	**190**	**110**	**470**	**170**	<100	<100	**310**
Chloride	10	mg/kg	**160**	**30**	**40**	**130**	**50**	**280**	**60**	**430**	**190**	**50**	**180**	**20**	**140**	**390**	**110**	**70**	**20**	**360**
Other																			
Sodium Adsorption Ratio	0.01		**2.42**	**7.27**	**15.3**	**7.25**	**6.82**	**1.69**	**21.0**	**3.46**	**5.91**	**7.17**	**4.60**	**2.13**	**8.29**	**11.4**	**21.1**	**3.59**	**3.48**	**4.94**
Cation Exchange Capacity	0.1	meq/100g	**1.8**	**0.7**	**0.8**	**2.9**	**1.0**	**11.1**	**2.7**	**3.1**	**4.1**	**3.0**	**3.3**	**1.0**	**1.6**	**6.7**	**4.2**	**0.9**	**1.3**	**14.1**
Soluble Sulfate as SO4 2-	10	mg/kg	**60**	**20**	**20**	**110**	**60**	**90**	**30**	**340**	**80**	**20**	**70**	**40**	**90**	**410**	**150**	**60**	**20**	**290**
Sulfur as S	10	mg/kg	**20**	<10	<10	**40**	**20**	**30**	<10	**110**	**30**	<10	**20**	**10**	**30**	**140**	**50**	**20**	<10	**100**
Exchangeable Calcium	0.1	meq/100g	**0.6**	**0.2**	**0.2**	**0.3**	**0.2**	**6.9**	**0.5**	**0.6**	**1.2**	**0.9**	**0.9**	**0.4**	**0.2**	**2.1**	**1.4**	**0.4**	**0.6**	**7.4**
Exchangeable Magnesium	0.1	meq/100g	**0.5**	**0.3**	**0.4**	**1.7**	**0.4**	**2.4**	**0.8**	**1.2**	**1.8**	**1.4**	**1.4**	**0.3**	**0.4**	**1.6**	**1.1**	**0.2**	**0.5**	**4.4**
Exchangeable Potassium	0.1	meq/100g	**0.1**	<0.1	<0.1	<0.1	<0.1	**0.7**	**0.6**	**0.1**	**0.3**	**0.3**	**0.2**	<0.1	**0.1**	**0.4**	**0.4**	<0.1	<0.1	**0.6**
Exchangeable Sodium	0.1	meq/100g	**0.6**	**0.1**	**0.2**	**0.8**	**0.3**	**1.2**	**0.8**	**1.1**	**0.8**	**0.4**	**0.8**	**0.2**	**0.9**	**2.6**	**1.4**	**0.3**	**0.2**	**1.6**
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**1.0**	**0.5**	**0.5**	<0.1	**0.5**	**2.9**	**0.8**	**0.6**	**0.6**	**0.7**	**0.6**	**1.3**	**0.5**	**1.2**	**1.3**	**2.0**	**1.2**	**1.6**

Table 2b
Waste Rock Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Location			YPRD13687_1_2	YPRD13687_7_8	YPRD13687_13_14	YPRD13687_19_20	YPRD13687_33_34	YPRD13687_37_38	YPRD14197_1_2	YPRD14197_7_8	YPRD14197_13_14	YPRD14197_13_14	YPRD14197_19_20	YPRD14197_25_26	YPRD14197_25_26	YPRD14197_37_38
Sample ID			QC4	YPRD13687_7_8	YPRD13687_13_14	YPRD13687_19_20	YPRD13687_33_34	YPRD13687_37_38	YPRD14197_1_2	YPRD14197_7_8	YPRD14197_13_14	QC6	YPRD14197_19_20	YPRD14197_25_26	QC9	YPRD14197_37_38
Date Sampled			22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type			Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample
Lithology			OVER	OVER	OVER	OVER	U7U	U7U	OVER	OVER	OVER	OVER	U8	U8	U8	US12
Analyte	**LOR**	**Units**														
Physico-Chemical Parameters																
Moisture Content (dried @ 103°C)	1	%	**8.9**	**13.6**	**6.5**	**11.5**	**18.5**	**6.0**	**6.7**	**12.6**	**11.7**	**12.3**	**9.5**	**4.6**	**8.9**	**8.1**
Electrical Conductivity @ 25°C	1	µS/cm	**845**	**49**	**50**	**38**	**95**	**48**	**59**	**47**	**189**	**8**	**22**	**52**	**14**	**23**
pH Value	0.1	pH Unit	**6.4**	**7.1**	**7.6**	**7.9**	**6.6**	**7.1**	**5.9**	**7.3**	**7.1**	**7.2**	**7.9**	**6.8**	**7.9**	**7.5**
Acid Base Accounting																
Sulfur - Total as S (LECO)	0.01	%	**0.04**	**0.03**	**0.02**	<0.01	<0.01	**0.01**	**0.02**	**0.07**	**0.02**	**0.01**	**0.02**	**0.07**	**0.07**	**0.02**
Chromium Reducible Sulphur	0.005	%	**0.006**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ANC as CaCO3	0.1	% CaCO3	<0.1	**2.2**	**1.8**	**0.4**	**19.8**	<0.1	**0.9**	**1.4**	**0.2**	<0.5	**0.3**	**1.1**	**1.3**	**0.1**
ANC as H2SO4	0.5	kg H2SO4 equiv./t	<0.5	**0.2**	**0.2**	**3.6**	**2.0**	<0.5	<0.1	**0.1**	**2.4**	<0.1	**3.0**	**0.1**	**0.1**	**1.2**
Fizz Rating		Fizz Unit	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
pH (OX)	0.1	pH Unit	**7.1**	**8.3**	**6.8**	**8.1**	**8.5**	**7.6**	**7.4**	**8.0**	**7.4**	**7.0**	**7.7**	**7.3**	**6.9**	**6.9**
NAG (pH 4.5)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**
Total Carbon	0.02	%	**0.02**	**0.03**	**0.04**	**0.02**	**0.02**	**0.09**	**0.05**	**0.04**	**0.03**	**0.03**	**0.06**	**0.29**	**0.30**	**0.04**
Major Ions																
Sulfate as SO4 2-	100	mg/kg	**590**	<100	<100	<100	**150**	<100	<100	**110**	**110**	<100	<100	<100	<100	**100**
Chloride	10	mg/kg	**780**	**40**	**40**	**30**	**10**	**30**	**40**	**30**	**180**	<10	**20**	**10**	<10	**10**
Other																
Sodium Adsorption Ratio	0.01		**4.12**	**29.7**	**8.74**	**6.76**	**0.94**	**3.96**	**1.04**	**3.16**	**2.96**	**3.16**	**3.96**	**1.23**	**2.29**	**1.59**
Cation Exchange Capacity	0.1	meq/100g	**14.0**	**8.0**	**5.1**	**5.1**	**23.2**	**5.4**	**7.2**	**6.3**	**5.9**	**5.2**	**4.0**	**1.8**	**1.7**	**1.0**
Soluble Sulfate as SO4 2-	10	mg/kg	**590**	**40**	**30**	**30**	**160**	**40**	**40**	**40**	**100**	<10	**20**	**70**	**20**	**30**
Sulfur as S	10	mg/kg	**200**	**10**	**10**	**10**	**50**	**10**	**10**	**10**	**30**	<10	<10	**20**	<10	<10
Exchangeable Calcium	0.1	meq/100g	**6.9**	**3.7**	**2.3**	**2.4**	**14.6**	**2.7**	**4.3**	**2.6**	**2.2**	**2.0**	**1.7**	**0.8**	**0.8**	**0.5**
Exchangeable Magnesium	0.1	meq/100g	**4.4**	**2.6**	**1.8**	**2.0**	**6.4**	**2.1**	**2.0**	**2.6**	**2.8**	**2.5**	**1.7**	**0.6**	**0.6**	**0.4**
Exchangeable Potassium	0.1	meq/100g	**0.5**	**0.7**	**0.3**	**0.3**	**1.4**	**0.1**	**0.6**	**0.6**	**0.4**	**0.4**	**0.2**	**0.1**	<0.1	<0.1
Exchangeable Sodium	0.1	meq/100g	**2.1**	**1.0**	**0.6**	**0.4**	**0.8**	**0.4**	**0.2**	**0.5**	**0.5**	**0.3**	**0.3**	**0.2**	**0.2**	<0.1
Exchangeable Aluminium	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.2**	**0.2**	<0.1	**0.1**	<0.1	<0.1	<0.1
Calcium/Magnesium Ratio	0.1		**1.6**	**1.4**	**1.3**	**1.2**	**2.3**	**1.2**	**2.2**	**1.0**	**0.8**	**0.8**	**1.0**	**1.3**	**1.4**	**1.2**

Table 3
Waste Rock Statistical Summary - Multi-Element Solids
FMG Christmas Creek Mine

		Ag	Al	Al2O3	As	As	Ba	Ba	Be	Bi	Ca	CaO	Cd	Ce	Cl	Co	Co	Cr	Cr2O3	Cs	Cu	Cu	Fe	Ga	Ge
	LOR	0.01	0.01	0.01	0.001	0.001	0.001	10	0.05	0.01	0.01	0.01	0.02	0.01	0.001	0.001	0.1	1	0.0006	0.05	0.001	0.2	0.01	0.05	0.05
	Unit	ppm	%	%	%	ppm	%	ppm	ppm	ppm	%	%	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm
OVER																									
Minimum		0.02	0.14	0.28	0.001	3.700	0.001	40	0.33	0.01	0.01	0.01	0.02	3.33	0.001	0.001	1.1	13	0.0046	0.09	0.001	3.3	13.25	0.67	0.22
Maximum		0.30	7.01	15.10	0.007	47.100	0.067	700	2.60	0.77	0.19	0.26	0.47	107.00	0.087	0.009	77.8	237	0.0465	4.46	0.007	80.3	>50	23.60	4.32
Median		0.12	4.03	8.09	0.003	27.650	0.014	170	1.12	0.32	0.07	0.10	0.10	37.75	0.003	0.001	10.3	151	0.0262	1.97	0.004	40.5	23.60	11.40	0.56
Mean		0.12	3.93	7.97	0.003	27.290	0.018	203	1.15	0.35	0.08	0.11	0.12	40.40	0.009	0.002	12.3	141	0.0253	1.89	0.004	38.6	27.00	12.18	0.95
U5																									
Minimum		0.03	0.22	0.41	0.001	2.400	0.001	20	0.30	0.01	0.01	0.01	0.02	3.42	0.001	0.001	0.5	3	0.0006	0.05	0.001	1.5	9.72	0.44	0.09
Maximum		0.15	4.89	9.89	0.007	52.600	0.023	280	1.50	0.53	0.47	0.66	1.11	41.10	0.047	0.005	49.0	103	0.0255	0.65	0.003	38.4	49.30	13.05	2.62
Median		0.06	1.66	3.20	0.002	18.300	0.002	40	0.84	0.20	0.02	0.03	0.04	26.10	0.005	0.001	5.3	72	0.0115	0.12	0.001	12.5	25.90	4.80	0.50
Mean		0.08	1.83	3.65	0.003	21.015	0.004	74	0.86	0.20	0.06	0.08	0.13	23.07	0.011	0.002	12.3	57	0.0120	0.23	0.001	13.5	29.88	5.13	1.08
U5L																									
Minimum		0.02	0.18	0.33	0.001	2.600	0.001	10	0.36	0.01	0.01	0.01	0.02	3.95	0.001	0.001	1.1	11	0.0006	0.05	0.001	2.2	8.45	0.62	0.09
Maximum		0.19	6.73	14.25	0.024	240.000	0.073	650	1.46	0.94	0.18	0.23	0.47	112.00	0.016	0.008	52.4	204	0.0512	4.99	0.005	64.8	43.80	24.20	6.14
Median		0.04	0.55	1.05	0.001	6.550	0.001	20	0.66	0.07	0.02	0.02	0.04	11.63	0.002	0.001	3.3	65	0.0148	0.12	0.001	6.5	22.70	1.55	0.27
Mean		0.05	1.08	2.16	0.002	17.867	0.004	54	0.74	0.13	0.03	0.04	0.06	22.60	0.004	0.002	6.0	70	0.0154	0.43	0.001	10.0	22.94	3.52	0.67
U6																									
Minimum		0.01	0.30	0.57	0.001	4.000	0.001	20	0.24	0.03	0.01	0.01	0.02	3.38	0.001	0.001	0.8	13	0.0019	0.05	0.001	2.4	13.65	1.00	0.18
Maximum		0.18	4.52	9.13	0.005	33.300	0.036	380	2.49	0.70	0.06	0.09	0.21	65.70	0.007	0.004	38.6	111	0.0178	0.46	0.002	20.7	48.60	12.30	3.76
Median		0.06	1.59	2.96	0.003	10.950	0.003	85	0.72	0.14	0.04	0.07	0.03	22.05	0.004	0.002	8.7	37	0.0094	0.11	0.001	7.7	41.70	3.40	2.07
Mean		0.07	1.75	3.41	0.003	19.042	0.007	108	0.95	0.21	0.04	0.05	0.08	28.86	0.004	0.003	24.7	46	0.0091	0.15	0.001	8.8	37.47	4.39	2.07
U6L																									
Minimum		0.05	0.42	0.83	0.002	4.900	0.001	30	0.59	0.02	0.01	0.01	0.02	8.73	0.001	0.001	2.9	63	0.0128	0.11	0.001	6.0	21.00	1.65	0.36
Maximum		0.05	0.42	0.83	0.002	4.900	0.001	30	0.59	0.02	0.01	0.01	0.02	8.73	0.001	0.001	2.9	63	0.0128	0.11	0.001	6.0	21.00	1.65	0.36
Median		0.05	0.42	0.83	0.002	4.900	0.001	30	0.59	0.02	0.01	0.01	0.02	8.73	0.001	0.001	2.9	63	0.0128	0.11	0.001	6.0	21.00	1.65	0.36
Mean		0.05	0.42	0.83	0.002	4.900	0.001	30	0.59	0.02	0.01	0.01	0.02	8.73	0.001	0.001	2.9	63	0.0128	0.11	0.001	6.0	21.00	1.65	0.36
U7L																									
Minimum		0.02	1.07	2.16	0.001	6.600	0.001	10	0.62	0.05	0.02	0.02	0.02	8.69	0.001	0.001	2.2	16	0.0042	0.05	0.001	5.0	10.50	1.88	0.16
Maximum		0.07	2.40	4.83	0.003	19.000	0.031	310	2.01	0.18	0.16	0.25	1.92	252.00	0.032	0.020	155.0	97	0.0244	0.55	0.002	16.0	49.80	6.49	5.23
Median		0.06	2.12	3.98	0.002	6.700	0.016	150	0.70	0.08	0.03	0.05	0.09	19.35	0.004	0.001	6.8	33	0.0049	0.12	0.001	6.1	42.85	3.46	2.54
Mean		0.05	1.82	3.57	0.002	10.120	0.015	160	1.15	0.11	0.07	0.10	0.44	64.41	0.009	0.005	35.7	42	0.0096	0.19	0.001	8.1	36.50	3.89	2.45
U7U																									
Minimum		0.03	0.60	1.16	0.001	4.200	0.001	10	0.31	0.04	0.01	0.02	0.02	6.40	0.001	0.001	1.8	12	0.0006	0.05	0.001	4.3	11.30	1.41	0.78
Maximum		0.23	6.44	21.20	0.008	70.300	0.145	1310	2.33	1.39	0.69	0.97	1.37	248.00	0.056	0.026	197.5	207	0.0365	1.93	0.004	44.6	48.70	38.30	5.21
Median		0.07	3.53	6.96	0.003	21.900	0.012	155	0.93	0.30	0.05	0.08	0.05	35.30	0.003	0.001	12.3	70	0.0123	0.21	0.001	12.6	43.10	10.55	1.90
Mean		0.09	3.39	7.16	0.004	24.975	0.030	293	0.98	0.41	0.09	0.13	0.20	55.09	0.007	0.005	34.5	84	0.0152	0.44	0.002	16.5	39.23	12.72	2.06
U8																									
Minimum		0.05	0.98	1.86	0.001	5.900	0.001	20	0.26	0.09	0.01	0.01	0.02	8.21	0.001	0.001	1.3	24	0.0026	0.05	0.001	4.5	14.25	2.48	0.49
Maximum		0.21	7.63	16.65	0.005	34.000	0.065	590	1.20	1.27	0.12	0.16	0.12	92.50	0.025	0.003	24.5	284	0.0482	4.06	0.006	60.6	50.00	26.20	3.39
Median		0.09	3.95	7.80	0.003	22.400	0.009	90	0.66	0.43	0.08	0.09	0.05	32.10	0.002	0.001	7.7	91	0.0231	0.43	0.002	14.8	41.05	11.70	1.79
Mean		0.10	3.63	7.38	0.003	21.613	0.014	153	0.67	0.42	0.06	0.09	0.06	34.73	0.005	0.001	9.1	116	0.0234	1.04	0.002	22.0	40.03	12.62	1.98
US10																									
Minimum		0.03	0.54	1.06	0.001	4.800	0.001	20	0.48	0.06	0.02	0.02	0.02	8.21	0.001	0.001	1.9	12	0.0006	0.07	0.001	3.2	19.90	1.78	0.22
Maximum		0.20	2.33	4.63	0.005	42.000	0.028	290	0.89	0.22	0.67	0.92	0.32	258.00	0.029	0.006	40.9	102	0.0254	0.75	0.003	26.9	46.70	7.51	5.44
Median		0.07	1.39	2.81	0.002	7.150	0.008	95	0.69	0.12	0.07	0.09	0.09	26.55	0.005	0.002	8.5	26	0.0053	0.12	0.002	14.5	38.65	3.50	1.36
Mean		0.09	1.40	2.74	0.002	13.800	0.011	118	0.69	0.13	0.16	0.22	0.13	62.26	0.009	0.002	13.6	46	0.0086	0.21	0.002	14.7	35.98	3.96	1.99
US11																									
Minimum		0.03	0.52	1.04	0.001	6.700	0.001	10	0.23	0.04	0.03	0.04	0.02	5.18	0.001	0.001	0.9	14	0.0033	0.06	0.001	4.4	29.90	1.49	0.36
Maximum		0.09	4.25	8.48	0.006	43.900	0.037	350	1.84	0.33	0.09	0.13	0.20	88.50	0.033	0.002	16.3	82	0.0229	0.25	0.002	20.8	49.00	9.77	7.55
Median		0.05	1.38	2.74	0.002	13.400	0.004	70	0.69	0.18	0.04	0.07	0.02	13.45	0.003	0.001	4.2	28	0.0069	0.12	0.001	6.7	47.20	3.21	2.33
Mean		0.06	1.83	3.58	0.003	16.744	0.008	100	0.83	0.16	0.05	0.07	0.06	30.98	0.008	0.001	5.5	40	0.0098	0.13	0.001	9.0	43.03	4.32	2.92
US12																									
Minimum		0.04	0.95	1.78	0.001	5.300	0.004	40	0.48	0.04	0.02	0.03	0.04	9.90	0.001	0.001	3.8	8	0.0006	0.08	0.001	4.2	44.60	1.78	1.14
Maximum		0.08	4.82	9.62	0.077	759.000	0.114	1080	2.35	0.82	0.08	0.09	0.36	53.00	0.003	0.006	48.5	53	0.0122	0.39	0.002	44.2	46.30	14.05	2.93
Median		0.07	1.70	3.36	0.005	39.650	0.027	295	0.88	0.19	0.05	0.07	0.12	47.20	0.003	0.003	27.4	26	0.0083	0.15	0.001	14.7	44.90	5.00	2.87
Mean		0.06	2.29	4.53	0.022	210.900	0.043	428	1.15	0.31	0.05	0.06	0.16	39.33	0.002	0.003	26.8	28	0.0073	0.19	0.001	19.4	45.27	6.46	2.98
US8																									
Minimum		0.03	0.23	0.44	0.001	4.900	0.001	20	0.27	0.06	0.01	0.01	0.02	4.77	0.001	0.001	2.0	12	0.0006	0.11	0.001	3.8	15.95	0.69	0.13
Maximum		0.05	1.25	2.40	0.001	9.400	0.001	50	1.18	0.17	0.01	0.01	0.07	10.35	0.015	0.001	2.4	93	0.0186	0.17	0.001	8.2	25.20	3.57	0.34
Median		0.05	0.54	1.06	0.001	5.200	0.001	40	0.67	0.10	0.01	0.01	0.03	6.47	0.002	0.001	2.0	29	0.0018	0.12	0.001	4.8	23.80	1.38	0.28
Mean		0.04	0.67	1.30	0.001	6.500	0.001	37	0.71	0.11	0.01	0.01	0.04	7.20	0.006	0.001	2.1	45	0.0070	0.13	0.001	5.6	21.65	1.88	0.25
US9																									
Minimum		0.05	0.51	0.98	0.002	9.600	0.001	10	0.67	0.02	0.01	0.01	0.02	10.55	0.002	0.001	3.6	10	0.0063	0.08	0.001	3.2	21.40	2.10	0.22
Maximum		0.11	4.84	9.71	0.004	24.000	0.007	160	1.63	0.34	0.05	0.09	0.30	33.20	0.008	0.002	27.3	184	0.0186	1.26	0.003	31.0	43.40	9.79	3.57
Median		0.07	1.62	3.11	0.003	14.450	0.001	35	0.83	0.10	0.04	0.06	0.05	16.05	0.005	0.001	6.1	63	0.0117	0.26	0.002	13.1	35.95	4.05	2.63
Mean		0.07	2.26	4.46	0.003	15.233	0.002	57	0.92	0.15	0.03	0.05	0.09	19.05	0.005	0.001	10.4	75	0.0118	0.41	0.002	14.8	34.18	5.31	2.04

Table 3
Waste Rock Statistical Summary - Multi-Elem
FMG Christmas Creek Mine

		Hf	In	K	K2O	La	Li	LOI	Mg	MgO	Mn	Mn	Mo	Na	Na2O	Nb	Ni	Ni	P	P	Pb	Pb	Rb	Re	S
	LOR	0.1	0.005	0.01	0.001	0.5	0.2	0.01	0.01	0.01	0.001	5	0.05	0.01	0.005	0.1	0.001	0.2	0.001	10	0.001	0.5	0.1	0.002	0.01
	Unit	ppm	ppm	%	%	ppm	ppm	%	%	%	%	ppm	ppm	%	%	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	%
OVER																									
Minimum		0.1	0.005	0.02	0.012	1.5	1.1	1.56	0.02	0.02	0.005	84	0.55	0.01	0.005	0.4	0.001	5.3	0.009	100	0.001	1.0	1.1	0.002	0.01
Maximum		5.4	0.185	0.82	0.998	49.5	40.1	11.61	0.26	0.41	4.870	43700	3.64	0.08	0.092	15.1	0.013	83.9	0.053	510	0.004	38.0	59.8	0.002	0.73
Median		2.2	0.084	0.40	0.486	16.9	11.4	5.77	0.13	0.22	0.142	1290	1.79	0.03	0.011	6.5	0.004	43.7	0.032	305	0.001	18.2	25.0	0.002	0.06
Mean		2.5	0.084	0.37	0.457	17.2	12.6	6.08	0.13	0.21	0.385	3567	1.77	0.04	0.022	6.9	0.004	43.4	0.031	294	0.001	19.2	23.5	0.002	0.10
U5																									
Minimum		0.1	0.005	0.01	0.005	1.2	1.7	1.19	0.02	0.02	0.003	62	0.53	0.01	0.005	0.4	0.001	2.2	0.007	70	0.001	0.8	0.3	0.002	0.01
Maximum		2.0	0.057	0.38	0.488	30.0	16.3	11.09	0.19	0.33	11.600	93600	2.61	0.06	0.089	6.3	0.028	119.5	0.110	1030	0.003	29.5	10.2	0.002	0.03
Median		0.6	0.021	0.03	0.025	9.3	4.6	4.81	0.05	0.07	0.180	1600	1.15	0.01	0.010	2.1	0.002	20.8	0.060	520	0.001	9.2	1.5	0.002	0.02
Mean		0.8	0.024	0.10	0.114	12.4	6.3	5.99	0.07	0.11	1.056	8724	1.26	0.02	0.019	2.6	0.005	36.9	0.050	460	0.001	10.4	3.4	0.002	0.02
U5L																									
Minimum		0.1	0.005	0.01	0.001	2.5	1.3	0.86	0.01	0.01	0.034	403	0.55	0.01	0.005	0.4	0.001	2.2	0.005	50	0.001	0.5	0.1	0.002	0.01
Maximum		4.1	0.101	2.36	3.010	50.8	24.9	9.96	0.62	1.06	14.150	4820	3.35	0.07	0.080	11.8	0.026	62.8	0.130	1130	0.006	43.8	88.1	0.002	0.23
Median		0.2	0.009	0.02	0.024	5.6	4.3	3.18	0.02	0.02	0.126	1180	1.02	0.01	0.005	0.9	0.001	11.7	0.024	215	0.001	3.4	1.4	0.002	0.01
Mean		0.6	0.016	0.18	0.224	9.7	5.5	3.53	0.06	0.09	0.619	1471	1.31	0.02	0.012	1.8	0.003	17.9	0.035	318	0.001	6.6	7.0	0.002	0.02
U6																									
Minimum		0.1	0.005	0.01	0.007	1.9	0.3	1.08	0.02	0.01	0.009	134	0.36	0.01	0.005	0.6	0.001	6.3	0.006	60	0.001	2.7	0.3	0.002	0.01
Maximum		2.9	0.048	0.15	0.175	37.9	21.3	11.47	0.18	0.30	2.350	22700	2.28	0.04	0.039	7.1	0.017	95.8	0.108	990	0.003	28.6	4.7	0.002	0.09
Median		0.6	0.021	0.03	0.023	9.6	3.2	8.25	0.05	0.08	0.372	3300	1.10	0.02	0.015	1.7	0.004	22.3	0.027	250	0.001	8.5	1.2	0.002	0.02
Mean		0.9	0.023	0.05	0.053	11.9	4.7	7.42	0.06	0.10	0.746	6931	1.18	0.02	0.019	2.6	0.006	44.7	0.036	332	0.001	11.0	1.6	0.002	0.03
U6L																									
Minimum		0.2	0.005	0.04	0.038	4.1	4.4	3.13	0.02	0.01	0.233	2210	0.84	0.01	0.005	0.8	0.001	11.5	0.017	160	0.001	4.5	1.9	0.002	0.01
Maximum		0.2	0.005	0.04	0.038	4.1	4.4	3.13	0.02	0.01	0.233	2210	0.84	0.01	0.005	0.8	0.001	11.5	0.017	160	0.001	4.5	1.9	0.002	0.01
Median		0.2	0.005	0.04	0.038	4.1	4.4	3.13	0.02	0.01	0.233	2210	0.84	0.01	0.005	0.8	0.001	11.5	0.017	160	0.001	4.5	1.9	0.002	0.01
Mean		0.2	0.005	0.04	0.038	4.1	4.4	3.13	0.02	0.01	0.233	2210	0.84	0.01	0.005	0.8	0.001	11.5	0.017	160	0.001	4.5	1.9	0.002	0.01
U7L																									
Minimum		0.3	0.007	0.01	0.011	3.4	3.3	2.66	0.03	0.03	0.088	904	0.48	0.01	0.005	1.0	0.002	15.0	0.008	80	0.001	3.1	0.5	0.002	0.01
Maximum		0.9	0.020	0.80	0.913	69.3	35.6	10.53	0.13	0.22	15.150	8550	0.88	0.19	0.211	2.9	0.006	79.8	0.036	360	0.001	10.2	12.2	0.002	0.04
Median		0.5	0.012	0.02	0.035	8.8	4.0	5.31	0.06	0.10	0.498	2985	0.66	0.01	0.005	1.5	0.004	28.0	0.016	160	0.001	7.8	1.5	0.002	0.02
Mean		0.6	0.013	0.18	0.204	20.0	10.5	6.63	0.07	0.11	3.360	3856	0.70	0.05	0.048	1.7	0.004	35.1	0.018	172	0.001	7.0	3.4	0.002	0.02
U7U																									
Minimum		0.2	0.005	0.01	0.007	1.4	0.2	3.85	0.02	0.02	0.067	600	0.34	0.01	0.005	0.8	0.001	4.5	0.009	100	0.001	2.2	0.2	0.002	0.01
Maximum		7.9	0.220	0.83	0.997	67.8	96.6	14.65	0.29	0.53	20.400	84900	6.99	0.07	0.079	25.8	0.140	1330.0	0.132	1160	0.011	129.0	20.6	0.002	0.10
Median		1.9	0.044	0.03	0.053	11.1	5.2	9.06	0.06	0.09	0.479	4060	1.24	0.02	0.017	5.5	0.003	24.9	0.030	265	0.001	17.8	1.8	0.002	0.03
Mean		2.5	0.064	0.15	0.181	16.3	13.8	8.86	0.07	0.11	2.838	11785	1.54	0.03	0.026	7.1	0.010	91.3	0.035	316	0.002	26.1	4.5	0.002	0.04
U8																									
Minimum		0.6	0.013	0.01	0.008	1.0	0.4	4.83	0.02	0.01	0.087	835	0.40	0.01	0.005	1.5	0.001	4.2	0.021	200	0.001	5.4	0.2	0.002	0.01
Maximum		6.2	0.153	0.56	0.708	24.3	21.9	12.56	0.17	0.28	1.235	11450	2.57	0.08	0.045	17.4	0.009	38.0	0.055	510	0.003	32.8	42.2	0.002	0.10
Median		2.7	0.064	0.05	0.053	13.1	3.1	6.29	0.06	0.09	0.346	3070	1.33	0.03	0.014	6.1	0.001	22.6	0.028	260	0.001	20.0	2.4	0.002	0.04
Mean		2.8	0.074	0.12	0.146	12.5	7.0	6.86	0.07	0.11	0.444	4095	1.45	0.03	0.017	7.4	0.003	21.3	0.030	283	0.001	17.7	9.4	0.002	0.05
US10																									
Minimum		0.2	0.008	0.01	0.007	5.0	1.0	5.11	0.02	0.01	0.015	171	0.54	0.01	0.005	1.0	0.001	10.8	0.017	170	0.001	1.7	0.4	0.002	0.01
Maximum		1.4	0.048	0.26	0.287	13.8	63.6	9.12	0.46	0.77	10.750	98800	1.55	0.05	0.050	4.0	0.010	43.3	0.058	530	0.002	18.4	9.0	0.002	0.04
Median		0.5	0.015	0.09	0.106	8.2	3.2	6.43	0.05	0.09	0.453	4180	0.83	0.04	0.041	1.8	0.002	21.8	0.040	370	0.001	6.4	2.5	0.002	0.02
Mean		0.6	0.020	0.11	0.124	8.7	13.2	6.73	0.12	0.20	3.059	27559	0.98	0.03	0.036	2.0	0.003	24.2	0.039	367	0.001	8.7	3.3	0.002	0.02
US11																									
Minimum		0.2	0.005	0.01	0.010	1.7	0.7	4.84	0.02	0.01	0.017	176	0.42	0.01	0.005	0.9	0.001	5.2	0.017	160	0.001	2.4	0.4	0.002	0.01
Maximum		2.1	0.050	0.15	0.171	17.6	9.0	12.11	0.14	0.23	4.150	39400	1.18	0.06	0.075	7.1	0.014	30.8	0.058	540	0.001	16.9	4.0	0.002	0.07
Median		0.5	0.017	0.03	0.028	7.0	3.2	8.10	0.03	0.04	0.161	1400	0.91	0.02	0.022	1.8	0.001	17.1	0.029	260	0.001	6.6	1.2	0.002	0.04
Mean		0.8	0.022	0.04	0.050	7.3	4.1	7.98	0.06	0.09	0.828	7824	0.89	0.02	0.029	2.8	0.003	17.3	0.035	322	0.001	8.7	1.5	0.002	0.04
US12																									
Minimum		0.2	0.007	0.01	0.015	3.1	1.4	6.54	0.04	0.08	0.466	4020	0.68	0.01	0.005	1.2	0.001	15.1	0.017	160	0.001	6.0	0.5	0.002	0.02
Maximum		2.9	0.091	0.23	0.253	24.4	14.3	9.98	0.21	0.33	2.920	29600	1.94	0.04	0.072	7.5	0.023	240.0	0.038	380	0.001	43.6	4.6	0.002	0.03
Median		1.0	0.018	0.10	0.116	11.5	7.4	8.41	0.09	0.16	2.250	20650	0.95	0.03	0.015	3.2	0.004	51.3	0.020	195	0.001	15.9	2.2	0.002	0.03
Mean		1.3	0.034	0.11	0.125	12.6	7.6	8.33	0.11	0.18	1.972	18730	1.13	0.03	0.027	3.8	0.008	89.4	0.024	233	0.002	20.3	2.4	0.002	0.03
US8																									
Minimum		0.1	0.007	0.01	0.009	2.4	2.8	1.78	0.02	0.02	0.025	273	0.66	0.01	0.005	0.5	0.001	12.6	0.005	60	0.001	3.5	1.2	0.002	0.01
Maximum		0.5	0.019	0.03	0.044	4.5	4.0	4.84	0.03	0.04	0.051	500	2.44	0.01	0.020	1.8	0.001	16.7	0.062	560	0.001	9.4	2.0	0.002	0.03
Median		0.2	0.017	0.02	0.024	2.9	3.4	2.01	0.03	0.03	0.044	447	0.93	0.01	0.011	0.8	0.001	15.8	0.008	80	0.001	3.5	1.4	0.002	0.02
Mean		0.3	0.014	0.02	0.026	3.3	3.4	2.88	0.03	0.03	0.040	407	1.34	0.01	0.012	1.0	0.001	15.0	0.025	233	0.001	5.5	1.5	0.002	0.02
US9																									
Minimum		0.2	0.005	0.02	0.011	5.0	1.7	3.09	0.03	0.01	0.027	392	0.49	0.01	0.005	1.0	0.001	15.9	0.021	210	0.001	1.5	0.8	0.002	0.01
Maximum		1.8	0.041	0.15	0.178	16.7	12.4	10.75	0.10	0.17	3.620	33100	2.44	0.02	0.009	4.7	0.004	51.9	0.063	570	0.004	16.4	13.0	0.002	0.04
Median		0.7	0.019	0.07	0.097	6.9	5.4	5.51	0.07	0.13	0.300	2855	1.13	0.02	0.005	2.5	0.003	31.8	0.031	280	0.001	11.9	3.1	0.002	0.02
Mean		0.9	0.023	0.07	0.087	8.3	5.9	6.46	0.07	0.11	0.842	7732	1.22	0.02	0.006	2.8	0.002	32.8	0.037	337	0.002	10.4	4.7	0.002	0.02

Table 3
Waste Rock Statistical Summary - Multi-Elem
FMG Christmas Creek Mine

		Sb	Sc	Se	SiO2	Sn	Sn	Sr	Sr	Ta	Te	Th	Ti	TiO2	Tl	Total	U	V	V	W	Y	Zn	Zn	Zr	Zr
	LOR	0.05	0.1	1	0.01	0.001	0.2	0.001	0.2	0.05	0.05	0.2	0.005	0.01	0.02	0.01	0.1	0.001	1	0.1	0.1	0.001	2	0.001	0.5
	Unit	ppm	ppm	ppm	%	%	ppm	%	ppm	ppm	ppm	ppm	%	%	ppm	%	ppm	%	ppm	ppm	ppm	%	ppm	%	ppm
OVER																									
Minimum		0.22	0.7	1	6.66	0.001	0.2	0.001	2.6	0.05	0.05	0.3	0.009	0.02	0.02	99.93	0.1	0.001	4	0.7	3.0	0.001	5	0.001	2.8
Maximum		4.46	19.0	4	71.40	0.003	3.5	0.009	90.6	1.36	0.73	23.5	0.558	1.12	1.13	100.05	3.6	0.020	190	7.1	32.5	0.012	125	0.034	198.0
Median		1.97	10.6	2	46.90	0.001	1.7	0.003	28.5	0.49	0.26	9.0	0.238	0.46	0.40	99.99	1.9	0.011	105	2.0	11.9	0.007	72	0.014	81.4
Mean		1.89	10.8	2	42.53	0.001	1.7	0.003	32.3	0.53	0.29	9.7	0.250	0.49	0.40	99.99	1.9	0.010	102	2.0	13.3	0.006	69	0.014	91.4
U5																									
Minimum		0.17	0.7	1	3.04	0.001	0.2	0.001	2.3	0.05	0.05	0.3	0.007	0.01	0.02	99.98	0.1	0.001	3	0.7	1.9	0.001	2	0.001	2.7
Maximum		4.40	17.8	4	69.60	0.003	1.7	0.005	66.2	0.55	0.41	9.4	0.268	0.48	0.23	101.65	4.5	0.012	103	6.7	31.5	0.006	61	0.007	79.3
Median		1.25	4.3	1	54.70	0.001	0.4	0.001	4.8	0.15	0.14	2.6	0.067	0.14	0.03	100.00	1.4	0.003	26	1.9	13.2	0.001	26	0.003	25.7
Mean		1.55	6.6	1	35.97	0.001	0.6	0.001	11.9	0.20	0.17	3.3	0.087	0.17	0.05	100.12	1.8	0.004	39	2.5	13.5	0.002	25	0.003	30.4
U5L																									
Minimum		0.25	0.5	1	2.48	0.001	0.2	0.001	1.1	0.05	0.05	0.3	0.009	0.01	0.02	99.52	0.1	0.001	4	0.8	1.5	0.001	2	0.001	2.6
Maximum		7.73	18.4	2	84.60	0.005	5.9	0.009	80.3	0.98	0.50	14.7	0.485	0.90	0.51	100.05	3.3	0.013	121	28.6	24.2	0.006	58	0.011	154.0
Median		0.74	1.9	1	59.40	0.001	0.3	0.001	3.8	0.06	0.08	0.9	0.025	0.05	0.03	100.00	0.5	0.001	10	1.7	8.3	0.001	15	0.001	9.0
Mean		1.22	3.7	1	54.82	0.001	0.6	0.002	9.8	0.14	0.11	2.0	0.061	0.11	0.09	99.99	0.8	0.002	21	2.7	10.4	0.002	19	0.002	20.8
U6																									
Minimum		0.45	0.8	1	2.72	0.001	0.2	0.001	2.3	0.05	0.05	0.6	0.015	0.03	0.02	99.98	0.3	0.001	6	0.6	1.6	0.001	7	0.001	5.5
Maximum		2.74	13.3	2	75.60	0.002	1.5	0.006	75.5	0.55	0.53	12.9	0.234	0.52	1.77	100.00	5.4	0.006	72	2.6	60.4	0.005	52	0.010	107.5
Median		0.88	4.2	1	10.17	0.001	0.5	0.001	8.8	0.12	0.20	3.2	0.051	0.11	0.05	100.00	1.4	0.002	18	1.5	10.6	0.002	24	0.002	21.9
Mean		1.17	5.1	1	22.11	0.001	0.6	0.001	13.9	0.18	0.24	4.0	0.081	0.16	0.22	100.00	2.0	0.002	25	1.7	14.6	0.002	27	0.003	32.9
U6L																									
Minimum		0.42	1.9	1	65.00	0.002	0.2	0.001	2.3	0.05	0.09	0.8	0.020	0.04	0.02	100.00	0.7	0.001	8	1.2	11.2	0.001	11	0.001	7.4
Maximum		0.42	1.9	1	65.00	0.002	0.2	0.001	2.3	0.05	0.09	0.8	0.020	0.04	0.02	100.00	0.7	0.001	8	1.2	11.2	0.001	11	0.001	7.4
Median		0.42	1.9	1	65.00	0.002	0.2	0.001	2.3	0.05	0.09	0.8	0.020	0.04	0.02	100.00	0.7	0.001	8	1.2	11.2	0.001	11	0.001	7.4
Mean		0.42	1.9	1	65.00	0.002	0.2	0.001	2.3	0.05	0.09	0.8	0.020	0.04	0.02	100.00	0.7	0.001	8	1.2	11.2	0.001	11	0.001	7.4
U7L																									
Minimum		0.65	3.9	1	2.92	0.001	0.2	0.001	2.5	0.07	0.07	1.0	0.029	0.06	0.02	99.83	0.7	0.001	10	1.1	4.2	0.001	8	0.001	9.4
Maximum		2.10	7.3	1	80.40	0.002	0.6	0.025	260.0	0.20	0.49	3.7	0.100	0.19	0.29	100.05	2.3	0.003	35	1.6	35.7	0.012	107	0.002	33.5
Median		0.84	5.7	1	7.84	0.001	0.3	0.001	9.6	0.10	0.31	2.3	0.038	0.08	0.11	100.00	1.2	0.002	21	1.3	6.4	0.001	19	0.001	19.3
Mean		1.06	5.4	1	23.06	0.001	0.3	0.006	58.7	0.11	0.29	2.4	0.051	0.10	0.13	99.98	1.5	0.002	22	1.3	13.5	0.004	39	0.001	21.4
U7U																									
Minimum		0.39	3.0	1	1.92	0.001	0.2	0.001	2.6	0.05	0.12	0.7	0.017	0.04	0.02	99.22	0.4	0.001	7	0.9	3.7	0.001	4	0.001	5.7
Maximum		6.95	25.6	3	28.80	0.002	6.2	0.120	1125.0	3.13	0.96	44.5	0.860	1.99	1.53	100.25	7.6	0.024	218	4.4	51.1	0.020	199	0.045	255.0
Median		2.08	9.0	2	10.40	0.001	1.1	0.001	10.5	0.40	0.38	7.7	0.179	0.35	0.10	100.00	2.4	0.006	62	1.8	10.5	0.002	26	0.010	67.2
Mean		2.45	10.1	2	11.63	0.001	1.5	0.008	75.5	0.59	0.41	11.4	0.234	0.49	0.30	99.94	2.5	0.008	82	1.9	17.1	0.004	39	0.014	89.2
U8																									
Minimum		0.52	4.7	1	5.64	0.001	0.3	0.001	2.9	0.08	0.12	3.0	0.036	0.08	0.02	99.96	0.5	0.001	15	1.0	1.7	0.001	3	0.002	19.9
Maximum		2.89	18.0	3	52.80	0.003	3.7	0.003	39.4	1.35	0.61	28.4	0.598	1.20	0.57	100.05	3.6	0.020	196	3.1	18.9	0.006	68	0.035	212.0
Median		2.00	12.3	2	14.85	0.002	1.3	0.001	16.1	0.47	0.32	12.4	0.204	0.40	0.15	100.00	2.6	0.009	75	2.0	8.9	0.002	42	0.013	97.6
Mean		1.89	11.5	2	18.51	0.002	1.6	0.002	15.9	0.55	0.36	12.9	0.256	0.51	0.20	100.00	2.2	0.010	94	1.9	9.4	0.003	34	0.015	100.6
US10																									
Minimum		0.42	2.5	1	2.71	0.001	0.2	0.001	1.8	0.05	0.07	0.6	0.020	0.05	0.02	99.83	0.5	0.001	5	1.0	6.3	0.001	16	0.001	7.0
Maximum		2.06	8.5	2	61.40	0.001	0.9	0.014	150.5	0.30	0.30	8.2	0.131	0.27	0.53	100.30	2.1	0.008	80	2.6	14.1	0.007	59	0.009	50.4
Median		0.97	6.9	1	9.36	0.001	0.4	0.002	29.4	0.12	0.20	2.5	0.049	0.10	0.09	100.00	1.6	0.002	17	1.3	9.5	0.002	30	0.003	18.4
Mean		1.15	6.3	1	20.40	0.001	0.4	0.005	42.7	0.14	0.19	3.1	0.060	0.12	0.21	100.02	1.4	0.003	31	1.6	9.6	0.003	32	0.004	22.5
US11																									
Minimum		0.61	2.3	1	4.79	0.001	0.2	0.001	4.2	0.05	0.11	0.8	0.023	0.05	0.02	99.43	0.4	0.001	9	1.0	3.8	0.001	2	0.001	7.6
Maximum		2.43	10.5	2	48.30	0.002	1.5	0.015	140.0	0.59	0.36	9.5	0.239	0.48	0.77	100.00	2.1	0.006	73	3.1	24.9	0.002	38	0.011	76.6
Median		0.93	4.8	1	10.10	0.001	0.3	0.001	7.3	0.12	0.28	2.6	0.051	0.11	0.02	100.00	1.2	0.002	20	1.3	6.9	0.002	22	0.002	22.2
Mean		1.34	5.2	1	14.76	0.001	0.6	0.003	25.5	0.20	0.24	3.9	0.086	0.18	0.14	99.93	1.3	0.003	29	1.6	10.1	0.002	20	0.004	29.9
US12																									
Minimum		0.34	1.8	1	3.95	0.001	0.2	0.001	3.0	0.06	0.16	1.1	0.026	0.04	0.05	99.96	0.9	0.001	8	0.5	4.6	0.001	15	0.001	7.4
Maximum		3.85	18.9	1	18.45	0.001	1.9	0.005	55.9	0.61	0.40	12.5	0.239	0.48	0.74	100.00	4.8	0.009	83	1.8	25.3	0.006	74	0.012	111.5
Median		2.05	6.2	1	9.93	0.001	0.7	0.004	37.8	0.22	0.29	4.1	0.103	0.20	0.39	100.00	1.9	0.003	27	1.4	11.7	0.003	40	0.006	37.8
Mean		2.07	8.3	1	10.56	0.002	0.9	0.004	33.6	0.28	0.31	5.4	0.118	0.23	0.39	99.99	2.4	0.004	36	1.3	13.3	0.003	42	0.006	48.6
US8																									
Minimum		0.35	0.9	1	50.90	0.001	0.3	0.001	1.7	0.05	0.05	0.4	0.012	0.03	0.02	99.95	0.2	0.001	5	0.7	3.9	0.001	16	0.001	3.9
Maximum		1.59	4.3	1	71.90	0.001	0.4	0.002	2.0	0.14	0.06	2.0	0.068	0.12	0.03	99.97	0.8	0.002	31	1.8	8.1	0.002	34	0.004	18.7
Median		0.65	2.5	1	63.60	0.001	0.3	0.001	1.9	0.06	0.05	0.8	0.026	0.04	0.02	99.97	0.4	0.001	10	1.4	4.3	0.001	21	0.004	7.9
Mean		0.86	2.6	1	62.13	0.001	0.3	0.001	1.9	0.08	0.05	1.1	0.035	0.06	0.02	99.96	0.5	0.001	15	1.3	5.4	0.001	24	0.003	10.2
US9																									
Minimum		0.44	1.2	1	2.16	0.001	0.2	0.001	2.9	0.05	0.05	0.8	0.018	0.03	0.02	99.95	0.7	0.001	6	1.1	6.3	0.001	16	0.001	6.8
Maximum		2.89	10.4	1	64.50	0.003	1.2	0.007	64.4	0.35	0.40	8.1	0.163	0.31	0.31	100.00	2.8	0.004	57	3.0	12.5	0.006	62	0.006	65.5
Median		1.43	7.0	1	10.53	0.001	0.5	0.001	7.5	0.14	0.26	3.3	0.063	0.11	0.06	100.00	1.1	0.003	41	2.1	9.9	0.003	31	0.003	29.8
Mean		1.65	6.6	1	26.06	0.001	0.6	0.002	16.0	0.19	0.23	4.0	0.087	0.16	0.11	99.99	1.5	0.003	37	2.0	9.6	0.003	33	0.003	35.3

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	CAGC30291_7_8	CAGC30291_13_14	CAGC30291_19_20	CAGC30291_25_26	CAGC30291_43_44	RRGC00463_1_2	RRGC00463_7_8	RRGC00463_13_14	RRGC00463_19_20	RRGC00759_1_2
Sample ID	CAGC30291_7_8	CAGC30291_13_14	CAGC30291_19_20	CAGC30291_25_26	CAGC30291_43_44	RRGC00463_1_2	RRGC00463_7_8	RRGC00463_13_14	RRGC00463_19_20	RRGC00759_1_2
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units	ANZECC Trigger Values [1]										
Physico-Chemical Parameters													
pH	0.01	ph unit	6.0-7.5	**7.09**	**6.77**	**6.72**	**6.75**	**6.81**	**6.53**	**6.45**	**6.85**	**6.61**	**6.69**
Total Dissolved Solids	10	mg/L		**82**	**18**	**36**	**26**	**22**	<10	**11**	**14**	**38**	<10
Electrical Conductivity @ 25°C	1	µs/cm		**129**	**31**	**44**	**41**	**41**	**9**	**9**	**20**	**67**	**10**
Metals (Leachable)													
Aluminium	0.01	mg/L	0.055	**0.35**	**0.65**	**0.69**	**0.78**	**0.06**	<0.01	<0.01	**0.02**	<0.01	<0.01
Antimony	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	0.024 [2]	<0.001	<0.001	**0.006**	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L		**1.35**	**0.52**	**1.16**	**1.29**	**0.12**	**0.319**	**0.115**	**0.236**	**0.088**	**0.185**
Boron	0.05	mg/L	0.37	**0.96**	**0.45**	**1.48**	**1.75**	**0.16**	**0.24**	**0.08**	**0.21**	**0.06**	**0.21**
Cadmium	0.0001	mg/L	0.0002	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L	0.001 [3]	**0.001**	<0.001	**0.002**	**0.003**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	mg/L		<0.001	**0.002**	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	0.0014	**0.002**	**0.001**	**0.089**	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.05	mg/L		**0.53**	**0.79**	**5.82**	**34**	**0.25**	<0.05	<0.05	**0.9**	<0.05	<0.05
Lead	0.001	mg/L	0.0034	<0.001	<0.001	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	1.9	**0.038**	**0.478**	**1.12**	**0.776**	**0.003**	**0.004**	<0.001	**0.006**	**0.002**	**0.003**
Mercury	0.0001	mg/L	0.00006*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	0.011	**0.003**	**0.003**	**0.008**	**0.009**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	0.01	mg/L	0.005*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	0.00005*	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	0.008	**0.297**	**0.178**	**0.351**	**0.699**	**0.023**	**0.074**	**0.041**	**0.093**	**0.083**	**0.043**
Major Ions													
Calcium	1	mg/L		**4**	<1	**2**	**2**	**2**	<1	<1	<1	**3**	<1
Chloride	1	mg/L		**20**	**2**	**2**	<2	**1**	-	-	-	-	-
Magnesium	1	mg/L		**2**	<1	<1	<1	<1	<1	<1	<1	**2**	<1
Potassium	1	mg/L		**2**	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L		**19**	**6**	**9**	**8**	**8**	**2**	**2**	**4**	**7**	**2**
Sulfate as SO4 - Turbidimetric	1	mg/L		**10**	**3**	**2**	**2**	**3**	-	-	-	-	-

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater species in slightly to moderately disturbed ecosystems in upland rivers

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

- Not Analysed

* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	RRGC00759_7_8	RRGC00759_13_14	RRGC01421_1_2	RRGC01421_7_8	RRGC01421_13_14	RRGC01421_13_14	RRGC01421_19_20	RRGC01521_1_2	RRGC01521_7_8	RRGC01553_1_2	RRGC01553_7_8
Sample ID	RRGC00759_7_9	RRGC00759_13_14	RRGC01421_1_2	RRGC01421_7_8	RRGC01421_13_14	QC01_24/05/2012	RRGC01421_19_20	RRGC01521_1_2	RRGC01521_7_8	RRGC01553_1_2	RRGC01553_7_8
Date Sampled	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**6.82**	**6.7**	**6.94**	**6.66**	**7.07**	**6.92**	**6.52**	**9.04**	**8.73**	**8.21**	**6.82**
Total Dissolved Solids	10	mg/L	<10	**17**	**13**	**28**	**17**	**11**	**20**	**60**	**63**	**60**	<10
Electrical Conductivity @ 25°C	1	µs/cm	**12**	**26**	**21**	**14**	**17**	**16**	**36**	**64**	**67**	**60**	**10**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.22**	**0.02**	**0.08**	**0.03**	**0.08**	**0.06**	<0.01	**0.05**	**0.02**	**0.16**	**0.01**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.204**	**0.295**	**0.281**	**0.161**	**0.132**	**0.109**	**0.113**	**0.286**	**0.143**	**0.401**	**0.092**
Boron	0.05	mg/L	**0.21**	**0.19**	**0.18**	**0.14**	**0.18**	**0.14**	**0.06**	**0.16**	**0.09**	**0.36**	**0.09**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	**0.001**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.05	mg/L	**0.34**	**0.37**	**0.16**	**0.14**	**0.75**	**0.54**	<0.05	**0.1**	**0.19**	**0.16**	<0.05
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.002**	**0.004**	**0.003**	<0.001	**0.002**	**0.002**	<0.001	<0.001	**0.001**	**0.004**	<0.001
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.066**	**0.091**	**0.063**	**0.05**	**0.062**	**0.057**	**0.074**	**0.031**	**0.019**	**0.059**	**0.048**
Major Ions													
Calcium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	**6**	**2**	**7**	<1
Chloride	1	mg/L	-	-	-	-	-	-	-	-	-	-	-
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	**2**	**2**	**1**	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	**2**	<1	<1	<1
Sodium	1	mg/L	**3**	**4**	**3**	**2**	**4**	**3**	**5**	**5**	**8**	**4**	**2**
Sulfate as SO4 - Turbidimetric	1	mg/L	-	-	-	-	-	-	-	-	-	-	-

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	TRRD33379_1_2	TRRD33379_3_4	TRRD33379_7_8	TRRD33379_9_10	TRRD33437_1_2	TRRD33437_1_2	TRRD33437_3_4	TRRD33437_7_8	TRRD33437_7_8	TRRD33437_9_10	TRRD33437_14_15
Sample ID	TRRD33379_1_2	TRRD33379_3_4	TRRD33379_7_8	TRRD33379_9_10	TRRD33437_1_2	QC5	TRRD33437_3_4	TRRD33437_7_8	QC7	TRRD33437_9_10	TRRD33437_14_15
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**6.78**	**8.27**	**8.15**	**6.98**	**6.83**	**6.63**	**7**	**6.67**	**6.53**	**6.51**	**6.68**
Total Dissolved Solids	10	mg/L	**50**	**30**	**64**	**64**	**22**	<10	**14**	**82**	**90**	**56**	**168**
Electrical Conductivity @ 25°C	1	µs/cm	**64**	**37**	**93**	**72**	**30**	**11**	**26**	**154**	**151**	**102**	**262**
Metals (Leachable)													
Aluminium	0.01	mg/L	**1.38**	**0.36**	**0.07**	**0.56**	<0.01	**0.02**	**0.03**	<0.01	<0.01	**0.01**	**0.03**
Antimony	0.001	mg/L	**0.002**	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**1.43**	**0.273**	**0.792**	**1.47**	**0.372**	**0.13**	**0.642**	**0.425**	**0.836**	**0.5**	**0.409**
Boron	0.05	mg/L	**1.72**	**0.29**	**0.67**	**1.69**	**0.36**	**0.17**	**0.46**	**0.35**	**0.5**	**0.27**	**0.33**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.005**	<0.001	<0.001	**0.003**	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.005**	<0.001	<0.001	**0.005**	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	0.05	mg/L	**9.29**	**1.93**	**0.91**	**26.7**	<0.05	**0.07**	**0.15**	<0.05	<0.05	<0.05	**0.94**
Lead	0.001	mg/L	**0.001**	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.085**	**0.013**	**0.008**	**0.135**	**0.003**	**0.001**	**0.005**	<0.001	<0.001	**0.012**	**0.006**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.005**	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	**0.06**	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.486**	**0.062**	**0.126**	**0.637**	**0.133**	**0.084**	**0.177**	**0.252**	**0.238**	**0.16**	**0.245**
Major Ions													
Calcium	1	mg/L	**2**	**5**	**7**	**2**	<1	<1	**1**	**2**	**2**	**3**	**20**
Chloride	1	mg/L	**3**	<1	**4**	<1	<1	**1**	<1	**28**	**24**	**13**	**24**
Magnesium	1	mg/L	<1	<1	**2**	<1	<1	<1	<1	**4**	**4**	**2**	**6**
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	**1**
Sodium	1	mg/L	**11**	**3**	**10**	**14**	**4**	**2**	**4**	**24**	**25**	**13**	**21**
Sulfate as SO4 - Turbidimetric	1	mg/L	**4**	**2**	**4**	**5**	**2**	**2**	**2**	**26**	**26**	**22**	**77**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	TRRD34136_1_2	TRRD34136_1_2	TRRD34136_3_4	TRRD34136_7_8	TRRD34136_7_8
Sample ID	TRRD34136_1_2	QC12	TRRD34136_3_4	TRRD34136_7_8	QC11
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Duplicate Sample

Analyte	LOR	Units					
Physico-Chemical Parameters							
pH	0.01	ph unit	**7.99**	**7.83**	**6.87**	**6.78**	**6.98**
Total Dissolved Solids	10	mg/L	**44**	**82**	<10	<10	<10
Electrical Conductivity @ 25°C	1	µs/cm	**70**	**98**	**16**	**16**	**18**
Metals (Leachable)							
Aluminium	0.01	mg/L	**0.13**	**0.32**	**0.21**	**1.12**	**0.9**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.295**	**0.891**	**0.246**	**0.209**	**0.433**
Boron	0.05	mg/L	**0.24**	**0.55**	**0.32**	**0.37**	**0.37**
Cadmium	0.0001	mg/L	<0.0001	**0.0001**	<0.0001	**0.0002**	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001
Iron	0.05	mg/L	**0.16**	**0.25**	**1.17**	**2.03**	**2.14**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	<0.001	**0.003**	**0.005**	**0.002**	**0.003**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.078**	**0.132**	**0.085**	**0.103**	**0.134**
Major Ions							
Calcium	1	mg/L	**11**	**13**	<1	<1	<1
Chloride	1	mg/L	**1**	<1	<1	<1	<1
Magnesium	1	mg/L	<1	<1	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1
Sodium	1	mg/L	**3**	**5**	**3**	**3**	**4**
Sulfate as SO4 - Turbidimetric	1	mg/L	**4**	**5**	**3**	**1**	<1

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	TRRD34136_9_10	YPGC00027_1_2	YPGC00027_7_8	YPGC00027_13_14	YPGC00027_25_26	YPGC00576_1_2	YPGC00576_7_8	YPGC00576_19_20	YPGC00576_25_26	YPGC00576_31_32	YPGC00576_37_38
Sample ID	TRRD34136_9_10	YPGC00027_1_2	YPGC00027_7_8	YPGC00027_13_14	YPGC00027_25_26	YPGC00576_1_2	YPGC00576_7_8	YPGC00576_19_20	YPGC00576_25_26	YPGC00576_31_32	YPGC00576_37_38
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units										
Physico-Chemical Parameters												
pH	0.01	ph unit	**6.76**	**7.15**	**7.26**	**7.13**	**6.71**	**7.89**	**6.62**	**7.17**	**7.64**	**7.06**	**7.48**
Total Dissolved Solids	10	mg/L	<10	**20**	**38**	**30**	**24**	**82**	**32**	**36**	**11**	**40**	**16**
Electrical Conductivity @ 25°C	1	µs/cm	**16**	**28**	**54**	**32**	**27**	**106**	**40**	**47**	**18**	**26**	**22**
Metals (Leachable)												
Aluminium	0.01	mg/L	**0.72**	**3.05**	**0.86**	**2.48**	**0.46**	**2.66**	**1.84**	**4.1**	**5.16**	**0.28**	**0.06**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	**0.001**	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.379**	**0.814**	**0.859**	**0.63**	**0.588**	**2.69**	**0.894**	**1.58**	**0.358**	**0.45**	**0.343**
Boron	0.05	mg/L	**0.61**	**0.95**	**0.82**	**0.72**	**0.27**	**2.67**	**1.8**	**1.27**	**0.32**	**0.51**	**0.54**
Cadmium	0.0001	mg/L	<0.0001	**0.0002**	**0.0002**	<0.0001	<0.0001	**0.0002**	<0.0001	**0.0002**	<0.0001	**0.0001**	<0.0001
Chromium	0.001	mg/L	**0.003**	**0.008**	**0.001**	**0.003**	**0.003**	**0.003**	**0.006**	**0.006**	**0.004**	<0.001	<0.001
Cobalt	0.001	mg/L	<0.001	**0.003**	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.001**	**0.002**	<0.001	<0.001
Copper	0.001	mg/L	**0.002**	**0.008**	**0.002**	**0.004**	**0.01**	**0.005**	**0.007**	**0.009**	**0.003**	**0.001**	<0.001
Iron	0.05	mg/L	**3.74**	**5.66**	**2.48**	**8.27**	**2.45**	**2.59**	**4.05**	**7.25**	**18.5**	**3.35**	**0.68**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.008**	**0.102**	**0.035**	**0.124**	**0.012**	**0.032**	**0.018**	**0.125**	**0.984**	**0.17**	**0.036**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.001**	**0.008**	**0.002**	**0.002**	**0.001**	**0.005**	**0.004**	**0.007**	**0.002**	**0.001**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	**0.08**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.222**	**0.499**	**0.192**	**0.441**	**0.236**	**0.866**	**0.466**	**0.692**	**0.146**	**0.154**	**0.163**
Major Ions												
Calcium	1	mg/L	<1	<1	**2**	<1	**1**	**7**	**1**	**2**	<1	**1**	<1
Chloride	1	mg/L	<1	<1	**2**	<1	<1	**2**	<1	**1**	<1	<1	<1
Magnesium	1	mg/L	<1	<1	<1	<1	<1	**2**	<1	**1**	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	**2**	<1	<1	<1	<1	<1
Sodium	1	mg/L	**4**	**7**	**9**	**8**	**6**	**13**	**10**	**10**	**4**	**6**	**5**
Sulfate as SO4 - Turbidimetric	1	mg/L	<1	**2**	**4**	**3**	<1	**5**	**1**	**2**	<1	<1	**1**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC01657_7_8	YPGC01657_13_14	YPGC01657_19_20	YPGC01657_31_32	YPGC01657_37_38	YPGC01657_43_44	YPGC02056_1_2	YPGC02056_7_8	YPGC02056_13_14	YPGC02056_14_15	YPGC02056_14_15
Sample ID	YPGC01657_7_8	YPGC01657_13_14	YPGC01657_19_20	YPGC01657_31_32	YPGC01657_37_38	YPGC01657_43_44	YPGC02056_1_2	YPGC02056_7_8	YPGC02056_13_14	YPGC02056_14_15	QC3
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**7.13**	**6.62**	**7.08**	**6.86**	**6.67**	**7.05**	**7.32**	**7.34**	**7.15**	**7.01**	**7.04**
Total Dissolved Solids	10	mg/L	**46**	**22**	**28**	**18**	**14**	**38**	**42**	**40**	**40**	**32**	**26**
Electrical Conductivity @ 25°C	1	µs/cm	**67**	**33**	**44**	**20**	**23**	**46**	**58**	**53**	**47**	**40**	**41**
Metals (Leachable)													
Aluminium	0.01	mg/L	**13.2**	**0.26**	**0.29**	**0.08**	**<0.01**	**1.11**	**3.59**	**9.13**	**1.74**	**0.61**	**0.92**
Antimony	0.001	mg/L	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.001**	<0.001	<0.001	**0.089**
Barium	0.001	mg/L	**0.842**	**0.286**	**0.976**	**0.288**	**0.177**	**1.68**	**2.52**	**1.85**	**1.32**	**0.77**	**0.088**
Boron	0.05	mg/L	**0.94**	**0.32**	**0.88**	**0.32**	**0.16**	**1.29**	**1.56**	**1.14**	**1.16**	**1.03**	**0.98**
Cadmium	0.0001	mg/L	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	**0.0007**	**0.0002**	**0.0002**	<0.0001	**0.0092**
Chromium	0.001	mg/L	**0.013**	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.021**	**0.011**	**0.01**	<0.001	**0.088**
Cobalt	0.001	mg/L	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.075**	**0.003**	<0.001	<0.001	**0.09**
Copper	0.001	mg/L	**0.016**	<0.001	<0.001	<0.001	**0.005**	**0.001**	**0.944**	**0.012**	**0.003**	**0.002**	**0.088**
Iron	0.05	mg/L	**7.74**	**0.14**	**0.3**	**1.19**	**0.09**	**2.2**	**9.2**	**7.68**	**1.1**	**0.39**	**0.92**
Lead	0.001	mg/L	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.003**	<0.001	<0.001	**0.088**
Manganese	0.001	mg/L	**0.076**	**0.009**	**0.01**	**0.021**	**0.005**	**0.017**	**0.914**	**0.117**	**0.012**	**0.005**	**0.087**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.002**	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.017**	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.055**	**0.014**	**0.005**	**0.001**	**0.09**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.088**	<0.001
Vanadium	0.01	mg/L	**0.01**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.09**
Zinc	0.005	mg/L	**0.555**	**0.103**	**0.198**	**0.101**	**0.063**	**0.335**	**0.758**	**0.587**	**0.265**	**0.48**	**0.507**
Major Ions													
Calcium	1	mg/L	**3**	<1	**2**	**1**	<1	**2**	**4**	**3**	**2**	**1**	**1**
Chloride	1	mg/L	**3**	**1**	**2**	<1	<1	**1**	**4**	<1	**1**	**2**	**2**
Magnesium	1	mg/L	**1**	<1	<1	<1	<1	<1	**1**	**1**	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	**1**	<1	<1	<1	<1
Sodium	1	mg/L	**12**	**4**	**7**	**4**	**2**	**9**	**8**	**10**	**10**	**8**	**8**
Sulfate as SO4 - Turbidimetric	1	mg/L	<1	**5**	**2**	**2**	**2**	**1**	**4**	<1	**2**	**2**	**2**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC02056_19_20	YPGC02056_25_26	YPGC02056_37_38	YPGC02056_44_45	YPGC02807_1_2
Sample ID	YPGC02056_19_20	YPGC02056_25_26	YPGC02056_37_38	YPGC02056_44_45	YPGC02807_1_2
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units					
Physico-Chemical Parameters							
pH	0.01	ph unit	**6.97**	**6.82**	**6.66**	**6.94**	**6.76**
Total Dissolved Solids	10	mg/L	**14**	**26**	**34**	**12**	**90**
Electrical Conductivity @ 25°C	1	µs/cm	**22**	**44**	**51**	**24**	**170**
Metals (Leachable)							
Aluminium	0.01	mg/L	**1.49**	**1.81**	**0.08**	**0.19**	<0.01
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.572**	**1.04**	**1**	**0.399**	**0.872**
Boron	0.05	mg/L	**0.5**	**1.89**	**2.15**	**0.6**	**0.57**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.002**	**0.004**	<0.001	<0.001	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.001**	**0.005**	<0.001	<0.001	<0.001
Iron	0.05	mg/L	**0.93**	**5.52**	**1.2**	**3.02**	<0.05
Lead	0.001	mg/L	<0.001	**0.001**	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.012**	**0.168**	**0.009**	**0.059**	**0.088**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	**0.002**	**0.001**	**0.001**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.142**	**0.333**	**0.308**	**0.168**	**0.238**
Major Ions							
Calcium	1	mg/L	<1	**1**	**2**	<1	**4**
Chloride	1	mg/L	<1	**1**	**1**	<1	**33**
Magnesium	1	mg/L	<1	<1	<1	<1	**2**
Potassium	1	mg/L	<1	<1	<1	<1	**1**
Sodium	1	mg/L	**4**	**10**	**10**	**3**	**27**
Sulfate as SO4 - Turbidimetric	1	mg/L	<1	**4**	**4**	**2**	**19**

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater specie

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

- Not Analysed

* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC02807_13_14	YPGC02807_19_20	YPGC02807_25_26	YPGC02807_31_32	YPGC02807_37_38	YPGC03152_1_2	YPGC03152_7_8	YPGC03152_13_14	YPGC03152_19_20	YPGC03152_25_26	YPGC03152_31_32
Sample ID	YPGC02807_13_14	YPGC02807_19_20	YPGC02807_25_26	YPGC02807_31_32	YPGC02807_37_38	YPGC03152_1_2	YPGC03152_7_8	YPGC03152_13_14	YPGC03152_19_20	YPGC03152_25_26	YPGC03152_31_32
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units										
Physico-Chemical Parameters												
pH	0.01	ph unit	**7.22**	**7.14**	**6.79**	**6.84**	**7.22**	**6.83**	**6.87**	**7.02**	**6.79**	**6.63**	**6.73**
Total Dissolved Solids	10	mg/L	<10	**20**	**36**	**24**	**22**	**42**	**22**	**20**	**50**	**36**	**14**
Electrical Conductivity @ 25°C	1	µs/cm	**19**	**22**	**37**	**37**	**36**	**43**	**35**	**36**	**61**	**50**	**25**
Metals (Leachable)												
Aluminium	0.01	mg/L	**1.15**	**0.6**	**2.88**	**0.34**	**0.39**	**3.16**	**1.76**	**0.65**	**2.03**	**1.21**	**0.09**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	**0.003**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.456**	**0.361**	**1**	**0.977**	**0.85**	**0.976**	**0.827**	**0.831**	**3.03**	**1.3**	**0.524**
Boron	0.05	mg/L	**0.63**	**0.52**	**1.51**	**0.77**	**0.63**	**1.62**	**1.2**	**0.92**	**2.74**	**1.7**	**0.22**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001	<0.0001	**0.0003**	**0.0002**	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.002**	<0.001	**0.004**	**0.002**	<0.001	**0.016**	<0.001	<0.001	**0.001**	**0.002**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.003**	**0.001**	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.003**	**0.001**	**0.02**	**0.001**	<0.001	**0.014**	**0.003**	<0.001	**0.002**	**0.003**	<0.001
Iron	0.05	mg/L	**0.86**	**0.37**	**7.56**	**0.45**	**3.78**	**14.1**	**1.52**	**0.87**	**2.91**	**3.86**	**0.62**
Lead	0.001	mg/L	<0.001	<0.001	**0.002**	<0.001	<0.001	**0.002**	<0.001	<0.001	**0.002**	<0.001	<0.001
Manganese	0.001	mg/L	**0.029**	**0.006**	**0.164**	**0.208**	**0.377**	**0.152**	**0.025**	**0.01**	**0.025**	**0.039**	**0.19**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.002**	<0.001	**0.002**	<0.001	**0.001**	**0.014**	**0.004**	<0.001	**0.003**	**0.003**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.316**	**0.177**	**0.419**	**0.266**	**0.21**	**0.517**	**0.373**	**0.193**	**0.799**	**0.493**	**0.109**
Major Ions												
Calcium	1	mg/L	<1	<1	**1**	**1**	**2**	**2**	<1	**2**	**4**	**2**	**1**
Chloride	1	mg/L	<1	<1	**1**	**1**	<1	<1	**1**	<1	**2**	**2**	<1
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	**1**	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L	**5**	**5**	**8**	**6**	**5**	**10**	**8**	**5**	**10**	**10**	**4**
Sulfate as SO4 - Turbidimetric	1	mg/L	<1	**2**	<1	<1	<1	**2**	**3**	**4**	**4**	**1**	**1**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC03152_43_44	YPGC03152_49_50	YPGC04543_1_2	YPGC04543_7_8	YPGC04543_13_14	YPGC04543_21_22	YPGC04543_25_26	YPGC04543_31_32	YPGC04543_37_38	YPGC05415_1_2	YPGC05415_13_14
Sample ID	YPGC03152_43_44	YPGC03152_49_50	YPGC04543_1_2	YPGC04543_7_8	YPGC04543_13_14	YPGC04543_21_22	YPGC04543_25_26	YPGC04543_31_32	YPGC04543_37_38	YPGC05415_1_2	YPGC05415_13_14
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units										
Physico-Chemical Parameters												
pH	0.01	ph unit	**6.9**	**7.29**	**6.95**	**7.21**	**7.51**	**6.9**	**7.42**	**7.21**	**6.95**	**6.98**	**6.93**
Total Dissolved Solids	10	mg/L	**12**	**16**	**20**	**24**	**36**	**32**	**32**	**30**	**20**	**22**	**16**
Electrical Conductivity @ 25°C	1	µs/cm	**22**	**26**	**35**	**36**	**44**	**50**	**44**	**38**	**27**	**39**	**25**
Metals (Leachable)												
Aluminium	0.01	mg/L	**0.05**	<0.01	**0.61**	**2.16**	**2.13**	**2.53**	**3.62**	**0.98**	**0.35**	**1.12**	**0.44**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.437**	**0.399**	**0.665**	**0.784**	**1.38**	**1.7**	**0.642**	**0.744**	**0.616**	**0.77**	**0.446**
Boron	0.05	mg/L	**0.36**	**0.47**	**0.94**	**1.1**	**0.99**	**2.08**	**0.54**	**1.22**	**0.5**	**1.1**	**0.54**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	**0.002**	**0.007**	**0.002**	**0.007**	**0.005**	**0.003**	<0.001	**0.004**	**0.002**
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001	**0.001**	<0.001	**0.001**	<0.001	**0.001**	<0.001
Copper	0.001	mg/L	<0.001	<0.001	**0.002**	**0.004**	**0.003**	**0.009**	**0.003**	**0.002**	**0.001**	**0.005**	**0.002**
Iron	0.05	mg/L	**0.42**	**0.43**	**1.18**	**3.2**	**1.23**	**11.5**	**3.56**	**1.67**	**0.73**	**2.82**	**0.32**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.018**	**0.009**	**0.021**	**0.073**	**0.025**	**0.316**	**0.075**	**0.465**	**0.017**	**0.078**	**0.004**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	**0.002**	**0.004**	**0.002**	**0.005**	**0.002**	**0.002**	**0.001**	**0.005**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	**0.01**	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.105**	**0.107**	**0.372**	**0.328**	**0.288**	**0.861**	**0.203**	**0.535**	**0.23**	**0.618**	**0.132**
Major Ions												
Calcium	1	mg/L	<1	<1	<1	<1	**2**	**2**	<1	<1	<1	**1**	<1
Chloride	1	mg/L	<1	<1	<1	<1	<1	**2**	**3**	**1**	<1	<1	<1
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L	**4**	**5**	**7**	**8**	**10**	**11**	**9**	**9**	**5**	**6**	**6**
Sulfate as SO4 - Turbidimetric	1	mg/L	**1**	**2**	**3**	**4**	**2**	**3**	**4**	<1	**2**	**3**	<1

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC05415_20_21	YPGC05415_25_26	YPGC05415_31_32	YPGC05415_37_38	YPGC06143_1_2	YPGC06143_7_8	YPGC06143_13_14	YPGC06143_19_20	YPGC06143_25_26	YPGC06143_31_32	YPGC06143_37_38
Sample ID	YPGC05415_20_21	YPGC05415_25_26	YPGC05415_31_23	YPGC05415_37_38	YPGC06143_1_2	YPGC06143_7_8	YPGC06143_13_14	YPGC06143_19_20	YPGC06143_25_26	YPGC06143_31_32	YPGC06143_37_38
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**7.36**	**6.84**	**6.87**	**7.35**	**7.54**	**7.03**	**6.9**	**7.17**	**7.06**	**6.7**	**6.69**
Total Dissolved Solids	10	mg/L	**60**	**40**	**14**	**24**	**172**	**58**	**28**	**38**	**26**	**26**	**50**
Electrical Conductivity @ 25°C	1	µs/cm	**77**	**52**	**26**	**27**	**254**	**77**	**33**	**47**	**36**	**38**	**52**
Metals (Leachable)													
Aluminium	0.01	mg/L	**17.3**	**2.17**	**0.68**	<0.01	**0.36**	**0.24**	**0.01**	**0.58**	**0.61**	**0.26**	**0.36**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001
Barium	0.001	mg/L	**1.7**	**1.47**	**0.569**	**0.348**	**1.54**	**0.305**	**0.143**	**2.56**	**2.74**	**0.867**	**1.12**
Boron	0.05	mg/L	**1.25**	**1.8**	**0.94**	**0.5**	**1.24**	**1.7**	**0.11**	**1.58**	**2**	**1.89**	**1.77**
Cadmium	0.0001	mg/L	**0.0003**	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	**0.0003**	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.012**	**0.003**	**0.002**	<0.001	**0.001**	**0.001**	**0.002**	<0.001	**0.002**	<0.001	**0.002**
Cobalt	0.001	mg/L	**0.002**	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001
Copper	0.001	mg/L	**0.012**	**0.006**	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	**0.005**	**0.001**	**0.004**
Iron	0.05	mg/L	**27.3**	**10.5**	**5.93**	**0.55**	**0.67**	**1.79**	<0.05	**5.25**	**5.49**	**6.67**	**0.99**
Lead	0.001	mg/L	**0.003**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	<0.001
Manganese	0.001	mg/L	**0.308**	**1.28**	**0.245**	**0.005**	**0.018**	**0.172**	**0.037**	**0.264**	**0.117**	**0.089**	**0.014**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.01**	**0.016**	**0.003**	<0.001	**0.001**	<0.001	<0.001	**0.002**	**0.005**	**0.003**	**0.002**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	**0.01**	<0.01	**0.05**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.656**	**0.677**	**0.267**	**0.148**	**0.287**	**0.125**	**0.079**	**0.354**	**0.614**	**0.272**	**0.294**
Major Ions													
Calcium	1	mg/L	**3**	**2**	<1	<1	**16**	**3**	**2**	**2**	**2**	**1**	**1**
Chloride	1	mg/L	**2**	**2**	**1**	**2**	**44**	**4**	**4**	**2**	**2**	<1	**3**
Magnesium	1	mg/L	**1**	<1	<1	<1	**4**	<1	<1	<1	<1	<1	<1
Potassium	1	mg/L	**1**	<1	<1	<1	**1**	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L	**12**	**11**	**6**	**4**	**30**	**15**	**5**	**8**	**6**	**8**	**11**
Sulfate as SO4 - Turbidimetric	1	mg/L	<1	<1	**2**	**2**	**13**	**8**	**5**	**2**	**2**	<1	**2**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC06605_1_2	YPGC06605_7_8	YPGC06605_13_14	YPGC06605_19_20
Sample ID	YPGC06605_1_2	YPGC06605_7_8	YPGC06605_13_14	YPGC06605_19_20
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units				
Physico-Chemical Parameters						
pH	0.01	ph unit	**7.26**	**6.67**	**6.8**	**7.12**
Total Dissolved Solids	10	mg/L	**152**	**34**	**38**	**22**
Electrical Conductivity @ 25°C	1	µs/cm	**206**	**53**	**56**	**26**
Metals (Leachable)						
Aluminium	0.01	mg/L	**0.4**	**0.29**	**1.69**	**0.5**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**2.18**	**0.483**	**1.13**	**0.768**
Boron	0.05	mg/L	**1.8**	**0.43**	**1.76**	**1.08**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	**0.0001**	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	**0.005**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	**0.003**	<0.001
Copper	0.001	mg/L	**0.003**	<0.001	**0.004**	**0.001**
Iron	0.05	mg/L	**0.81**	**0.18**	**27.5**	**3.72**
Lead	0.001	mg/L	<0.001	<0.001	**0.002**	<0.001
Manganese	0.001	mg/L	**0.011**	**0.023**	**1.94**	**0.078**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	**0.001**	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.002**	<0.001	**0.004**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.438**	**0.124**	**0.468**	**0.417**
Major Ions						
Calcium	1	mg/L	**17**	**2**	**2**	**1**
Chloride	1	mg/L	**10**	**4**	**1**	**2**
Magnesium	1	mg/L	**4**	<1	<1	<1
Potassium	1	mg/L	**2**	<1	<1	<1
Sodium	1	mg/L	**20**	**8**	**12**	**8**
Sulfate as SO4 - Turbidimetric	1	mg/L	**30**	**7**	**4**	**2**

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater specie

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

- Not Analysed

* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC06605_25_26	YPGC06605_31_32	YPGC06879_1_2	YPGC06879_7_8	YPGC06879_19_20	YPGC06879_25_26	YPGC06879_31_32	YPGC06879_37_38	YPGC06879_43_44	YPGC08967_1_2	YPGC08967_7_8
Sample ID	YPGC06605_25_26	YPGC06605_31_32	YPGC06879_1_2	YPGC06879_7_8	YPGC06879_19_20	YPGC06879_25_26	YPGC06879_31_32	YPGC06879_37_38	YPGC06879_43_44	YPGC08967_1_2	YPGC08967_7_8
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**6.88**	**7.37**	**7.14**	**6.85**	**7.01**	**7.07**	**7.11**	**6.69**	**6.82**	**7.29**	**7**
Total Dissolved Solids	10	mg/L	**20**	**36**	**40**	**38**	**18**	**26**	**22**	**34**	**24**	**52**	**34**
Electrical Conductivity @ 25°C	1	µs/cm	**29**	**37**	**62**	**48**	**24**	**49**	**29**	**51**	**29**	**89**	**42**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.11**	<0.01	**7.57**	**2.24**	**4.35**	**0.83**	**0.11**	**0.15**	**0.3**	**1.63**	**0.04**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	**0.001**	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.627**	**0.425**	**3.3**	**1.09**	**2.04**	**1.52**	**0.433**	**1.41**	**0.391**	**1.3**	**0.513**
Boron	0.05	mg/L	**0.52**	**0.43**	**1.78**	**1.86**	**2.09**	**1.17**	**0.68**	**1.95**	**0.64**	**1.15**	**0.46**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	**0.0004**	**0.0002**	**0.0002**	**0.0003**	<0.0001	<0.0001	<0.0001	**0.0002**	**0.0002**
Chromium	0.001	mg/L	<0.001	<0.001	**0.018**	**0.008**	**0.003**	**0.001**	<0.001	**0.001**	<0.001	**0.007**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	**0.008**	**0.003**	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.001**	<0.001	**0.026**	**0.006**	**0.007**	**0.003**	**0.003**	**0.001**	<0.001	**0.004**	<0.001
Iron	0.05	mg/L	**0.94**	**0.63**	**11.3**	**8.26**	**4.74**	**7.58**	**0.75**	**0.99**	**2.22**	**8.83**	**0.11**
Lead	0.001	mg/L	<0.001	<0.001	**0.004**	**0.002**	**0.001**	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001
Manganese	0.001	mg/L	**0.031**	<0.001	**0.376**	**0.155**	**0.808**	**0.192**	**0.008**	**0.008**	**0.023**	**0.405**	**0.003**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	**0.025**	**0.006**	**0.003**	**0.004**	**0.001**	**0.002**	<0.001	**0.005**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	**0.02**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.208**	**0.113**	**1.27**	**0.404**	**0.934**	**0.489**	**0.283**	**0.673**	**0.19**	**0.401**	**0.13**
Major Ions													
Calcium	1	mg/L	<1	**2**	**4**	**2**	<1	**2**	<1	**2**	<1	**5**	**2**
Chloride	1	mg/L	<1	<1	<1	**2**	**1**	**2**	**1**	**1**	**2**	**5**	**4**
Magnesium	1	mg/L	<1	<1	**2**	<1	<1	<1	<1	<1	<1	**1**	**1**
Potassium	1	mg/L	<1	<1	**2**	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L	**6**	**6**	**12**	**12**	**7**	**8**	**5**	**10**	**5**	**13**	**5**
Sulfate as SO4 - Turbidimetric	1	mg/L	**1**	**1**	**3**	<1	**2**	**1**	**2**	**2**	**2**	**4**	**2**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC08967_13_14	YPGC08967_19_20	YPGC08967_25_26	YPGC08967_31_32	YPGC10846_1_2	YPGC10846_8_9	YPGC10846_13_14	YPGC10846_19_20	YPGC10846_25_26	YPGC10846_43_44	YPGC11055_1_2
Sample ID	YPGC08967_13_14	YPGC08967_19_20	YPGC08967_25_26	YPGC08967_31_32	YPGC10846_1_2	YPGC10846_8_9	YPGC10846_13_14	YPGC10846_19_20	YPGC10846_25_26	YPGC10846_43_44	YPGC11055_1_2
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**7.22**	**7.28**	**7.34**	**7.31**	**7.86**	**7.53**	**7.26**	**7.01**	**6.95**	**6.78**	**6.52**
Total Dissolved Solids	10	mg/L	**36**	**28**	**32**	**44**	**107**	**52**	**62**	**22**	**14**	**34**	**10**
Electrical Conductivity @ 25°C	1	µs/cm	**61**	**35**	**34**	**55**	**87**	**63**	**97**	**26**	**22**	**36**	**8**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.1**	**0.09**	**0.38**	**0.36**	**1.84**	**1.35**	**25.9**	**0.17**	**0.02**	**0.46**	<0.01
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	**0.005**	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**1.12**	**0.505**	**0.39**	**0.956**	**0.319**	**1.3**	**1.55**	**0.176**	**0.18**	**0.776**	**0.086**
Boron	0.05	mg/L	**0.89**	**0.4**	**0.43**	**0.76**	**0.25**	**1.36**	**1.22**	**0.25**	**0.21**	**1.79**	**0.09**
Cadmium	0.0001	mg/L	**0.0002**	<0.0001	<0.0001	**0.0002**	<0.0001	**0.0002**	**0.0004**	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.001**	<0.001	<0.001	**0.001**	**0.004**	**0.005**	**0.02**	<0.001	<0.001	**0.004**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.005**	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	**0.002**	**0.003**	**0.033**	<0.001	<0.001	**0.003**	<0.001
Iron	0.05	mg/L	**1.74**	**1.54**	**5.09**	**2.19**	**3.21**	**1.94**	**17.5**	**0.38**	**0.16**	**22.4**	<0.05
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.17**	**0.235**	**0.182**	**0.077**	**0.033**	**0.038**	**0.539**	**0.025**	**0.023**	**0.156**	**0.005**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.002**	<0.001	<0.001	**0.002**	**0.002**	<0.001	**0.043**	<0.001	<0.001	**0.005**	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.05**	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.212**	**0.121**	**0.117**	**0.218**	**0.07**	**0.331**	**0.863**	**0.081**	**0.075**	**0.432**	**0.083**
Major Ions													
Calcium	1	mg/L	**3**	**2**	**2**	**3**	**7**	**2**	**6**	<1	**1**	**1**	<1
Chloride	1	mg/L	**5**	**2**	**1**	**3**	**3**	**2**	**10**	**2**	**2**	<1	-
Magnesium	1	mg/L	**1**	<1	<1	<1	**1**	<1	**4**	<1	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	**3**	<1	<1	<1	<1
Sodium	1	mg/L	**8**	**5**	**5**	**8**	**7**	**13**	**18**	**4**	**3**	**8**	**2**
Sulfate as SO4 - Turbidimetric	1	mg/L	**6**	**2**	<1	**2**	**3**	<1	**10**	**4**	**3**	**2**	-

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater specie

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

- Not Analysed

* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC11055_7_8	YPGC11055_13_14	YPGC11055_19_20	YPGC11055_25_26	YPGC11055_25_26	YPGC11055_31_32	YPGC11055_37_38	YPGC11055_37_38	YPGC11249_1_2	YPGC11249_7_8	YPGC1249_13_14
Sample ID	YPGC11055_7_8	YPGC11055_13_14	YPGC11055_19_20	YPGC11055_25_26	QC03_24/05/2012	YPGC11055_31_32	YPGC11055_37_38	QC02_24/05/2012	YPGC11249_1_2	YPGC11249_7_8	YPGC1249_13_14
Date Sampled	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**6.93**	**6.59**	**6.52**	**7.02**	**6.82**	**6.93**	**6.7**	**6.78**	**7.06**	**7.33**	**6.77**
Total Dissolved Solids	10	mg/L	**12**	<10	**13**	<10	**11**	**30**	**12**	**10**	**72**	**14**	**44**
Electrical Conductivity @ 25°C	1	µs/cm	**15**	**18**	**13**	**14**	**7**	**26**	**13**	**10**	**76**	**26**	**60**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.21**	**0.02**	**0.03**	**0.02**	**0.05**	**0.26**	**0.04**	**0.04**	**4.11**	**1.67**	**1.5**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.188**	**0.195**	**0.116**	**0.089**	**0.082**	**1**	**0.564**	**0.178**	**1.63**	**0.559**	**1.45**
Boron	0.05	mg/L	**0.18**	**0.18**	**0.21**	**0.18**	**0.16**	**0.8**	**0.44**	**0.22**	**1.62**	**0.62**	**2.18**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	<0.0001	<0.0001	**0.0001**	<0.0001	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.007**	**0.006**	**0.004**
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.005**	**0.007**
Copper	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	**0.001**	**0.012**	**0.004**	**0.006**
Iron	0.05	mg/L	**1.9**	**0.3**	**0.1**	**0.58**	**1.64**	**7.44**	**1.7**	**1**	**7.94**	**3.26**	**7.82**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**
Manganese	0.001	mg/L	**0.302**	**0.006**	**0.476**	**0.047**	**0.124**	**0.149**	**0.044**	**0.031**	**0.17**	**0.384**	**0.369**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	<0.001	**0.019**	**0.008**	**0.006**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.099**	**0.081**	**0.055**	**0.049**	**0.067**	**0.616**	**0.148**	**0.075**	**1.34**	**0.363**	**0.614**
Major Ions													
Calcium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	**3**	<1	**2**
Chloride	1	mg/L	-	-	-	-	-	-	-	-	**5**	**2**	**3**
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	**2**	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	**2**	<1	<1
Sodium	1	mg/L	**3**	**3**	**3**	**2**	**2**	**6**	**3**	**2**	**13**	**6**	**13**
Sulfate as SO4 - Turbidimetric	1	mg/L	-	-	-	-	-	-	-	-	**6**	**2**	**2**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPGC11249_19_20	YPGC11249_25_26	YPGC11249_31_32	YPGC11249_37_38	YPGC1249_43_44	YPGC12764_1_2	YPGC12764_7_8	YPGC12764_13_14	YPGC12764_25_26	YPGC12764_37_38	YPGC12764_49_50
Sample ID	YPGC11249_19_20	YPGC11249_25_26	YPGC11249_31_32	YPGC11249_37_38	YPGC1249_43_44	YPGC12764_1_2	YPGC12764_7_8	YPGC12764_13_14	YPGC12764_25_26	YPGC12764_37_38	YPGC12764_49_50
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012	24/05/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**7.28**	**6.75**	**7.06**	**6.77**	**7.45**	**7.71**	**7.66**	**7.62**	**7.41**	**7.23**	**7.26**
Total Dissolved Solids	10	mg/L	**48**	**44**	**36**	**74**	**46**	**24**	**15**	**25**	**35**	<10	**26**
Electrical Conductivity @ 25°C	1	µs/cm	**73**	**57**	**59**	**81**	**55**	**59**	**25**	**38**	**36**	**38**	**21**
Metals (Leachable)													
Aluminium	0.01	mg/L	**1.68**	**0.51**	**0.06**	**0.05**	**0.4**	**2.16**	**0.73**	**0.4**	**0.65**	**0.08**	**0.04**
Antimony	0.001	mg/L	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.018**	<0.001
Barium	0.001	mg/L	**1.26**	**0.919**	**0.676**	**1.26**	**1.34**	**2.13**	**0.734**	**1.05**	**0.606**	**0.242**	**0.159**
Boron	0.05	mg/L	**1.16**	**1.65**	**1.51**	**3.47**	**0.94**	**1.73**	**0.59**	**0.86**	**0.52**	**0.1**	**0.12**
Cadmium	0.0001	mg/L	**0.0002**	<0.0001	<0.0001	<0.0001	**0.0002**	**0.0002**	**0.0001**	**0.0001**	<0.0001	<0.0001	<0.0001
Chromium	0.001	mg/L	**0.003**	**0.001**	**0.002**	**0.001**	<0.001	**0.006**	**0.004**	**0.002**	**0.001**	<0.001	<0.001
Cobalt	0.001	mg/L	**0.003**	<0.001	<0.001	<0.001	<0.001	**0.002**	**0.002**	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.019**	**0.002**	<0.001	**0.003**	**0.002**	**0.01**	**0.003**	**0.002**	**0.002**	<0.001	<0.001
Iron	0.05	mg/L	**2.71**	**5.55**	**0.2**	**0.32**	**10**	**4.06**	**1.43**	**0.34**	**0.71**	**0.45**	**0.92**
Lead	0.001	mg/L	**0.003**	<0.001	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**1.88**	**0.551**	**0.094**	**0.293**	**0.276**	**0.1**	**0.117**	**0.004**	**0.006**	**0.286**	**0.021**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	<0.001	**0.008**	<0.001	**0.001**	**0.003**	**0.011**	**0.005**	<0.001	**0.001**	<0.001	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.454**	**0.291**	**0.355**	**0.385**	**0.377**	**0.738**	**0.194**	**0.204**	**0.182**	**0.082**	**0.073**
Major Ions													
Calcium	1	mg/L	**2**	**2**	**2**	**3**	**3**	**2**	<1	**1**	**1**	**3**	<1
Chloride	1	mg/L	**3**	**4**	**4**	**2**	**2**	-	-	-	-	-	-
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	1	mg/L	**13**	**11**	**10**	**16**	**8**	**11**	**6**	**7**	**7**	**4**	**4**
Sulfate as SO4 - Turbidimetric	1	mg/L	**5**	**4**	**4**	**2**	**2**	-	-	-	-	-	-

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location		YPRD04911_1_2	YPRD04911_3_4	YPRD04911_7_8	YPRD04911_7_8	YPRD04911_10_11	YPRD04911_13_14	YPRD05790_1_2	YPRD05790_1_2	YPRD05790_3_4	YPRD05790_7_8	YPRD05790_10_11
Sample ID		YPRD04911_1_2	YPRD04911_3_4	YPRD04911_7_8	QC1	YPRD04911_10_11	YPRD04911_13_14	YPRD05790_1_2	QC8	YPRD05790_3_4	YPRD05790_7_8	YPRD05790_10_11
Date Sampled		22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type		Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample
Analyte	**LOR**	**Units**										
Physico-Chemical Parameters												
pH	0.01	ph unit	**8.63**	**8.96**	**7.45**	**6.84**	**6.62**	**7.07**	**8.28**	**7.49**	**8.39**	**8.62**	**7.28**
Total Dissolved Solids	10	mg/L	**38**	**52**	<10	**32**	**30**	**24**	**28**	**40**	**50**	**100**	**106**
Electrical Conductivity @ 25°C	1	µs/cm	**60**	**60**	**37**	**46**	**52**	**30**	**53**	**41**	**55**	**147**	**138**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.17**	**0.14**	**3.77**	**0.7**	**0.41**	**0.05**	**0.1**	**0.89**	**0.4**	**0.05**	**0.15**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.001**	**0.002**	<0.001
Barium	0.001	mg/L	**0.626**	**0.571**	**0.426**	**0.777**	**1.06**	**0.239**	**0.979**	**0.634**	**0.35**	**0.493**	**1.24**
Boron	0.05	mg/L	**0.44**	**0.42**	**0.32**	**1.07**	**1.92**	**0.38**	**0.68**	**0.48**	**0.26**	**0.49**	**0.82**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	<0.0001	**0.0001**
Chromium	0.001	mg/L	<0.001	<0.001	**0.004**	**0.002**	**0.002**	<0.001	<0.001	<0.001	**0.002**	<0.001	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	<0.001	<0.001	**0.003**	**0.004**	**0.002**	<0.001	**0.002**	**0.001**	**0.003**	<0.001	<0.001
Iron	0.05	mg/L	**0.37**	**1.92**	**17**	**9.36**	**2.37**	**0.34**	**0.78**	**2.94**	**5.91**	**0.29**	**0.57**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.003**	<0.001	**0.072**	**0.041**	**0.02**	**0.029**	**0.112**	**0.104**	**0.01**	**0.002**	**0.012**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.001**	<0.001
Nickel	0.001	mg/L	<0.001	<0.001	**0.004**	**0.003**	**0.002**	<0.001	<0.001	**0.009**	**0.002**	<0.001	**0.001**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.096**	**0.14**	**0.174**	**0.209**	**0.317**	**0.12**	**0.192**	**0.14**	**0.066**	**0.15**	**0.326**
Major Ions													
Calcium	1	mg/L	**7**	**6**	**1**	**2**	**2**	<1	**5**	**4**	**8**	**3**	**4**
Chloride	1	mg/L	**2**	**2**	<1	**10**	**2**	**2**	<1	**2**	<1	**14**	**16**
Magnesium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	**2**	**3**
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	**4**	**1**
Sodium	1	mg/L	**6**	**7**	**4**	**7**	**10**	**5**	**5**	**5**	**4**	**24**	**20**
Sulfate as SO4 - Turbidimetric	1	mg/L	**3**	**2**	<1	**12**	<1	**3**	**1**	**2**	<1	**18**	**16**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location		YPRD06017_1_2	YPRD06017_7_8	YPRD06017_14_15	YPRD06017_19_20	YPRD06017_25_26	YPRD06576_0_1	YPRD06576_1_2	YPRD06576_1_2	YPRD06576_3_4	YPRD06576_10_11	YPRD10638_1_2
Sample ID		YPRD06017_1_2	YPRD06017_7_8	YPRD06017_14_15	YPRD06017_19_20	YPRD06017_25_26	YPRD06576_0_1	YPRD06576_1_2	QC10	YPRD06576_3_4	YPRD06576_10_11	YPRD10638_1_2
Date Sampled		22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type		Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample
Analyte	**LOR**	**Units**										
Physico-Chemical Parameters												
pH	0.01	ph unit	**7.15**	**6.79**	**6.62**	**6.6**	**6.73**	**6.36**	**6.5**	**6.52**	**6.95**	**6.93**	**8.08**
Total Dissolved Solids	10	mg/L	**78**	**16**	**38**	**44**	**36**	**32**	<10	<10	**48**	**18**	**66**
Electrical Conductivity @ 25°C	1	µs/cm	**122**	**23**	**54**	**70**	**66**	**46**	**14**	**20**	**76**	**26**	**126**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.03**	**0.05**	**0.46**	**0.41**	**1.43**	**0.38**	**0.06**	<0.01	**0.07**	<0.01	**0.52**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.009**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.002**
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.004**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**1.42**	**0.285**	**1.1**	**1.44**	**1.08**	**0.868**	**3.04**	**0.387**	**0.826**	**0.305**	**1.01**
Boron	0.05	mg/L	**2.3**	**0.3**	**1.7**	**2.06**	**1.84**	**0.33**	**2.32**	**0.46**	**1.03**	**0.5**	**1.05**
Cadmium	0.0001	mg/L	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0003**	<0.0001	<0.0001	<0.0001	**0.0002**
Chromium	0.001	mg/L	<0.001	<0.001	**0.001**	**0.001**	**0.004**	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.001**	<0.001	**0.002**	**0.002**	**0.002**	**0.001**	**0.008**	**0.001**	<0.001	<0.001	<0.001
Iron	0.05	mg/L	<0.05	**0.2**	**3.76**	**3.19**	**2.71**	**0.72**	**0.09**	<0.05	**0.38**	<0.05	**0.68**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.001**	**0.006**	**0.104**	**0.051**	**0.09**	**0.012**	**0.008**	**0.006**	**0.001**	<0.001	**0.009**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.001**	<0.001	**0.002**	**0.003**	**0.002**	**0.001**	**0.002**	<0.001	<0.001	<0.001	<0.001
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.329**	**0.125**	**0.397**	**0.472**	**0.286**	**0.418**	**0.565**	**0.096**	**0.289**	**0.122**	**0.335**
Major Ions													
Calcium	1	mg/L	**7**	<1	**2**	**2**	**2**	**2**	<1	<1	<1	<1	**7**
Chloride	1	mg/L	**8**	**2**	**2**	**5**	**4**	**6**	**1**	**2**	**6**	**2**	**12**
Magnesium	1	mg/L	**4**	<1	<1	<1	<1	<1	<1	<1	<1	<1	**3**
Potassium	1	mg/L	<1	<1	<1	<1	**1**	<1	<1	<1	<1	<1	**2**
Sodium	1	mg/L	**14**	**4**	**12**	**13**	**14**	**8**	**3**	**5**	**13**	**5**	**16**
Sulfate as SO4 - Turbidimetric	1	mg/L	**9**	**4**	**3**	<1	**7**	**4**	**1**	**2**	**7**	**3**	**5**

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater specie

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

- Not Analysed

* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPRD10638_7_8	YPRD10638_13_14	YPRD10638_19_20	YPRD10638_19_20	YPRD10638_25_26	YPRD11438_1_2	YPRD11438_7_8	YPRD11438_13_14	YPRD11438_13_14	YPRD11438_19_20	YPRD11438_25_26
Sample ID	YPRD10638_7_8	YPRD10638_13_14	YPRD10638_19_20	QC3A	YPRD10638_25_26	YPRD11438_1_2	YPRD11438_7_8	YPRD11438_13_14	QC2	YPRD11438_19_20	YPRD11438_25_26
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**6.77**	**6.65**	**6.88**	**7.07**	**7.92**	**6.92**	**7.13**	**6.08**	**7.49**	**6.75**	**6.8**
Total Dissolved Solids	10	mg/L	**22**	**90**	**38**	**46**	**40**	**30**	**46**	**112**	**38**	**20**	**40**
Electrical Conductivity @ 25°C	1	µs/cm	**32**	**156**	**63**	**61**	**58**	**33**	**61**	**184**	**63**	**34**	**44**
Metals (Leachable)													
Aluminium	0.01	mg/L	**0.15**	**0.02**	**0.61**	**1.16**	**0.02**	**0.01**	**0.07**	**0.14**	**0.85**	**0.03**	**0.4**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	**0.005**	<0.001	<0.001	<0.001	**0.004**	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.333**	**2.37**	**0.748**	**1.69**	**0.677**	**0.792**	**1.21**	**1.41**	**1.2**	**0.234**	**1.17**
Boron	0.05	mg/L	**0.35**	**3.17**	**1.22**	**2.85**	**0.75**	**0.46**	**0.82**	**1.55**	**0.85**	**0.18**	**1.44**
Cadmium	0.0001	mg/L	<0.0001	**0.0002**	<0.0001	**0.0002**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	<0.0001	<0.0001
Chromium	0.001	mg/L	<0.001	<0.001	**0.003**	**0.006**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.005**	<0.001	<0.001
Copper	0.001	mg/L	<0.001	**0.001**	**0.004**	**0.006**	<0.001	<0.001	**0.001**	**0.001**	**0.002**	<0.001	**0.004**
Iron	0.05	mg/L	**1.04**	**0.12**	**10.8**	**32.6**	**2.57**	<0.05	**1.42**	**1.46**	**7.14**	**0.44**	**18.3**
Lead	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.01**	**0.006**	**0.082**	**0.302**	**0.063**	**0.002**	**0.032**	**0.664**	**2.78**	**0.153**	**1.08**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	<0.001
Nickel	0.001	mg/L	**0.001**	**0.002**	**0.002**	**0.003**	<0.001	<0.001	**0.001**	**0.002**	**0.005**	<0.001	**0.002**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	**0.01**	**0.03**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.111**	**0.333**	**0.417**	**1.01**	**0.328**	**0.146**	**0.28**	**0.38**	**0.353**	**0.082**	**0.566**
Major Ions													
Calcium	1	mg/L	<1	**5**	**1**	**2**	<1	**2**	**2**	**3**	**1**	<1	**1**
Chloride	1	mg/L	**3**	**17**	**8**	**2**	**7**	<1	**6**	**24**	**4**	**14**	<1
Magnesium	1	mg/L	<1	**4**	<1	<1	<1	<1	<1	**2**	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1	<1	<1	<1	**1**	<1	<1	<1
Sodium	1	mg/L	**7**	**24**	**12**	**14**	**11**	**4**	**11**	**34**	**14**	**5**	**10**
Sulfate as SO4 - Turbidimetric	1	mg/L	**2**	**13**	**3**	<1	**1**	**4**	**5**	**24**	**8**	<8	<1

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location	YPRD13687_1_2	YPRD13687_1_2	YPRD13687_7_8	YPRD13687_13_14	YPRD13687_19_20	YPRD13687_33_34	YPRD13687_37_38	YPRD14197_1_2	YPRD14197_7_8	YPRD14197_13_14	YPRD14197_13_14
Sample ID	YPRD13687_1_2	QC4	YPRD13687_7_8	YPRD13687_13_14	YPRD13687_19_20	YPRD13687_33_34	YPRD13687_37_38	YPRD14197_1_2	YPRD14197_7_8	YPRD14197_13_14	QC6
Date Sampled	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample

Analyte	LOR	Units											
Physico-Chemical Parameters													
pH	0.01	ph unit	**7.14**	**6.77**	**7.5**	**7.41**	**6.96**	**7.28**	**6.9**	**7.02**	**7.48**	**6.93**	**7.67**
Total Dissolved Solids	10	mg/L	**60**	**194**	**30**	**38**	**26**	**26**	**16**	**52**	**26**	**34**	**22**
Electrical Conductivity @ 25°C	1	µs/cm	**144**	**201**	**36**	**50**	**35**	**49**	**29**	**63**	**43**	**62**	**37**
Metals (Leachable)													
Aluminium	0.01	mg/L	**2.23**	**1.38**	**0.81**	**4.3**	**0.82**	**0.11**	**2.35**	**4.74**	**1.61**	**1.02**	**4.39**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.004**	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.981**	**1.34**	**0.783**	**0.698**	**0.632**	**3.56**	**0.678**	**3.36**	**1.26**	**0.718**	**1.04**
Boron	0.05	mg/L	**0.96**	**1.38**	**0.66**	**0.66**	**0.55**	**3.13**	**1.07**	**3.63**	**0.89**	**0.81**	**1.17**
Cadmium	0.0001	mg/L	<0.0001	**0.0001**	<0.0001	<0.0001	<0.0001	**0.0002**	<0.0001	**0.0002**	<0.0001	**0.0001**	<0.0001
Chromium	0.001	mg/L	**0.006**	**0.006**	<0.001	**0.005**	<0.001	<0.001	**0.004**	**0.006**	**0.002**	**0.002**	**0.005**
Cobalt	0.001	mg/L	**0.002**	<0.001	<0.001	<0.001	<0.001	<0.001	**0.001**	**0.002**	**0.001**	<0.001	<0.001
Copper	0.001	mg/L	**0.007**	**0.004**	**0.002**	**0.005**	<0.001	<0.001	**0.003**	**0.012**	**0.003**	**0.004**	**0.008**
Iron	0.05	mg/L	**4.05**	**2.85**	**0.94**	**3.07**	**0.36**	<0.05	**6.65**	**5.57**	**1.55**	**1.06**	**3.18**
Lead	0.001	mg/L	**0.001**	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001	**0.001**	<0.001	<0.001	<0.001
Manganese	0.001	mg/L	**0.108**	**0.032**	**0.089**	**0.027**	**0.028**	**0.009**	**0.35**	**0.188**	**0.057**	**0.012**	**0.053**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0006**	**0.0001**	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.007**	**0.003**	**0.003**	**0.003**	<0.001	**0.001**	**0.003**	**0.009**	**0.004**	**0.002**	**0.005**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	**0.05**	<0.01	<0.01	<0.01	<0.01	**0.07**	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.666**	**0.479**	**0.231**	**0.235**	**0.215**	**0.907**	**0.303**	**1.33**	**0.222**	**0.405**	**0.592**
Major Ions													
Calcium	1	mg/L	**6**	**10**	<1	**2**	<1	**3**	<1	**2**	**2**	**2**	**2**
Chloride	1	mg/L	**14**	**31**	**2**	**2**	**1**	<1	**1**	**2**	**1**	**7**	<1
Magnesium	1	mg/L	**3**	**4**	<1	<1	<1	**1**	<1	<1	<1	**1**	<1
Potassium	1	mg/L	**2**	**2**	<1	<1	<1	<1	<1	<1	<1	**1**	<1
Sodium	1	mg/L	**23**	**23**	**8**	**10**	**7**	**6**	**7**	**14**	**10**	**10**	**9**
Sulfate as SO4 - Turbidimetric	1	mg/L	**14**	**17**	**3**	<1	**1**	**9**	**1**	**1**	**2**	**3**	<1

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 4
Waste Rock Leachate Analytical Results
FMG Christmas Creek Mine

Location		YPRD14197_19_20	YPRD14197_25_26	YPRD14197_25_26	YPRD14197_37_38
Sample ID		YPRD14197_19_20	YPRD14197_25_26	QC9	YPRD14197_37_38
Date Sampled		22/06/2012	22/06/2012	22/06/2012	22/06/2012
Sample Type		Primary Sample	Primary Sample	Duplicate Sample	Primary Sample
Analyte	**LOR**	**Units**				
Physico-Chemical Parameters						
pH	0.01	ph unit	**7.02**	**6.77**	**7.37**	**6.85**
Total Dissolved Solids	10	mg/L	**28**	**32**	**38**	**20**
Electrical Conductivity @ 25°C	1	µs/cm	**26**	**45**	**46**	**25**
Metals (Leachable)						
Aluminium	0.01	mg/L	**0.94**	**1.22**	**1.28**	**0.24**
Antimony	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Arsenic	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Barium	0.001	mg/L	**0.505**	**0.859**	**1**	**0.51**
Boron	0.05	mg/L	**0.5**	**1.13**	**0.95**	**0.49**
Cadmium	0.0001	mg/L	<0.0001	<0.0001	**0.0002**	<0.0001
Chromium	0.001	mg/L	**0.002**	**0.003**	**0.002**	<0.001
Cobalt	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Copper	0.001	mg/L	**0.003**	**0.003**	**0.003**	<0.001
Iron	0.05	mg/L	**0.78**	**14.8**	**8.63**	**1.42**
Lead	0.001	mg/L	<0.001	<0.001	**0.002**	<0.001
Manganese	0.001	mg/L	**0.015**	**0.032**	**0.022**	**0.123**
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	mg/L	**0.001**	**0.004**	**0.004**	**0.001**
Selenium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Silver	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Uranium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Vanadium	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Zinc	0.005	mg/L	**0.242**	**0.372**	**0.372**	**0.192**
Major Ions						
Calcium	1	mg/L	<1	**2**	**2**	<1
Chloride	1	mg/L	<1	<1	<1	<1
Magnesium	1	mg/L	<1	<1	<1	<1
Potassium	1	mg/L	<1	<1	<1	<1
Sodium	1	mg/L	**6**	**8**	**8**	**4**
Sulfate as SO4 - Turbidimetric	1	mg/L	**1**	**5**	**1**	**2**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater specie
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
- Not Analysed
* LOR is higher than criteria

Table 5
Geochemical Abundance Index Analytical Results - Christmas Creek Waste Rock Median Concentration
FMG Christmas Creek

	TOTAL-ELEMENT CONTENT (mg/kg or %)													AVERAGE CRUSTAL ABUNDANCE[1]	GEOCHEMICAL ABUNDANCE INDEX (GAI)												
Element	OVER	U5	U5L	U6	U6L	U7L	U7U	U8	US8	US9	US10	US11	US12	(mg/kg or %)	OVER	U5	U5L	U6	U6L	U7L	U7U	U8	US8	US9	US10	US11	US12
Ag	0.12	0.06	0.04	0.06	0.05	0.06	0.07	0.09	0.05	0.07	0.07	0.05	0.07	0.05	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Al%	4.03	1.66	0.55	1.59	0.42	2.12	3.53	3.95	0.54	1.62	1.39	1.38	1.70	7.1	0	0	0	0	0	0	0	0	0	0	0	0	0
As	27.65	18.30	6.55	10.95	4.90	6.70	21.90	22.40	5.20	14.45	7.15	13.40	39.65	6	**2**	**1**	0	0	0	0	**1**	**1**	0	**1**	0	**1**	**2**
Ba	170	40	20	85	30	150	155	90	40	35	95	70	295	500	0	0	0	0	0	0	0	0	0	0	0	0	0
Be	1.115	0.840	0.660	0.720	0.590	0.700	0.925	0.660	0.670	0.825	0.685	0.690	0.880	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Bi	0.315	0.20	0.07	0.14	0.02	0.08	0.30	0.43	0.10	0.10	0.12	0.18	0.19	0.2	0	0	0	0	0	0	0	**1**	0	0	0	0	0
Ca%	0.07	0.02	0.02	0.04	0.01	0.03	0.05	0.08	0.01	0.04	0.07	0.04	0.05	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Cd	0.10	0.04	0.04	0.03	0.02	0.09	0.05	0.05	0.03	0.05	0.09	0.02	0.12	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0
Ce	37.75	26.10	11.63	22.05	8.73	19.35	35.30	32.10	6.47	16.05	26.55	13.45	47.20	50	0	0	0	0	0	0	0	0	0	0	0	0	0
Co	10.3	5.3	3.3	8.7	2.9	6.8	12.3	7.7	2.0	6.1	8.5	4.2	27.4	8	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Cr	151	72	65	37	63	33	70	91	29	63	26	28	26	70	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Cs	1.97	0.12	0.12	0.11	0.11	0.12	0.21	0.43	0.12	0.26	0.12	0.12	0.15	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Cu	40.5	12.5	6.5	7.7	6.0	6.1	12.6	14.8	4.8	13.1	14.5	6.7	14.7	30	0	0	0	0	0	0	0	0	0	0	0	0	0
Fe%	23.6	25.90	22.70	41.70	21.00	42.85	43.10	41.05	23.80	35.95	38.65	47.20	44.90	4.0	**2**	**2**	**2**	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**
Ga	11.40	4.8	1.6	3.4	1.7	3.5	10.6	11.7	1.4	4.1	3.5	3.2	5.0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ge	0.56	0.50	0.27	2.07	0.36	2.54	1.90	1.79	0.28	2.63	1.36	2.33	2.87	1.0	0	0	0	0	0	**1**	0	0	0	**1**	0	**1**	**1**
Hf	2.2	0.6	0.2	0.6	0.2	0.5	1.9	2.7	0.2	0.7	0.5	0.5	1.0	6.0	0	0	0	0	0	0	0	0	0	0	0	0	0
In	0.0835	0.021	0.009	0.021	0.005	0.012	0.044	0.064	0.017	0.019	0.015	0.017	0.018	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0
K%	0.40	0.03	0.02	0.03	0.04	0.02	0.03	0.05	0.02	0.07	0.09	0.03	0.10	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0
Li	11.4	4.6	4.3	3.2	4.4	4.0	5.2	3.1	3.4	5.4	3.2	3.2	7.4	25	0	0	0	0	0	0	0	0	0	0	0	0	0
Mg%	0.13	0.05	0.02	0.05	0.02	0.06	0.06	0.06	0.03	0.07	0.05	0.03	0.09	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Mn	1290	1600	1180	3300	2210	2985	4060	3070	447	2855	4180	1400	20650	1000	0	0	0	**1**	**1**	**1**	**1**	**1**	0	**1**	**1**	0	0
Mo	1.79	1.15	1.02	1.10	0.84	0.66	1.24	1.33	0.93	1.13	0.83	0.91	0.95	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Na%	0.03	0.01	0.01	0.02	0.01	0.01	0.02	0.03	0.01	0.02	0.04	0.02	0.03	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Ni	43.7	20.8	11.7	22.3	11.5	28.0	24.9	22.6	15.8	31.8	21.8	17.1	51.3	50	0	0	0	0	0	0	0	0	0	0	0	0	0
P	305	520	215	250	160	160	265	260	80	280	370	260	195	800	0	0	0	0	0	0	0	0	0	0	0	0	0
Pb	18.2	9.2	3.4	8.5	4.5	7.8	17.8	20.0	3.5	11.9	6.4	6.6	15.9	35	0	0	0	0	0	0	0	0	0	0	0	0	0
Rb	25.0	1.5	1.4	1.2	1.9	1.5	1.8	2.4	1.4	3.1	2.5	1.2	2.2	150	0	0	0	0	0	0	0	0	0	0	0	0	0
S%	0.06	0.02	0.01	0.02	0.01	0.02	0.03	0.04	0.02	0.02	0.02	0.04	0.03	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0
Sb	1.97	1.25	0.74	0.88	0.42	0.84	2.08	2.00	0.65	1.43	0.97	0.93	2.05	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Se	2	1	1	1	1	1	2	2	1	1	1	1	1	0.4	**2**	**1**	**1**	**1**	**<1**	**1**	**2**	**2**	**<1**	**1**	**1**	**1**	**1**
SiO_2%	46.90	54.70	59.40	10.17	65.00	7.84	10.40	14.85	63.60	10.53	9.36	10.10	9.93	33	0	0	0	0	0	0	0	0	0	0	0	0	0
Sn	1.7	0.4	0.3	0.5	0.2	0.3	1.1	1.3	0.3	0.5	0.4	0.3	0.7	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Sr	28.5	4.8	3.8	8.8	2.3	9.6	10.5	16.1	1.9	7.5	29.4	7.3	37.8	250	0	0	0	0	0	0	0	0	0	0	0	0	0
Ta	0.49	0.15	0.06	0.12	0.05	0.10	0.40	0.47	0.06	0.14	0.12	0.12	0.22	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Th	9.0	2.6	0.9	3.2	0.8	2.3	7.7	12.4	0.8	3.3	2.5	2.6	4.1	9	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti%	0.238	0.067	0.025	0.051	0.02	0.038	0.1785	0.204	0.026	0.063	0.049	0.051	0.103	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
Tl	0.40	0.03	0.03	0.05	0.02	0.11	0.10	0.15	0.02	0.06	0.09	0.02	0.39	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0
U	1.9	1.4	0.5	1.4	0.7	1.2	2.4	2.6	0.4	1.1	1.6	1.2	1.9	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
V	105	26	10	18	8	21	62	75	10	41	17	20	27	90	0	0	0	0	0	0	0	0	0	0	0	0	0
W	2.0	1.9	1.7	1.5	1.2	1.3	1.8	2.0	1.4	2.1	1.3	1.3	1.4	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Y	11.9	13.2	8.3	10.6	11.2	6.4	10.5	8.9	4.3	9.9	9.5	6.9	11.7	40	0	0	0	0	0	0	0	0	0	0	0	0	0
Zn	72	26	15	24	11	19	26	42	21	31	30	22	40	90	0	0	0	0	0	0	0	0	0	0	0	0	0
Zr	81.4	25.7	9.0	21.9	7.4	19.3	67.2	97.6	7.9	29.8	18.4	22.2	37.8	400	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes

Total element content values are median concentrations of each lithology (presenteded from Table 3)

<LOR - element below analytical limit of reporting

[1] from Environmental Chemistry of the Elements (Bowen, 1979) and Field Geologists' Manual (Berkman, 1976)

Table 6a

Tailings Analytical Results - Multi-Element Solids

FMG Christmas Creek Mine

Sample ID	DH 031551
Date Sampled	24/05/2012
Sample Type	Tailings

Analyte	LOR	Units	ISQG-Low	ISQG-High	
Ag	0.01	ppm	1	3.7	0.09
Al	0.01	%			2.71
Al2O3	0.01	%			5.26
As	0.001	%			0.002
As	0.001	ppm	20	70	22.2
Ba	0.001	%			0.013
Ba	10	ppm			160
Be	0.05	ppm			0.76
Bi	0.01	ppm			0.22
Ca	0.01	%			0.07
CaO	0.01	%			0.12
Cd	0.02	ppm	1.5	10	0.1
Ce	0.01	ppm			54.5
Cl	0.001	%			0.058
Co	0.001	%			0.002
Co	0.1	ppm			16.3
Cr	1	ppm	80	370	26
Cr2O3	0.0006	%			0.0135
Cs	0.05	ppm			0.3
Cu	0.001	%			0.002
Cu	0.2	ppm	65	270	18.9
Fe	0.01	%			45.7
Ga	0.05	ppm			5.88
Ge	0.05	ppm			3.13
Hf	0.1	ppm			1.1
In	0.005	ppm			0.026
K	0.01	%			0.06
K2O	0.001	%			0.157
La	0.5	ppm			11.8
Li	0.2	ppm			5.7
LOI	0.01	%			8.95
Mg	0.01	%			0.11
MgO	0.01	%			0.22
Mn	0.001	%			0.88
Mn	5	ppm			8280
Mo	0.05	ppm			0.81
Na	0.01	%			0.06
Na2O	0.005	%			0.151
Nb	0.1	ppm			3.8
Ni	0.001	%			0.008
Ni	0.2	ppm	21	52	38
P	0.001	%			0.056
P	10	ppm			500
Pb	0.001	%			<0.001
Pb	0.5	ppm	50	220	11
Rb	0.1	ppm			2.5
Re	0.002	ppm			<0.002
S	0.01	%			0.04
Sb	0.05	ppm	2	25	1.83
Sc	0.1	ppm			6.7
Se	1	ppm			1
SiO2	0.01	%			10.4
Sn	0.001	%			<0.001
Sn	0.2	ppm			0.9
Sr	0.001	%			0.002
Sr	0.2	ppm			17.7
Ta	0.05	ppm			0.3
Te	0.05	ppm			0.14
Th	0.2	ppm			4.5
Ti	0.005	%			0.126
TiO2	0.01	%			0.24
Tl	0.02	ppm			0.21
Total	0.01	%			100
U	0.1	ppm			2.4
V	0.001	%			0.002
V	1	ppm			30
W	0.1	ppm			3.5
Y	0.1	ppm			12.9
Zn	0.001	%			0.007
Zn	2	ppm	200	410	80
Zr	0.001	%			0.005
Zr	0.5	ppm			41

Legend:

Exceeds the WA DEC, 2010, ISQG-Low (Trigger value)

Exceeds the WA DEC, 2010, ISQG-High (Trigger Value)

Table 6b
Tailings Analytical Results - Multi-Element Solids
FMG Christmas Creek Mine

Sample ID	DH 031551
Date Sampled	24/05/2012
Sample Type	Primary Sample

Analyte	LOR	Units	
Physico-Chemical Parameters			
Moisture Content	1	%	**33.6**
Electrical Conductivity	1	µS/cm	**588**
Final pH	0.1	ph unit	**7.2**
pH	0.1	ph unit	**6.9**
Acid Base Accounting			
Sulfur - Total as S (LECO)	0.01	%	**0.03**
Chromium Reducible Sulphur	0.005	%	<0.005
ANC as CaCO3	0.1	% CaCO3	**0.3**
ANC as H2SO4	0.5	kg h2so4 equiv./t	**2.6**
Fizz Rating		fizz unit	**1**
NAG (pH 4,5)	0.1	kg h2so4/t	<0.1
NAG (pH 7,0)	0.1	kg h2so4/t	<0.1
pH (OX)	0.1	ph unit	**8.1**
Major Ions			
Chloride	10	mg/kg	**880**
Soluble Sulfate as SO4 2-	10	mg/kg	**460**
Sulfate as SO4 2-	100	mg/kg	**460**
Other			
Sodium Adsorption Ratio	0.01	-	**10.1**
Exchangeable Sodium Percent	0.1	%	**39.6**
Cation Exchange Capacity	0.1	meq/100g	**5.7**
Total Carbon	0.02	%	**0.07**

Legend:
- Not Analysed
NA - Not Applicable

Table 7
Tailings Liquor Analytical Results
FMG Christmas Creek Mine

Location	DH 031551
Sample ID	DH 031551
Date Sampled	24/05/2012
Sample Type	Primary Sample

Analyte	LOR	Units	ANZECC Trigger Values [1]	
Physico-Chemical Parameters				
pH	0.01	ph unit	6.0-7.5	**7.67**
Total Dissolved Solids	10	mg/L		**5020**
Electrical Conductivity @ 25°C	1	µs/cm		**7620**
Metals (Total)				
Aluminium	0.01	mg/L	0.055	**1.58**
Antimony	0.001	mg/L		**0.002**
Arsenic	0.001	mg/L	0.024 [2]	**0.002**
Barium	0.001	mg/L		**0.07**
Boron	0.05	mg/L	0.37	**0.38**
Cadmium	0.0001	mg/L	0.0002	<0.0001
Chromium	0.001	mg/L	0.001 [3]	**0.008**
Cobalt	0.001	mg/L		**0.004**
Copper	0.001	mg/L	0.0014	**0.006**
Iron	0.05	mg/L		**12.1**
Lead	0.001	mg/L	0.0034	**0.002**
Manganese	0.001	mg/L	1.9	**1.19**
Mercury	0.0001	mg/L	0.00006*	<0.0001
Molybdenum	0.001	mg/L		<0.001
Nickel	0.001	mg/L	0.011	**0.008**
Selenium	0.01	mg/L	0.005*	<0.01
Silver	0.001	mg/L	0.00005*	<0.001
Uranium	0.001	mg/L		<0.001
Vanadium	0.01	mg/L		<0.01
Zinc	0.005	mg/L	0.008	**0.01**
Major Ions				
Calcium	1	mg/L		**269**
Chloride	1	mg/L		**1860**
Magnesium	1	mg/L		**191**
Potassium	1	mg/L		**81**
Sodium	1	mg/L		**1140**
Sulfate as SO4 - Turbidimetric	1	mg/L		**823**

Legend:

[1] ANZECC 2000 Trigger Values for the protection of freshwater species in slightly to moderately disturbed ecosystems in upland rivers

exceedance of ANZECC Trigger Values

[2] Arsenic (As III) Trigger Value

[3] Chromium (CrVI) Trigger Value

* LOR is higher than criteria

Table 8
Tailings Analytical Results - Supernatant
FMG Christmas Creek Mine

Location		DH 031551
Sample ID		DH 031551
Date Sampled		24/05/2012
Sample Type		Primary Sample

Analyte	LOR	Units	ANZECC Trigger Values [1]	
Physico-Chemical Parameters				
pH	0.01	ph unit	6.0-7.5	**7.67**
Total Dissolved Solids	10	mg/L		**5020**
Electrical Conductivity @ 25°C	1	µs/cm		**7620**
Metals (Total)				
Aluminium	0.01	mg/L	0.055	**1.58**
Antimony	0.001	mg/L		**0.002**
Arsenic	0.001	mg/L	0.024 [2]	**0.002**
Barium	0.001	mg/L		**0.07**
Boron	0.05	mg/L	0.37	**0.38**
Cadmium	0.0001	mg/L	0.0002	<0.0001
Chromium	0.001	mg/L	0.001 [3]	**0.008**
Cobalt	0.001	mg/L		**0.004**
Copper	0.001	mg/L	0.0014	**0.006**
Iron	0.05	mg/L		**12.1**
Lead	0.001	mg/L	0.0034	**0.002**
Manganese	0.001	mg/L	1.9	**1.19**
Mercury	0.0001	mg/L	0.00006	<0.0001
Molybdenum	0.001	mg/L		<0.001
Nickel	0.001	mg/L	0.011	**0.008**
Selenium	0.01	mg/L	0.005	<0.01
Silver	0.001	mg/L	0.00005*	<0.001
Uranium	0.001	mg/L		<0.001
Vanadium	0.01	mg/L		<0.01
Zinc	0.005	mg/L	0.008	**0.01**
Major Ions				
Calcium	1	mg/L		**269**
Chloride	1	mg/L		**1860**
Magnesium	1	mg/L		**191**
Potassium	1	mg/L		**81**
Sodium	1	mg/L		**1140**
Sulfate as SO4 - Turbidimetric	1	mg/L		**823**

Legend:
[1] ANZECC 2000 Trigger Values for the protection of freshwater species in slightly to moderately disturbed ecosystems in upland rivers
exceedance of ANZECC Trigger Values
[2] Arsenic (As III) Trigger Value
[3] Chromium (CrVI) Trigger Value
* LOR is higher than criteria

Figures

A

Appendix A Laboratory Reports

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Australia.
ADDRESS / OFFICE: L4, 226 Adelaide Tce, Perth WA 6000.
PROJECT MANAGER (PM): TRACEY HASSELL
PROJECT ID: 42908001.
SITE: CHRISTMAS CREEK. P.O. NO.: PER-12-297336.
RESULTS REQUIRED (Date): STANDARD. QUOTE NO.:

SAMPLER: TRACEY HASSELL
MOBILE: 0407 561 462.
PHONE: 08 9326 0117.
EMAIL REPORT TO: tracey.hassell@urs.com.
EMAIL INVOICE TO: (if different to report) perth.accounts@urs.com.

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact Yes No N/A
SAMPLE TEMPERATURE
CHILLED Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
1	YPGC11055_20-21	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
2	YPGC11055_26-27	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
3	YPGC11055_32-33	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
4	YPGC11055_38-39	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
5	QC01_24/5/12	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
6	QC02_24/05/12	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
7	QC03_24/05/12	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
8	DH 031551	Tailings	—		Bucket	1	1	1	1	1	1	1	1						
9	DH 031551.	Liquid	—		"	"				1	1								Use liquor in bucket.
10	WAT 8 - Rebecca	Tailings	3/05/12.		Bucket	1	1	1	1	1	1	1	1						
11	WAT 8 - Rebecca	Liquid.	3/05/12		"	"				1	1								Use liquor in bucket.

Environmental Division
Perth
Work Order
EP1204221

Telephone : +61-8-9209 7655

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name: TRACEY HASSELL	Date: 28/05/12.	Name: Jess	Date: 28-5-12	Con' Note No:
Of: URS	Time: 1230.	Of: ALS	Time: 13:30	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT:	SAMPLER:
ADDRESS / OFFICE:	MOBILE:
PROJECT MANAGER (PM):	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
12	RRGC01553_1-2	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
13	RRGC01553_7-8	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
14	RRGC00759_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
15	RRGC00759_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
16	RRGC00759_14-15	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
17	RRGC00463_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
18	RRGC00463_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
19	RRGC00463_14-15	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
20	RRGC00463_20-21	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
21	YPGC11055_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
22	YPGC11055_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
23	YPGC11055_14-15	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: Jess	Date: 28.5.12	Con' Note No:
Of:	Time:	Of: ALS	Time: 13:30	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT:	SAMPLER:
ADDRESS / OFFICE:	MOBILE:
PROJECT MANAGER (PM):	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact Yes No N/A
SAMPLE TEMPERATURE
CHILLED Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
24	RRGC01421_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
25	RRGC01421_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
26	RRGC01421_14-15	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
27	RRGC01421_20-21	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
28	RRGC01521_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
29	RRCG01521_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
30	YPGC12764_2-3	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
31	YPGC12764_8-9	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
32	YPGC12764_14-15	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
33	YPGC12764_26-27	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
34	YPGC12764_38-39	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						
35	YPGC12764_50-51	Rock	24/05/2012		B	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1204221**

Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	Page	: 1 of 7
Order number	: PER-12-297 33C		
C-O-C number	: ----	Quote number	: EP2012URSWA0344 (EP/429/12)
Site	: CHRISTMAS CREEK		
Sampler	: TH	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 28-MAY-2012	Issue Date	: 29-MAY-2012 15:54
Client Requested Due Date	: 12-JUN-2012	Scheduled Reporting Date	: **12-JUN-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 20
No. of coolers/boxes	: 1 Med Hard, 2 Buckets	No. of samples received	: 35
Security Seal	: Intact.	No. of samples analysed	: 35

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method *Client sample ID*	Sample Container Received	Preferred Sample Container for Analysis
EP003TC : Total Carbon		
YPGC11055 20-21	- 80* dried soil	- Pulp Bag
YPGC11055 26-27	- 80* dried soil	- Pulp Bag
YPGC11055 32-33	- 80* dried soil	- Pulp Bag
YPGC11055 38-39	- 80* dried soil	- Pulp Bag
QC01 24/05/2012	- 80* dried soil	- Pulp Bag
QC02 24/05/2012	- 80* dried soil	- Pulp Bag
QC03 24/05/2012	- 80* dried soil	- Pulp Bag
DH 031551	- 80* dried soil	- Pulp Bag
WAT 8_Rebecca	- 80* dried soil	- Pulp Bag
PRGC01553 1-2	- 80* dried soil	- Pulp Bag
PRGC01553 7-8	- 80* dried soil	- Pulp Bag
PRGC00759 2-3	- 80* dried soil	- Pulp Bag
PRGC00759 8-9	- 80* dried soil	- Pulp Bag
PRGC00759 14-15	- 80* dried soil	- Pulp Bag
PRGC00463 2-3	- 80* dried soil	- Pulp Bag
PRGC00463 8-9	- 80* dried soil	- Pulp Bag
PRGC00463 14-15	- 80* dried soil	- Pulp Bag
PRGC00463 20-21	- 80* dried soil	- Pulp Bag
YPGC11055 2-3	- 80* dried soil	- Pulp Bag
YPGC11055 8-9	- 80* dried soil	- Pulp Bag
YPGC11055 14-15	- 80* dried soil	- Pulp Bag
PRGC01421 2-3	- 80* dried soil	- Pulp Bag
PRGC01421 8-9	- 80* dried soil	- Pulp Bag
PRGC01421 14-15	- 80* dried soil	- Pulp Bag
PRGC01421 20-21	- 80* dried soil	- Pulp Bag
PRGC01521 2-3	- 80* dried soil	- Pulp Bag
PRGC01521 8-9	- 80* dried soil	- Pulp Bag
YPGC12764 2-3	- 80* dried soil	- Pulp Bag
YPGC12764 8-9	- 80* dried soil	- Pulp Bag
YPGC12764 14-15	- 80* dried soil	- Pulp Bag
YPGC12764 26-27	- 80* dried soil	- Pulp Bag
YPGC12764 38-39	- 80* dried soil	- Pulp Bag
YPGC12764 50-51	- 80* dried soil	- Pulp Bag

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1204221-001	24-MAY-2012 15:00	YPGC11055 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-002	24-MAY-2012 15:00	YPGC11055 26-27	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-003	24-MAY-2012 15:00	YPGC11055 32-33	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-004	24-MAY-2012 15:00	YPGC11055 38-39	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-005	24-MAY-2012 15:00	QC01 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-006	24-MAY-2012 15:00	QC02 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-007	24-MAY-2012 15:00	QC03 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-008	24-MAY-2012 15:00	DH 031551	✓		✓	✓		✓	✓	
	29-MAY-2012 15:00	DH 031551		✓			✓			✓
EP1204221-010	03-MAY-2012 15:00	WAT 8_Rebecca	✓		✓	✓		✓	✓	

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1204221-010	29-MAY-2012 15:00	WAT 8_Rebecca		✓			✓			✓
EP1204221-012	24-MAY-2012 15:00	PRGC01553 1-2	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-013	24-MAY-2012 15:00	PRGC01553 7-8	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-014	24-MAY-2012 15:00	PRGC00759 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-015	24-MAY-2012 15:00	PRGC00759 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-016	24-MAY-2012 15:00	PRGC00759 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-017	24-MAY-2012 15:00	PRGC00463 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-018	24-MAY-2012 15:00	PRGC00463 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-019	24-MAY-2012 15:00	PRGC00463 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-020	24-MAY-2012 15:00	PRGC00463 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-021	24-MAY-2012 15:00	YPGC11055 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-022	24-MAY-2012 15:00	YPGC11055 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-023	24-MAY-2012 15:00	YPGC11055 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-024	24-MAY-2012 15:00	PRGC01421 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-025	24-MAY-2012 15:00	PRGC01421 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-026	24-MAY-2012 15:00	PRGC01421 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-027	24-MAY-2012 15:00	PRGC01421 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-028	24-MAY-2012 15:00	PRGC01521 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-029	24-MAY-2012 15:00	PRGC01521 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-030	24-MAY-2012 15:00	YPGC12764 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-031	24-MAY-2012 15:00	YPGC12764 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-032	24-MAY-2012 15:00	YPGC12764 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-033	24-MAY-2012 15:00	YPGC12764 26-27	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-034	24-MAY-2012 15:00	YPGC12764 38-39	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-035	24-MAY-2012 15:00	YPGC12764 50-51	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED040T Sulfate Total	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations
EP1204221-001	24-MAY-2012 15:00	YPGC11055 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-002	24-MAY-2012 15:00	YPGC11055 26-27	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-003	24-MAY-2012 15:00	YPGC11055 32-33	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-004	24-MAY-2012 15:00	YPGC11055 38-39	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-005	24-MAY-2012 15:00	QC01 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED040T Sulfate Total	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations
EP1204221-006	24-MAY-2012 15:00	QC02 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-007	24-MAY-2012 15:00	QC03 24/05/2012	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-008	24-MAY-2012 15:00	DH 031551	✓	✓	✓	✓	✓	✓	✓	
	29-MAY-2012 15:00	DH 031551								✓
EP1204221-010	03-MAY-2012 15:00	WAT 8_Rebecca	✓	✓	✓	✓	✓	✓	✓	
	29-MAY-2012 15:00	WAT 8_Rebecca								✓
EP1204221-012	24-MAY-2012 15:00	PRGC01553 1-2	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-013	24-MAY-2012 15:00	PRGC01553 7-8	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-014	24-MAY-2012 15:00	PRGC00759 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-015	24-MAY-2012 15:00	PRGC00759 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-016	24-MAY-2012 15:00	PRGC00759 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-017	24-MAY-2012 15:00	PRGC00463 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-018	24-MAY-2012 15:00	PRGC00463 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-019	24-MAY-2012 15:00	PRGC00463 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-020	24-MAY-2012 15:00	PRGC00463 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-021	24-MAY-2012 15:00	YPGC11055 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-022	24-MAY-2012 15:00	YPGC11055 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-023	24-MAY-2012 15:00	YPGC11055 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-024	24-MAY-2012 15:00	PRGC01421 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-025	24-MAY-2012 15:00	PRGC01421 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-026	24-MAY-2012 15:00	PRGC01421 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-027	24-MAY-2012 15:00	PRGC01421 20-21	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-028	24-MAY-2012 15:00	PRGC01521 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-029	24-MAY-2012 15:00	PRGC01521 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-030	24-MAY-2012 15:00	YPGC12764 2-3	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-031	24-MAY-2012 15:00	YPGC12764 8-9	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-032	24-MAY-2012 15:00	YPGC12764 14-15	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-033	24-MAY-2012 15:00	YPGC12764 26-27	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-034	24-MAY-2012 15:00	YPGC12764 38-39	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-035	24-MAY-2012 15:00	YPGC12764 50-51	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EG020W Water Leachable Metals by ICPMS	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1204221-001	24-MAY-2012 15:00	YPGC11055 20-21	✓	✓	✓	✓
EP1204221-002	24-MAY-2012 15:00	YPGC11055 26-27	✓	✓	✓	✓
EP1204221-003	24-MAY-2012 15:00	YPGC11055 32-33	✓	✓	✓	✓
EP1204221-004	24-MAY-2012 15:00	YPGC11055 38-39	✓	✓	✓	✓
EP1204221-005	24-MAY-2012 15:00	QC01 24/05/2012	✓	✓	✓	✓
EP1204221-006	24-MAY-2012 15:00	QC02 24/05/2012	✓	✓	✓	✓
EP1204221-007	24-MAY-2012 15:00	QC03 24/05/2012	✓	✓	✓	✓
EP1204221-008	24-MAY-2012 15:00	DH 031551			✓	✓
	29-MAY-2012 15:00	DH 031551	✓	✓		
EP1204221-010	03-MAY-2012 15:00	WAT 8_Rebecca			✓	✓
	29-MAY-2012 15:00	WAT 8_Rebecca	✓	✓		
EP1204221-012	24-MAY-2012 15:00	PRGC01553 1-2	✓	✓	✓	✓
EP1204221-013	24-MAY-2012 15:00	PRGC01553 7-8	✓	✓	✓	✓
EP1204221-014	24-MAY-2012 15:00	PRGC00759 2-3	✓	✓	✓	✓
EP1204221-015	24-MAY-2012 15:00	PRGC00759 8-9	✓	✓	✓	✓
EP1204221-016	24-MAY-2012 15:00	PRGC00759 14-15	✓	✓	✓	✓
EP1204221-017	24-MAY-2012 15:00	PRGC00463 2-3	✓	✓	✓	✓
EP1204221-018	24-MAY-2012 15:00	PRGC00463 8-9	✓	✓	✓	✓
EP1204221-019	24-MAY-2012 15:00	PRGC00463 14-15	✓	✓	✓	✓
EP1204221-020	24-MAY-2012 15:00	PRGC00463 20-21	✓	✓	✓	✓
EP1204221-021	24-MAY-2012 15:00	YPGC11055 2-3	✓	✓	✓	✓
EP1204221-022	24-MAY-2012 15:00	YPGC11055 8-9	✓	✓	✓	✓
EP1204221-023	24-MAY-2012 15:00	YPGC11055 14-15	✓	✓	✓	✓
EP1204221-024	24-MAY-2012 15:00	PRGC01421 2-3	✓	✓	✓	✓
EP1204221-025	24-MAY-2012 15:00	PRGC01421 8-9	✓	✓	✓	✓
EP1204221-026	24-MAY-2012 15:00	PRGC01421 14-15	✓	✓	✓	✓
EP1204221-027	24-MAY-2012 15:00	PRGC01421 20-21	✓	✓	✓	✓
EP1204221-028	24-MAY-2012 15:00	PRGC01521 2-3	✓	✓	✓	✓
EP1204221-029	24-MAY-2012 15:00	PRGC01521 8-9	✓	✓	✓	✓
EP1204221-030	24-MAY-2012 15:00	YPGC12764 2-3	✓	✓	✓	✓
EP1204221-031	24-MAY-2012 15:00	YPGC12764 8-9	✓	✓	✓	✓
EP1204221-032	24-MAY-2012 15:00	YPGC12764 14-15	✓	✓	✓	✓
EP1204221-033	24-MAY-2012 15:00	YPGC12764 26-27	✓	✓	✓	✓
EP1204221-034	24-MAY-2012 15:00	YPGC12764 38-39	✓	✓	✓	✓
EP1204221-035	24-MAY-2012 15:00	YPGC12764 50-51	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EA005P pH (PC)	WATER - EA010P Conductivity (PC)	WATER - EA015H Total Dissolved Solids - High Level	WATER - ED041G Sulfate (Turbidimetric) as SO4 2 by Discrete Analyser	WATER - ED045G Chloride by Discrete Analyser	WATER - EG020T Total Recoverable Metals by ICPMS	WATER - EG035T Total Mercury by FIMS	WATER - NT-01 Major Cations (Ca, Mg, Na, K)
EP1204221-009	24-MAY-2012 15:00	DH 031551	✓	✓	✓	✓	✓	✓	✓	✓
EP1204221-011	03-MAY-2012 15:00	WAT 8_Rebecca	✓	✓	✓	✓	✓	✓	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EA002: pH (1:5)							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	10-MAY-2012	----	28-MAY-2012	×	----	----
EA005-P: pH by PC Titrator							
PRGC00463	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
PRGC00759	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
PRGC01421	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
PRGC01521	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
PRGC01553	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
QC01	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
QC02	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
QC03	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
YPGC11055	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
YPGC12764	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
EA010: Electrical Conductivity (1:5)							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	10-MAY-2012	----	28-MAY-2012	×	----	----
EA055-103: Moisture Content							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	----	17-MAY-2012	28-MAY-2012	×	----	----
ED040S: Major Anions - Soluble							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	10-MAY-2012	----	28-MAY-2012	×	----	----
ED040T: Sulfate as SO4 2- Total							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	10-MAY-2012	----	28-MAY-2012	×	----	----
ED045G: Chloride Soluble By Discrete Analyser							
WAT 8_Rebecca	Soil Glass Jar - Unpreserved	10-MAY-2012	----	28-MAY-2012	×	----	----

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EA005-P: pH by PC Titrator							
DH 031551	Clear Plastic Bottle - Natural	24-MAY-2012	----	28-MAY-2012	×	----	----
WAT 8_Rebecca	Clear Plastic Bottle - Natural	03-MAY-2012	----	28-MAY-2012	×	----	----
EA015H: Total Dissolved Solids (High Level)							
WAT 8_Rebecca	Clear Plastic Bottle - Natural	----	10-MAY-2012	28-MAY-2012	×	----	----
ED093F: Major Cations - Dissolved							
WAT 8_Rebecca	Clear Plastic Bottle - Natural	10-MAY-2012	----	28-MAY-2012	×	----	----

Requested Deliverables

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	Perth.Accounts@urs.com

TRACY HASSELL

- *AU Certificate of Analysis - NATA (COA)	Email	tracey.hassell@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tracey.hassell@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tracey.hassell@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tracey.hassell@urs.com
- A4 - AU Tax Invoice (INV)	Email	tracey.hassell@urs.com
- Attachment - Report (SUBCO)	Email	tracey.hassell@urs.com
- Chain of Custody (CoC) (COC)	Email	tracey.hassell@urs.com
- EDI Format - EQUIS V5 URS (EQUIS_V5_URS)	Email	tracey.hassell@urs.com
- EDI Format - MRED (MRED)	Email	tracey.hassell@urs.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP1204221**	Page	: 1 of 17
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: PER-12-297 33C		
C-O-C number	: ----	Date Samples Received	: 28-MAY-2012
Sampler	: TH	Issue Date	: 29-JUN-2012
Site	: CHRISTMAS CREEK		
		No. of samples received	: 35
Quote number	: EP/429/12	No. of samples analysed	: 35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
Leanne Cooper	Acid Sulfate Soils Supervisor	Perth ASS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.**
- **EG035T: Sample "Anonymous" shows poor mercury matrix spike recovery due to matrix effects.**
- **TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.**

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC11055 20-21	YPGC11055 26-27	YPGC11055 32-33	YPGC11055 38-39	QC01 24/05/2012
				Client sampling date / time	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00
					EP1204221-001	EP1204221-002	EP1204221-003	EP1204221-004	EP1204221-005
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.52**	**7.02**	**6.93**	**6.70**	**6.92**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**13**	**14**	**26**	**13**	**16**
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		**13**	<10	**30**	**12**	**11**
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		<1	<1	<1	<1	<1
Magnesium	7439-95-4	1	mg/L		<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L		**3**	**2**	**6**	**3**	**3**
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.03**	**0.02**	**0.26**	**0.04**	**0.06**
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		**0.116**	**0.089**	**1.00**	**0.564**	**0.109**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	**0.0002**	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	**0.003**	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		**0.476**	**0.047**	**0.149**	**0.044**	**0.002**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	**0.003**	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.055**	**0.049**	**0.616**	**0.148**	**0.057**
Boron	7440-42-8	0.05	mg/L		**0.21**	**0.18**	**0.80**	**0.44**	**0.14**
Iron	7439-89-6	0.05	mg/L		**0.10**	**0.58**	**7.44**	**1.70**	**0.54**
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: QC02 24/05/2012	QC03 24/05/2012	DH 031551	WAT 8_Rebecca	PRGC01553 1-2
			Client sampling date / time	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	24-MAY-2012 15:00
				EP1204221-006	EP1204221-007	EP1204221-008	EP1204221-010	EP1204221-012
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.78	6.82	7.03	7.37	8.21
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	10	7	166	233	60
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	10	11	95	132	60
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	4	6	7
Magnesium	7439-95-4	1	mg/L	<1	<1	2	2	1
Sodium	7440-23-5	1	mg/L	2	2	24	32	4
Potassium	7440-09-7	1	mg/L	<1	<1	2	3	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.04	0.05	0.04	0.07	0.16
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.178	0.082	0.201	0.222	0.401
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.031	0.124	0.009	0.007	0.004
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.075	0.067	0.143	0.131	0.059
Boron	7440-42-8	0.05	mg/L	0.22	0.16	0.11	0.10	0.36
Iron	7439-89-6	0.05	mg/L	1.00	1.64	0.14	0.24	0.16
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC01553 7-8	PRGC00759 2-3	PRGC00759 8-9	PRGC00759 14-15	PRGC00463 2-3
				Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00
					EP1204221-013	EP1204221-014	EP1204221-015	EP1204221-016	EP1204221-017
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.82**	**6.69**	**6.82**	**6.70**	**6.53**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**10**	**10**	**12**	**26**	**9**
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		<10	<10	<10	**17**	<10
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		<1	<1	<1	<1	<1
Magnesium	7439-95-4	1	mg/L		<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L		**2**	**2**	**3**	**4**	**2**
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.01**	<0.01	**0.22**	**0.02**	<0.01
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		**0.092**	**0.185**	**0.204**	**0.295**	**0.319**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		<0.001	**0.003**	**0.002**	**0.004**	**0.004**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.048**	**0.043**	**0.066**	**0.091**	**0.074**
Boron	7440-42-8	0.05	mg/L		**0.09**	**0.21**	**0.21**	**0.19**	**0.24**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	**0.34**	**0.37**	<0.05
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC00463 8-9	PRGC00463 14-15	PRGC00463 20-21	YPGC11055 2-3	YPGC11055 8-9
				Client sampling date / time	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00	05-JUN-2012 12:00
					EP1204221-018	EP1204221-019	EP1204221-020	EP1204221-021	EP1204221-022
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.45**	**6.85**	**6.61**	**6.52**	**6.93**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**9**	**20**	**67**	**8**	**15**
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		**11**	**14**	**38**	**10**	**12**
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		<1	<1	**3**	<1	<1
Magnesium	7439-95-4	1	mg/L		<1	<1	**2**	<1	<1
Sodium	7440-23-5	1	mg/L		**2**	**4**	**7**	**2**	**3**
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	**0.02**	<0.01	<0.01	**0.21**
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		**0.115**	**0.236**	**0.088**	**0.086**	**0.188**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		<0.001	**0.006**	**0.002**	**0.005**	**0.302**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.041**	**0.093**	**0.083**	**0.083**	**0.099**
Boron	7440-42-8	0.05	mg/L		**0.08**	**0.21**	**0.06**	**0.09**	**0.18**
Iron	7439-89-6	0.05	mg/L		<0.05	**0.90**	<0.05	<0.05	**1.90**
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC11055 14-15	PRGC01421 2-3	PRGC01421 8-9	PRGC01421 14-15	PRGC01421 20-21
				Client sampling date / time: 07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00
				EP1204221-023	EP1204221-024	EP1204221-025	EP1204221-026	EP1204221-027
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.59**	**6.94**	**6.66**	**7.07**	**6.52**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**18**	**21**	**14**	**17**	**36**
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	**13**	**28**	**17**	**20**
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	<1	<1	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	**3**	**3**	**2**	**4**	**5**
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.02**	**0.08**	**0.03**	**0.08**	<0.01
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	**0.195**	**0.281**	**0.161**	**0.132**	**0.113**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.006**	**0.003**	<0.001	**0.002**	<0.001
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.081**	**0.063**	**0.050**	**0.062**	**0.074**
Boron	7440-42-8	0.05	mg/L	**0.18**	**0.18**	**0.14**	**0.18**	**0.06**
Iron	7439-89-6	0.05	mg/L	**0.30**	**0.16**	**0.14**	**0.75**	<0.05
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC01521 2-3	PRGC01521 8-9	YPGC12764 2-3	YPGC12764 8-9	YPGC12764 14-15
				Client sampling date / time	07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00	07-JUN-2012 12:00
					EP1204221-028	EP1204221-029	EP1204221-030	EP1204221-031	EP1204221-032
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**9.04**	**8.73**	**7.71**	**7.66**	**7.62**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**64**	**67**	**59**	**25**	**38**
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		**60**	**63**	**24**	**15**	**25**
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		**6**	**2**	**2**	<1	**1**
Magnesium	7439-95-4	1	mg/L		**2**	**2**	<1	<1	<1
Sodium	7440-23-5	1	mg/L		**5**	**8**	**11**	**6**	**7**
Potassium	7440-09-7	1	mg/L		**2**	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.05**	**0.02**	**2.16**	**0.73**	**0.40**
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		**0.002**	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		**0.286**	**0.143**	**2.13**	**0.734**	**1.05**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	**0.0002**	**0.0001**	**0.0001**
Chromium	7440-47-3	0.001	mg/L		**0.001**	<0.001	**0.006**	**0.004**	**0.002**
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	**0.002**	**0.002**	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	**0.010**	**0.003**	**0.002**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	**0.002**	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		<0.001	**0.001**	**0.100**	**0.117**	**0.004**
Molybdenum	7439-98-7	0.001	mg/L		<0.001	**0.002**	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	**0.011**	**0.005**	<0.001
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.031**	**0.019**	**0.738**	**0.194**	**0.204**
Boron	7440-42-8	0.05	mg/L		**0.16**	**0.09**	**1.73**	**0.59**	**0.86**
Iron	7439-89-6	0.05	mg/L		**0.10**	**0.19**	**4.06**	**1.43**	**0.34**
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC12764 26-27	YPGC12764 38-39	YPGC12764 50-51	----	----
Client sampling date / time				07-JUN-2012 12:00	24-MAY-2012 15:00	07-JUN-2012 12:00	----	----
				EP1204221-033	EP1204221-034	EP1204221-035	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.41**	**7.23**	**7.26**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**36**	**38**	**21**	----	----
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**35**	<10	**26**	----	----
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	**1**	**3**	<1	----	----
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	----	----
Sodium	7440-23-5	1	mg/L	**7**	**4**	**4**	----	----
Potassium	7440-09-7	1	mg/L	<1	<1	<1	----	----
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.65**	**0.08**	**0.04**	----	----
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.018**	<0.001	----	----
Barium	7440-39-3	0.001	mg/L	**0.606**	**0.242**	**0.159**	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	**0.001**	<0.001	<0.001	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	**0.002**	<0.001	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L	**0.006**	**0.286**	**0.021**	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	**0.001**	<0.001	<0.001	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L	**0.182**	**0.082**	**0.073**	----	----
Boron	7440-42-8	0.05	mg/L	**0.52**	**0.10**	**0.12**	----	----
Iron	7439-89-6	0.05	mg/L	**0.71**	**0.45**	**0.92**	----	----
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC11055 20-21	YPGC11055 26-27	YPGC11055 32-33	YPGC11055 38-39	QC01 24/05/2012
				Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00
					EP1204221-001	EP1204221-002	EP1204221-003	EP1204221-004	EP1204221-005
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.4	7.8	7.3	7.1	8.0
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.53	3.33	9.33	1.70	8.18
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		26	13	58	21	42
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		8.3	7.6	7.4	7.2	6.2
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	2.9
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		2.0	3.9	3.2	3.3	1.2
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.4	0.3	0.3	0.1
Fizz Rating	----	0	Fizz Unit		1	1	1	1	1
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		<1.0	<1.0	2.2	<1.0	1.2
ED007: Exchangeable Cations									
Cation Exchange Capacity	----	0.1	meq/100g		0.5	1.7	0.3	0.8	0.7
Exchangeable Sodium Percent	----	0.1	%		21.8	4.2	21.8	29.9	30.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		10	<10	40	10	40
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	<0.01	<0.01	<0.01	0.03
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		<10	<10	40	20	20
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		6.5	7.4	7.4	7.2	7.6
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.02	0.03	0.04	0.07	0.06

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: QC02 24/05/2012	QC03 24/05/2012	DH 031551	WAT 8_Rebecca	PRGC01553 1-2
			Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	03-MAY-2012 15:00	24-MAY-2012 15:00
				EP1204221-006	EP1204221-007	EP1204221-008	EP1204221-010	EP1204221-012
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.9	7.9	6.9	6.9	8.6
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	1.90	8.03	10.1	14.0	1.28
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	21	14	588	804	109
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.0	7.3	8.1	8.1	8.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	4.5	2.7	2.6	1.8	4.6
ANC as CaCO3	----	0.1	% CaCO3	0.4	0.3	0.3	0.2	0.5
Fizz Rating	----	0	Fizz Unit	1	1	1	1	1
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	1.1	33.6	31.5	1.6
ED007: Exchangeable Cations								
Cation Exchange Capacity	----	0.1	meq/100g	0.4	0.6	5.7	5.2	4.8
Exchangeable Sodium Percent	----	0.1	%	21.8	9.4	39.6	38.6	3.3
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	460	630	<100
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	<10	460	570	20
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.03	0.04	0.02
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	20	<10	880	1290	40
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	7.6	7.9	7.2	7.5	8.6
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	0.03	0.04	0.07	0.07	0.09

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC01553 7-8	PRGC00759 2-3	PRGC00759 8-9	PRGC00759 14-15	PRGC00463 2-3
				Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00
					EP1204221-013	EP1204221-014	EP1204221-015	EP1204221-016	EP1204221-017
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.2	5.6	6.1	6.2	6.1
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.68	2.10	9.82	4.94	0.80
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		33	16	23	77	18
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		5.7	6.7	6.8	5.8	6.2
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		3.3	0.2	<0.1	3.2	0.9
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		2.4	3.3	2.7	0.7	2.1
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.3	0.3	<0.1	0.2
Fizz Rating	----	0	Fizz Unit		1	1	1	1	1
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		<1.0	2.8	2.4	<1.0	1.4
ED007: Exchangeable Cations									
Cation Exchange Capacity	----	0.1	meq/100g		0.5	0.7	1.4	0.8	0.4
Exchangeable Sodium Percent	----	0.1	%		11.2	6.7	20.0	27.6	6.4
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	<10	20	40	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.01	0.04	0.07	0.01	0.04
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		20	<10	<10	70	<10
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		7.8	7.3	7.7	7.9	7.5
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.05	0.15	0.08	<0.02	0.06

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC00463 8-9	PRGC00463 14-15	PRGC00463 20-21	YPGC11055 2-3	YPGC11055 8-9
				Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00
					EP1204221-018	EP1204221-019	EP1204221-020	EP1204221-021	EP1204221-022
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.0	6.1	6.2	5.7	6.1
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.88	1.86	2.43	4.21	----
Sodium Adsorption Ratio	----	0.01	-		----	----	----	----	<0.05
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		30	45	234	25	19
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		5.9	6.0	7.2	6.2	7.6
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		1.0	1.7	<0.1	1.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		2.6	2.5	0.7	2.0	1.8
ANC as CaCO3	----	0.1	% CaCO3		0.3	0.2	<0.1	0.2	0.2
Fizz Rating	----	0	Fizz Unit		1	1	1	1	1
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		1.6	<1.0	<1.0	1.0	1.5
ED007: Exchangeable Cations									
Cation Exchange Capacity	----	0.1	meq/100g		1.0	0.4	1.2	0.7	1.0
Exchangeable Sodium Percent	----	0.1	%		16.6	37.3	30.5	11.7	17.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		130	<100	190	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		40	30	130	<10	20
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.09	0.01	0.01	0.03	0.04
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		10	40	170	20	<10
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		7.4	7.6	7.2	7.2	7.7
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.08	0.02	<0.02	0.09	0.14

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC11055 14-15	PRGC01421 2-3	PRGC01421 8-9	PRGC01421 14-15	PRGC01421 20-21
			Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00
				EP1204221-023	EP1204221-024	EP1204221-025	EP1204221-026	EP1204221-027
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.4	6.1	6.5	6.7	6.2
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	7.70	1.94	3.31	21.6	6.91
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	38	41	37	35	131
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	6.4	5.8	6.3	6.4	5.6
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	2.8	1.1	0.8	1.7
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	2.2	3.4	4.0	3.6	2.5
ANC as CaCO3	----	0.1	% CaCO3	0.2	0.4	0.4	0.4	0.2
Fizz Rating	----	0	Fizz Unit	1	1	1	1	1
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	1.5	1.6	1.6	1.2	3.2
ED007: Exchangeable Cations								
Cation Exchange Capacity	----	0.1	meq/100g	0.6	0.9	0.8	1.0	1.2
Exchangeable Sodium Percent	----	0.1	%	34.5	10.6	20.6	31.9	28.0
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	270	210	<100	<100
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	40	60	30	40
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.05	0.07	0.04	0.03
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	20	20	<10	20	140
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	8.7	7.7	8.4	8.3	7.8
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	0.05	0.05	0.30	0.04	0.03

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	PRGC01521 2-3	PRGC01521 8-9	YPGC12764 2-3	YPGC12764 8-9	YPGC12764 14-15
				Client sampling date / time	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00
					EP1204221-028	EP1204221-029	EP1204221-030	EP1204221-031	EP1204221-032
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.9	8.6	6.1	7.4	7.7
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.04	6.20	4.70	7.57	11.1
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		100	186	31	24	25
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.2	7.6	7.2	8.0	6.1
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	5.8
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		13.7	5.4	3.9	3.8	1.9
ANC as CaCO3	----	0.1	% CaCO3		1.4	0.6	0.4	0.4	0.2
Fizz Rating	----	0	Fizz Unit		1	1	1	1	1
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	0.006	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.0	<1.0	3.8	3.4	3.5
ED007: Exchangeable Cations									
Cation Exchange Capacity	----	0.1	meq/100g		19.7	4.4	5.3	5.9	4.2
Exchangeable Sodium Percent	----	0.1	%		1.4	13.6	3.0	3.3	6.7
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		140	250	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	140	30	10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.01	0.04	0.06	0.06	0.02
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		10	130	70	10	20
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		9.3	9.1	8.0	8.3	8.4
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.15	0.09	0.08	0.05	0.05

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC12764 26-27	YPGC12764 38-39	YPGC12764 50-51	----	----
				Client sampling date / time: 24-MAY-2012 15:00	24-MAY-2012 15:00	24-MAY-2012 15:00	----	----
				EP1204221-033	EP1204221-034	EP1204221-035	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**7.4**	**7.2**	**7.2**	----	----
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	**4.56**	**3.03**	**1.91**	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**56**	**72**	**601**	----	----
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	**6.3**	**7.9**	**7.3**	----	----
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	----	----
NAG (pH 7.0)	----	0.1	kg H2SO4/t	**2.3**	<0.1	<0.1	----	----
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	**1.7**	**2.7**	**1.6**	----	----
ANC as CaCO3	----	0.1	% CaCO3	**0.2**	**0.3**	**0.2**	----	----
Fizz Rating	----	0	Fizz Unit	**1**	**1**	**1**	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**4.4**	**2.2**	<1.0	----	----
ED007: Exchangeable Cations								
Cation Exchange Capacity	----	0.1	meq/100g	**4.1**	**1.5**	**1.1**	----	----
Exchangeable Sodium Percent	----	0.1	%	**5.4**	**10.2**	**9.9**	----	----
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	**140**	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**40**	**60**	**60**	----	----
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	**0.02**	**0.20**	<0.01	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**30**	**40**	**30**	----	----
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**8.3**	**8.4**	**8.4**	----	----
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.08**	**0.07**	**0.03**	----	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: DH 031551	WAT 8_Rebecca	----	----	----
				Client sampling date / time: 24-MAY-2012 15:00	03-MAY-2012 15:00	----	----	----
				EP1204221-009	EP1204221-011	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.67**	**7.63**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**7620**	**10600**	----	----	----
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**5020**	**7520**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**823**	**1130**	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	**1860**	**3090**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**269**	**344**	----	----	----
Magnesium	7439-95-4	1	mg/L	**191**	**196**	----	----	----
Sodium	7440-23-5	1	mg/L	**1140**	**1640**	----	----	----
Potassium	7440-09-7	1	mg/L	**81**	**120**	----	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**1.58**	**0.03**	----	----	----
Antimony	7440-36-0	0.001	mg/L	**0.002**	<0.001	----	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.002**	<0.001	----	----	----
Barium	7440-39-3	0.001	mg/L	**0.070**	**0.020**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.008**	**0.003**	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.004**	**0.001**	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.006**	**0.004**	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.002**	<0.001	----	----	----
Manganese	7439-96-5	0.001	mg/L	**1.19**	**0.030**	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.008**	**0.002**	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	----	----	----
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.010**	<0.005	----	----	----
Boron	7440-42-8	0.05	mg/L	**0.38**	**0.27**	----	----	----
Iron	7439-89-6	0.05	mg/L	**12.1**	**0.18**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EP1204221**	Page	: 1 of 18
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 28-MAY-2012
Sampler	: TH	Issue Date	: 29-JUN-2012
Order number	: PER-12-297 33C		
		No. of samples received	: 35
Quote number	: EP/429/12	No. of samples analysed	: 35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
Leanne Cooper	Acid Sulfate Soils Supervisor	Perth ASS

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 2334523)									
EP1204221-001	YPGC11055 20-21	EA002: pH Value	----	0.1	pH Unit	8.4	8.9	6.1	0% - 20%
EP1204221-012	PRGC01553 1-2	EA002: pH Value	----	0.1	pH Unit	8.6	8.6	0.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2334527)									
EP1204221-023	YPGC11055 14-15	EA002: pH Value	----	0.1	pH Unit	6.4	6.5	0.0	0% - 20%
EP1204221-032	YPGC12764 14-15	EA002: pH Value	----	0.1	pH Unit	7.7	7.8	0.0	0% - 20%
EA006: Sodium Adsorption Ratio (SAR) (QC Lot: 2349678)									
EP1204221-001	YPGC11055 20-21	EA006: Sodium Adsorption Ratio	----	0.01		2.53	2.64	3.9	0% - 20%
EP1204221-013	PRGC01553 7-8	EA006: Sodium Adsorption Ratio	----	0.01		3.68	3.92	6.5	0% - 20%
EA006: Sodium Adsorption Ratio (SAR) (QC Lot: 2349679)									
EP1204221-023	YPGC11055 14-15	EA006: Sodium Adsorption Ratio	----	0.01		7.70	7.37	4.4	0% - 20%
EP1204221-033	YPGC12764 26-27	EA006: Sodium Adsorption Ratio	----	0.01		4.56	4.46	2.0	0% - 20%
EA010: Conductivity (QC Lot: 2334525)									
EP1204221-001	YPGC11055 20-21	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	26	25	0.0	0% - 20%
EP1204221-012	PRGC01553 1-2	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	109	108	1.3	0% - 20%
EA010: Conductivity (QC Lot: 2334529)									
EP1204221-023	YPGC11055 14-15	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	38	36	8.1	0% - 20%
EP1204221-032	YPGC12764 14-15	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	25	24	4.4	0% - 20%
EA011: Net Acid Generation (QC Lot: 2346296)									
EP1204221-001	YPGC11055 20-21	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EP1204221-015	PRGC00759 8-9	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	6.8	6.8	0.0	0% - 20%
EA011: Net Acid Generation (QC Lot: 2346299)									
EP1204221-025	PRGC01421 8-9	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	1.1	1.1	0.0	0% - 50%
		EA011: pH (OX)	----	0.1	pH Unit	6.3	6.3	0.0	0% - 20%
EP1204221-035	YPGC12764 50-51	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.3	7.3	0.0	0% - 20%
EA011: Net Acid Generation (QC Lot: 2346330)									
EP1204221-008	DH 031551	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA011: Net Acid Generation (QC Lot: 2346330) - continued									
EP1204221-008	DH 031551	EA011: pH (OX)	----	0.1	pH Unit	8.1	8.1	0.0	0% - 20%
EA013: Acid Neutralising Capacity (QC Lot: 2346295)									
EP1204221-001	YPGC11055 20-21	EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	2.0	2.1	5.8	No Limit
EP1204221-015	PRGC00759 8-9	EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	2.7	2.7	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2346298)									
EP1204221-025	PRGC01421 8-9	EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	4.0	4.0	0.0	No Limit
EP1204221-035	YPGC12764 50-51	EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	1.6	1.6	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2346329)									
EP1204221-008	DH 031551	EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	2.6	2.6	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2346297)									
EP1204221-001	YPGC11055 20-21	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1204221-015	PRGC00759 8-9	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2346300)									
EP1204221-025	PRGC01421 8-9	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1204221-035	YPGC12764 50-51	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2346331)									
EP1204221-008	DH 031551	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA055: Moisture Content (QC Lot: 2332305)									
EP1204221-001	YPGC11055 20-21	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	0.0	No Limit
EP1204221-012	PRGC01553 1-2	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	1.6	1.6	0.0	No Limit
EA055: Moisture Content (QC Lot: 2332306)									
EP1204221-023	YPGC11055 14-15	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	1.5	1.5	0.0	No Limit
EP1204221-032	YPGC12764 14-15	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	3.5	3.5	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2334524)									
EP1204221-001	YPGC11055 20-21	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	10	0.0	No Limit
EP1204221-012	PRGC01553 1-2	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2334528)									
EP1204221-023	YPGC11055 14-15	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	30	0.0	No Limit
EP1204221-032	YPGC12764 14-15	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2339874)									
EP1204221-001	YPGC11055 20-21	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1204221-012	PRGC01553 1-2	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2339875)									
EP1204221-023	YPGC11055 14-15	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1204221-032	YPGC12764 14-15	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2339210)									
EP1204221-001	YPGC11055 20-21	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
EP1204221-013	PRGC01553 7-8	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.01	0.01	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED042T: Total Sulfur by LECO (QC Lot: 2339212)									
EP1204221-023	YPGC11055 14-15	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit
EP1204221-033	YPGC12764 26-27	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2334526)									
EP1204221-001	YPGC11055 20-21	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.0	No Limit
EP1204221-012	PRGC01553 1-2	ED045G: Chloride	16887-00-6	10	mg/kg	40	40	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2334530)									
EP1204221-023	YPGC11055 14-15	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
EP1204221-032	YPGC12764 14-15	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2339211)									
EP1204221-001	YPGC11055 20-21	EP003TC: Total Carbon	----	0.02	%	0.02	<0.02	0.0	No Limit
EP1204221-013	PRGC01553 7-8	EP003TC: Total Carbon	----	0.02	%	0.05	0.05	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2339213)									
EP1204221-023	YPGC11055 14-15	EP003TC: Total Carbon	----	0.02	%	0.05	0.05	0.0	No Limit
EP1204221-033	YPGC12764 26-27	EP003TC: Total Carbon	----	0.02	%	0.08	0.08	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 2331583)									
EP1204211-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	9.14	9.10	0.4	0% - 20%
EP1204215-009	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.24	7.24	0.0	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2331586)									
EP1204215-020	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.79	7.80	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2343926)									
EP1204221-001	YPGC11055 20-21	EA005-P: pH Value	----	0.01	pH Unit	6.52	6.59	1.1	0% - 20%
EP1204221-015	PRGC00759 8-9	EA005-P: pH Value	----	0.01	pH Unit	6.82	6.78	0.6	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2348409)									
EP1204221-023	YPGC11055 14-15	EA005-P: pH Value	----	0.01	pH Unit	6.59	6.59	0.0	0% - 20%
EP1204221-031	YPGC12764 8-9	EA005-P: pH Value	----	0.01	pH Unit	7.66	7.65	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2349598)									
EP1204221-012	PRGC01553 1-2	EA005-P: pH Value	----	0.01	pH Unit	8.21	8.21	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2331585)									
EP1204215-020	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1900	1910	0.4	0% - 20%
EP1204231-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	235	235	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2343925)									
EP1204221-001	YPGC11055 20-21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	13	10	18.3	0% - 50%
EP1204221-015	PRGC00759 8-9	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	12	12	0.0	0% - 50%
EA010P: Conductivity by PC Titrator (QC Lot: 2348408)									
EP1204221-023	YPGC11055 14-15	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	18	19	0.0	0% - 50%
EP1204221-031	YPGC12764 8-9	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	25	25	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA010P: Conductivity by PC Titrator (QC Lot: 2349599)									
EP1204221-012	PRGC01553 1-2	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	60	60	0.0	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2340582)									
EP1204169-010	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	Not Authorised	# Not Authorised	# 2.0	0% - 20%
EP1204269-004	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	Not Authorised	# Not Authorised	# 3.5	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2341104)									
EP1204207-001	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	590	559	5.4	0% - 20%
EP1204255-001	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	286	296	3.4	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2343393)									
EP1204221-001	YPGC11055 20-21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	13	13	0.0	No Limit
EP1204221-010	WAT 8_Rebecca	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	132	132	0.0	0% - 50%
EA015: Total Dissolved Solids (QC Lot: 2348927)									
EP1204221-023	YPGC11055 14-15	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	<10	0.0	No Limit
EP1204221-031	YPGC12764 8-9	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	15	16	6.4	No Limit
EA015: Total Dissolved Solids (QC Lot: 2351769)									
EP1204221-012	PRGC01553 1-2	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	60	64	6.4	No Limit
EP1204447-003	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	7800	7740	0.8	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2330782)									
EP1204010-041	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	22	22	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2331054)									
EP1204221-009	DH 031551	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	823	834	1.3	0% - 20%
EP1204260-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	78	76	1.4	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 2330781)									
EP1204010-041	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2331053)									
EP1204221-009	DH 031551	ED045G: Chloride	16887-00-6	1	mg/L	1860	1920	3.4	0% - 20%
EP1204257-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	530	526	0.7	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 2330780)									
EP1204010-041	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	6	6	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	21	21	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 2331052)									
EP1204221-009	DH 031551	ED093F: Calcium	7440-70-2	1	mg/L	269	276	2.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	191	195	2.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1140	1170	2.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	81	82	1.6	0% - 20%
ED093W: Water Leachable Major Cations (QC Lot: 2343549)									
EP1204221-001	YPGC11055 20-21	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED093W: Water Leachable Major Cations (QC Lot: 2343549) - continued									
EP1204221-001	YPGC11055 20-21	ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	3	3	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1204221-016	PRGC00759 14-15	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	4	4	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2349083)									
EP1204221-012	PRGC01553 1-2	ED093W: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	4	4	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1204221-030	YPGC12764 2-3	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	11	10	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2339777)									
EP1204221-009	DH 031551	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Antimony	7440-36-0	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Barium	7440-39-3	0.001	mg/L	0.070	0.072	2.8	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.007	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	1.19	1.20	1.0	0% - 20%
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.008	0.009	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.010	0.011	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	1.58	1.54	2.5	0% - 20%
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	0.38	0.37	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	12.1	12.4	2.6	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 2339778)									
EP1204221-009	DH 031551	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-T: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2343547)									
EP1204221-001	YPGC11055 20-21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2343547) - continued									
EP1204221-001	YPGC11055 20-21	EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.116	0.115	1.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.476	0.486	2.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.055	0.054	1.9	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.0	No Limit
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.21	0.21	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.10	0.08	24.6	No Limit
EP1204221-016	PRGC00759 14-15	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.295	0.300	1.8	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.091	0.094	4.2	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.19	0.19	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.37	0.39	4.7	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2343548)									
EP1204221-001	YPGC11055 20-21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1204221-016	PRGC00759 14-15	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2349081)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2349081) - continued									
EP1204221-012	PRGC01553 1-2	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.401	0.395	1.6	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.059	0.057	3.1	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.16	0.16	0.0	0% - 50%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.36	0.36	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.16	0.17	0.0	No Limit
EP1204221-030	YPGC12764 2-3	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0003	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	2.13	2.11	0.9	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.100	0.097	3.6	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.011	0.011	0.0	0% - 50%
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.738	0.729	1.2	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	2.16	2.19	1.3	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.73	1.74	0.6	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	4.06	3.98	2.2	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2349082)									
EP1204221-012	PRGC01553 1-2	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1204221-030	YPGC12764 2-3	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2330923)									
EP1204189-007	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2341410)									
EP1204221-009	DH 031551	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2343556)									
EP1204221-001	YPGC11055 20-21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1204221-016	PRGC00759 14-15	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2349070)									
EP1204221-012	PRGC01553 1-2	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1204221-030	YPGC12764 2-3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002 : pH (Soils) (QCLot: 2334523)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2334527)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2349678)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.10	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2349679)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA010: Conductivity (QCLot: 2334525)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	100	93.6	106
EA010: Conductivity (QCLot: 2334529)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	102	93.6	106
EA011: Net Acid Generation (QCLot: 2346296)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	22.52 kg H2SO4/t	94.5	90	114
EA011: Net Acid Generation (QCLot: 2346299)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	22.52 kg H2SO4/t	98.3	90	114
EA011: Net Acid Generation (QCLot: 2346330)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	22.52 kg H2SO4/t	98.3	90	114
EA013: Acid Neutralising Capacity (QCLot: 2346295)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	----	9.8 kg H2SO4 equ	95.2	80.4	118
		0.5	kg H2SO4 equiv./t	<0.5	----	----	----	----
EA013: ANC as CaCO3	----	0.1	% CaCO3	<0.1	----	----	----	----
EA013: Acid Neutralising Capacity (QCLot: 2346298)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	----	9.8 kg H2SO4 equ	95.2	80.4	118
		0.5	kg H2SO4 equiv./t	<0.5	----	----	----	----
EA013: ANC as CaCO3	----	0.1	% CaCO3	<0.1	----	----	----	----
EA013: Acid Neutralising Capacity (QCLot: 2346329)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4 equ	----	9.8 kg H2SO4 equ	95.2	80.4	118
		0.5	kg H2SO4 equiv./t	<0.5	----	----	----	----
EA013: ANC as CaCO3	----	0.1	% CaCO3	<0.1	----	----	----	----
EA026 : Chromium Reducible Sulfur (QCLot: 2346297)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.199 %	95.9	83.1	121
EA026 : Chromium Reducible Sulfur (QCLot: 2346300)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA026 : Chromium Reducible Sulfur (QCLot: 2346300) - continued								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.199 %	83.6	83.1	121
EA026 : Chromium Reducible Sulfur (QCLot: 2346331)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.199 %	95.9	83.1	121
ED007: Exchangeable Cations (QCLot: 2338013)								
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	101	86	108
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2338014)								
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	102	86	108
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2372910)								
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	100	86	108
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED040S: Soluble Major Anions (QCLot: 2334524)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	102	86	116
ED040S: Soluble Major Anions (QCLot: 2334528)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	98.8	86	116
ED040T : Total Sulfate by ICPAES (QCLot: 2339874)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2339875)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED042T: Total Sulfur by LECO (QCLot: 2339210)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	103	70	130
ED042T: Total Sulfur by LECO (QCLot: 2339212)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	104	70	130
ED045G: Chloride Discrete analyser (QCLot: 2334526)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	98.3	82	126
ED045G: Chloride Discrete analyser (QCLot: 2334530)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.3	82	126
EP003TC: Total Carbon (TC) in Soil (QCLot: 2339211)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	97.7	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2339213)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	105	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA005P: pH by PC Titrator (QCLot: 2331583)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA005P: pH by PC Titrator (QCLot: 2331583) - continued								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2331586)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	101	70	130
EA005P: pH by PC Titrator (QCLot: 2343926)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	99.8	70	130
EA005P: pH by PC Titrator (QCLot: 2348409)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	99.5	70	130
EA005P: pH by PC Titrator (QCLot: 2349598)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA010P: Conductivity by PC Titrator (QCLot: 2331585)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	98.3	93.2	107
EA010P: Conductivity by PC Titrator (QCLot: 2343925)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	98.3	93.2	107
EA010P: Conductivity by PC Titrator (QCLot: 2348408)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	101	93.2	107
EA010P: Conductivity by PC Titrator (QCLot: 2349599)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	101	93.2	107
EA015: Total Dissolved Solids (QCLot: 2340582)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	Not Authorised	----	# Not Authorised	79.8	116
EA015: Total Dissolved Solids (QCLot: 2341104)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	106	79.8	116
EA015: Total Dissolved Solids (QCLot: 2343393)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	91.8	79.8	116
EA015: Total Dissolved Solids (QCLot: 2348927)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	108	79.8	116
EA015: Total Dissolved Solids (QCLot: 2351769)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	98.3	79.8	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2330782)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	114	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2331054)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	107	85	130
ED045G: Chloride Discrete analyser (QCLot: 2330781)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	95.8	78	130
ED045G: Chloride Discrete analyser (QCLot: 2331053)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	90.8	78	130
ED093F: Dissolved Major Cations (QCLot: 2330780)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED093F: Dissolved Major Cations (QCLot: 2330780) - continued								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	96.9	88	112
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	98.8	88	112
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	95.8	85	111
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.8	84	114
ED093F: Dissolved Major Cations (QCLot: 2331052)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.5	88	112
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	100	88	112
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	85	111
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	100	84	114
ED093W: Water Leachable Major Cations (QCLot: 2343549)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2349083)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2339777)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	103	78	116
EG020A-T: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	110	75	155
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.7	77	109
EG020A-T: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	80	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	78	108
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	80	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	80	112
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	79	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	102	81	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	80	112
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	86	118
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.8	80	112
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.8	75	107
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.7	78	112
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.0	74	108
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	109	74	120
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	102	75	115
EG020T: Total Metals by ICP-MS (QCLot: 2339778)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2339778) - continued								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	91.8	70	130
EG020B-T: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2343547)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.7	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.2	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	93.6	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.2	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.1	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.6	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.4	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.2	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.2	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.8	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	86.8	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.3	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	100	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	97.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	100	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2343548)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	82.9	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2349081)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.4	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	98.1	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.1	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.2	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.6	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.8	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.4	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.9	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.9	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	96.5	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.2	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.8	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2349081) - continued								
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	94.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.0	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2349082)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	84.2	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2330923)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	112	82.3	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2341410)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	97.1	82.3	118
EG035W: Water Leachable Mercury by FIMS (QCLot: 2343556)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	108	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2349070)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	100	76	126

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 2334526)							
EP1204221-002	YPGC11055 26-27	ED045G: Chloride	16887-00-6	1250 mg/kg	111	70	130
ED045G: Chloride Discrete analyser (QCLot: 2334530)							
EP1204221-024	PRGC01421 2-3	ED045G: Chloride	16887-00-6	1250 mg/kg	110	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2330782)							
EP1204010-041	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	106	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2331054)							
EP1204221-009	DH 031551	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 2330781)							
EP1204010-041	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2331053)							
EP1204221-009	DH 031551	ED045G: Chloride	16887-00-6	250 mg/L	# Not Determined	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2339777)							
EP1204221-011	WAT 8_Rebecca	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	115	70	130
		EG020A-T: Barium	7440-39-3	1.00 mg/L	113	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	107	70	130
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	100	70	130
		EG020A-T: Cobalt	7440-48-4	1.00 mg/L	109	70	130
		EG020A-T: Copper	7440-50-8	1.00 mg/L	102	70	130
		EG020A-T: Lead	7439-92-1	1.00 mg/L	104	70	130
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	103	70	130
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	104	70	130
		EG020A-T: Vanadium	7440-62-2	1.00 mg/L	102	70	130
		EG020A-T: Zinc	7440-66-6	1.00 mg/L	103	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2343547)							
EP1204221-002	YPGC11055 26-27	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	97.2	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	98.0	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	96.4	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	96.2	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	98.0	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	97.6	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: Spike Recovery (%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2343547) - continued							
EP1204221-002	YPGC11055 26-27	EG020A-W: Lead	7439-92-1	1.000 mg/L	96.9	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	94.6	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	97.9	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	94.9	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	94.4	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2349081)							
EP1204221-013	PRGC01553 7-8	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	96.4	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	100	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	96.9	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	95.5	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	96.9	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	95.7	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	93.5	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	97.4	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	98.6	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	97.1	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	94.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2330923)							
EP1204189-008	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	# 51.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2341410)							
EP1204339-001	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	# 32.1	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2343556)							
EP1204221-002	YPGC11055 26-27	EG035W: Mercury	7439-97-6	0.0100 mg/L	110	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2349070)							
EP1204221-013	PRGC01553 7-8	EG035W: Mercury	7439-97-6	0.0100 mg/L	88.7	70	130

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EP1204221**	Page	: 1 of 25
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 28-MAY-2012
Sampler	: TH	Issue Date	: 29-JUN-2012
Order number	: PER-12-297 33C		
		No. of samples received	: 35
Quote number	: EP/429/12	No. of samples analysed	: 35

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	07-JUN-2012	✓
Soil Glass Jar - Unpreserved WAT 8_Rebecca	**03-MAY-2012**	**07-JUN-2012**	10-MAY-2012	×	**07-JUN-2012**	07-JUN-2012	✓
Soil Glass Jar - Unpreserved DH 031551	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	07-JUN-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	---	05-JUN-2012	----	**07-JUN-2012**	05-JUN-2012	×
Clear Plastic Bottle - Natural YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	---	07-JUN-2012	----	**11-JUN-2012**	07-JUN-2012	×
Clear Plastic Bottle - Natural PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	---	24-MAY-2012	----	**12-JUN-2012**	24-MAY-2012	×
EA006: Sodium Adsorption Ratio (SAR)							
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**14-JUN-2012**	20-NOV-2012	✓	**14-JUN-2012**	20-NOV-2012	✓
Soil Glass Jar - Unpreserved WAT 8_Rebecca	**03-MAY-2012**	**14-JUN-2012**	30-OCT-2012	✓	**14-JUN-2012**	30-OCT-2012	✓
Soil Glass Jar - Unpreserved DH 031551	**24-MAY-2012**	**14-JUN-2012**	20-NOV-2012	✓	**14-JUN-2012**	20-NOV-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010: Conductivity							
Snap Lock Bag							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
WAT 8_Rebecca	**03-MAY-2012**	**07-JUN-2012**	10-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
DH 031551	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	**---**	03-JUL-2012	----	**07-JUN-2012**	03-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	**---**	05-JUL-2012	----	**11-JUN-2012**	05-JUL-2012	✓
Clear Plastic Bottle - Natural							
PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	**---**	21-JUN-2012	----	**12-JUN-2012**	21-JUN-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA011: Net Acid Generation							
80* dried soil							
WAT 8_Rebecca	**03-MAY-2012**	**28-MAY-2012**	03-MAY-2013	✓	**13-JUN-2012**	24-NOV-2012	✓
80* dried soil							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**28-MAY-2012**	24-MAY-2013	✓	**13-JUN-2012**	24-NOV-2012	✓
EA013: Acid Neutralising Capacity							
80* dried soil							
WAT 8_Rebecca	**03-MAY-2012**	**28-MAY-2012**	03-MAY-2013	✓	**13-JUN-2012**	24-NOV-2012	✓
80* dried soil							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**28-MAY-2012**	24-MAY-2013	✓	**13-JUN-2012**	24-NOV-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	**----**	----	----	**07-JUN-2012**	12-JUN-2012	✓
Clear Plastic Bottle - Natural YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	**----**	----	----	**12-JUN-2012**	14-JUN-2012	✓
Clear Plastic Bottle - Natural PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	**----**	----	----	**13-JUN-2012**	31-MAY-2012	×
EA026 : Chromium Reducible Sulfur							
80* dried soil WAT 8_Rebecca	**03-MAY-2012**	**28-MAY-2012**	03-MAY-2013	✓	**08-JUN-2012**	26-AUG-2012	✓
80* dried soil YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**28-MAY-2012**	24-MAY-2013	✓	**08-JUN-2012**	26-AUG-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**----**	----	----	**31-MAY-2012**	07-JUN-2012	✓
Soil Glass Jar - Unpreserved WAT 8_Rebecca	**03-MAY-2012**	**----**	----	----	**31-MAY-2012**	17-MAY-2012	×
Soil Glass Jar - Unpreserved DH 031551	**24-MAY-2012**	**----**	----	----	**31-MAY-2012**	07-JUN-2012	✓
ED007: Exchangeable Cations							
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**25-JUN-2012**	20-NOV-2012	✓	**26-JUN-2012**	20-NOV-2012	✓
Snap Lock Bag YPGC12764 - 26-27	**24-MAY-2012**	**26-JUN-2012**	20-NOV-2012	✓	**26-JUN-2012**	20-NOV-2012	✓
Soil Glass Jar - Unpreserved WAT 8_Rebecca	**03-MAY-2012**	**25-JUN-2012**	30-OCT-2012	✓	**26-JUN-2012**	30-OCT-2012	✓
Soil Glass Jar - Unpreserved DH 031551	**24-MAY-2012**	**25-JUN-2012**	20-NOV-2012	✓	**26-JUN-2012**	20-NOV-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040: Sulfur as SO4 2-							
Snap Lock Bag							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**06-JUN-2012**	31-MAY-2012	×	**06-JUN-2012**	04-JUL-2012	✓
Soil Glass Jar - Unpreserved							
WAT 8_Rebecca	**03-MAY-2012**	**06-JUN-2012**	10-MAY-2012	×	**06-JUN-2012**	04-JUL-2012	✓
Soil Glass Jar - Unpreserved							
DH 031551	**24-MAY-2012**	**06-JUN-2012**	31-MAY-2012	×	**06-JUN-2012**	04-JUL-2012	✓
ED040S : Soluble Sulfate by ICPAES							
Snap Lock Bag							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
WAT 8_Rebecca	**03-MAY-2012**	**07-JUN-2012**	10-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
DH 031551	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED042T: Total Sulfur by LECO							
80* dried soil							
WAT 8_Rebecca	**03-MAY-2012**	**05-JUN-2012**	30-OCT-2012	✓	**05-JUN-2012**	30-OCT-2012	✓
80* dried soil							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**05-JUN-2012**	20-NOV-2012	✓	**05-JUN-2012**	20-NOV-2012	✓
ED045G: Chloride Discrete analyser							
Snap Lock Bag							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
WAT 8_Rebecca	**03-MAY-2012**	**07-JUN-2012**	10-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓
Soil Glass Jar - Unpreserved							
DH 031551	**24-MAY-2012**	**07-JUN-2012**	31-MAY-2012	×	**07-JUN-2012**	05-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093W: Water Leachable Major Cations							
Clear Plastic Bottle - Nitric Acid; Unfiltered							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	**07-JUN-2012**	03-JUL-2012	✓	**07-JUN-2012**	03-JUL-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered							
YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	**12-JUN-2012**	05-JUL-2012	✓	**12-JUN-2012**	05-JUL-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered							
PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	**12-JUN-2012**	21-JUN-2012	✓	**12-JUN-2012**	21-JUN-2012	✓
EG020W: Water Leachable Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	**07-JUN-2012**	02-DEC-2012	✓	**07-JUN-2012**	02-DEC-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered							
YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	**12-JUN-2012**	04-DEC-2012	✓	**12-JUN-2012**	04-DEC-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered							
PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	**12-JUN-2012**	20-NOV-2012	✓	**12-JUN-2012**	20-NOV-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035W: Water Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	**05-JUN-2012**	**----**	----	----	**07-JUN-2012**	03-JUL-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	**07-JUN-2012**	**----**	----	----	**12-JUN-2012**	05-JUL-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	**24-MAY-2012**	**----**	----	----	**12-JUN-2012**	21-JUN-2012	✓
EN60: Bottle Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal WAT 8_Rebecca	**03-MAY-2012**	**---**	31-MAY-2012	----	**07-JUN-2012**	31-MAY-2012	×
Lab Split : Leach for Hg, Cr(VI) and other metal YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**---**	21-JUN-2012	----	**08-JUN-2012**	21-JUN-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP003TC: Total Carbon (TC) in Soil							
80* dried soil							
WAT 8_Rebecca	**03-MAY-2012**	**05-JUN-2012**	30-OCT-2012	✓	**05-JUN-2012**	03-JUL-2012	✓
80* dried soil							
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	**24-MAY-2012**	**05-JUN-2012**	20-NOV-2012	✓	**05-JUN-2012**	03-JUL-2012	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**---**	03-MAY-2012	----	**30-MAY-2012**	03-MAY-2012	×
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**---**	24-MAY-2012	----	**30-MAY-2012**	24-MAY-2012	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**---**	31-MAY-2012	----	**30-MAY-2012**	31-MAY-2012	✓
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**---**	21-JUN-2012	----	**30-MAY-2012**	21-JUN-2012	✓
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**----**	----	----	**06-JUN-2012**	10-MAY-2012	×
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**----**	----	----	**05-JUN-2012**	31-MAY-2012	×
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**---**	31-MAY-2012	----	**01-JUN-2012**	31-MAY-2012	×
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**---**	21-JUN-2012	----	**30-MAY-2012**	21-JUN-2012	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**---**	31-MAY-2012	----	**01-JUN-2012**	31-MAY-2012	×
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**---**	21-JUN-2012	----	**30-MAY-2012**	21-JUN-2012	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural							
WAT 8_Rebecca	**03-MAY-2012**	**---**	10-MAY-2012	----	**31-MAY-2012**	10-MAY-2012	×
Clear Plastic Bottle - Natural							
DH 031551	**24-MAY-2012**	**---**	31-MAY-2012	----	**31-MAY-2012**	31-MAY-2012	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified							
WAT 8_Rebecca	**03-MAY-2012**	**06-JUN-2012**	30-OCT-2012	✓	**06-JUN-2012**	30-OCT-2012	✓
Clear Plastic Bottle - Unfiltered; Lab-acidified							
DH 031551	**24-MAY-2012**	**06-JUN-2012**	20-NOV-2012	✓	**06-JUN-2012**	20-NOV-2012	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified							
WAT 8_Rebecca	**03-MAY-2012**	**----**	----	----	**31-MAY-2012**	31-MAY-2012	✓
Clear Plastic Bottle - Unfiltered; Lab-acidified							
DH 031551	**24-MAY-2012**	**----**	----	----	**06-JUN-2012**	21-JUN-2012	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acid Neutralising Capacity (ANC)	EA013	5	33	**15.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	5	33	**15.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	5	33	**15.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	5	33	**15.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sodium Adsorption Ratio (SAR)	EA006	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acid Neutralising Capacity (ANC)	EA013	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Acid Neutralising Capacity (ANC)	EA013	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	33	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sodium Adsorption Ratio (SAR)	EA006	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	2	33	**6.1**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	3	29	**10.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	7	55	**12.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	17	**11.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	8	72	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	29	**10.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	10	75	**13.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	2	**50.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	4	33	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	4	29	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	4	55	**7.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	17	**11.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	10	72	**13.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	5	75	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	**10.5**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	2	**50.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	2	29	**6.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	4	55	**7.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	17	**11.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	5	75	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	**10.5**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	2	**50.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	1	2	**50.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	2	33	**6.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	29	**6.9**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.9**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	2	19	**10.5**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	2	**50.0**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	2	33	**6.1**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	2	33	**6.1**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
pH by PC Titrator	EA005-P	SOIL	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sodium Adsorption Ratio (SAR)	EA006	SOIL	USEPA 600/2 - 78 - 54. The concentration as meq of Ca, Mg and Na are determined on saturated soil by water leach. Results are used to calculate SAR.
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 104)
Conductivity by PC Titrator	EA010-P	SOIL	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Net Acid Generation	EA011	SOIL	Miller (1998) Titremetric procedure determines net acidity in a soil following peroxide oxidation. Titrations to both pH 4.5 and pH 7 are reported.
Acid Neutralising Capacity (ANC)	EA013	SOIL	USEPA 600/2-78-054, I. Miller (2000). A fizz test is done to semiquanititatively estimate the likely reactivity. The soil is then reacted with an known excess quanitity of an appropriate acid. Titration determines the acid remaining, and the ANC can be calculated from comparison with a blank titration.
Total Dissolved Solids (High Level)	EA015H	SOIL	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chromium Reducible Sulphur	EA026	SOIL	Sullivan et al (1998) The CRS method converts reduced inorganic sulfur to H2S by CrCl2 solution ; the evolved H2S is trapped in a zinc acetate solution as ZnS which is quantified by iodometric titration.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Higginson (1992) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (1999) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Sulfate as SO4 2- Total	ED040T	SOIL	In-house. Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Sulfur - Total as S (LECO)	ED042T	SOIL	In-house. Dried and pulverised sample is combusted in a LECO furnace at 1350C in the presence of strong oxidants / catalysts. The evolved S (as SO2) is measured by infra-red detector
Chloride Soluble By Discrete Analyser	ED045G	SOIL	The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition 4500-Cl- E.
Water Leachable Major Cations	ED093W	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010; ALS QWI-EN/EG005, QWI-EN/ED093) The ICPAES technique quickly breaks the sample down into atoms and ions under extremely hot plasma. Atoms are then ionised, emitting a characteristic spectrum. The spectrometer then separates the wavelengths, prior to comparison of intensities against matrix matched standards for quantification.

Analytical Methods	Method	Matrix	Method Descriptions
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, AS 4439.3, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Mercury by FIMS	EG035W	SOIL	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Carbon	EP003TC	SOIL	In-house C-IR07. Dried and pulverised sample is combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved Carbon (as CO2) is measured by infra-red detector
Merged 4-Acid Metals package	ME-MS61	SOIL	Merged Package 4-Acid Digest with ICP-AES & ICPMS finish. Analysis conducted by ALS Minerals.
Miscellaneous Subcontracted Analysis	MIS1-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory
pH by PC Titrator	EA005-P	WATER	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Conductivity by PC Titrator	EA010-P	WATER	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Dissolved Solids (High Level)	EA015H	WATER	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO4 Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2) Sodium Absorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2) Total Hardness is calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
SAR Prep	EA006PR	SOIL	USEPA 600/2. Soil is bought to saturation with distilled water by capiliary action.
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
Digestion for Total Recoverable Metals in DI Water Leachate	EN25W	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Deionised Water Leach	EN60-Dla	SOIL	AS4439.3 Preparation of Leachates
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EP1204221-009	DH 031551	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride Discrete analyser	EP1204221-009	DH 031551	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG035T: Total Recoverable Mercury by FIMS	EP1204339-001	Anonymous	**Mercury**	7439-97-6	32.1 %	70-130%	**Recovery less than lower data quality objective**
EG035T: Total Recoverable Mercury by FIMS	EP1204189-008	Anonymous	**Mercury**	7439-97-6	51.1 %	70-130%	**Recovery less than lower data quality objective**

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)	*Date extracted*	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA002 : pH (Soils)						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance						
Snap Lock Bag						
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	07-JUN-2012	31-MAY-2012	**7**	----	----	----
Soil Glass Jar - Unpreserved						
WAT 8_Rebecca	07-JUN-2012	10-MAY-2012	**28**	----	----	----
Soil Glass Jar - Unpreserved						
DH 031551	07-JUN-2012	31-MAY-2012	**7**	----	----	----
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, DH 031551, WAT 8_Rebecca, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9	----	----	----	07-JUN-2012	05-JUN-2012	**2**
Clear Plastic Bottle - Natural						
YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 50-51	----	----	----	11-JUN-2012	07-JUN-2012	**4**
Clear Plastic Bottle - Natural						
PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	----	----	----	12-JUN-2012	24-MAY-2012	**19**
EA010: Conductivity						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA010: Conductivity - Analysis Holding Time Compliance						
Snap Lock Bag						
YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	07-JUN-2012	31-MAY-2012	**7**	----	----	----
Soil Glass Jar - Unpreserved						
WAT 8_Rebecca	07-JUN-2012	10-MAY-2012	**28**	----	----	----
Soil Glass Jar - Unpreserved						
DH 031551	07-JUN-2012	31-MAY-2012	**7**	----	----	----
EA015: Total Dissolved Solids						
Clear Plastic Bottle - Natural						
PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, YPGC12764 - 38-39	----	----	----	13-JUN-2012	31-MAY-2012	**13**
EA055: Moisture Content						
Soil Glass Jar - Unpreserved						
WAT 8_Rebecca	----	----	----	31-MAY-2012	17-MAY-2012	**14**
ED040: Sulfur as SO4 2-						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040: Sulfur as SO4 2- - Analysis Holding Time Compliance						
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	06-JUN-2012	31-MAY-2012	**6**	----	----	----
Soil Glass Jar - Unpreserved WAT 8_Rebecca	06-JUN-2012	10-MAY-2012	**27**	----	----	----
Soil Glass Jar - Unpreserved DH 031551	06-JUN-2012	31-MAY-2012	**6**	----	----	----
ED040S : Soluble Sulfate by ICPAES						
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	07-JUN-2012	31-MAY-2012	**7**	----	----	----
Soil Glass Jar - Unpreserved WAT 8_Rebecca	07-JUN-2012	10-MAY-2012	**28**	----	----	----
Soil Glass Jar - Unpreserved DH 031551	07-JUN-2012	31-MAY-2012	**7**	----	----	----
ED045G: Chloride Discrete analyser						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
ED045G: Chloride Discrete analyser - Analysis Holding Time Compliance						
Snap Lock Bag YPGC11055 - 20-21, YPGC11055 - 26-27, YPGC11055 - 32-33, YPGC11055 - 38-39, QC01 - 24/05/2012, QC02 - 24/05/2012, QC03 - 24/05/2012, PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3, PRGC00759 - 8-9, PRGC00759 - 14-15, PRGC00463 - 2-3, PRGC00463 - 8-9, PRGC00463 - 14-15, PRGC00463 - 20-21, YPGC11055 - 2-3, YPGC11055 - 8-9, YPGC11055 - 14-15, PRGC01421 - 2-3, PRGC01421 - 8-9, PRGC01421 - 14-15, PRGC01421 - 20-21, PRGC01521 - 2-3, PRGC01521 - 8-9, YPGC12764 - 2-3, YPGC12764 - 8-9, YPGC12764 - 14-15, YPGC12764 - 26-27, YPGC12764 - 38-39, YPGC12764 - 50-51	07-JUN-2012	31-MAY-2012	**7**	----	----	----
Soil Glass Jar - Unpreserved WAT 8_Rebecca	07-JUN-2012	10-MAY-2012	**28**	----	----	----
Soil Glass Jar - Unpreserved DH 031551	07-JUN-2012	31-MAY-2012	**7**	----	----	----
EN60: Bottle Leaching Procedure						
Lab Split : Leach for Hg, Cr(VI) and other metal WAT 8_Rebecca	----	----	----	07-JUN-2012	31-MAY-2012	**7**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural WAT 8_Rebecca	----	----	----	30-MAY-2012	03-MAY-2012	**27**
Clear Plastic Bottle - Natural DH 031551	----	----	----	30-MAY-2012	24-MAY-2012	**6**
EA015: Total Dissolved Solids						
Clear Plastic Bottle - Natural WAT 8_Rebecca	----	----	----	06-JUN-2012	10-MAY-2012	**27**
Clear Plastic Bottle - Natural DH 031551	----	----	----	05-JUN-2012	31-MAY-2012	**5**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA						
Clear Plastic Bottle - Natural WAT 8_Rebecca	----	----	----	01-JUN-2012	31-MAY-2012	**1**

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED045G: Chloride Discrete analyser						
Clear Plastic Bottle - Natural						
WAT 8_Rebecca	----	----	----	01-JUN-2012	31-MAY-2012	**1**
ED093F: Dissolved Major Cations						
Clear Plastic Bottle - Natural						
WAT 8_Rebecca	----	----	----	31-MAY-2012	10-MAY-2012	**21**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

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Finalized Date: 2-JUL-2012
Account: ALSENV

CERTIFICATE BR12149145

Project: EP1204221

P.O. No.:

This report is for 35 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 29-JUN-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	48 element four acid ICP-MS

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
10 HOD WAY
MALAGA WA 6090

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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Project: EP1204221

CERTIFICATE OF ANALYSIS BR12149145

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga
	Units	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	LOR	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05
YPGC11055_20-21		0.10	0.76	4.6	280	0.56	0.04	0.02	1.11	36.8	15.4	3	0.27	3.7	43.7	4.84
YPGC11055_26-27		0.05	0.53	5.4	20	0.38	0.04	0.02	0.04	13.00	4.2	35	0.11	4.1	26.9	1.55
YPGC11055_32-33		0.06	0.79	5.5	10	0.83	0.26	0.03	0.04	10.35	5.0	17	0.13	8.6	25.4	2.30
YPGC11055_38-39		0.04	0.18	2.6	10	0.51	0.07	0.01	0.03	3.95	1.9	15	0.15	2.8	24.1	0.62
QC01_24/05/12		0.06	0.85	5.4	50	0.35	0.19	0.02	0.02	7.84	6.6	12	0.10	6.3	34.5	1.73
QC02_24/05/12		0.04	0.14	2.1	10	0.54	0.05	0.01	<0.02	3.46	1.7	10	0.13	1.7	22.0	0.48
QC03_24/05/12		0.06	0.37	6.0	10	0.42	0.17	0.01	0.04	14.05	3.4	10	0.08	2.8	25.6	1.04
DH 031551 TAILINGS		0.09	2.71	22.2	160	0.76	0.22	0.07	0.10	54.5	16.3	26	0.30	18.9	45.7	5.88
WAT 8-REBECCA TAILINGS		0.09	2.64	19.8	150	0.64	0.22	0.07	0.08	50.3	14.1	25	0.28	17.6	45.1	5.40
RRGC01553_1-2		0.20	2.33	42.0	170	0.75	0.22	0.10	0.12	42.5	8.4	94	0.75	23.0	41.7	7.51
RRGC01553_7-8		0.03	0.54	5.2	50	0.67	0.06	0.01	0.03	4.77	2.4	12	0.11	4.8	15.95	1.38
RRGC00759_2-3		0.23	4.32	28.7	160	1.01	0.50	0.01	0.04	22.2	5.5	139	0.44	14.0	43.5	17.45
RRGC00759_8-9		0.07	4.25	13.4	170	0.37	0.18	0.04	0.02	65.4	4.2	41	0.20	7.1	38.7	4.35
RRGC00759_14-15		0.04	0.40	2.4	130	0.30	0.06	0.01	<0.02	3.42	0.5	5	0.10	1.5	22.7	0.44
RRGC00463_2-3		0.12	1.61	7.6	80	0.32	0.13	0.01	<0.02	14.80	1.6	24	0.16	5.5	>50	3.96
RRGC00463_8-9		0.09	1.63	9.4	120	0.44	0.15	0.03	<0.02	14.60	3.0	25	0.08	6.5	>50	2.56
RRGC00463_14-15		0.04	0.22	3.0	20	0.48	0.13	0.01	<0.02	5.30	1.6	6	0.09	2.5	25.9	0.62
RRGC00463_20-21		0.02	0.67	5.0	20	0.41	0.10	0.01	<0.02	6.98	1.3	12	0.09	3.4	10.45	1.39
YPGC11055_2-3		0.10	5.30	11.7	40	0.53	0.32	0.01	<0.02	14.10	3.6	56	0.38	9.8	23.9	11.10
YPGC11055_8-9		0.08	0.95	5.3	210	0.61	0.04	0.02	0.10	53.0	14.5	8	0.16	7.1	46.3	1.78
YPGC11055_14-15		0.07	0.59	9.2	60	0.73	0.04	0.02	0.03	22.1	5.1	13	0.05	4.8	48.2	1.30
RRGC01421_2-3		0.08	1.64	7.3	300	0.31	0.12	0.04	<0.02	22.6	2.1	34	0.16	4.3	45.1	5.73
RRGC01421_8-9		0.09	2.80	12.4	80	0.23	0.33	0.03	<0.02	26.3	0.9	59	0.07	4.4	48.3	9.77
RRGC01421_14-15		0.06	0.91	5.5	60	0.55	0.06	0.03	0.02	8.21	7.1	12	0.11	6.2	35.6	1.78
RRGC01421_20-21		0.05	1.25	9.4	40	1.18	0.10	0.01	0.02	10.35	2.0	29	0.17	8.2	25.2	3.57
RRGC01521_2-3		0.05	4.50	17.2	160	1.36	0.41	0.47	<0.02	10.65	1.0	79	0.65	9.7	9.72	13.05
RRGC01521_8-9		0.05	0.55	3.5	30	1.13	0.06	0.10	0.03	12.20	3.3	11	0.08	8.7	22.8	1.27
YPGC12764_2-3		0.15	3.75	27.2	220	1.36	0.34	0.05	0.19	38.5	15.7	111	2.56	40.2	22.8	10.90
YPGC12764_8-9		0.19	4.09	29.7	230	1.15	0.35	0.10	0.36	47.0	12.4	168	2.67	41.4	24.9	12.80
YPGC12764_14-15		0.20	6.52	28.5	80	0.92	0.54	0.07	0.07	34.3	6.2	233	2.94	45.3	21.9	22.6
YPGC12764_26-27		0.09	5.84	15.8	10	0.38	1.39	0.04	0.02	7.50	4.8	148	0.23	18.0	21.6	38.3
YPGC12764_38-39		0.09	1.55	7.2	380	0.65	0.12	0.03	0.20	41.7	12.3	24	0.42	8.4	48.6	4.16
YPGC12764_50-51		0.03	0.54	3.8	10	0.82	0.04	0.02	0.03	8.80	2.6	11	0.21	3.1	19.20	1.14

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1204221

CERTIFICATE OF ANALYSIS BR12149145

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb
	Units	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
	LOR	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1
YPGC11055_20-21		0.62	0.2	0.007	0.38	20.0	1.7	0.02	93600	0.63	0.06	0.9	11.5	550	1.2	7.3
YPGC11055_26-27		0.29	0.2	0.006	0.03	9.8	2.0	0.09	1980	1.09	0.01	0.8	20.9	460	1.1	1.7
YPGC11055_32-33		0.30	0.4	0.010	0.03	12.5	5.0	0.03	1060	0.81	0.01	1.3	26.0	1130	3.3	1.7
YPGC11055_38-39		0.21	0.1	<0.005	0.02	3.1	3.7	0.02	1360	2.38	0.01	0.5	7.1	360	<0.5	1.3
QC01_24/05/12		0.51	0.3	0.008	0.02	7.2	1.7	0.02	698	0.64	0.02	1.2	10.8	480	4.1	0.9
QC02_24/05/12		0.20	0.1	<0.005	0.01	3.0	4.0	0.02	488	1.51	<0.01	0.5	6.5	320	<0.5	1.0
QC03_24/05/12		0.27	0.2	<0.005	0.01	11.1	1.3	0.02	1720	1.11	<0.01	0.8	14.6	440	0.9	0.8
DH 031551 TAILINGS		3.13	1.1	0.026	0.06	11.8	5.7	0.11	8280	0.81	0.06	3.8	38.0	500	11.0	2.5
WAT 8-REBECCA TAILINGS		3.19	1.0	0.021	0.05	10.8	5.5	0.11	7640	0.81	0.06	3.5	37.0	490	10.4	2.3
RRGC01553_1-2		1.38	1.4	0.048	0.12	13.8	3.9	0.06	6920	0.81	0.02	4.0	31.1	360	18.4	9.0
RRGC01553_7-8		0.13	0.2	0.019	0.02	2.9	3.4	0.03	500	0.66	0.01	0.8	12.6	80	3.5	1.2
RRGC00759_2-3		2.41	3.7	0.117	0.05	8.0	5.3	0.02	1860	1.92	0.01	11.3	19.1	290	17.2	3.9
RRGC00759_8-9		1.71	1.1	0.027	0.04	7.1	9.0	0.02	838	0.75	0.03	2.9	8.5	250	6.6	1.8
RRGC00759_14-15		0.19	0.1	<0.005	0.01	1.2	2.5	0.02	356	0.64	0.01	0.4	2.2	70	0.8	0.8
RRGC00463_2-3		1.80	0.9	0.023	0.02	2.6	1.4	0.02	3900	0.53	<0.01	2.9	5.9	260	12.2	1.3
RRGC00463_8-9		3.76	0.6	0.018	0.01	4.0	0.8	0.04	3590	0.50	0.01	1.7	8.4	290	28.6	0.4
RRGC00463_14-15		0.20	0.1	<0.005	0.01	2.3	2.6	0.02	369	0.53	0.01	0.5	6.1	400	0.9	0.8
RRGC00463_20-21		0.09	0.2	0.005	0.02	2.7	7.5	0.02	710	0.81	0.01	0.8	2.2	100	1.7	1.1
YPGC11055_2-3		0.70	3.8	0.044	0.05	6.2	11.3	0.02	516	0.88	0.01	12.8	15.0	180	15.2	3.6
YPGC11055_8-9		2.93	0.2	0.007	0.08	6.6	1.4	0.06	15000	0.74	0.04	1.2	15.1	160	6.0	2.1
YPGC11055_14-15		2.59	0.2	0.008	0.01	7.2	0.3	0.05	1770	0.72	0.01	1.0	17.2	280	5.7	0.3
RRGC01421_2-3		1.12	1.2	0.028	0.02	5.1	2.0	0.03	5140	0.88	0.01	4.0	6.3	230	30.1	1.1
RRGC01421_8-9		2.33	1.8	0.050	0.01	11.2	5.3	0.03	176	1.14	0.02	6.8	5.2	200	16.9	0.4
RRGC01421_14-15		0.45	0.3	0.009	0.02	7.2	2.5	0.02	723	0.54	0.03	1.2	10.8	490	4.1	0.8
RRGC01421_20-21		0.28	0.5	0.017	0.03	4.5	4.0	0.02	273	0.93	0.01	1.8	15.8	560	9.4	2.0
RRGC01521_2-3		0.09	2.0	0.045	0.18	7.3	16.3	0.18	62	1.22	0.02	6.3	9.6	100	19.7	10.2
RRGC01521_8-9		0.18	0.2	0.016	0.02	6.7	3.8	0.07	585	0.84	0.03	0.8	10.7	100	10.8	0.8
YPGC12764_2-3		0.46	1.8	0.084	0.46	16.6	16.9	0.17	2400	2.25	0.02	4.4	62.8	250	17.9	30.6
YPGC12764_8-9		0.58	2.7	0.094	0.44	20.0	11.1	0.16	2250	1.57	0.04	7.1	60.7	360	17.4	31.6
YPGC12764_14-15		0.98	5.0	0.156	0.38	18.0	15.5	0.10	1590	2.08	0.03	13.0	34.6	320	24.0	26.3
YPGC12764_26-27		1.53	7.9	0.220	0.03	3.2	96.6	0.03	600	2.69	0.02	25.8	41.6	280	23.9	1.4
YPGC12764_38-39		2.73	0.7	0.021	0.12	12.0	3.5	0.05	18750	1.28	0.02	2.4	27.4	280	4.5	4.7
YPGC12764_50-51		0.16	0.2	0.006	0.02	5.4	6.9	0.02	538	0.80	0.01	0.7	7.7	90	0.6	2.0

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CERTIFICATE OF ANALYSIS BR12149145

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W
	Units	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOR	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1
YPGC11055_20-21		<0.002	<0.01	0.34	1.2	<1	0.2	66.2	0.05	0.14	0.9	0.017	0.23	1.1	10	1.0
YPGC11055_26-27		<0.002	<0.01	0.29	1.3	<1	0.2	3.5	0.05	<0.05	0.7	0.025	0.07	0.7	9	1.2
YPGC11055_32-33		<0.002	<0.01	0.81	2.0	<1	0.3	4.5	0.09	<0.05	1.3	0.042	0.03	0.5	16	0.9
YPGC11055_38-39		<0.002	<0.01	0.26	0.5	<1	0.2	2.6	<0.05	<0.05	0.3	0.010	0.03	0.1	4	3.1
QC01_24/05/12		<0.002	0.04	0.93	2.3	1	0.3	4.4	0.08	0.05	1.3	0.030	0.05	0.5	10	0.9
QC02_24/05/12		<0.002	<0.01	0.23	0.5	<1	<0.2	1.8	<0.05	<0.05	0.2	0.008	0.02	0.1	3	2.7
QC03_24/05/12		<0.002	<0.01	0.34	0.8	<1	0.2	2.8	<0.05	<0.05	0.6	0.016	0.05	0.8	6	2.3
DH 031551 TAILINGS		<0.002	0.04	1.83	6.7	1	0.9	17.7	0.30	0.14	4.5	0.126	0.21	2.4	30	3.5
WAT 8-REBECCA TAILINGS		<0.002	0.04	1.72	6.2	1	7.6	15.5	0.28	0.12	4.0	0.124	0.19	2.2	29	3.4
RRGC01553_1-2		<0.002	0.02	1.61	7.2	1	0.9	19.2	0.30	0.16	8.2	0.131	0.52	1.7	80	1.0
RRGC01553_7-8		<0.002	0.01	0.65	2.5	<1	0.3	1.7	0.06	<0.05	0.8	0.026	0.02	0.4	10	0.7
RRGC00759_2-3		<0.002	0.03	3.21	12.1	3	2.4	5.1	0.91	0.36	24.2	0.350	0.31	3.4	134	1.9
RRGC00759_8-9		<0.002	0.06	1.55	5.6	2	0.6	27.3	0.23	0.20	5.9	0.090	0.09	1.0	39	1.2
RRGC00759_14-15		<0.002	0.01	0.17	0.7	<1	<0.2	2.4	<0.05	<0.05	0.4	0.007	0.02	0.1	3	1.3
RRGC00463_2-3		<0.002	0.04	0.89	4.9	1	0.6	3.8	0.21	0.12	5.2	0.086	0.03	0.9	24	1.0
RRGC00463_8-9		<0.002	0.09	1.32	4.4	1	0.3	8.7	0.11	0.18	3.9	0.051	0.04	1.2	20	0.8
RRGC00463_14-15		<0.002	0.01	0.45	1.0	<1	<0.2	2.3	<0.05	<0.05	0.3	0.009	<0.02	0.2	4	0.7
RRGC00463_20-21		<0.002	0.01	0.52	1.2	<1	0.2	3.9	0.06	<0.05	0.8	0.026	0.05	0.1	6	1.5
YPGC11055_2-3		<0.002	0.02	1.86	7.9	2	2.0	4.1	1.36	0.14	11.7	0.469	0.14	1.5	45	2.3
YPGC11055_8-9		<0.002	0.03	0.34	1.8	1	0.2	20.1	0.06	0.16	1.1	0.026	0.74	0.9	8	0.5
YPGC11055_14-15		<0.002	0.02	0.67	1.4	<1	0.2	2.6	0.06	0.09	0.9	0.024	0.02	0.8	9	0.6
RRGC01421_2-3		<0.002	0.05	1.16	4.9	2	0.9	10.5	0.34	0.12	7.1	0.131	0.08	0.7	34	1.0
RRGC01421_8-9		<0.002	0.07	2.32	7.5	1	1.5	7.3	0.59	0.12	8.9	0.232	0.02	1.5	60	1.7
RRGC01421_14-15		<0.002	0.04	1.04	2.5	1	0.3	4.6	0.09	0.07	1.4	0.033	0.05	0.5	11	1.0
RRGC01421_20-21		<0.002	0.03	1.59	4.3	<1	0.4	1.9	0.14	0.06	2.0	0.068	<0.02	0.8	31	1.4
RRGC01521_2-3		<0.002	0.01	2.86	11.8	1	1.7	34.4	0.55	0.16	7.4	0.268	0.08	1.5	56	1.8
RRGC01521_8-9		<0.002	0.03	0.80	3.1	<1	0.3	9.0	0.06	0.07	0.8	0.024	0.02	0.4	9	1.7
YPGC12764_2-3		<0.002	0.06	1.99	9.7	1	1.5	21.2	0.38	0.23	7.0	0.174	0.95	1.2	96	1.4
YPGC12764_8-9		<0.002	0.06	2.15	11.3	2	1.9	34.6	0.61	0.22	11.5	0.262	0.49	2.2	114	1.4
YPGC12764_14-15		<0.002	0.02	2.33	15.3	2	3.5	26.8	1.13	0.31	18.0	0.497	0.30	3.0	190	2.0
YPGC12764_26-27		<0.002	0.02	4.69	5.8	2	6.2	5.2	3.13	0.53	13.2	0.860	0.04	3.0	144	4.4
YPGC12764_38-39		<0.002	0.02	0.91	3.9	1	0.6	15.1	0.18	0.14	3.5	0.078	1.77	1.9	26	1.5
YPGC12764_50-51		<0.002	0.01	0.35	1.1	<1	0.2	2.6	0.06	<0.05	0.8	0.021	0.05	0.3	8	28.6

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1204221

CERTIFICATE OF ANALYSIS BR12149145

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61
	Analyte	Y	Zn	Zr
	Units	ppm	ppm	ppm
	LOR	0.1	2	0.5
YPGC11055_20-21		13.2	29	6.6
YPGC11055_26-27		10.0	15	6.6
YPGC11055_32-33		24.2	32	13.1
YPGC11055_38-39		8.6	8	3.0
QC01_24/05/12		6.6	16	10.4
QC02_24/05/12		8.8	8	2.6
QC03_24/05/12		10.6	13	5.4
DH 031551 TAILINGS		12.9	80	41.0
WAT 8-REBECCA TAILINGS		11.6	81	37.2
RRGC01553_1-2		14.1	35	50.4
RRGC01553_7-8		4.3	16	7.9
RRGC00759_2-3		7.0	8	133.0
RRGC00759_8-9		3.8	8	37.8
RRGC00759_14-15		1.9	2	2.7
RRGC00463_2-3		3.4	4	32.4
RRGC00463_8-9		6.2	12	21.0
RRGC00463_14-15		5.5	6	2.9
RRGC00463_20-21		1.5	2	7.5
YPGC11055_2-3		7.3	9	127.5
YPGC11055_8-9		5.4	20	7.4
YPGC11055_14-15		10.4	24	7.0
RRGC01421_2-3		5.6	4	39.8
RRGC01421_8-9		9.1	<2	61.3
RRGC01421_14-15		6.3	16	11.2
RRGC01421_20-21		8.1	21	18.7
RRGC01521_2-3		14.0	11	74.0
RRGC01521_8-9		14.0	16	7.9
YPGC12764_2-3		10.9	111	59.4
YPGC12764_8-9		22.5	107	90.1
YPGC12764_14-15		11.5	68	167.5
YPGC12764_26-27		3.7	28	255
YPGC12764_38-39		10.7	38	24.8
YPGC12764_50-51		8.2	6	6.4

***** See Appendix Page for comments regarding this certificate *****

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CERTIFICATE OF ANALYSIS BR12149145

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

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Finalized Date: 12-JUN-2012
Account: ALSENV

QC CERTIFICATE PH12128203

Project: EP1204221
P.O. No.:
This report is for 35 Pulp samples submitted to our lab in Perth, WA, Australia on 8-JUN-2012.
The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LEV-01	Waste Disposal Levy
LOG-24	Pulp Login - Rcd w/o Barcode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
10 HOD WAY
MALAGA WA 6090

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:
Wayne Abbott, Operations Manager, Western Australia

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
STANDARDS																
MW-1		0.28	<0.001	<0.001	0.05	0.002	0.176	0.1550	0.002	65.99	0.013	0.03	0.015	0.045	0.110	0.011
Target Range - Lower Bound		0.29	<0.001	<0.001	0.04	<0.001	0.176	0.1230	<0.001	65.41	0.012	<0.01	0.015	<0.005	0.081	0.009
Upper Bound		0.31	0.003	0.003	0.07	0.003	0.197	0.1870	0.004	66.75	0.015	0.05	0.018	0.025	0.092	0.013
SARM-45		26.0	0.003	0.082	0.77	0.006	0.003	0.0373	0.002	9.17	3.21	3.37	0.075	0.833	0.009	0.035
Target Range - Lower Bound		25.9	<0.001	0.082	0.76	0.005	0.002	0.0346	<0.001	8.71	3.08	3.35	0.075	0.793	0.006	0.032
Upper Bound		26.5	0.005	0.088	0.80	0.009	0.006	0.0395	0.003	8.91	3.28	3.43	0.080	0.887	0.010	0.038
ST-391																
ST-391																
ST-391																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK		0.01	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	0.002	<0.01	0.005	<0.01	<0.001	<0.005	<0.001	<0.001
Target Range - Lower Bound		<0.01		<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Upper Bound		0.02		0.002	0.02	0.002	0.002	0.0012	0.002	0.02	0.002	0.02	0.002	0.010	0.002	0.002
DUPLICATES																
EP1204221 001																
DUP																
Target Range - Lower Bound																
Upper Bound																
EP1204221 012		4.63	0.005	0.014	0.14	0.007	0.001	0.0254	0.002	50.25	0.160	0.11	0.746	0.041	0.010	0.041
DUP		4.63	0.006	0.008	0.14	0.005	0.001	0.0134	0.001	50.29	0.159	0.10	0.717	0.029	<0.001	0.041
Target Range - Lower Bound		4.60	0.004	0.010	0.13	0.005	<0.001	0.0183	<0.001	50.01	0.156	0.09	0.723	0.029	0.004	0.039
Upper Bound		4.66	0.007	0.012	0.15	0.007	0.002	0.0205	0.002	50.53	0.163	0.12	0.740	0.041	0.007	0.043
EP1204221 017																
DUP																
Target Range - Lower Bound																
Upper Bound																

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI
	Units	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01
STANDARDS												
MW-1		<0.001	0.009	4.47	<0.001	<0.001	0.12	0.004	<0.001	0.002	100.00	
Target Range = Lower Bound		<0.001	0.009	4.54	<0.001	<0.001	0.11	<0.001	<0.001	<0.001	<0.01	
Upper Bound		0.003	0.013	4.66	0.003	0.003	0.15	0.005	0.004	0.003	0.02	
SARM-45		0.005	0.049	49.3	0.001	0.009	1.85	0.028	0.007	0.032	100.05	
Target Range = Lower Bound		0.002	0.044	49.1	<0.001	0.007	1.77	0.025	0.005	0.029	<0.01	
Upper Bound		0.006	0.050	50.1	0.003	0.011	1.87	0.029	0.009	0.034	0.02	
ST-391												6.18
ST-391												6.19
ST-391												6.18
Target Range = Lower Bound												6.00
Upper Bound												6.39
BLANKS												
BLANK		<0.001	<0.001	100.0	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	100.00	
Target Range = Lower Bound			<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001		
Upper Bound			0.002	0.02	0.002	0.002	0.02	0.002	0.002	0.002		
DUPLICATES												
EP1204221 001												5.77
DUP												5.78
Target Range = Lower Bound												5.62
Upper Bound												5.93
EP1204221 012		<0.001	0.025	14.60	<0.001	0.002	0.27	0.008	0.002	0.009	100.00	
DUP		<0.001	0.026	14.65	<0.001	0.001	0.26	0.007	0.001	0.008	100.00	
Target Range = Lower Bound		<0.001	0.024	14.55	<0.001	<0.001	0.25	0.006	<0.001	0.007	98.99	
Upper Bound		0.002	0.027	14.70	0.002	0.002	0.28	0.009	0.002	0.010	101.00	
EP1204221 017												6.06
DUP												6.02
Target Range = Lower Bound												5.88
Upper Bound												6.20

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Al2O3 % 0.01	ME-XRF21n As % 0.001	ME-XRF21n Ba % 0.001	ME-XRF21n CaO % 0.01	ME-XRF21n Cl % 0.001	ME-XRF21n Co % 0.001	ME-XRF21n Cr2O3 % 0.0006	ME-XRF21n Cu % 0.001	ME-XRF21n Fe % 0.01	ME-XRF21n K2O % 0.001	ME-XRF21n MgO % 0.01	ME-XRF21n Mn % 0.001	ME-XRF21n Na2O % 0.005	ME-XRF21n Ni % 0.001	ME-XRF21n P % 0.001
DUPLICATES																
EP1204221 019	DUP															
	Target Range - Lower Bound															
	Upper Bound															
EP1204221 032	DUP	13.80	0.003	0.001	0.09	0.003	<0.001	0.0371	0.005	25.74	0.518	0.18	0.174	0.059	0.003	0.036
		13.75	0.003	<0.001	0.10	0.002	<0.001	0.0374	0.004	25.92	0.513	0.17	0.178	0.059	0.004	0.035
	Target Range - Lower Bound	13.70	0.002	<0.001	0.08	<0.001	<0.001	0.0357	0.003	25.69	0.507	0.16	0.173	0.053	0.002	0.034
	Upper Bound	13.85	0.004	0.002	0.11	0.004	0.002	0.0388	0.006	25.97	0.524	0.19	0.179	0.065	0.005	0.037
EP1204221 033	DUP															
	Target Range - Lower Bound															
	Upper Bound															
EP1204221 035	DUP															
	Target Range - Lower Bound															
	Upper Bound															

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI
	Units	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01
DUPLICATES												
EP1204221 019												3.42
DUP												3.46
Target Range - Lower Bound												3.34
Upper Bound												3.54
EP1204221 032		0.002	0.022	40.2	<0.001	0.004	1.00	0.020	0.006	0.032	100.05	
DUP		<0.001	0.020	40.0	<0.001	0.003	1.00	0.019	0.005	0.029	100.00	
Target Range - Lower Bound		<0.001	0.019	39.9	<0.001	0.002	0.98	0.018	0.004	0.029	99.01	
Upper Bound		0.002	0.023	40.3	0.002	0.005	1.02	0.021	0.007	0.032	101.05	
EP1204221 033												10.61
DUP												10.61
Target Range - Lower Bound												10.33
Upper Bound												10.89
EP1204221 035												1.01
DUP												0.97
Target Range - Lower Bound												0.96
Upper Bound												1.02

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Finalized Date: 12-JUN-2012
This copy reported on 22-AUG-2012
Account: ALSENV

QC CERTIFICATE PH12128203

Project: EP1204221
P.O. No.:
This report is for 35 Pulp samples submitted to our lab in Perth, WA, Australia on 8-JUN-2012.
The following have access to data associated with this certificate:

SHAUN CRABB	SHUK HUI LI	SUB RESULTS

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LEV-01	Waste Disposal Levy
LOG-24	Pulp Login - Rcd w/o Barcode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA

To: **ALS ENVIRONMENTAL**
ATTN: SHUK HUI LI
10 HOD WAY
MALAGA WA 6090

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Comments: reports reissued to display results in ppm as per client request

Signature:
Wayne Abbott, Operations Manager, Western Australia

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Al2O3 ppm 100	ME-XRF21n As ppm 10	ME-XRF21n Ba ppm 10	ME-XRF21n CaO ppm 100	ME-XRF21n Cl ppm 10	ME-XRF21n Co ppm 10	ME-XRF21n Cr2O3 ppm 6	ME-XRF21n Cu ppm 10	ME-XRF21n Fe ppm 100	ME-XRF21n K2O ppm 10	ME-XRF21n MgO ppm 100	ME-XRF21n Mn ppm 10	ME-XRF21n Na2O ppm 50	ME-XRF21n Ni ppm 10	ME-XRF21n P ppm 10
STANDARDS																
MW-1		2800	<10	<10	500	20	1760	1550	20	659900	130	300	150	450	1100	110
Target Range - Lower Bound		2800	<10	<10	300	<10	1670	1165	<10	654100	110	<100	140	<50	770	90
Upper Bound		3200	30	30	700	30	2060	1435	50	667500	150	500	180	260	960	130
SARM-45		260000	30	820	7700	60	30	373	20	91700	32100	33700	750	8330	90	350
Target Range - Lower Bound		257000	<10	800	7500	50	20	327	<10	87100	30200	33100	730	7510	50	320
Upper Bound		267000	50	900	8100	90	60	413	30	89100	33400	34700	820	9290	100	380
ST-391																
ST-391																
ST-391																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK		100	<10	<10	<100	<10	<10	<6	20	<100	50	<100	<10	<50	<10	<10
Target Range - Lower Bound		<100		<10	<100	<10	<10	<6	<10	<100	<10	<100	<10	<50	<10	<10
Upper Bound		200		20	200	20	20	12	20	200	20	200	20	100	20	20
DUPLICATES																
EP1204221 001																
DUP																
Target Range - Lower Bound																
Upper Bound																
EP1204221 012		46300	50	140	1400	70	10	254	20	502500	1600	1100	7460	410	100	410
DUP		46300	60	80	1400	50	10	134	10	502900	1590	1000	7170	290	<10	410
Target Range - Lower Bound		45700	40	100	1300	50	<10	178	<10	500100	1550	900	7120	280	40	390
Upper Bound		46900	70	120	1500	70	20	210	20	505600	1640	1200	7510	420	70	430
EP1204221 017																
DUP																
Target Range - Lower Bound																
Upper Bound																

Comments: reports reissued to display results in ppm as per client request

Australian Laboratory Services Pty. Ltd.
32 Shand Street
Stafford
Brisbane QLD 4053
Phone: +61 (7) 3243 7222 Fax: +61 (7) 3243 7218
www.alsglobal.com

Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOR	10	10	100	10	10	100	10	10	10	100	0.01
STANDARDS												
MW-1		<10	90	44700	<10	<10	1200	40	<10	20	1000000	
Target Range - Lower Bound		<10	90	45400	<10	<10	1100	<10	<10	<10	<100	
Upper Bound		30	130	46600	30	30	1500	50	40	40	200	
SARM-45		50	490	493000	10	90	18500	280	70	320	1000500	
Target Range - Lower Bound		20	440	491000	<10	70	17200	230	50	280	<100	
Upper Bound		60	500	501000	30	120	19200	310	90	360	200	
ST-391												6.18
ST-391												6.19
ST-391												6.18
Target Range - Lower Bound												6.00
Upper Bound												6.39
BLANKS												
BLANK		<10	<10	1000000	<10	<10	<100	<10	<10	<10	1000000	
Target Range - Lower Bound			<10	<100	<10	<10	<100	<10	<10	<10		
Upper Bound			20	200	20	20	200	20	20	20		
DUPLICATES												
EP1204221 001												5.77
DUP												5.78
Target Range - Lower Bound												5.62
Upper Bound												5.93
EP1204221 012		<10	250	146000	<10	20	2700	80	20	90	1000000	
DUP		<10	260	146500	<10	10	2600	70	10	80	1000000	
Target Range - Lower Bound		<10	240	145500	<10	<10	2500	60	<10	70	989900	
Upper Bound		20	270	147000	20	20	2800	90	20	100	1010000	
EP1204221 017												6.06
DUP												6.02
Target Range - Lower Bound												5.88
Upper Bound												6.20

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	100	10	10	100	10	10	6	10	100	10	100	10	50	10	10
DUPLICATES																
EP1204221 019																
DUP																
Target Range - Lower Bound																
Upper Bound																
EP1204221 032		138000	30	10	900	30	<10	371	50	257400	5180	1800	1740	590	30	360
DUP		137500	30	<10	1000	20	<10	374	40	259200	5130	1700	1780	590	40	350
Target Range - Lower Bound		136500	20	<10	800	<10	<10	348	30	256900	5020	1600	1710	510	20	340
Upper Bound		139000	40	20	1100	40	20	397	60	259700	5290	1900	1810	670	50	370
EP1204221 033																
DUP																
Target Range - Lower Bound																
Upper Bound																
EP1204221 035																
DUP																
Target Range - Lower Bound																
Upper Bound																

Comments: reports reissued to display results in ppm as per client request

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Project: EP1204221

QC CERTIFICATE OF ANALYSIS PH12128203

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOR	10	10	100	10	10	100	10	10	10	100	0.01
DUPLICATES												
EP1204221 019												3.42
DUP												3.46
Target Range - Lower Bound												3.34
Upper Bound												3.54
EP1204221 032		20	220	402000	<10	40	10000	200	60	320	1000500	
DUP		<10	200	400000	<10	30	10000	190	50	290	1000000	
Target Range - Lower Bound		<10	190	399000	<10	20	9700	180	40	280	990100	
Upper Bound		20	230	403000	20	50	10400	210	70	330	1010500	
EP1204221 033												10.61
DUP												10.61
Target Range - Lower Bound												10.33
Upper Bound												10.89
EP1204221 035												1.01
DUP												0.97
Target Range - Lower Bound												0.96
Upper Bound												1.02

Comments: reports reissued to display results in ppm as per client request

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
55	1 YPGC10846_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
56	2 YPRD10638_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
57	3 * YPGCO1657_88_89 (30.3)	Soil			B	1	1	1	1	1	1	1	1	1						
58	4 CAGC30291_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
59	5 YPGCO2807_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
60	6 CAGC30291_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
61	7 YPGCO3152_44_45	Soil			B	1	1	1	1	1	1	1	1	1						
62	8 YPGCO4543_38_39	Soil			B	1	1	1	1	1	1	1	1	1						
63	9 YPGC10846_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
64	10* YPRD14197_38_39	Soil			B	1	1	1	1	1	1	1	1	1						
65	11 YPGCO5415_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
66	12* YPRD06017_15_16	Soil			B	1	1	1	1	1	1	1	1	1						

Environmental Division
Perth
Work Order
EP1205051

Telephone : +61-8-9209 7655

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth

ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000

PROJECT MANAGER (PM): Tracey Hassell

PROJECT ID:

SITE: P.O. NO.:

RESULTS REQUIRED (Date): QUOTE NO.:

SAMPLER:

MOBILE:

PHONE:

EMAIL REPORT TO:

EMAIL INVOICE TO: (if different to report)

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
12 13	YPGCO6143_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
14	TRRD33379_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
15	YPGCO2807_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
16	YPRD14197_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
17	YPRD13687_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
18	TRRD33437_10_11	Soil			B	1	1	1	1	1	1	1	1	1					
19	YPGCO6605_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
20	YPGCO665_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
21	YPGCO10846_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
22	YPRD1143820_21 (11486_20-21)	Soil			B	1	1	1	1	1	1	1	1	1					
X	YPGCO5415_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
23	YPGCO1657_14_15	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: M Weitzel	Date: 22/6	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
24	YPRD04911_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
25	YPRD13687_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
26	TRRD06576_4_5	Soil			B	1	1	1	1	1	1	1	1	1					
27	YPGCO3152/YPGCO1650_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
28	TRRD34136_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
29	TRRD33379_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
30	YPRDO5790_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
31	YPGCO0576_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
32	YPGC10846_26_29(27)	Soil			B	1	1	1	1	1	1	1	1	1					
33	YPRD04911_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
34	YPGO2807_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
	YPRD13687_8_9	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

ENFM (204/5)

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (**Date**): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc. **REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL**
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
35	YPGCO6879_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
36	YPGCO4543_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
37	YPGCO2056_15_16	Soil			B	1	1	1	1	1	1	1	1	1						
38	QC3	Soil			B	1	1	1	1	1	1	1	1	1						
39	YPGCO4543_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
40	YPRD06017_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
41	YPRD13687_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
	X YPRD10638_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
42	YPGC11249_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
43	YPGCO2807_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
44	YPGC11249_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
45	YPGC11249_8_9	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: [illegible]	Date: 22/6	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
46	YPRD14197_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
47	YPGCO5415_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
48	YPGCO6879_44_45	Soil			B	1	1	1	1	1	1	1	1	1						
49	TRRD33437_15_16	Soil			B	1	1	1	1	1	1	1	1	1						
50	TRRD34136_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
51	YPRD10638_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
52	QC3A	Soil			B	1	1	1	1	1	1	1	1	1						
53	QC4	Soil			B	1	1	1	1	1	1	1	1	1						
54	QC5	Soil			B	1	1	1	1	1	1	1	1	1						
55	YPRD13687_38_39	Soil			B	1	1	1	1	1	1	1	1	1						
56	TRRD34136_10_11	Soil			B	1	1	1	1	1	1	1	1	1						
57	YPGCO5415_32_33	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EP1205051**		
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	Page	: 1 of 12
Order number	: ----		
C-O-C number	: ----	Quote number	: ----
Site	: CHRISTMAS CREEK		
Sampler	: C.C.S.P	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 22-JUN-2012	Issue Date	: 10-JUL-2012 17:03
Client Requested Due Date	: 10-JUL-2012	Scheduled Reporting Date	: **10-JUL-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 12.7
No. of coolers/boxes	: 10 MED HARD	No. of samples received	: 57
Security Seal	: Not intact.	No. of samples analysed	: 56

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method *Client sample ID*	Sample Container Received	Preferred Sample Container for Analysis
EP003TC : Total Carbon		
YPGC10846_2_3	- Calico Bag	- Pulp Bag
YPRD10638_8_9	- Calico Bag	- Pulp Bag
YPGCO1657_36_39	- Calico Bag	- Pulp Bag
CAGC30291_14_15	- Calico Bag	- Pulp Bag
YPGCO2807_32_33	- Calico Bag	- Pulp Bag
CAGC30291_8_9	- Calico Bag	- Pulp Bag
YPGCO3152_44_45	- Calico Bag	- Pulp Bag
YPGCO4543_38_39	- Calico Bag	- Pulp Bag
YPGC10846_20_21	- Calico Bag	- Pulp Bag
YPRD14197_38_39	- Calico Bag	- Pulp Bag
YPGCO5415_14_15	- Calico Bag	- Pulp Bag
YPRD06017_15_16	- Calico Bag	- Pulp Bag
YPGCO6143_14_15	- Calico Bag	- Pulp Bag
TRRD33379_8_9	- Calico Bag	- Pulp Bag
YPGCO2807_2_3	- Calico Bag	- Pulp Bag
YPRD14197_20_21	- Calico Bag	- Pulp Bag
YPRD13687_20_21	- Calico Bag	- Pulp Bag
TRRD33437_10_11	- Calico Bag	- Pulp Bag
YPGCO6605_8_9	- Calico Bag	- Pulp Bag
YPGCO665_26_27	- Calico Bag	- Pulp Bag
YPGCO10846_8_9	- Calico Bag	- Pulp Bag
YPRD11488_20_21	- Calico Bag	- Pulp Bag
YPGCO1657_14_15	- Calico Bag	- Pulp Bag
YPRD04911_2_3	- Calico Bag	- Pulp Bag
YPRD13687_20_21	- Calico Bag	- Pulp Bag
TRRD06576_4_5	- Calico Bag	- Pulp Bag
TRRD34136_2_3	- Calico Bag	- Pulp Bag
TRRD33379_2_3	- Calico Bag	- Pulp Bag
YPRDO5790_8_9	- Calico Bag	- Pulp Bag
YPGCO0576_38_39	- Calico Bag	- Pulp Bag
YPGC10846_26_27	- Calico Bag	- Pulp Bag
YPRD04911_14_15	- Calico Bag	- Pulp Bag
YPGO2807_20_21	- Calico Bag	- Pulp Bag
YPGCO6879_32_33	- Calico Bag	- Pulp Bag
YPGCO4543_2_3	- Calico Bag	- Pulp Bag
YPGCO2056_15_16	- Calico Bag	- Pulp Bag
QC3	- Calico Bag	- Pulp Bag
YPGCO4543_32_33	- Calico Bag	- Pulp Bag
YPRD06017_8_9	- Calico Bag	- Pulp Bag
YPRD13687_2_3	- Calico Bag	- Pulp Bag
YPGC11249_32_33	- Calico Bag	- Pulp Bag
YPGCO2807_14_15	- Calico Bag	- Pulp Bag
YPGC11249_2_3	- Calico Bag	- Pulp Bag
YPGC1149_8_9	- Calico Bag	- Pulp Bag
YPRD14197_14_15	- Calico Bag	- Pulp Bag
YPGCO5415_2_3	- Calico Bag	- Pulp Bag
YPGCO6879_44_45	- Calico Bag	- Pulp Bag
TRRD33437_15_16	- Calico Bag	- Pulp Bag
TRRD34136_8_9	- Calico Bag	- Pulp Bag
YPRD10638_20_21	- Calico Bag	- Pulp Bag
QC3A	- Calico Bag	- Pulp Bag
QC4	- Calico Bag	- Pulp Bag
QC5	- Calico Bag	- Pulp Bag
YPRD13687_38_39	- Calico Bag	- Pulp Bag
TRRD34136_10_11	- Calico Bag	- Pulp Bag
YPGCO5415_32_33	- Calico Bag	- Pulp Bag

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EP1205051-027 : 22-JUN-2012 15:00 : YPGCO3152/YPGCO1650_26_27

EP1205051-027 : 25-JUN-2012 15:00 : YPGCO3152/YPGCO1650_26_27

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)
EP1205051-001	22-JUN-2012 15:00	YPGC10846_2_3		✓		✓	✓		✓	✓
	26-JUN-2012 12:00	YPGC10846_2_3			✓			✓		
EP1205051-002	02-JUL-2012 12:00	YPRD10638_8_9			✓			✓		
	22-JUN-2012 15:00	YPRD10638_8_9		✓		✓	✓		✓	✓
EP1205051-003	02-JUL-2012 12:00	YPGCO1657_36_39			✓			✓		
	22-JUN-2012 15:00	YPGCO1657_36_39		✓		✓	✓		✓	✓
EP1205051-004	02-JUL-2012 12:00	CAGC30291_14_15			✓			✓		
	22-JUN-2012 15:00	CAGC30291_14_15		✓		✓	✓		✓	✓
EP1205051-005	02-JUL-2012 12:00	YPGCO2807_32_33			✓			✓		
	22-JUN-2012 15:00	YPGCO2807_32_33		✓		✓	✓		✓	✓
EP1205051-006	02-JUL-2012 12:00	CAGC30291_8_9			✓			✓		
	22-JUN-2012 15:00	CAGC30291_8_9		✓		✓	✓		✓	✓
EP1205051-007	02-JUL-2012 12:00	YPGCO3152_44_45			✓			✓		
	22-JUN-2012 15:00	YPGCO3152_44_45		✓		✓	✓		✓	✓
EP1205051-008	02-JUL-2012 12:00	YPGCO4543_38_39			✓			✓		
	22-JUN-2012 15:00	YPGCO4543_38_39		✓		✓	✓		✓	✓
EP1205051-009	02-JUL-2012 12:00	YPGC10846_20_21			✓			✓		
	22-JUN-2012 15:00	YPGC10846_20_21		✓		✓	✓		✓	✓
EP1205051-010	02-JUL-2012 12:00	YPRD14197_38_39			✓			✓		
	22-JUN-2012 15:00	YPRD14197_38_39		✓		✓	✓		✓	✓
EP1205051-011	02-JUL-2012 12:00	YPGCO5415_14_15			✓			✓		
	22-JUN-2012 15:00	YPGCO5415_14_15		✓		✓	✓		✓	✓
EP1205051-012	02-JUL-2012 12:00	YPRD06017_15_16			✓			✓		
	22-JUN-2012 15:00	YPRD06017_15_16		✓		✓	✓		✓	✓
EP1205051-013	02-JUL-2012 12:00	YPGCO6143_14_15			✓			✓		
	22-JUN-2012 15:00	YPGCO6143_14_15		✓		✓	✓		✓	✓
EP1205051-014	02-JUL-2012 12:00	TRRD33379_8_9			✓			✓		
	22-JUN-2012 15:00	TRRD33379_8_9		✓		✓	✓		✓	✓
EP1205051-015	02-JUL-2012 12:00	YPGCO2807_2_3			✓			✓		
	22-JUN-2012 15:00	YPGCO2807_2_3		✓		✓	✓		✓	✓
EP1205051-016	02-JUL-2012 12:00	YPRD14197_20_21			✓			✓		
	22-JUN-2012 15:00	YPRD14197_20_21		✓		✓	✓		✓	✓
EP1205051-017	02-JUL-2012 12:00	YPRD13687_20_21			✓			✓		
	22-JUN-2012 15:00	YPRD13687_20_21		✓		✓	✓		✓	✓
EP1205051-018	02-JUL-2012 12:00	TRRD33437_10_11			✓			✓		
	22-JUN-2012 15:00	TRRD33437_10_11		✓		✓	✓		✓	✓
EP1205051-019	02-JUL-2012 12:00	YPGCO6605_8_9			✓			✓		
	22-JUN-2012 15:00	YPGCO6605_8_9		✓		✓	✓		✓	✓
EP1205051-020	02-JUL-2012 12:00	YPGCO665_26_27			✓			✓		
	22-JUN-2012 15:00	YPGCO665_26_27		✓		✓	✓		✓	✓
EP1205051-021	02-JUL-2012 12:00	YPGCO10846_8_9			✓			✓		

			(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)
EP1205051-021	22-JUN-2012 15:00	YPGCO10846_8_9		✓		✓	✓		✓	✓
EP1205051-022	02-JUL-2012 12:00	YPRD11488_20_21			✓			✓		
	22-JUN-2012 15:00	YPRD11488_20_21		✓		✓	✓		✓	✓
EP1205051-023	02-JUL-2012 12:00	YPGCO1657_14_15			✓			✓		
	22-JUN-2012 15:00	YPGCO1657_14_15		✓		✓	✓		✓	✓
EP1205051-024	02-JUL-2012 12:00	YPRD04911_2_3			✓			✓		
	22-JUN-2012 15:00	YPRD04911_2_3		✓		✓	✓		✓	✓
EP1205051-025	04-JUL-2012 12:00	YPRD13687_20_21			✓			✓		
	22-JUN-2012 15:00	YPRD13687_20_21		✓		✓	✓		✓	✓
EP1205051-026	04-JUL-2012 12:00	TRRD06576_4_5			✓			✓		
	22-JUN-2012 15:00	TRRD06576_4_5		✓		✓	✓		✓	✓
EP1205051-027	22-JUN-2012 15:00	YPGCO3152/YPGCO1650_	✓							
EP1205051-028	04-JUL-2012 12:00	TRRD34136_2_3			✓			✓		
	22-JUN-2012 15:00	TRRD34136_2_3		✓		✓	✓		✓	✓
EP1205051-029	04-JUL-2012 12:00	TRRD33379_2_3			✓			✓		
	22-JUN-2012 15:00	TRRD33379_2_3		✓		✓	✓		✓	✓
EP1205051-030	04-JUL-2012 12:00	YPRDO5790_8_9			✓			✓		
	22-JUN-2012 15:00	YPRDO5790_8_9		✓		✓	✓		✓	✓
EP1205051-031	04-JUL-2012 12:00	YPGCO0576_38_39			✓			✓		
	22-JUN-2012 15:00	YPGCO0576_38_39		✓		✓	✓		✓	✓
EP1205051-032	04-JUL-2012 12:00	YPGC10846_26_27			✓			✓		
	22-JUN-2012 15:00	YPGC10846_26_27		✓		✓	✓		✓	✓
EP1205051-033	04-JUL-2012 12:00	YPRD04911_14_15			✓			✓		
	22-JUN-2012 15:00	YPRD04911_14_15		✓		✓	✓		✓	✓
EP1205051-034	04-JUL-2012 12:00	YPGO2807_20_21			✓			✓		
	22-JUN-2012 15:00	YPGO2807_20_21		✓		✓	✓		✓	✓
EP1205051-035	04-JUL-2012 12:00	YPGCO6879_32_33			✓			✓		
	22-JUN-2012 15:00	YPGCO6879_32_33		✓		✓	✓		✓	✓
EP1205051-036	04-JUL-2012 12:00	YPGCO4543_2_3			✓			✓		
	22-JUN-2012 15:00	YPGCO4543_2_3		✓		✓	✓		✓	✓
EP1205051-037	04-JUL-2012 12:00	YPGCO2056_15_16			✓			✓		
	22-JUN-2012 15:00	YPGCO2056_15_16		✓		✓	✓		✓	✓
EP1205051-038	04-JUL-2012 12:00	QC3			✓			✓		
	22-JUN-2012 15:00	QC3		✓		✓	✓		✓	✓
EP1205051-039	04-JUL-2012 12:00	YPGCO4543_32_33			✓			✓		
	22-JUN-2012 15:00	YPGCO4543_32_33		✓		✓	✓		✓	✓
EP1205051-040	04-JUL-2012 12:00	YPRD06017_8_9			✓			✓		
	22-JUN-2012 15:00	YPRD06017_8_9		✓		✓	✓		✓	✓
EP1205051-041	04-JUL-2012 12:00	YPRD13687_2_3			✓			✓		
	22-JUN-2012 15:00	YPRD13687_2_3		✓		✓	✓		✓	✓
EP1205051-042	04-JUL-2012 12:00	YPGC11249_32_33			✓			✓		

			(On Hold) SOIL No analysis requested	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)
EP1205051-042	22-JUN-2012 15:00	YPGC11249_32_33		✓		✓	✓		✓	✓
EP1205051-043	04-JUL-2012 12:00	YPGCO2807_14_15			✓			✓		
	22-JUN-2012 15:00	YPGCO2807_14_15		✓		✓	✓		✓	✓
EP1205051-044	04-JUL-2012 12:00	YPGC11249_2_3			✓			✓		
	22-JUN-2012 15:00	YPGC11249_2_3		✓		✓	✓		✓	✓
EP1205051-045	04-JUL-2012 12:00	YPGC1149_8_9			✓			✓		
	22-JUN-2012 15:00	YPGC1149_8_9		✓		✓	✓		✓	✓
EP1205051-046	04-JUL-2012 12:00	YPRD14197_14_15			✓			✓		
	22-JUN-2012 15:00	YPRD14197_14_15		✓		✓	✓		✓	✓
EP1205051-047	04-JUL-2012 12:00	YPGCO5415_2_3			✓			✓		
	22-JUN-2012 15:00	YPGCO5415_2_3		✓		✓	✓		✓	✓
EP1205051-048	05-JUL-2012 12:00	YPGCO6879_44_45			✓			✓		
	22-JUN-2012 15:00	YPGCO6879_44_45		✓		✓	✓		✓	✓
EP1205051-049	05-JUL-2012 12:00	TRRD33437_15_16			✓			✓		
	22-JUN-2012 15:00	TRRD33437_15_16		✓		✓	✓		✓	✓
EP1205051-050	05-JUL-2012 12:00	TRRD34136_8_9			✓			✓		
	22-JUN-2012 15:00	TRRD34136_8_9		✓		✓	✓		✓	✓
EP1205051-051	05-JUL-2012 12:00	YPRD10638_20_21			✓			✓		
	22-JUN-2012 15:00	YPRD10638_20_21		✓		✓	✓		✓	✓
EP1205051-052	05-JUL-2012 12:00	QC3A			✓			✓		
	22-JUN-2012 15:00	QC3A		✓		✓	✓		✓	✓
EP1205051-053	05-JUL-2012 12:00	QC4			✓			✓		
	22-JUN-2012 15:00	QC4		✓		✓	✓		✓	✓
EP1205051-054	05-JUL-2012 12:00	QC5			✓			✓		
	22-JUN-2012 15:00	QC5		✓		✓	✓		✓	✓
EP1205051-055	05-JUL-2012 12:00	YPRD13687_38_39			✓			✓		
	22-JUN-2012 15:00	YPRD13687_38_39		✓		✓	✓		✓	✓
EP1205051-056	05-JUL-2012 12:00	TRRD34136_10_11			✓			✓		
	22-JUN-2012 15:00	TRRD34136_10_11		✓		✓	✓		✓	✓
EP1205051-057	05-JUL-2012 12:00	YPGCO5415_32_33			✓			✓		
	22-JUN-2012 15:00	YPGCO5415_32_33		✓		✓	✓		✓	✓

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA015H Total Dissolved Solids - High Level	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations
EP1205051-001	22-JUN-2012 15:00	YPGC10846_2_3		✓	✓	✓	✓	✓	✓	
	26-JUN-2012 12:00	YPGC10846_2_3	✓							✓
EP1205051-002	02-JUL-2012 12:00	YPRD10638_8_9	✓							✓
	22-JUN-2012 15:00	YPRD10638_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-003	02-JUL-2012 12:00	YPGCO1657_36_39	✓							✓
	22-JUN-2012 15:00	YPGCO1657_36_39		✓	✓	✓	✓	✓	✓	
EP1205051-004	02-JUL-2012 12:00	CAGC30291_14_15	✓							✓
	22-JUN-2012 15:00	CAGC30291_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-005	02-JUL-2012 12:00	YPGCO2807_32_33	✓							✓
	22-JUN-2012 15:00	YPGCO2807_32_33		✓	✓	✓	✓	✓	✓	
EP1205051-006	02-JUL-2012 12:00	CAGC30291_8_9	✓							✓
	22-JUN-2012 15:00	CAGC30291_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-007	02-JUL-2012 12:00	YPGCO3152_44_45	✓							✓
	22-JUN-2012 15:00	YPGCO3152_44_45		✓	✓	✓	✓	✓	✓	
EP1205051-008	02-JUL-2012 12:00	YPGCO4543_38_39	✓							✓
	22-JUN-2012 15:00	YPGCO4543_38_39		✓	✓	✓	✓	✓	✓	
EP1205051-009	02-JUL-2012 12:00	YPGC10846_20_21	✓							✓
	22-JUN-2012 15:00	YPGC10846_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-010	02-JUL-2012 12:00	YPRD14197_38_39	✓							✓
	22-JUN-2012 15:00	YPRD14197_38_39		✓	✓	✓	✓	✓	✓	
EP1205051-011	02-JUL-2012 12:00	YPGCO5415_14_15	✓							✓
	22-JUN-2012 15:00	YPGCO5415_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-012	02-JUL-2012 12:00	YPRD06017_15_16	✓							✓
	22-JUN-2012 15:00	YPRD06017_15_16		✓	✓	✓	✓	✓	✓	
EP1205051-013	02-JUL-2012 12:00	YPGCO6143_14_15	✓							✓
	22-JUN-2012 15:00	YPGCO6143_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-014	02-JUL-2012 12:00	TRRD33379_8_9	✓							✓
	22-JUN-2012 15:00	TRRD33379_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-015	02-JUL-2012 12:00	YPGCO2807_2_3	✓							✓
	22-JUN-2012 15:00	YPGCO2807_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-016	02-JUL-2012 12:00	YPRD14197_20_21	✓							✓
	22-JUN-2012 15:00	YPRD14197_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-017	02-JUL-2012 12:00	YPRD13687_20_21	✓							✓
	22-JUN-2012 15:00	YPRD13687_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-018	02-JUL-2012 12:00	TRRD33437_10_11	✓							✓
	22-JUN-2012 15:00	TRRD33437_10_11		✓	✓	✓	✓	✓	✓	
EP1205051-019	02-JUL-2012 12:00	YPGCO6605_8_9	✓							✓
	22-JUN-2012 15:00	YPGCO6605_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-020	02-JUL-2012 12:00	YPGCO665_26_27	✓							✓
	22-JUN-2012 15:00	YPGCO665_26_27		✓	✓	✓	✓	✓	✓	
EP1205051-021	02-JUL-2012 12:00	YPGCO10846_8_9	✓							✓

			SOIL - EA015H Total Dissolved Solids - High Level	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations
EP1205051-021	22-JUN-2012 15:00	YPGCO10846_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-022	02-JUL-2012 12:00	YPRD11488_20_21	✓							✓
	22-JUN-2012 15:00	YPRD11488_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-023	02-JUL-2012 12:00	YPGCO1657_14_15	✓							✓
	22-JUN-2012 15:00	YPGCO1657_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-024	02-JUL-2012 12:00	YPRD04911_2_3	✓							✓
	22-JUN-2012 15:00	YPRD04911_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-025	04-JUL-2012 12:00	YPRD13687_20_21	✓							✓
	22-JUN-2012 15:00	YPRD13687_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-026	04-JUL-2012 12:00	TRRD06576_4_5	✓							✓
	22-JUN-2012 15:00	TRRD06576_4_5		✓	✓	✓	✓	✓	✓	
EP1205051-028	04-JUL-2012 12:00	TRRD34136_2_3	✓							✓
	22-JUN-2012 15:00	TRRD34136_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-029	04-JUL-2012 12:00	TRRD33379_2_3	✓							✓
	22-JUN-2012 15:00	TRRD33379_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-030	04-JUL-2012 12:00	YPRDO5790_8_9	✓							✓
	22-JUN-2012 15:00	YPRDO5790_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-031	04-JUL-2012 12:00	YPGCO0576_38_39	✓							✓
	22-JUN-2012 15:00	YPGCO0576_38_39		✓	✓	✓	✓	✓	✓	
EP1205051-032	04-JUL-2012 12:00	YPGC10846_26_27	✓							✓
	22-JUN-2012 15:00	YPGC10846_26_27		✓	✓	✓	✓	✓	✓	
EP1205051-033	04-JUL-2012 12:00	YPRD04911_14_15	✓							✓
	22-JUN-2012 15:00	YPRD04911_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-034	04-JUL-2012 12:00	YPGO2807_20_21	✓							✓
	22-JUN-2012 15:00	YPGO2807_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-035	04-JUL-2012 12:00	YPGCO6879_32_33	✓							✓
	22-JUN-2012 15:00	YPGCO6879_32_33		✓	✓	✓	✓	✓	✓	
EP1205051-036	04-JUL-2012 12:00	YPGCO4543_2_3	✓							✓
	22-JUN-2012 15:00	YPGCO4543_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-037	04-JUL-2012 12:00	YPGCO2056_15_16	✓							✓
	22-JUN-2012 15:00	YPGCO2056_15_16		✓	✓	✓	✓	✓	✓	
EP1205051-038	04-JUL-2012 12:00	QC3	✓							✓
	22-JUN-2012 15:00	QC3		✓	✓	✓	✓	✓	✓	
EP1205051-039	04-JUL-2012 12:00	YPGCO4543_32_33	✓							✓
	22-JUN-2012 15:00	YPGCO4543_32_33		✓	✓	✓	✓	✓	✓	
EP1205051-040	04-JUL-2012 12:00	YPRD06017_8_9	✓							✓
	22-JUN-2012 15:00	YPRD06017_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-041	04-JUL-2012 12:00	YPRD13687_2_3	✓							✓
	22-JUN-2012 15:00	YPRD13687_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-042	04-JUL-2012 12:00	YPGC11249_32_33	✓							✓
	22-JUN-2012 15:00	YPGC11249_32_33		✓	✓	✓	✓	✓	✓	

			SOIL - EA015H Total Dissolved Solids - High Level	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations
EP1205051-043	04-JUL-2012 12:00	YPGCO2807_14_15	✓							✓
	22-JUN-2012 15:00	YPGCO2807_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-044	04-JUL-2012 12:00	YPGC11249_2_3	✓							✓
	22-JUN-2012 15:00	YPGC11249_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-045	04-JUL-2012 12:00	YPGC1149_8_9	✓							✓
	22-JUN-2012 15:00	YPGC1149_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-046	04-JUL-2012 12:00	YPRD14197_14_15	✓							✓
	22-JUN-2012 15:00	YPRD14197_14_15		✓	✓	✓	✓	✓	✓	
EP1205051-047	04-JUL-2012 12:00	YPGCO5415_2_3	✓							✓
	22-JUN-2012 15:00	YPGCO5415_2_3		✓	✓	✓	✓	✓	✓	
EP1205051-048	05-JUL-2012 12:00	YPGCO6879_44_45	✓							✓
	22-JUN-2012 15:00	YPGCO6879_44_45		✓	✓	✓	✓	✓	✓	
EP1205051-049	05-JUL-2012 12:00	TRRD33437_15_16	✓							✓
	22-JUN-2012 15:00	TRRD33437_15_16		✓	✓	✓	✓	✓	✓	
EP1205051-050	05-JUL-2012 12:00	TRRD34136_8_9	✓							✓
	22-JUN-2012 15:00	TRRD34136_8_9		✓	✓	✓	✓	✓	✓	
EP1205051-051	05-JUL-2012 12:00	YPRD10638_20_21	✓							✓
	22-JUN-2012 15:00	YPRD10638_20_21		✓	✓	✓	✓	✓	✓	
EP1205051-052	05-JUL-2012 12:00	QC3A	✓							✓
	22-JUN-2012 15:00	QC3A		✓	✓	✓	✓	✓	✓	
EP1205051-053	05-JUL-2012 12:00	QC4	✓							✓
	22-JUN-2012 15:00	QC4		✓	✓	✓	✓	✓	✓	
EP1205051-054	05-JUL-2012 12:00	QC5	✓							✓
	22-JUN-2012 15:00	QC5		✓	✓	✓	✓	✓	✓	
EP1205051-055	05-JUL-2012 12:00	YPRD13687_38_39	✓							✓
	22-JUN-2012 15:00	YPRD13687_38_39		✓	✓	✓	✓	✓	✓	
EP1205051-056	05-JUL-2012 12:00	TRRD34136_10_11	✓							✓
	22-JUN-2012 15:00	TRRD34136_10_11		✓	✓	✓	✓	✓	✓	
EP1205051-057	05-JUL-2012 12:00	YPGCO5415_32_33	✓							✓
	22-JUN-2012 15:00	YPGCO5415_32_33		✓	✓	✓	✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EG020W Water Leachable Metals by ICPMS	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205051-001	22-JUN-2012 15:00	YPGC10846_2_3			✓	✓	✓	✓
	26-JUN-2012 12:00	YPGC10846_2_3	✓	✓				
EP1205051-002	02-JUL-2012 12:00	YPRD10638_8_9	✓	✓				
	22-JUN-2012 15:00	YPRD10638_8_9			✓	✓	✓	✓
EP1205051-003	02-JUL-2012 12:00	YPGCO1657_36_39	✓	✓				
	22-JUN-2012 15:00	YPGCO1657_36_39			✓	✓	✓	✓
EP1205051-004	02-JUL-2012 12:00	CAGC30291_14_15	✓	✓				
	22-JUN-2012 15:00	CAGC30291_14_15			✓	✓	✓	✓
EP1205051-005	02-JUL-2012 12:00	YPGCO2807_32_33	✓	✓				
	22-JUN-2012 15:00	YPGCO2807_32_33			✓	✓	✓	✓
EP1205051-006	02-JUL-2012 12:00	CAGC30291_8_9	✓	✓				
	22-JUN-2012 15:00	CAGC30291_8_9			✓	✓	✓	✓
EP1205051-007	02-JUL-2012 12:00	YPGCO3152_44_45	✓	✓				
	22-JUN-2012 15:00	YPGCO3152_44_45			✓	✓	✓	✓
EP1205051-008	02-JUL-2012 12:00	YPGCO4543_38_39	✓	✓				
	22-JUN-2012 15:00	YPGCO4543_38_39			✓	✓	✓	✓
EP1205051-009	02-JUL-2012 12:00	YPGC10846_20_21	✓	✓				
	22-JUN-2012 15:00	YPGC10846_20_21			✓	✓	✓	✓
EP1205051-010	02-JUL-2012 12:00	YPRD14197_38_39	✓	✓				
	22-JUN-2012 15:00	YPRD14197_38_39			✓	✓	✓	✓
EP1205051-011	02-JUL-2012 12:00	YPGCO5415_14_15	✓	✓				
	22-JUN-2012 15:00	YPGCO5415_14_15			✓	✓	✓	✓
EP1205051-012	02-JUL-2012 12:00	YPRD06017_15_16	✓	✓				
	22-JUN-2012 15:00	YPRD06017_15_16			✓	✓	✓	✓
EP1205051-013	02-JUL-2012 12:00	YPGCO6143_14_15	✓	✓				
	22-JUN-2012 15:00	YPGCO6143_14_15			✓	✓	✓	✓
EP1205051-014	02-JUL-2012 12:00	TRRD33379_8_9	✓	✓				
	22-JUN-2012 15:00	TRRD33379_8_9			✓	✓	✓	✓
EP1205051-015	02-JUL-2012 12:00	YPGCO2807_2_3	✓	✓				
	22-JUN-2012 15:00	YPGCO2807_2_3			✓	✓	✓	✓
EP1205051-016	02-JUL-2012 12:00	YPRD14197_20_21	✓	✓				
	22-JUN-2012 15:00	YPRD14197_20_21			✓	✓	✓	✓
EP1205051-017	02-JUL-2012 12:00	YPRD13687_20_21	✓	✓				
	22-JUN-2012 15:00	YPRD13687_20_21			✓	✓	✓	✓
EP1205051-018	02-JUL-2012 12:00	TRRD33437_10_11	✓	✓				
	22-JUN-2012 15:00	TRRD33437_10_11			✓	✓	✓	✓
EP1205051-019	02-JUL-2012 12:00	YPGCO6605_8_9	✓	✓				
	22-JUN-2012 15:00	YPGCO6605_8_9			✓	✓	✓	✓
EP1205051-020	02-JUL-2012 12:00	YPGCO665_26_27	✓	✓				
	22-JUN-2012 15:00	YPGCO665_26_27			✓	✓	✓	✓
EP1205051-021	02-JUL-2012 12:00	YPGCO10846_8_9	✓	✓				

			SOIL - EG020W Water Leachable Metals by ICPMS	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205051-021	22-JUN-2012 15:00	YPGCO10846_8_9			✓	✓	✓	✓
EP1205051-022	02-JUL-2012 12:00	YPRD11488_20_21	✓	✓				
	22-JUN-2012 15:00	YPRD11488_20_21			✓	✓	✓	✓
EP1205051-023	02-JUL-2012 12:00	YPGCO1657_14_15	✓	✓				
	22-JUN-2012 15:00	YPGCO1657_14_15			✓	✓	✓	✓
EP1205051-024	02-JUL-2012 12:00	YPRD04911_2_3	✓	✓				
	22-JUN-2012 15:00	YPRD04911_2_3			✓	✓	✓	✓
EP1205051-025	04-JUL-2012 12:00	YPRD13687_20_21	✓	✓				
	22-JUN-2012 15:00	YPRD13687_20_21			✓	✓	✓	✓
EP1205051-026	04-JUL-2012 12:00	TRRD06576_4_5	✓	✓				
	22-JUN-2012 15:00	TRRD06576_4_5			✓	✓	✓	✓
EP1205051-028	04-JUL-2012 12:00	TRRD34136_2_3	✓	✓				
	22-JUN-2012 15:00	TRRD34136_2_3			✓	✓	✓	✓
EP1205051-029	04-JUL-2012 12:00	TRRD33379_2_3	✓	✓				
	22-JUN-2012 15:00	TRRD33379_2_3			✓	✓	✓	✓
EP1205051-030	04-JUL-2012 12:00	YPRDO5790_8_9	✓	✓				
	22-JUN-2012 15:00	YPRDO5790_8_9			✓	✓	✓	✓
EP1205051-031	04-JUL-2012 12:00	YPGCO0576_38_39	✓	✓				
	22-JUN-2012 15:00	YPGCO0576_38_39			✓	✓	✓	✓
EP1205051-032	04-JUL-2012 12:00	YPGC10846_26_27	✓	✓				
	22-JUN-2012 15:00	YPGC10846_26_27			✓	✓	✓	✓
EP1205051-033	04-JUL-2012 12:00	YPRD04911_14_15	✓	✓				
	22-JUN-2012 15:00	YPRD04911_14_15			✓	✓	✓	✓
EP1205051-034	04-JUL-2012 12:00	YPGO2807_20_21	✓	✓				
	22-JUN-2012 15:00	YPGO2807_20_21			✓	✓	✓	✓
EP1205051-035	04-JUL-2012 12:00	YPGCO6879_32_33	✓	✓				
	22-JUN-2012 15:00	YPGCO6879_32_33			✓	✓	✓	✓
EP1205051-036	04-JUL-2012 12:00	YPGCO4543_2_3	✓	✓				
	22-JUN-2012 15:00	YPGCO4543_2_3			✓	✓	✓	✓
EP1205051-037	04-JUL-2012 12:00	YPGCO2056_15_16	✓	✓				
	22-JUN-2012 15:00	YPGCO2056_15_16			✓	✓	✓	✓
EP1205051-038	04-JUL-2012 12:00	QC3	✓	✓				
	22-JUN-2012 15:00	QC3			✓	✓	✓	✓
EP1205051-039	04-JUL-2012 12:00	YPGCO4543_32_33	✓	✓				
	22-JUN-2012 15:00	YPGCO4543_32_33			✓	✓	✓	✓
EP1205051-040	04-JUL-2012 12:00	YPRD06017_8_9	✓	✓				
	22-JUN-2012 15:00	YPRD06017_8_9			✓	✓	✓	✓
EP1205051-041	04-JUL-2012 12:00	YPRD13687_2_3	✓	✓				
	22-JUN-2012 15:00	YPRD13687_2_3			✓	✓	✓	✓
EP1205051-042	04-JUL-2012 12:00	YPGC11249_32_33	✓	✓				
	22-JUN-2012 15:00	YPGC11249_32_33			✓	✓	✓	✓

			SOIL - EG020W Water Leachable Metals by ICPMS	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205051-043	04-JUL-2012 12:00	YPGCO2807_14_15	✓	✓				
	22-JUN-2012 15:00	YPGCO2807_14_15			✓	✓	✓	✓
EP1205051-044	04-JUL-2012 12:00	YPGC11249_2_3	✓	✓				
	22-JUN-2012 15:00	YPGC11249_2_3			✓	✓	✓	✓
EP1205051-045	04-JUL-2012 12:00	YPGC1149_8_9	✓	✓				
	22-JUN-2012 15:00	YPGC1149_8_9			✓	✓	✓	✓
EP1205051-046	04-JUL-2012 12:00	YPRD14197_14_15	✓	✓				
	22-JUN-2012 15:00	YPRD14197_14_15			✓	✓	✓	✓
EP1205051-047	04-JUL-2012 12:00	YPGCO5415_2_3	✓	✓				
	22-JUN-2012 15:00	YPGCO5415_2_3			✓	✓	✓	✓
EP1205051-048	05-JUL-2012 12:00	YPGCO6879_44_45	✓	✓				
	22-JUN-2012 15:00	YPGCO6879_44_45			✓	✓	✓	✓
EP1205051-049	05-JUL-2012 12:00	TRRD33437_15_16	✓	✓				
	22-JUN-2012 15:00	TRRD33437_15_16			✓	✓	✓	✓
EP1205051-050	05-JUL-2012 12:00	TRRD34136_8_9	✓	✓				
	22-JUN-2012 15:00	TRRD34136_8_9			✓	✓	✓	✓
EP1205051-051	05-JUL-2012 12:00	YPRD10638_20_21	✓	✓				
	22-JUN-2012 15:00	YPRD10638_20_21			✓	✓	✓	✓
EP1205051-052	05-JUL-2012 12:00	QC3A	✓	✓				
	22-JUN-2012 15:00	QC3A			✓	✓	✓	✓
EP1205051-053	05-JUL-2012 12:00	QC4	✓	✓				
	22-JUN-2012 15:00	QC4			✓	✓	✓	✓
EP1205051-054	05-JUL-2012 12:00	QC5	✓	✓				
	22-JUN-2012 15:00	QC5			✓	✓	✓	✓
EP1205051-055	05-JUL-2012 12:00	YPRD13687_38_39	✓	✓				
	22-JUN-2012 15:00	YPRD13687_38_39			✓	✓	✓	✓
EP1205051-056	05-JUL-2012 12:00	TRRD34136_10_11	✓	✓				
	22-JUN-2012 15:00	TRRD34136_10_11			✓	✓	✓	✓
EP1205051-057	05-JUL-2012 12:00	YPGCO5415_32_33	✓	✓				
	22-JUN-2012 15:00	YPGCO5415_32_33			✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ELENA CHIN

- *AU Certificate of Analysis - NATA (COA)	Email	elena.chin@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	elena.chin@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	elena.chin@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	elena.chin@urs.com
- Attachment - Report (SUBCO)	Email	elena.chin@urs.com
- Chain of Custody (CoC) (COC)	Email	elena.chin@urs.com
- EDI Format - ENMRG (ENMRG)	Email	elena.chin@urs.com
- EDI Format - ESDAT (ESDAT)	Email	elena.chin@urs.com
- EDI Format - XTab (XTAB)	Email	elena.chin@urs.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	Perth.Accounts@urs.com

TRACY HASSELL

- *AU Certificate of Analysis - NATA (COA)	Email	tracey.hassell@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tracey.hassell@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tracey.hassell@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tracey.hassell@urs.com
- Attachment - Report (SUBCO)	Email	tracey.hassell@urs.com
- Chain of Custody (CoC) (COC)	Email	tracey.hassell@urs.com
- EDI Format - ENMRG (ENMRG)	Email	tracey.hassell@urs.com
- EDI Format - ESDAT (ESDAT)	Email	tracey.hassell@urs.com
- EDI Format - XTab (XTAB)	Email	tracey.hassell@urs.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP1205051**	Page	: 1 of 38
Amendment	: **1**		
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Site	: CHRISTMAS CREEK		
		No. of samples received	: 57
Quote number	: ----	No. of samples analysed	: 56

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

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General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **16/7/2012: This report has been amended and re-released to allow the reporting of additional analytical data.**
- **ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.**
- **ED041G: LOR raised on sample 'YPRD11488_20_21' due to insufficient sample.**

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC10846_2_3	YPRD10638_8_9	YPGCO1657_36_39	CAGC30291_14_15	YPGCO2807_32_33
				Client sampling date / time: 26-JUN-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00
				EP1205051-001	EP1205051-002	EP1205051-003	EP1205051-004	EP1205051-005
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.86	6.77	6.67	6.77	6.84
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	87	32	23	31	37
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	107	22	14	18	24
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	2	2	3	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	3	3	<1	2	1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	7	<1	<1	<1	1
Magnesium	7439-95-4	1	mg/L	1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	7	7	2	6	6
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.84	0.15	<0.01	0.65	0.34
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.003	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.319	0.333	0.177	0.520	0.977
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	<0.001	<0.001	0.002
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.005	0.001	0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.033	0.010	0.005	0.478	0.208
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.001	<0.001	0.003	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.070	0.111	0.063	0.178	0.266
Boron	7440-42-8	0.05	mg/L	0.25	0.35	0.16	0.45	0.77
Iron	7439-89-6	0.05	mg/L	3.21	1.04	0.09	0.79	0.45
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: CAGC30291_8_9	YPGCO3152_44_45	YPGCO4543_38_39	YPGC10846_20_21	YPRD14197_38_39
				Client sampling date / time: 02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00
				EP1205051-006	EP1205051-007	EP1205051-008	EP1205051-009	EP1205051-010
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.09	6.90	6.95	7.01	6.85
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	129	22	27	26	25
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	82	12	20	22	20
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	10	1	2	4	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	20	<1	<1	2	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	4	<1	<1	<1	<1
Magnesium	7439-95-4	1	mg/L	2	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	19	4	5	4	4
Potassium	7440-09-7	1	mg/L	2	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.35	0.05	0.35	0.17	0.24
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.35	0.437	0.616	0.176	0.510
Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.038	0.018	0.017	0.025	0.123
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	<0.001	0.001	<0.001	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.297	0.105	0.230	0.081	0.192
Boron	7440-42-8	0.05	mg/L	0.96	0.36	0.50	0.25	0.49
Iron	7439-89-6	0.05	mg/L	0.53	0.42	0.73	0.38	1.42
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO5415_14_15	YPRD06017_15_16	YPGCO6143_14_15	TRRD33379_8_9	YPGCO2807_2_3
				Client sampling date / time: 02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00
				EP1205051-011	EP1205051-012	EP1205051-013	EP1205051-014	EP1205051-015
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.93	6.81	6.90	8.15	6.76
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	25	30	33	93	170
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	16	18	28	64	90
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	4	5	4	19
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	3	4	4	33
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	2	7	4
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	2	2
Sodium	7440-23-5	1	mg/L	6	6	5	10	27
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.44	0.14	0.01	0.07	<0.01
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.446	0.191	0.143	0.792	0.872
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.002	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.004	0.016	0.037	0.008	0.088
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.132	0.078	0.079	0.126	0.238
Boron	7440-42-8	0.05	mg/L	0.54	0.21	0.11	0.67	0.57
Iron	7439-89-6	0.05	mg/L	0.32	0.84	<0.05	0.91	<0.05
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD14197_20_21	YPRD13687_20_21	TRRD33437_10_11	YPGCO6605_8_9	YPGCO665_26_27
				Client sampling date / time: 02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00
				EP1205051-016	EP1205051-017	EP1205051-018	EP1205051-019	EP1205051-020
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.02	6.96	6.51	6.67	6.88
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	26	30	102	53	29
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	28	26	56	34	20
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1	1	22	7	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	1	13	4	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	3	2	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	2	<1	<1
Sodium	7440-23-5	1	mg/L	6	7	13	8	6
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.94	0.82	0.01	0.29	0.11
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.505	0.632	0.500	0.483	0.627
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.002	0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.002	<0.001	<0.001	0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.015	0.028	0.012	0.023	0.031
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.242	0.215	0.160	0.124	0.208
Boron	7440-42-8	0.05	mg/L	0.50	0.55	0.27	0.43	0.52
Iron	7439-89-6	0.05	mg/L	0.78	0.45	<0.05	0.18	0.94
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO10846_8_9	YPRD11488_20_21	YPGCO1657_14_15	YPRD04911_2_3	YPRD13687_20_21
				Client sampling date / time: 02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	02-JUL-2012 12:00	04-JUL-2012 12:00
				EP1205051-021	EP1205051-022	EP1205051-023	EP1205051-024	EP1205051-025
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.11	6.75	6.62	8.63	7.10
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	58	34	33	60	35
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	70	20	22	38	26
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	<8	5	3	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1	14	1	2	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	<1	<1	7	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	8	5	4	6	6
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.98	0.03	0.26	0.17	0.41
Antimony	7440-36-0	0.001	mg/L	<0.001	0.004	0.002	<0.001	0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.004
Barium	7440-39-3	0.001	mg/L	0.580	0.234	0.286	0.626	0.246
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.058	0.153	0.009	0.003	0.012
Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.253	0.082	0.103	0.096	0.148
Boron	7440-42-8	0.05	mg/L	0.55	0.18	0.32	0.44	0.40
Iron	7439-89-6	0.05	mg/L	1.40	0.44	0.14	0.37	0.36
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD06576_4_5	TRRD34136_2_3	TRRD33379_2_3	YPRDO5790_8_9	YPGCO0576_38_39
				Client sampling date / time: 04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00
				EP1205051-026	EP1205051-028	EP1205051-029	EP1205051-030	EP1205051-031
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.95	7.99	7.14	8.62	7.48
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	76	70	23	147	22
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	48	44	18	100	16
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	7	4	2	18	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	6	1	<1	14	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	11	<1	3	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	2	<1
Sodium	7440-23-5	1	mg/L	13	3	4	24	5
Potassium	7440-09-7	1	mg/L	<1	<1	<1	4	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.07	0.13	0.30	0.05	0.06
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Barium	7440-39-3	0.001	mg/L	0.826	0.295	0.350	0.493	0.343
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.001	<0.001	0.008	0.002	0.036
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.289	0.078	0.175	0.150	0.163
Boron	7440-42-8	0.05	mg/L	1.03	0.24	0.45	0.49	0.54
Iron	7439-89-6	0.05	mg/L	0.38	0.16	1.31	0.29	0.68
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC10846_26_27	YPRD04911_14_15	YPGO2807_20_21	YPGCO6879_32_33	YPGCO4543_2_3
				Client sampling date / time	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00
					EP1205051-032	EP1205051-033	EP1205051-034	EP1205051-035	EP1205051-036
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.95	7.07	7.14	7.11	6.95
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		22	30	22	29	35
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		14	24	20	22	20
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		3	3	2	2	3
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		2	2	<1	1	<1
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		1	<1	<1	<1	<1
Magnesium	7439-95-4	1	mg/L		<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L		3	5	5	5	7
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.02	0.05	0.60	0.11	0.61
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	0.003	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		0.180	0.239	0.361	0.433	0.665
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	0.002
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	0.001	0.003	0.002
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L		0.023	0.029	0.006	0.008	0.021
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	0.001	0.002
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		0.075	0.120	0.177	0.283	0.372
Boron	7440-42-8	0.05	mg/L		0.21	0.38	0.52	0.68	0.94
Iron	7439-89-6	0.05	mg/L		0.16	0.34	0.37	0.75	1.18
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO2056_15_16	QC3	YPGCO4543_32_33	YPRD06017_8_9	YPRD13687_2_3
				Client sampling date / time	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00
					EP1205051-037	EP1205051-038	EP1205051-039	EP1205051-040	EP1205051-041
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.01	7.04	7.21	6.79	7.14
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		40	41	38	23	144
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		32	26	30	16	60
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		2	2	<1	4	14
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		2	2	1	2	14
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		1	1	<1	<1	6
Magnesium	7439-95-4	1	mg/L		<1	<1	<1	<1	3
Sodium	7440-23-5	1	mg/L		8	8	9	4	23
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	2
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.61	0.92	0.98	0.05	2.23
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	0.089	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		0.770	0.088	0.744	0.285	0.981
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	0.0092	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	0.088	0.003	<0.001	0.006
Cobalt	7440-48-4	0.001	mg/L		<0.001	0.090	0.001	<0.001	0.002
Copper	7440-50-8	0.001	mg/L		0.002	0.088	0.002	<0.001	0.007
Lead	7439-92-1	0.001	mg/L		<0.001	0.088	<0.001	<0.001	0.001
Manganese	7439-96-5	0.001	mg/L		0.005	0.087	0.465	0.006	0.108
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		0.001	0.090	0.002	<0.001	0.007
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		0.088	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	0.09	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		0.480	0.507	0.535	0.125	0.666
Boron	7440-42-8	0.05	mg/L		1.03	0.98	1.22	0.30	0.96
Iron	7439-89-6	0.05	mg/L		0.39	0.92	1.67	0.20	4.05
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC11249_32_33	YPGCO2807_14_15	YPGC11249_2_3	YPGC1149_8_9	YPRD14197_14_15
				Client sampling date / time: 04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00	04-JUL-2012 12:00
				EP1205051-042	EP1205051-043	EP1205051-044	EP1205051-045	EP1205051-046
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.06	7.22	7.06	7.33	6.93
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	59	19	76	26	62
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	36	<10	72	14	34
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	<1	6	2	3
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	4	<1	5	2	7
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	<1	3	<1	2
Magnesium	7439-95-4	1	mg/L	<1	<1	2	<1	1
Sodium	7440-23-5	1	mg/L	10	5	13	6	10
Potassium	7440-09-7	1	mg/L	<1	<1	2	<1	1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.06	1.15	4.11	1.67	1.02
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.004
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.676	0.456	1.63	0.559	0.718
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0001	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.007	0.006	0.002
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.002	0.005	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.003	0.012	0.004	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.094	0.029	0.170	0.384	0.012
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.019	0.008	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.355	0.316	1.34	0.363	0.405
Boron	7440-42-8	0.05	mg/L	1.51	0.63	1.62	0.62	0.81
Iron	7439-89-6	0.05	mg/L	0.20	0.86	7.94	3.26	1.06
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO5415_2_3	YPGCO6879_44_45	TRRD33437_15_16	TRRD34136_8_9	YPRD10638_20_21
				Client sampling date / time: 04-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00
				EP1205051-047	EP1205051-048	EP1205051-049	EP1205051-050	EP1205051-051
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.98	6.82	6.68	6.78	6.88
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	39	29	262	16	63
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	22	24	168	<10	38
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	2	77	1	3
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	2	24	<1	8
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	<1	20	<1	1
Magnesium	7439-95-4	1	mg/L	<1	<1	6	<1	<1
Sodium	7440-23-5	1	mg/L	6	5	21	3	12
Potassium	7440-09-7	1	mg/L	<1	<1	1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.12	0.30	0.03	1.12	0.61
Antimony	7440-36-0	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.770	0.391	0.409	0.209	0.748
Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	<0.0001	0.0002	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	<0.001	0.001	0.003
Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.005	<0.001	<0.001	0.001	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.078	0.023	0.006	0.002	0.082
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.005	<0.001	<0.001	0.001	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	0.01
Zinc	7440-66-6	0.005	mg/L	0.618	0.190	0.245	0.103	0.417
Boron	7440-42-8	0.05	mg/L	1.10	0.64	0.33	0.37	1.22
Iron	7439-89-6	0.05	mg/L	2.82	2.22	0.94	2.03	10.8
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: QC3A	QC4	QC5	YPRD13687_38_39	TRRD34136_10_11
				Client sampling date / time: 05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00
				EP1205051-052	EP1205051-053	EP1205051-054	EP1205051-055	EP1205051-056
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.07	6.77	6.63	6.90	6.76
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	61	201	11	29	16
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	46	194	<10	16	<10
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	17	2	1	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	2	31	1	1	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	10	<1	<1	<1
Magnesium	7439-95-4	1	mg/L	<1	4	<1	<1	<1
Sodium	7440-23-5	1	mg/L	14	23	2	7	4
Potassium	7440-09-7	1	mg/L	<1	2	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.16	1.38	0.02	2.35	0.72
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.69	1.34	0.130	0.678	0.379
Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.002	0.004	0.003
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.006	0.004	0.002	0.003	0.002
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.302	0.032	0.001	0.350	0.008
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	0.003	<0.001	0.003	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	0.03	0.05	0.06	0.07	0.08
Zinc	7440-66-6	0.005	mg/L	1.01	0.479	0.084	0.303	0.222
Boron	7440-42-8	0.05	mg/L	2.85	1.38	0.17	1.07	0.61
Iron	7439-89-6	0.05	mg/L	32.6	2.85	0.07	6.65	3.74
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0006	<0.0001

Analytical Results

Sub-Matrix: DI WATER LEACHATE				Client sample ID	YPGCO5415_32_33	----	----	----	----
				Client sampling date / time	05-JUL-2012 12:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP1205051-057	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.87**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**26**	----	----	----	----
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		**14**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**2**	----	----	----	----
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		**1**	----	----	----	----
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L		<1	----	----	----	----
Sodium	7440-23-5	1	mg/L		**6**	----	----	----	----
Potassium	7440-09-7	1	mg/L		<1	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.68**	----	----	----	----
Antimony	7440-36-0	0.001	mg/L		<0.001	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Barium	7440-39-3	0.001	mg/L		**0.569**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.002**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.245**	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.003**	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	----	----	----	----
Uranium	7440-61-1	0.001	mg/L		<0.001	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		**0.05**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.267**	----	----	----	----
Boron	7440-42-8	0.05	mg/L		**0.94**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**5.93**	----	----	----	----
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC10846_2_3	YPRD10638_8_9	YPGCO1657_36_39	CAGC30291_14_15	YPGCO2807_32_33
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-001	EP1205051-002	EP1205051-003	EP1205051-004	EP1205051-005
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.7	8.2	6.8	6.9	6.9
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	2.10	21.0	0.98	2.34	1.28
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	177	53	29	47	32
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.7	7.3	7.0	8.1	7.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	2.7	2.4	2.4	4.9	2.2
ANC as CaCO3	----	0.1	% CaCO3	0.3	0.2	0.2	0.5	0.2
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	0.010	0.010	0.008	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	3.1	16.2	4.4	3.9	4.2
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	7.7	0.5	0.2	1.8	1.5
Exchangeable Magnesium	----	0.1	meq/100g	1.5	0.8	<0.1	1.3	1.0
Exchangeable Potassium	----	0.1	meq/100g	0.4	0.6	<0.1	0.5	<0.1
Exchangeable Sodium	----	0.1	meq/100g	0.4	0.8	<0.1	0.2	<0.1
Cation Exchange Capacity	----	0.1	meq/100g	10.0	2.7	0.3	3.8	2.7
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	3.6	31.2	14.6	5.7	3.9
Exchangeable Magnesium Percent	----	0.1	%	15.4	27.8	29.1	33.6	38.4
Exchangeable Potassium Percent	----	0.1	%	3.6	21.2	7.8	12.2	4.3
Exchangeable Calcium Percent	----	0.1	%	77.4	19.9	48.6	48.5	53.4
Calcium/Magnesium Ratio	----	0.1	.	4.2	0.8	2.0	1.5	1.4
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	200	130	140	190	110
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	30	40	50	20
Sulfur as S	63705-05-5	10	mg/kg	20	<10	10	20	<10
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.26	0.01	0.01	0.04	0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC10846_2_3	YPRD10638_8_9	YPGCO1657_36_39	CAGC30291_14_15	YPGCO2807_32_33
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-001	EP1205051-002	EP1205051-003	EP1205051-004	EP1205051-005
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**60**	**60**	**20**	**40**	**30**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**8.5**	**6.9**	**6.3**	**6.7**	**6.6**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.03**	**0.07**	**0.08**	**0.13**	**0.06**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	CAGC30291_8_9	YPGCO3152_44_45	YPGCO4543_38_39	YPGC10846_20_21	YPRD14197_38_39
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-006	EP1205051-007	EP1205051-008	EP1205051-009	EP1205051-010
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.3	6.9	7.5	6.9	7.5
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		4.38	1.65	2.91	2.29	1.59
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		338	26	22	54	23
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		8.0	7.5	7.1	7.2	6.9
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	0.2
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		4.6	3.3	2.8	2.2	1.2
ANC as CaCO3	----	0.1	% CaCO3		0.5	0.3	0.3	0.2	0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		0.013	0.012	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		5.4	1.6	7.3	4.0	8.1
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		4.0	0.2	1.0	0.7	0.5
Exchangeable Magnesium	----	0.1	meq/100g		3.7	0.1	0.8	0.5	0.4
Exchangeable Potassium	----	0.1	meq/100g		0.6	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		1.1	<0.1	0.2	0.2	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		9.4	0.5	2.0	1.5	1.0
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		11.6	17.8	8.3	12.6	8.1
Exchangeable Magnesium Percent	----	0.1	%		40.0	28.7	38.3	34.2	36.6
Exchangeable Potassium Percent	----	0.1	%		6.2	7.2	4.8	7.2	4.1
Exchangeable Calcium Percent	----	0.1	%		42.2	46.4	48.6	46.1	51.2
Calcium/Magnesium Ratio	----	0.1	.		1.0	1.5	1.2	1.3	1.2
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		290	<100	<100	140	100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		170	20	20	60	30
Sulfur as S	63705-05-5	10	mg/kg		60	<10	<10	20	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.04	0.01	0.04	0.04	0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: CAGC30291_8_9	YPGCO3152_44_45	YPGCO4543_38_39	YPGC10846_20_21	YPRD14197_38_39
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-006	EP1205051-007	EP1205051-008	EP1205051-009	EP1205051-010
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**350**	**20**	**20**	**30**	**10**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.7**	**7.2**	**7.6**	**7.8**	**7.0**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.05**	<0.02	**0.08**	**0.11**	**0.04**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO5415_14_15	YPRD06017_15_16	YPGCO6143_14_15	TRRD33379_8_9	YPGCO2807_2_3
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-011	EP1205051-012	EP1205051-013	EP1205051-014	EP1205051-015
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.2	6.7	6.8	8.8	7.0
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.12	5.95	2.42	3.03	10.4
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		18	88	96	149	625
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	7.8	7.3	8.8	6.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.5	<0.1	<0.1	<0.1	0.2
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		3.0	1.8	4.7	5.1	2.2
ANC as CaCO3	----	0.1	% CaCO3		0.3	0.2	0.5	0.5	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	0.006	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		3.6	3.7	5.4	10.4	9.7
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		2.8	1.0	1.4	6.2	1.0
Exchangeable Magnesium	----	0.1	meq/100g		2.0	0.6	0.4	2.1	1.2
Exchangeable Potassium	----	0.1	meq/100g		0.4	0.1	0.1	0.2	0.2
Exchangeable Sodium	----	0.1	meq/100g		<0.1	0.4	0.3	0.6	2.7
Cation Exchange Capacity	----	0.1	meq/100g		5.4	2.1	2.2	9.2	5.2
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		1.7	19.9	12.1	7.1	53.0
Exchangeable Magnesium Percent	----	0.1	%		38.1	26.9	16.5	23.2	23.4
Exchangeable Potassium Percent	----	0.1	%		8.3	6.2	5.3	2.1	4.3
Exchangeable Calcium Percent	----	0.1	%		51.9	47.0	66.1	67.6	19.4
Calcium/Magnesium Ratio	----	0.1	.		1.4	1.8	4.0	2.9	0.8
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	120	110	<100	450
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		10	80	80	70	380
Sulfur as S	63705-05-5	10	mg/kg		<10	30	30	20	130
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.03	0.02	0.02	0.01	0.13

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGCO5415_14_15	YPRD06017_15_16	YPGCO6143_14_15	TRRD33379_8_9	YPGCO2807_2_3
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205051-011	EP1205051-012	EP1205051-013	EP1205051-014	EP1205051-015
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		10	60	70	90	830
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		7.1	6.8	6.3	7.9	7.3
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.05	0.11	0.09	0.04	0.12

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD14197_20_21	YPRD13687_20_21	TRRD33437_10_11	YPGCO6605_8_9	YPGCO665_26_27
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-016	EP1205051-017	EP1205051-018	EP1205051-019	EP1205051-020
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.9	7.9	5.4	6.5	6.8
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.96	6.76	4.72	3.16	1.54
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		22	38	346	132	31
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.7	8.1	5.7	7.0	5.7
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	1.1	<0.1	0.5
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		3.0	3.6	2.7	<0.5	2.0
ANC as CaCO3	----	0.1	% CaCO3		0.3	0.4	0.3	<0.1	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		9.5	11.5	7.3	3.6	2.7
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.7	2.4	0.4	1.0	0.7
Exchangeable Magnesium	----	0.1	meq/100g		1.7	2.0	0.7	0.8	0.5
Exchangeable Potassium	----	0.1	meq/100g		0.2	0.3	<0.1	0.2	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.3	0.4	1.2	0.4	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		4.0	5.1	2.3	2.4	1.5
Exchangeable Aluminium	----	0.1	meq/100g		0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		7.6	8.2	49.8	16.3	7.5
Exchangeable Magnesium Percent	----	0.1	%		43.2	38.6	31.4	34.1	37.2
Exchangeable Potassium Percent	----	0.1	%		6.2	5.2	2.0	9.2	6.5
Exchangeable Calcium Percent	----	0.1	%		43.0	47.9	16.8	40.5	48.8
Calcium/Magnesium Ratio	----	0.1	.		1.0	1.2	0.5	1.1	1.3
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	790	290	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	30	390	110	30
Sulfur as S	63705-05-5	10	mg/kg		<10	10	130	40	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	<0.01	0.03	0.07	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD14197_20_21	YPRD13687_20_21	TRRD33437_10_11	YPGCO6605_8_9	YPGCO665_26_27
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-016	EP1205051-017	EP1205051-018	EP1205051-019	EP1205051-020
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**20**	**30**	**270**	**70**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.3**	**6.7**	**6.8**	**6.6**	**7.0**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.06**	**0.02**	<0.02	**0.12**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO10846_8_9	YPRD11488_20_21	YPGCO1657_14_15	YPRD04911_2_3	YPRD13687_20_21
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-021	EP1205051-022	EP1205051-023	EP1205051-024	EP1205051-025
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.1	7.1	6.5	6.2	9.1
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		8.02	3.59	1.03	0.90	5.32
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		51	84	49	92	38
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.8	7.3	6.6	9.0	7.7
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.2	<0.1	0.2	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		2.4	<0.5	2.2	2.3	<0.5
ANC as CaCO3	----	0.1	% CaCO3		0.2	<0.1	0.2	0.2	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		4.3	2.6	6.0	<1.0	6.3
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		2.6	0.4	0.6	13.2	2.2
Exchangeable Magnesium	----	0.1	meq/100g		2.1	0.2	0.4	0.7	1.8
Exchangeable Potassium	----	0.1	meq/100g		0.3	<0.1	0.2	<0.1	0.3
Exchangeable Sodium	----	0.1	meq/100g		0.6	0.3	<0.1	0.2	0.4
Cation Exchange Capacity	----	0.1	meq/100g		5.7	0.9	1.3	14.2	4.6
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		9.8	28.1	6.2	1.4	8.4
Exchangeable Magnesium Percent	----	0.1	%		37.9	22.6	35.0	5.0	38.2
Exchangeable Potassium Percent	----	0.1	%		6.0	5.6	12.7	0.5	5.8
Exchangeable Calcium Percent	----	0.1	%		46.4	43.8	46.1	93.1	47.7
Calcium/Magnesium Ratio	----	0.1	.		1.2	2.0	1.2	18.4	1.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	200	160	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		40	60	70	40	20
Sulfur as S	63705-05-5	10	mg/kg		10	20	20	10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.03	<0.01	0.06	<0.01	0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO10846_8_9	YPRD11488_20_21	YPGCO1657_14_15	YPRD04911_2_3	YPRD13687_20_21
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-021	EP1205051-022	EP1205051-023	EP1205051-024	EP1205051-025
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**30**	**70**	**30**	**40**	**30**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.4**	**7.2**	**6.9**	**8.7**	**7.3**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.06**	<0.02	**0.19**	**0.10**	**0.02**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	TRRD06576_4_5	TRRD34136_2_3	TRRD33379_2_3	YPRDO5790_8_9	YPGCO0576_38_39
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-026	EP1205051-028	EP1205051-029	EP1205051-030	EP1205051-031
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.1	8.6	7.4	9.3	7.8
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		7.25	0.50	2.08	10.3	1.67
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		107	102	31	372	21
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	8.3	6.5	8.6	6.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.3	<0.1	0.5	<0.1	0.4
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	5.7	<0.5	26.2	<0.5
ANC as CaCO3	----	0.1	% CaCO3		<0.1	0.6	<0.1	2.7	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	1	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		3.4	3.2	2.7	1.7	36.5
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.3	14.0	1.3	3.9	0.3
Exchangeable Magnesium	----	0.1	meq/100g		1.7	0.9	0.6	3.7	0.2
Exchangeable Potassium	----	0.1	meq/100g		<0.1	<0.1	<0.1	0.5	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.8	0.1	0.3	1.6	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		2.9	15.2	2.3	9.7	0.7
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		29.0	0.8	11.9	17.0	13.2
Exchangeable Magnesium Percent	----	0.1	%		56.7	5.9	27.2	38.0	33.8
Exchangeable Potassium Percent	----	0.1	%		3.5	0.6	5.2	5.0	6.0
Exchangeable Calcium Percent	----	0.1	%		10.8	92.6	55.6	40.0	47.0
Calcium/Magnesium Ratio	----	0.1	.		<0.1	1.0	1.0	1.0	1.5
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		130	<100	<100	280	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		110	50	30	290	20
Sulfur as S	63705-05-5	10	mg/kg		40	20	10	100	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.01	0.01	0.02	0.01	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD06576_4_5	TRRD34136_2_3	TRRD33379_2_3	YPRDO5790_8_9	YPGCO0576_38_39
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-026	EP1205051-028	EP1205051-029	EP1205051-030	EP1205051-031
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**130**	**20**	**20**	**260**	**30**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.1**	**8.0**	**7.5**	**8.6**	**7.9**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.13**	**0.03**	**0.44**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC10846_26_27	YPRD04911_14_15	YPGO2807_20_21	YPGCO6879_32_33	YPGCO4543_2_3
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-032	EP1205051-033	EP1205051-034	EP1205051-035	EP1205051-036
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.0	6.7	6.9	6.8	6.1
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.08	3.38	2.12	6.02	4.44
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		59	81	37	34	25
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.6	7.3	6.0	7.4	6.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	0.6	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	<0.5	<0.5	<0.5
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	<0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	0.006	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.6	6.4	16.6	1.9	4.4
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.6	0.4	3.7	1.4	1.3
Exchangeable Magnesium	----	0.1	meq/100g		0.4	0.2	2.5	1.1	1.1
Exchangeable Potassium	----	0.1	meq/100g		<0.1	<0.1	0.7	<0.1	0.2
Exchangeable Sodium	----	0.1	meq/100g		<0.1	0.3	0.2	0.3	0.3
Cation Exchange Capacity	----	0.1	meq/100g		1.2	1.0	7.2	3.0	2.9
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	0.1	<0.1	0.2
Exchangeable Sodium Percent	----	0.1	%		9.5	33.8	3.6	11.6	9.8
Exchangeable Magnesium Percent	----	0.1	%		38.1	23.5	34.9	38.3	38.5
Exchangeable Potassium Percent	----	0.1	%		3.9	8.3	10.1	3.7	7.3
Exchangeable Calcium Percent	----	0.1	%		48.5	34.5	51.4	46.4	44.4
Calcium/Magnesium Ratio	----	0.1	.		1.2	1.3	1.5	1.2	1.2
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	170	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		50	80	50	30	30
Sulfur as S	63705-05-5	10	mg/kg		20	20	20	<10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	0.04	<0.01	<0.01	0.23

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC10846_26_27	YPRD04911_14_15	YPGO2807_20_21	YPGCO6879_32_33	YPGCO4543_2_3
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-032	EP1205051-033	EP1205051-034	EP1205051-035	EP1205051-036
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**40**	**60**	**20**	**20**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.6**	**7.7**	**7.5**	**7.4**	**7.2**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.08**	**0.03**	**0.02**	**0.05**	**0.02**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO2056_15_16	QC3	YPGCO4543_32_33	YPRD06017_8_9	YPRD13687_2_3
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-037	EP1205051-038	EP1205051-039	EP1205051-040	EP1205051-041
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.6	7.0	7.7	6.6	7.0
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.41	2.67	6.39	3.10	4.94
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		64	56	39	58	408
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.7	6.5	7.8	6.8	7.7
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.3	0.4	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	<0.5	1.6	2.0
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	0.2	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		5.1	8.6	5.7	5.8	14.8
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		3.4	3.3	2.7	0.6	7.4
Exchangeable Magnesium	----	0.1	meq/100g		2.8	2.7	2.2	0.5	4.4
Exchangeable Potassium	----	0.1	meq/100g		0.6	0.6	0.4	0.2	0.6
Exchangeable Sodium	----	0.1	meq/100g		0.3	0.4	0.4	0.3	1.6
Cation Exchange Capacity	----	0.1	meq/100g		7.1	7.0	5.7	1.6	14.1
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		4.6	5.2	7.8	17.3	11.7
Exchangeable Magnesium Percent	----	0.1	%		39.6	38.9	38.2	34.2	31.4
Exchangeable Potassium Percent	----	0.1	%		8.0	8.2	6.4	12.4	4.5
Exchangeable Calcium Percent	----	0.1	%		47.8	47.7	47.6	36.0	52.3
Calcium/Magnesium Ratio	----	0.1	.		1.2	1.2	1.3	1.2	1.6
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		100	<100	<100	130	310
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		40	40	30	70	290
Sulfur as S	63705-05-5	10	mg/kg		20	10	<10	20	100
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	0.02	<0.01	0.02	0.04

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGCO2056_15_16	QC3	YPGCO4543_32_33	YPRD06017_8_9	YPRD13687_2_3
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205051-037	EP1205051-038	EP1205051-039	EP1205051-040	EP1205051-041
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**40**	**40**	**30**	**30**	**360**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**7.3**	**6.5**	**6.8**	**6.8**	**7.0**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		**0.03**	**0.03**	**0.04**	**0.06**	**0.03**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC11249_32_33	YPGCO2807_14_15	YPGC11249_2_3	YPGC1149_8_9	YPRD14197_14_15
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-042	EP1205051-043	EP1205051-044	EP1205051-045	EP1205051-046
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.7	7.6	6.2	7.5	7.1
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	2.27	2.06	2.13	10.6	2.96
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	89	18	150	48	189
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.7	7.8	7.4	7.8	7.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	1.7	2.5	1.9	1.7	2.4
ANC as CaCO3	----	0.1	% CaCO3	0.2	0.2	0.2	0.2	0.2
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	6.8	11.6	10.6	10.4	11.7
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.7	4.5	3.3	4.2	2.2
Exchangeable Magnesium	----	0.1	meq/100g	1.4	2.9	2.9	3.6	2.8
Exchangeable Potassium	----	0.1	meq/100g	0.2	0.7	0.4	0.5	0.4
Exchangeable Sodium	----	0.1	meq/100g	0.3	0.2	0.3	0.7	0.5
Cation Exchange Capacity	----	0.1	meq/100g	4.6	8.4	7.0	9.0	5.9
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	0.1	<0.1	0.2
Exchangeable Sodium Percent	----	0.1	%	6.6	2.6	4.7	8.0	9.1
Exchangeable Magnesium Percent	----	0.1	%	31.0	35.0	41.3	40.2	47.3
Exchangeable Potassium Percent	----	0.1	%	4.0	8.7	6.4	5.2	6.2
Exchangeable Calcium Percent	----	0.1	%	58.4	53.7	47.5	46.5	37.4
Calcium/Magnesium Ratio	----	0.1	.	1.9	1.5	1.2	1.2	0.8
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	150	<100	110
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	70	<10	120	40	100
Sulfur as S	63705-05-5	10	mg/kg	20	<10	40	10	30
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	0.04	0.06	0.02	0.02

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGC11249_32_33	YPGCO2807_14_15	YPGC11249_2_3	YPGC1149_8_9	YPRD14197_14_15
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205051-042	EP1205051-043	EP1205051-044	EP1205051-045	EP1205051-046
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		80	10	120	40	180
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		7.1	7.5	6.9	7.9	7.4
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		0.02	0.02	0.06	0.08	0.03

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO5415_2_3	YPGCO6879_44_45	TRRD33437_15_16	TRRD34136_8_9	YPRD10638_20_21
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-047	EP1205051-048	EP1205051-049	EP1205051-050	EP1205051-051
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.1	7.1	6.5	6.8	6.8
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.45	3.31	4.13	2.53	5.91
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		20	50	652	43	166
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	7.4	6.8	6.8	7.7
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	0.2	0.2	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		0.6	0.7	<0.5	<0.5	<0.5
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	<0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		5.1	5.8	7.2	3.1	8.7
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.4	0.6	1.8	1.1	1.2
Exchangeable Magnesium	----	0.1	meq/100g		0.7	0.5	1.4	0.5	1.8
Exchangeable Potassium	----	0.1	meq/100g		0.2	<0.1	0.2	0.2	0.3
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.2	1.8	0.3	0.8
Cation Exchange Capacity	----	0.1	meq/100g		2.4	1.4	5.2	2.0	4.1
Exchangeable Aluminium	----	0.1	meq/100g		0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		9.1	17.9	34.4	13.5	18.7
Exchangeable Magnesium Percent	----	0.1	%		28.1	34.1	27.1	23.8	44.4
Exchangeable Potassium Percent	----	0.1	%		7.1	5.7	4.0	8.9	8.4
Exchangeable Calcium Percent	----	0.1	%		55.6	42.4	34.5	53.8	28.5
Calcium/Magnesium Ratio	----	0.1	.		2.0	1.2	1.3	2.5	0.6
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		120	<100	1180	100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	40	860	30	80
Sulfur as S	63705-05-5	10	mg/kg		<10	10	280	10	30
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.12	<0.01	0.05	0.03	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO5415_2_3	YPGCO6879_44_45	TRRD33437_15_16	TRRD34136_8_9	YPRD10638_20_21
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205051-047	EP1205051-048	EP1205051-049	EP1205051-050	EP1205051-051
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**20**	**40**	**470**	**20**	**190**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.4**	**7.1**	**6.4**	**6.5**	**6.4**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.10**	<0.02	<0.02	**0.07**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	QC3A	QC4	QC5	YPRD13687_38_39	TRRD34136_10_11
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205051-052	EP1205051-053	EP1205051-054	EP1205051-055	EP1205051-056
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.4	6.4	5.6	7.1	7.8
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		7.17	4.12	2.43	3.96	3.94
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		51	845	31	48	28
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.5	7.1	5.8	7.6	6.1
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	0.7	<0.1	0.3
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	<0.5	<0.5	<0.5
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	<0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	0.006	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		8.7	8.9	3.1	6.0	2.6
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.9	6.9	0.2	2.7	0.4
Exchangeable Magnesium	----	0.1	meq/100g		1.4	4.4	0.2	2.1	0.2
Exchangeable Potassium	----	0.1	meq/100g		0.3	0.5	<0.1	0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.4	2.1	0.1	0.4	0.3
Cation Exchange Capacity	----	0.1	meq/100g		3.0	14.0	0.5	5.4	0.9
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		13.6	15.0	26.9	6.6	29.8
Exchangeable Magnesium Percent	----	0.1	%		45.5	31.8	36.3	40.0	23.5
Exchangeable Potassium Percent	----	0.1	%		10.0	3.8	5.4	2.3	9.2
Exchangeable Calcium Percent	----	0.1	%		31.0	49.4	31.4	51.0	37.6
Calcium/Magnesium Ratio	----	0.1	.		0.7	1.6	1.0	1.2	2.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	590	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	590	30	40	20
Sulfur as S	63705-05-5	10	mg/kg		<10	200	<10	10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	0.04	0.02	0.01	0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: QC3A Client sampling date / time: 22-JUN-2012 15:00 EP1205051-052	QC4 22-JUN-2012 15:00 EP1205051-053	QC5 22-JUN-2012 15:00 EP1205051-054	YPRD13687_38_39 22-JUN-2012 15:00 EP1205051-055	TRRD34136_10_11 22-JUN-2012 15:00 EP1205051-056
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**50**	**780**	**30**	**30**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.4**	**6.9**	**6.6**	**7.2**	**6.9**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.02**	**0.04**	**0.09**	**0.04**

Analytical Results

Sub-Matrix: SOIL			Client sample ID	YPGCO5415_32_33	----	----	----	----
			Client sampling date / time	22-JUN-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EP1205051-057	----	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**6.9**	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	**2.72**	----	----	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**35**	----	----	----	----
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	**8.0**	----	----	----	----
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	----	----	----	----
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	----	----	----	----
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	**1.1**	----	----	----	----
ANC as CaCO3	----	0.1	% CaCO3	**0.1**	----	----	----	----
Fizz Rating	----	0	Fizz Unit	**0**	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**7.2**	----	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	**1.4**	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	**1.1**	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	**0.1**	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	**0.2**	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	**2.8**	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium Percent	----	0.1	%	**9.0**	----	----	----	----
Exchangeable Magnesium Percent	----	0.1	%	**38.3**	----	----	----	----
Exchangeable Potassium Percent	----	0.1	%	**4.9**	----	----	----	----
Exchangeable Calcium Percent	----	0.1	%	**47.8**	----	----	----	----
Calcium/Magnesium Ratio	----	0.1	.	**1.2**	----	----	----	----
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**30**	----	----	----	----
Sulfur as S	63705-05-5	10	mg/kg	<10	----	----	----	----
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	**0.02**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL			Client sample ID	YPGCO5415_32_33	----	----	----	----
			Client sampling date / time	22-JUN-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EP1205051-057	----	----	----	----
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**30**	----	----	----	----
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.9**	----	----	----	----
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.07**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EP1205051**	Page	: 1 of 28
Amendment	: **1**		
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 57
Quote number	: ----	No. of samples analysed	: 56

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Jonathon Angell	Inorganic Coordinator	Stafford Minerals - AY
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Stephen Hislop	Senior Inorganic Chemist	Brisbane Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 2372347)									
EP1205051-001	YPGC10846_2_3	EA002: pH Value	----	0.1	pH Unit	9.7	8.7	11.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2374472)									
EP1205051-002	YPRD10638_8_9	EA002: pH Value	----	0.1	pH Unit	8.2	8.5	3.7	0% - 20%
EP1205051-011	YPGCO5415_14_15	EA002: pH Value	----	0.1	pH Unit	7.2	6.9	4.7	0% - 20%
EA002 : pH (Soils) (QC Lot: 2374476)									
EP1205051-022	YPRD11488_20_21	EA002: pH Value	----	0.1	pH Unit	7.1	7.0	0.0	0% - 20%
EP1205051-031	YPGCO0576_38_39	EA002: pH Value	----	0.1	pH Unit	7.8	7.3	6.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381256)									
EP1205051-032	YPGC10846_26_27	EA002: pH Value	----	0.1	pH Unit	6.0	6.2	4.3	0% - 20%
EP1205051-041	YPRD13687_2_3	EA002: pH Value	----	0.1	pH Unit	7.0	7.0	0.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381260)									
EP1205051-052	QC3A	EA002: pH Value	----	0.1	pH Unit	7.4	7.7	4.4	0% - 20%
EA010: Conductivity (QC Lot: 2372349)									
EP1205051-001	YPGC10846_2_3	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	177	150	16.7	0% - 20%
EA010: Conductivity (QC Lot: 2374474)									
EP1205051-002	YPRD10638_8_9	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	53	52	2.1	0% - 20%
EP1205051-011	YPGCO5415_14_15	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	18	17	6.3	0% - 50%
EA010: Conductivity (QC Lot: 2374478)									
EP1205051-022	YPRD11488_20_21	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	84	87	3.4	0% - 20%
EP1205051-031	YPGCO0576_38_39	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	21	21	0.0	0% - 20%
EA010: Conductivity (QC Lot: 2381258)									
EP1205051-032	YPGC10846_26_27	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	59	57	2.8	0% - 20%
EP1205051-041	YPRD13687_2_3	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	408	408	0.0	0% - 20%
EA010: Conductivity (QC Lot: 2381262)									
EP1205051-052	QC3A	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	51	47	9.6	0% - 20%
EA011: Net Acid Generation (QC Lot: 2389561)									
EP1205051-001	YPGC10846_2_3	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.7	7.8	1.3	0% - 20%
EP1205051-012	YPRD06017_15_16	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.8	7.3	6.6	0% - 20%
EA011: Net Acid Generation (QC Lot: 2389564)									
EP1205051-021	YPGCO10846_8_9	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA011: Net Acid Generation (QC Lot: 2389564) - continued									
EP1205051-021	YPGCO10846_8_9	EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.2	0.2	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	6.8	6.9	1.4	0% - 20%
EP1205051-033	YPRD04911_14_15	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.3	7.2	1.4	0% - 20%
EA011: Net Acid Generation (QC Lot: 2389567)									
EP1205051-042	YPGC11249_32_33	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.7	7.9	2.6	0% - 20%
EP1205051-053	QC4	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.1	7.1	0.0	0% - 20%
EA013: Acid Neutralising Capacity (QC Lot: 2389560)									
EP1205051-001	YPGC10846_2_3	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	2.7	3.1	11.8	No Limit
EP1205051-012	YPRD06017_15_16	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.8	2.3	20.5	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2389563)									
EP1205051-021	YPGCO10846_8_9	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	2.4	3.0	19.4	No Limit
EP1205051-033	YPRD04911_14_15	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2389566)									
EP1205051-042	YPGC11249_32_33	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.7	1.5	13.3	No Limit
EP1205051-053	QC4	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2389562)									
EP1205051-001	YPGC10846_2_3	EA026: Chromium Reducible Sulphur	----	0.005	%	0.010	0.008	13.3	No Limit
EP1205051-012	YPRD06017_15_16	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2389565)									
EP1205051-021	YPGCO10846_8_9	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205051-033	YPRD04911_14_15	EA026: Chromium Reducible Sulphur	----	0.005	%	0.006	0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2389568)									
EP1205051-042	YPGC11249_32_33	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205051-053	QC4	EA026: Chromium Reducible Sulphur	----	0.005	%	0.006	0.006	0.0	No Limit
EA055: Moisture Content (QC Lot: 2374695)									
EP1205051-001	YPGC10846_2_3	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	3.1	2.7	12.7	No Limit
EP1205051-010	YPRD14197_38_39	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	8.1	8.1	0.0	No Limit
EA055: Moisture Content (QC Lot: 2374697)									
EP1205051-021	YPGCO10846_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	4.3	4.5	5.3	No Limit
EP1205051-030	YPRDO5790_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	1.7	1.3	27.2	No Limit
EA055: Moisture Content (QC Lot: 2374698)									
EP1205051-041	YPRD13687_2_3	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.8	12.4	17.1	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 2374698) - continued									
EP1205051-050	TRRD34136_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	3.1	3.0	3.4	No Limit
ED007: Exchangeable Cations (QC Lot: 2376932)									
EP1205051-001	YPGC10846_2_3	ED007: Exchangeable Calcium	----	0.1	meq/100g	7.7	6.8	12.1	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.5	1.9	23.2	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.5	24.3	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
EP1205051-009	YPGC10846_20_21	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.7	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.5	0.5	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376933)									
EP1205051-021	YPGCO10846_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.6	2.6	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.1	2.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.6	0.6	0.0	No Limit
EP1205051-030	YPRDO5790_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	3.9	3.6	7.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	3.7	3.5	6.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.5	0.4	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.6	1.5	7.8	0% - 50%
ED007: Exchangeable Cations (QC Lot: 2376934)									
EP1205051-042	YPGC11249_32_33	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.7	2.4	12.4	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.4	1.2	13.8	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
EP1205051-050	TRRD34136_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	1.1	1.0	0.0	0% - 50%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.5	0.4	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2372348)									
EP1205051-001	YPGC10846_2_3	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2374473)									
EP1205051-002	YPRD10638_8_9	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	30	0.0	No Limit
EP1205051-011	YPGCO5415_14_15	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	10	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2374477)									
EP1205051-022	YPRD11488_20_21	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	60	60	0.0	No Limit
EP1205051-031	YPGCO0576_38_39	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381257)									
EP1205051-032	YPGC10846_26_27	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	50	50	0.0	No Limit
EP1205051-041	YPRD13687_2_3	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	290	350	18.2	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED040S: Soluble Major Anions (QC Lot: 2381261)									
EP1205051-052	QC3A	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399549)									
EP1205051-001	YPGC10846_2_3	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	200	220	4.9	No Limit
EP1205051-010	YPRD14197_38_39	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399550)									
EP1205051-021	YPGCO10846_8_9	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205051-031	YPGCO0576_38_39	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399551)									
EP1205051-037	YPGCO2056_15_16	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	100	<100	0.0	No Limit
EP1205051-046	YPRD14197_14_15	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	110	<100	12.2	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399552)									
EP1205051-057	YPGCO5415_32_33	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205053-009	Anonymous	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388683)									
EP1205051-001	YPGC10846_2_3	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.26	0.25	5.2	0% - 20%
EP1205051-011	YPGCO5415_14_15	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.03	0.03	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388685)									
EP1205051-021	YPGCO10846_8_9	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.03	0.03	0.0	No Limit
EP1205051-032	YPGC10846_26_27	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388687)									
EP1205051-042	YPGC11249_32_33	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
EP1205051-052	QC3A	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2372350)									
EP1205051-001	YPGC10846_2_3	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2374475)									
EP1205051-002	YPRD10638_8_9	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
EP1205051-011	YPGCO5415_14_15	ED045G: Chloride	16887-00-6	10	mg/kg	10	10	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2374479)									
EP1205051-022	YPRD11488_20_21	ED045G: Chloride	16887-00-6	10	mg/kg	70	70	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381259)									
EP1205051-032	YPGC10846_26_27	ED045G: Chloride	16887-00-6	10	mg/kg	40	40	0.0	No Limit
EP1205051-041	YPRD13687_2_3	ED045G: Chloride	16887-00-6	10	mg/kg	360	410	13.1	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 2381263)									
EP1205051-052	QC3A	ED045G: Chloride	16887-00-6	10	mg/kg	50	50	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388684)									
EP1205051-001	YPGC10846_2_3	EP003TC: Total Carbon	----	0.02	%	0.03	0.03	0.0	No Limit
EP1205051-011	YPGCO5415_14_15	EP003TC: Total Carbon	----	0.02	%	0.05	0.05	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388686)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388686) - continued									
EP1205051-021	YPGCO10846_8_9	EP003TC: Total Carbon	----	0.02	%	0.06	0.06	0.0	No Limit
EP1205051-032	YPGC10846_26_27	EP003TC: Total Carbon	----	0.02	%	0.08	0.08	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388688)									
EP1205051-042	YPGC11249_32_33	EP003TC: Total Carbon	----	0.02	%	0.02	0.03	0.0	No Limit
EP1205051-052	QC3A	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 2379416)									
EP1205161-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.86	6.82	0.6	0% - 20%
EP1205165-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.57	7.55	0.3	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2384629)									
EP1205051-002	YPRD10638_8_9	EA005-P: pH Value	----	0.01	pH Unit	6.77	6.79	0.3	0% - 20%
EP1205051-012	YPRD06017_15_16	EA005-P: pH Value	----	0.01	pH Unit	6.81	6.81	0.0	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2384631)									
EP1205051-022	YPRD11488_20_21	EA005-P: pH Value	----	0.01	pH Unit	6.75	6.74	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2388830)									
EP1205051-025	YPRD13687_20_21	EA005-P: pH Value	----	0.01	pH Unit	7.10	7.14	0.6	0% - 20%
EP1205051-036	YPGCO4543_2_3	EA005-P: pH Value	----	0.01	pH Unit	6.95	6.94	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2388832)									
EP1205051-046	YPRD14197_14_15	EA005-P: pH Value	----	0.01	pH Unit	6.93	6.96	0.4	0% - 20%
EP1205438-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	4.69	4.70	0.2	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2392450)									
EP1205051-048	YPGCO6879_44_45	EA005-P: pH Value	----	0.01	pH Unit	6.82	6.83	0.1	0% - 20%
EP1205053-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.08	8.22	1.7	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2379415)									
EP1205161-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	963	962	0.1	0% - 20%
EP1205165-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4380	4340	0.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2384628)									
EP1205051-002	YPRD10638_8_9	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	32	29	10.1	0% - 20%
EP1205051-012	YPRD06017_15_16	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	30	30	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2384630)									
EP1205051-022	YPRD11488_20_21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	34	29	16.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2388829)									
EP1205051-025	YPRD13687_20_21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	35	29	18.9	0% - 20%
EP1205051-036	YPGCO4543_2_3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	35	32	7.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2388831)									
EP1205051-046	YPRD14197_14_15	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	62	63	0.0	0% - 20%
EP1205438-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	68800	67700	1.6	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA010P: Conductivity by PC Titrator (QC Lot: 2392449)									
EP1205051-048	YPGCO6879_44_45	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	29	25	16.5	0% - 20%
EP1205053-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	126	126	0.0	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2377967)									
EP1205051-001	YPGC10846_2_3	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	107	128	17.9	0% - 50%
EP1205091-006	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	1640	1680	2.4	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2383722)									
EP1205051-002	YPRD10638_8_9	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	22	16	31.6	No Limit
EP1205051-010	YPRD14197_38_39	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	20	22	9.5	No Limit
EA015: Total Dissolved Solids (QC Lot: 2383723)									
EP1205051-022	YPRD11488_20_21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	20	18	10.5	No Limit
EA015: Total Dissolved Solids (QC Lot: 2388387)									
EP1205051-025	YPRD13687_20_21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	26	28	7.4	No Limit
EP1205051-035	YPGCO6879_32_33	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	22	<10	75.0	No Limit
EA015: Total Dissolved Solids (QC Lot: 2388388)									
EP1205051-047	YPGCO5415_2_3	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	22	36	48.3	No Limit
EA015: Total Dissolved Solids (QC Lot: 2392048)									
EP1205051-048	YPGCO6879_44_45	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	24	14	52.6	No Limit
EP1205051-056	TRRD34136_10_11	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	<10	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401503)									
EP1205051-001	YPGC10846_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
EP1205051-011	YPGCO5415_14_15	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	1	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401505)									
EP1205051-021	YPGCO10846_8_9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	0.0	No Limit
EP1205051-032	YPGC10846_26_27	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401507)									
EP1205051-042	YPGC11249_32_33	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	4	0.0	No Limit
EP1205051-052	QC3A	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401502)									
EP1205051-001	YPGC10846_2_3	ED045G: Chloride	16887-00-6	1	mg/L	3	3	0.0	No Limit
EP1205051-011	YPGCO5415_14_15	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401504)									
EP1205051-021	YPGCO10846_8_9	ED045G: Chloride	16887-00-6	1	mg/L	1	1	0.0	No Limit
EP1205051-032	YPGC10846_26_27	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401506)									
EP1205051-042	YPGC11249_32_33	ED045G: Chloride	16887-00-6	1	mg/L	4	4	0.0	No Limit
EP1205051-052	QC3A	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2378787)									
EP1205051-001	YPGC10846_2_3	ED093W: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED093W: Water Leachable Major Cations (QC Lot: 2378787) - continued									
EP1205051-001	YPGC10846_2_3	ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2385662)									
EP1205051-002	YPRD10638_8_9	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205051-012	YPRD06017_15_16	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	6	6	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2385665)									
EP1205051-022	YPRD11488_20_21	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	5	5	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2390359)									
EP1205051-025	YPRD13687_20_21	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	6	6	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205051-035	YPGCO6879_32_33	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	5	5	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2390362)									
EP1205051-046	YPRD14197_14_15	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	10	10	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2391990)									
EP1205051-048	YPGCO6879_44_45	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	5	5	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205051-057	YPGCO5415_32_33	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	6	6	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED093W: Water Leachable Major Cations (QC Lot: 2391990) - continued									
EP1205051-057	YPGCO5415_32_33	ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378785)									
EP1205051-001	YPGC10846_2_3	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.319	0.315	1.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.033	0.033	0.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.070	0.069	1.6	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.84	1.80	1.9	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.25	0.25	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	3.21	3.12	2.8	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378786)									
EP1205051-001	YPGC10846_2_3	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385660)									
EP1205051-002	YPRD10638_8_9	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.333	0.351	5.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.010	0.009	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.111	0.120	8.0	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.15	0.13	12.2	0% - 50%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.35	0.36	2.9	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385660) - continued									
EP1205051-002	YPRD10638_8_9	EG020A-W: Iron	7439-89-6	0.05	mg/L	1.04	0.79	27.0	0% - 50%
EP1205051-012	YPRD06017_15_16	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.191	0.194	1.8	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.016	0.017	0.0	0% - 50%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.078	0.080	1.9	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.14	0.17	18.4	0% - 50%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.21	0.21	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.84	1.05	22.2	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385661)									
EP1205051-002	YPRD10638_8_9	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205051-012	YPRD06017_15_16	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385663)									
EP1205051-022	YPRD11488_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.004	0.002	55.9	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.234	0.237	1.3	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.153	0.151	1.5	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.082	0.080	1.8	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.0	No Limit
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385663) - continued									
EP1205051-022	YPRD11488_20_21	EG020A-W: Boron	7440-42-8	0.05	mg/L	0.18	0.18	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.44	0.44	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2385664)									
EP1205051-022	YPRD11488_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2390357)									
EP1205051-025	YPRD13687_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.246	0.253	2.7	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.148	0.150	1.4	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.41	0.41	0.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.40	0.41	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.36	0.35	0.0	No Limit
EP1205051-035	YPGCO6879_32_33	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.433	0.429	0.9	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.008	0.009	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.283	0.285	0.6	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.11	0.11	0.0	0% - 50%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.68	0.67	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2390357) - continued									
EP1205051-035	YPGCO6879_32_33	EG020A-W: Iron	7439-89-6	0.05	mg/L	0.75	0.84	10.6	0% - 50%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2390358)									
EP1205051-025	YPRD13687_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205051-035	YPGCO6879_32_33	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2390360)									
EP1205051-046	YPRD14197_14_15	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.004	0.002	72.8	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.718	0.710	1.1	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.405	0.403	0.4	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.02	1.01	0.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.81	0.83	1.6	0% - 50%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	1.06	1.05	1.4	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2390361)									
EP1205051-046	YPRD14197_14_15	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391988)									
EP1205051-048	YPGCO6879_44_45	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.391	0.394	0.8	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	68.9	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.023	0.024	0.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391988) - continued									
EP1205051-048	YPGCO6879_44_45	EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.190	0.189	0.0	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.30	0.31	0.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.64	0.64	0.0	0% - 50%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	2.22	2.27	2.6	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391989)									
EP1205051-048	YPGCO6879_44_45	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2378829)									
EP1205051-001	YPGC10846_2_3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2385580)									
EP1205051-002	YPRD10638_8_9	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205051-012	YPRD06017_15_16	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2385581)									
EP1205051-022	YPRD11488_20_21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2390368)									
EP1205051-025	YPRD13687_20_21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205051-036	YPGCO4543_2_3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2390369)									
EP1205051-046	YPRD14197_14_15	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2394493)									
EP1205051-048	YPGCO6879_44_45	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002 : pH (Soils) (QCLot: 2372347)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2374472)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2374476)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381256)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381260)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377006)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377012)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377015)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA010: Conductivity (QCLot: 2372349)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.5	93.6	106
EA010: Conductivity (QCLot: 2374474)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.2	93.6	106
EA010: Conductivity (QCLot: 2374478)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.4	93.6	106
EA010: Conductivity (QCLot: 2381258)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.4	93.6	106
EA010: Conductivity (QCLot: 2381262)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.6	93.6	106
EA011: Net Acid Generation (QCLot: 2389561)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	114	84	115
EA011: Net Acid Generation (QCLot: 2389564)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	114	84	115
EA011: Net Acid Generation (QCLot: 2389567)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	112	84	115
EA013: Acid Neutralising Capacity (QCLot: 2389560)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EA013: Acid Neutralising Capacity (QCLot: 2389560) - continued								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	109	80	121
EA013: Acid Neutralising Capacity (QCLot: 2389563)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	84.0	80	121
EA013: Acid Neutralising Capacity (QCLot: 2389566)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	114	80	121
EA026 : Chromium Reducible Sulfur (QCLot: 2389562)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	81.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2389565)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	82.2	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2389568)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	85.1	80	120
ED007: Exchangeable Cations (QCLot: 2376932)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.3	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.666 meq/100g	99.3	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.519 meq/100g	100	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.870 meq/100g	102	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	99.7	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376933)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	101	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.666 meq/100g	100	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.519 meq/100g	101	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.870 meq/100g	104	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	101	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376934)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	100	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.666 meq/100g	100	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.519 meq/100g	97.2	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.870 meq/100g	104	79	107

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED007: Exchangeable Cations (QCLot: 2376934) - continued								
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	101	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED040S: Soluble Major Anions (QCLot: 2372348)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	99.9	86	116
ED040S: Soluble Major Anions (QCLot: 2374473)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	97.4	86	116
ED040S: Soluble Major Anions (QCLot: 2374477)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	99.1	86	116
ED040S: Soluble Major Anions (QCLot: 2381257)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	100	86	116
ED040S: Soluble Major Anions (QCLot: 2381261)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	100	86	116
ED040T : Total Sulfate by ICPAES (QCLot: 2399549)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399550)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399551)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399552)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED042T: Total Sulfur by LECO (QCLot: 2388683)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	103	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388685)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	101	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388687)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	97.2	70	130
ED045G: Chloride Discrete analyser (QCLot: 2372350)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	97.5	82	126
ED045G: Chloride Discrete analyser (QCLot: 2374475)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	96.8	82	126
ED045G: Chloride Discrete analyser (QCLot: 2374479)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	95.2	82	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
ED045G: Chloride Discrete analyser (QCLot: 2381259)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	97.5	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381263)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	96.9	82	126
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388684)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	99.7	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388686)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	101	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388688)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	103	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA005P: pH by PC Titrator (QCLot: 2379416)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2384629)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2384631)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2388830)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2388832)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2392450)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA010P: Conductivity by PC Titrator (QCLot: 2379415)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	98.3	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2384628)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.1	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2384630)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.2	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2388829)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.9	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2388831)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.6	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2392449)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.6	98	102

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EA015: Total Dissolved Solids (QCLot: 2377967)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	93.5	79.8	116
EA015: Total Dissolved Solids (QCLot: 2383722)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	97.0	79.8	116
EA015: Total Dissolved Solids (QCLot: 2383723)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	101	79.8	116
EA015: Total Dissolved Solids (QCLot: 2388387)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	94.3	79.8	116
EA015: Total Dissolved Solids (QCLot: 2388388)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	100	79.8	116
EA015: Total Dissolved Solids (QCLot: 2392048)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	103	79.8	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401503)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401505)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.1	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401507)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.4	85	130
ED045G: Chloride Discrete analyser (QCLot: 2401502)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	103	78	130
ED045G: Chloride Discrete analyser (QCLot: 2401504)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.6	78	130
ED045G: Chloride Discrete analyser (QCLot: 2401506)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	97.7	78	130
ED093W: Water Leachable Major Cations (QCLot: 2378787)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2385662)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2385665)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED093W: Water Leachable Major Cations (QCLot: 2385665) - continued								
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2390359)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2390362)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2391990)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.1	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.3	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.3	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.5	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.9	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	98.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378786)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	80.1	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385660)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	105	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.4	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	96.3	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.9	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	102	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.4	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385661)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	92.3	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385663)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	104	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	105	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.6	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.8	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	96.7	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.6	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	101	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	109	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	90.8	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385664)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385664) - continued								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	93.0	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390357)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	87.0	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	112	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	86.5	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	87.2	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	88.0	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	86.7	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	89.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	85.9	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	86.1	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.3	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.9	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	87.2	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	86.1	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	86.3	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.7	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	96.2	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	91.1	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390358)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	100	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390360)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	88.2	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	109	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	88.2	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	83.6	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	85.7	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.9	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.7	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.8	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.1	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	87.2	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.6	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	87.3	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	86.8	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.6	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390360) - continued								
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	99.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	89.6	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390361)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	101	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391988)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.8	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	116	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.4	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.5	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	103	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.8	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	112	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	104	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391989)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	94.2	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	105	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2385580)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	104	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2385581)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	104	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2390368)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	92.8	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2390369)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	95.7	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2394493)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035W: Water Leachable Mercury by FIMS (QCLot: 2394493) - continued								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	93.6	76	126

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 2372350)							
EP1205053-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2374475)							
EP1205051-003	YPGCO1657_36_39	ED045G: Chloride	16887-00-6	1250 mg/kg	118	70	130
ED045G: Chloride Discrete analyser (QCLot: 2374479)							
EP1205051-023	YPGCO1657_14_15	ED045G: Chloride	16887-00-6	1250 mg/kg	118	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381259)							
EP1205051-033	YPRD04911_14_15	ED045G: Chloride	16887-00-6	1250 mg/kg	122	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381263)							
EP1205051-053	QC4	ED045G: Chloride	16887-00-6	1250 mg/kg	116	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401503)							
EP1205051-001	YPGC10846_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	108	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401505)							
EP1205051-021	YPGCO10846_8_9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	105	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401507)							
EP1205051-042	YPGC11249_32_33	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	101	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401502)							
EP1205051-001	YPGC10846_2_3	ED045G: Chloride	16887-00-6	250 mg/L	109	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401504)							
EP1205051-021	YPGCO10846_8_9	ED045G: Chloride	16887-00-6	250 mg/L	108	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401506)							
EP1205051-042	YPGC11249_32_33	ED045G: Chloride	16887-00-6	250 mg/L	114	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)							
EP1205053-001	Anonymous	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	99.6	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	105	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	99.3	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	94.2	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	99.1	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	96.9	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	97.7	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785) - continued							
EP1205053-001	Anonymous	EG020A-W: Manganese	7439-96-5	1.000 mg/L	99.2	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	99.2	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	99.4	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	95.8	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385660)							
EP1205051-003	YPGCO1657_36_39	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	107	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	105	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	104	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	97.7	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	101	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	105	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	97.1	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	98.4	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	106	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	97.8	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	106	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2385663)							
EP1205051-023	YPGCO1657_14_15	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	108	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	107	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	104	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	96.9	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	102	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	106	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	98.2	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	98.0	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	106	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	96.8	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	106	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390357)							
EP1205051-026	TRRD06576_4_5	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	83.0	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	83.3	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	82.7	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	80.4	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	86.2	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	82.4	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	82.2	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	79.7	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	83.5	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390357) - continued							
EP1205051-026	TRRD06576_4_5	EG020A-W: Vanadium	7440-62-2	1.00 mg/L	80.9	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	94.6	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2390360)							
EP1205051-047	YPGCO5415_2_3	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	88.6	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	89.4	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	90.2	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	87.8	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	99.8	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	93.8	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	92.5	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	86.2	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	96.3	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	86.5	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	108	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391988)							
EP1205051-049	TRRD33437_15_16	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	109	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	106	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	108	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	106	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	111	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	104	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	109	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	107	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	105	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	107	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	101	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)							
EP1205053-001	Anonymous	EG035W: Mercury	7439-97-6	0.0100 mg/L	74.9	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2385580)							
EP1205051-003	YPGCO1657_36_39	EG035W: Mercury	7439-97-6	0.0100 mg/L	95.8	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2385581)							
EP1205051-023	YPGCO1657_14_15	EG035W: Mercury	7439-97-6	0.0100 mg/L	91.8	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2390368)							
EP1205051-026	TRRD06576_4_5	EG035W: Mercury	7439-97-6	0.0100 mg/L	79.2	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2390369)							
EP1205051-047	YPGCO5415_2_3	EG035W: Mercury	7439-97-6	0.0100 mg/L	83.1	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2394493)							

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: Spike Recovery (%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EG035W: Water Leachable Mercury by FIMS (QCLot: 2394493) - continued							
EP1205051-049	TRRD33437_15_16	EG035W: Mercury	7439-97-6	0.0100 mg/L	77.6	70	130

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EP1205051**	Page	: 1 of 34
Amendment	: **1**		
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 57
Quote number	: ----	No. of samples analysed	: 56

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved							
YPRD10638_8_9, CAGC30291_14_15, CAGC30291_8_9, YPGCO4543_38_39, YPRD14197_38_39, YPRD06017_15_16, TRRD33379_8_9, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO665_26_27, YPRD11488_20_21, YPRD04911_2_3, TRRD06576_4_5, TRRD33379_2_3, YPGCO0576_38_39, QC3A, QC4, YPGCO6879_32_33, YPGCO2056_15_16, YPRD13687_2_3, YPGCO2807_14_15, YPGC1149_8_9, YPGCO5415_2_3, QC5, TRRD33437_15_16, YPRD10638_20_21, YPGCO5415_32_33	**22-JUN-2012**	**02-JUL-2012**	29-JUN-2012	×	**04-JUL-2012**	02-JUL-2012	×
YPGCO1657_36_39, YPGCO2807_32_33, YPGCO3152_44_45, YPGC10846_20_21, YPGCO5415_14_15, YPGCO6143_14_15, YPGCO2807_2_3, QC3, YPGCO6605_8_9, YPGCO10846_8_9, YPGCO1657_14_15, YPRD13687_20_21, TRRD34136_2_3, YPRDO5790_8_9, YPGC10846_26_27, YPRD04911_14_15, YPGCO4543_2_3, YPGCO4543_32_33, YPGC11249_32_33, YPGC11249_2_3, YPRD14197_14_15, YPGCO6879_44_45, TRRD34136_8_9, YPRD13687_38_39,							
YPGCO2807_20_21, YPRD06017_8_9, TRRD34136_10_11,							
Soil Glass Jar - Unpreserved							
YPGC10846_2_3	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	28-JUN-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural								
YPRD10638_8_9,	YPGCO1657_36_39,	**02-JUL-2012**	**---**	02-JUL-2012	----	**03-JUL-2012**	02-JUL-2012	×
CAGC30291_14_15,	YPGCO2807_32_33,							
CAGC30291_8_9,	YPGCO3152_44_45,							
YPGCO4543_38_39,	YPGC10846_20_21,							
YPRD14197_38_39,	YPGCO5415_14_15,							
YPRD06017_15_16,	YPGCO6143_14_15,							
TRRD33379_8_9,	YPGCO2807_2_3,							
YPRD14197_20_21,	YPRD13687_20_21,							
TRRD33437_10_11,	YPGCO6605_8_9,							
YPGCO665_26_27,	YPGCO10846_8_9,							
YPRD11488_20_21,	YPGCO1657_14_15,							
YPRD04911_2_3								
Clear Plastic Bottle - Natural								
YPRD13687_20_21,	TRRD06576_4_5,	**04-JUL-2012**	**---**	04-JUL-2012	----	**05-JUL-2012**	04-JUL-2012	×
TRRD34136_2_3,	TRRD33379_2_3,							
YPRDO5790_8_9,	YPGCO0576_38_39,							
YPGC10846_26_27,	YPRD04911_14_15,							
YPGO2807_20_21,	YPGCO6879_32_33,							
YPGCO4543_2_3,	YPGCO2056_15_16,							
QC3,	YPGCO4543_32_33,							
YPRD06017_8_9,	YPRD13687_2_3,							
YPGC11249_32_33,	YPGCO2807_14_15,							
YPGC11249_2_3,	YPGC1149_8_9,							
YPRD14197_14_15,	YPGCO5415_2_3							
Clear Plastic Bottle - Natural								
YPGCO6879_44_45,	TRRD33437_15_16,	**05-JUL-2012**	**---**	05-JUL-2012	----	**09-JUL-2012**	05-JUL-2012	×
TRRD34136_8_9,	YPRD10638_20_21,							
QC3A,	QC4,							
QC5,	YPRD13687_38_39,							
TRRD34136_10_11,	YPGCO5415_32_33							
Clear Plastic Bottle - Natural								
YPGC10846_2_3		**26-JUN-2012**	**---**	26-JUN-2012	----	**29-JUN-2012**	26-JUN-2012	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA006: Sodium Adsorption Ratio (SAR)							
Calico Bag							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**04-JUL-2012**	19-DEC-2012	✓	**09-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010: Conductivity							
Soil Glass Jar - Unpreserved							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**02-JUL-2012**	29-JUN-2012	×	**04-JUL-2012**	30-JUL-2012	✓
Soil Glass Jar - Unpreserved							
YPGC10846_2_3	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	---	30-JUL-2012	----	**03-JUL-2012**	30-JUL-2012	✓
Clear Plastic Bottle - Natural YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	---	01-AUG-2012	----	**05-JUL-2012**	01-AUG-2012	✓
Clear Plastic Bottle - Natural YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	---	02-AUG-2012	----	**09-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural YPGC10846_2_3	**26-JUN-2012**	---	24-JUL-2012	----	**29-JUN-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA011: Net Acid Generation							
80* dried soil							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**06-JUL-2012**	22-JUN-2013	✓	**09-JUL-2012**	02-JAN-2013	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA013: Acid Neutralising Capacity							
80* dried soil							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**06-JUL-2012**	22-JUN-2013	✓	**09-JUL-2012**	02-JAN-2013	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	**----**	----	----	**03-JUL-2012**	09-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	**----**	----	----	**05-JUL-2012**	11-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	**----**	----	----	**09-JUL-2012**	12-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPGC10846_2_3	**26-JUN-2012**	**----**	----	----	**28-JUN-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA026 : Chromium Reducible Sulfur							
80* dried soil							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**06-JUL-2012**	22-JUN-2013	✓	**09-JUL-2012**	04-OCT-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**----**	----	----	**27-JUN-2012**	06-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Calico Bag							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**04-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040: Sulfur as SO4 2-							
Soil Glass Jar - Unpreserved							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**13-JUL-2012**	29-JUN-2012	×	**13-JUL-2012**	10-AUG-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**02-JUL-2012**	29-JUN-2012	×	**06-JUL-2012**	30-JUL-2012	✓
Soil Glass Jar - Unpreserved							
YPGC10846_2_3	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**28-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	---	30-JUL-2012	----	**13-JUL-2012**	30-JUL-2012	✓
Clear Plastic Bottle - Natural YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	---	01-AUG-2012	----	**16-JUL-2012**	01-AUG-2012	✓
Clear Plastic Bottle - Natural YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	---	02-AUG-2012	----	**16-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural YPGC10846_2_3	**26-JUN-2012**	---	24-JUL-2012	----	**13-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED042T: Total Sulfur by LECO							
80* dried soil							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	---	30-JUL-2012	----	**13-JUL-2012**	30-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	---	01-AUG-2012	----	**16-JUL-2012**	01-AUG-2012	✓
Clear Plastic Bottle - Natural							
YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	---	02-AUG-2012	----	**16-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural							
YPGC10846_2_3	**26-JUN-2012**	---	24-JUL-2012	----	**13-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser - Continued							
Soil Glass Jar - Unpreserved							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**02-JUL-2012**	29-JUN-2012	×	**04-JUL-2012**	30-JUL-2012	✓
Soil Glass Jar - Unpreserved							
YPGC10846_2_3	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093W: Water Leachable Major Cations							
Clear Plastic Bottle - Natural							
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	**04-JUL-2012**	09-JUL-2012	✓	**04-JUL-2012**	09-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	**06-JUL-2012**	11-JUL-2012	✓	**06-JUL-2012**	11-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	**10-JUL-2012**	12-JUL-2012	✓	**10-JUL-2012**	12-JUL-2012	✓
Clear Plastic Bottle - Natural							
YPGC10846_2_3	**26-JUN-2012**	**02-JUL-2012**	03-JUL-2012	✓	**02-JUL-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020W: Water Leachable Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPRD10638_8_9,	YPGCO1657_36_39,	**02-JUL-2012**	**04-JUL-2012**	29-DEC-2012	✓	**04-JUL-2012**	29-DEC-2012	✓
CAGC30291_14_15,	YPGCO2807_32_33,							
CAGC30291_8_9,	YPGCO3152_44_45,							
YPGCO4543_38_39,	YPGC10846_20_21,							
YPRD14197_38_39,	YPGCO5415_14_15,							
YPRD06017_15_16,	YPGCO6143_14_15,							
TRRD33379_8_9,	YPGCO2807_2_3,							
YPRD14197_20_21,	YPRD13687_20_21,							
TRRD33437_10_11,	YPGCO6605_8_9,							
YPGCO665_26_27,	YPGCO10846_8_9,							
YPRD11488_20_21,	YPGCO1657_14_15,							
YPRD04911_2_3								
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPRD13687_20_21,	TRRD06576_4_5,	**04-JUL-2012**	**06-JUL-2012**	31-DEC-2012	✓	**06-JUL-2012**	31-DEC-2012	✓
TRRD34136_2_3,	TRRD33379_2_3,							
YPRDO5790_8_9,	YPGCO0576_38_39,							
YPGC10846_26_27,	YPRD04911_14_15,							
YPGO2807_20_21,	YPGCO6879_32_33,							
YPGCO4543_2_3,	YPGCO2056_15_16,							
QC3,	YPGCO4543_32_33,							
YPRD06017_8_9,	YPRD13687_2_3,							
YPGC11249_32_33,	YPGCO2807_14_15,							
YPGC11249_2_3,	YPGC1149_8_9,							
YPRD14197_14_15,	YPGCO5415_2_3							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPGCO6879_44_45,	TRRD33437_15_16,	**05-JUL-2012**	**10-JUL-2012**	01-JAN-2013	✓	**10-JUL-2012**	01-JAN-2013	✓
TRRD34136_8_9,	YPRD10638_20_21,							
QC3A,	QC4,							
QC5,	YPRD13687_38_39,							
TRRD34136_10_11,	YPGCO5415_32_33							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPGC10846_2_3		**26-JUN-2012**	**02-JUL-2012**	23-DEC-2012	✓	**02-JUL-2012**	23-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035W: Water Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	**02-JUL-2012**	**----**	----	----	**04-JUL-2012**	30-JUL-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	**04-JUL-2012**	**----**	----	----	**06-JUL-2012**	01-AUG-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**05-JUL-2012**	**----**	----	----	**10-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGC10846_2_3	**26-JUN-2012**	**----**	----	----	**02-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN60: Bottle Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**---**	20-JUL-2012	----	**09-JUL-2012**	20-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP003TC: Total Carbon (TC) in Soil							
Calico Bag							
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	02-AUG-2012	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acid Neutralising Capacity (ANC)	EA013	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	7	58	**12.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	8	70	**11.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	6	56	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acid Neutralising Capacity (ANC)	EA013	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	10	58	**17.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	5	58	**8.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	5	58	**8.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	10	58	**17.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	5	58	**8.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	5	58	**8.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	5	58	**8.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sodium Adsorption Ratio (SAR)	EA006	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	4	70	**5.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	3	56	**5.4**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	5	58	**8.6**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	6	60	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	11	103	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	11	103	**10.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	6	60	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	10	74	**13.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	9	58	**15.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	8	58	**13.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	6	60	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	18	103	**17.5**	**15.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	12	103	**11.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	6	60	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	6	74	**8.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	3	60	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	6	103	**5.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	60	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	6	74	**8.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	6	58	**10.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	3	60	**5.0**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	60	**5.0**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	6	58	**10.3**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	58	**10.3**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
pH by PC Titrator	EA005-P	SOIL	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sodium Adsorption Ratio (SAR)	EA006	SOIL	USEPA 600/2 - 78 - 54. The concentration as meq of Ca, Mg and Na are determined on saturated soil by water leach. Results are used to calculate SAR.
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 104)
Conductivity by PC Titrator	EA010-P	SOIL	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Net Acid Generation	EA011	SOIL	Miller (1998) Titremetric procedure determines net acidity in a soil following peroxide oxidation. Titrations to both pH 4.5 and pH 7 are reported.
Acid Neutralising Capacity (ANC)	EA013	SOIL	USEPA 600/2-78-054, I. Miller (2000). A fizz test is done to semiquanititatively estimate the likely reactivity. The soil is then reacted with an known excess quanitity of an appropriate acid. Titration determines the acid remaining, and the ANC can be calculated from comparison with a blank titration.
Total Dissolved Solids (High Level)	EA015H	SOIL	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chromium Reducible Sulphur	EA026	SOIL	Sullivan et al (1998) The CRS method converts reduced inorganic sulfur to H2S by CrCl2 solution ; the evolved H2S is trapped in a zinc acetate solution as ZnS which is quantified by iodometric titration.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Higginson (1992) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (1999) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Sulfate as SO4 2- Total	ED040T	SOIL	In-house. Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	SOIL	APHA 21st ed., 4500-SO4 Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfur - Total as S (LECO)	ED042T	SOIL	In-house. Dried and pulverised sample is combusted in a LECO furnace at 1350C in the presence of strong oxidants / catalysts. The evolved S (as SO2) is measured by infra-red detector
Chloride by Discrete Analyser	ED045G	SOIL	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003

Analytical Methods	Method	Matrix	Method Descriptions
Water Leachable Major Cations	ED093W	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010; ALS QWI-EN/EG005, QWI-EN/ED093) The ICPAES technique quickly breaks the sample down into atoms and ions under extremely hot plasma. Atoms are then ionised, emitting a characteristic spectrum. The spectrometer then separates the wavelengths, prior to comparison of intensities against matrix matched standards for quantification.
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, AS 4439.3, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Mercury by FIMS	EG035W	SOIL	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection ($SnCl_2$)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by $SnCl_2$ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Carbon	EP003TC	SOIL	In-house C-IR07. Dried and pulverised sample is combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved Carbon (as CO_2) is measured by infra-red detector
Merged 4-Acid Metals package	ME-MS61	SOIL	Merged Package 4-Acid Digest with ICP-AES & ICPMS finish. Analysis conducted by ALS Minerals.
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory

Preparation Methods	Method	Matrix	Method Descriptions
SAR Prep	EA006PR	SOIL	USEPA 600/2. Soil is bought to saturation with distilled water by capiliary action.
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH_4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
Digestion for Total Recoverable Metals in DI Water Leachate	EN25W	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Deionised Water Leach	EN60-DIa	SOIL	AS4439.3 Preparation of Leachates

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	02-JUL-2012	29-JUN-2012	3	04-JUL-2012	02-JUL-2012	2
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3	----	----	----	03-JUL-2012	02-JUL-2012	1

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural						
YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, QC3, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3	----	----	----	05-JUL-2012	04-JUL-2012	1
Clear Plastic Bottle - Natural						
YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, QC3A, QC4, QC5, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	----	----	----	09-JUL-2012	05-JUL-2012	4
Clear Plastic Bottle - Natural						
YPGC10846_2_3	----	----	----	29-JUN-2012	26-JUN-2012	3
EA010: Conductivity						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA010: Conductivity - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	02-JUL-2012	29-JUN-2012	**3**	----	----	----
ED040: Sulfur as SO4 2-						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
ED040: Sulfur as SO4 2- - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPGC10846_2_3, YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, QC3, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, QC3A, QC4, YPGC10846_26_27, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, QC5, YPGCO6879_44_45, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	13-JUL-2012	29-JUN-2012	**14**	----	----	----
ED040S : Soluble Sulfate by ICPAES						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040S : Soluble Sulfate by ICPAES - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_8_9, YPGCO1657_36_39, CAGC30291_14_15, YPGCO2807_32_33, CAGC30291_8_9, YPGCO3152_44_45, YPGCO4543_38_39, YPGC10846_20_21, YPRD14197_38_39, YPGCO5415_14_15, YPRD06017_15_16, YPGCO6143_14_15, TRRD33379_8_9, YPGCO2807_2_3, YPRD14197_20_21, QC3, YPRD13687_20_21, TRRD33437_10_11, YPGCO6605_8_9, YPGCO665_26_27, YPGCO10846_8_9, YPRD11488_20_21, YPGCO1657_14_15, YPRD04911_2_3, YPRD13687_20_21, TRRD06576_4_5, TRRD34136_2_3, TRRD33379_2_3, YPRDO5790_8_9, YPGCO0576_38_39, YPGC10846_26_27, QC3A, QC4, YPRD04911_14_15, YPGO2807_20_21, YPGCO6879_32_33, YPGCO4543_2_3, YPGCO2056_15_16, YPGCO4543_32_33, YPRD06017_8_9, YPRD13687_2_3, YPGC11249_32_33, YPGCO2807_14_15, YPGC11249_2_3, YPGC1149_8_9, YPRD14197_14_15, YPGCO5415_2_3, YPGCO6879_44_45, QC5, TRRD33437_15_16, TRRD34136_8_9, YPRD10638_20_21, YPRD13687_38_39, TRRD34136_10_11, YPGCO5415_32_33	02-JUL-2012	29-JUN-2012	**3**	----	----	----
ED045G: Chloride Discrete analyser						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED045G: Chloride Discrete analyser - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_8_9, CAGC30291_14_15, CAGC30291_8_9, YPGCO4543_38_39, YPRD14197_38_39, YPRD06017_15_16, TRRD33379_8_9, YPRD14197_20_21, YPRD13687_20_21, TRRD33437_10_11, YPGCO665_26_27, YPRD11488_20_21, YPRD04911_2_3, TRRD06576_4_5, TRRD33379_2_3, YPGCO0576_38_39, QC3A, QC4, YPGCO6879_32_33, YPGCO2056_15_16, YPRD13687_2_3, YPGCO2807_14_15, YPGC1149_8_9, YPGCO5415_2_3, QC5, TRRD33437_15_16, YPRD10638_20_21, YPGCO5415_32_33	YPGCO1657_36_39, YPGCO2807_32_33, YPGCO3152_44_45, YPGC10846_20_21, YPGCO5415_14_15, YPGCO6143_14_15, YPGCO2807_2_3, QC3, YPGCO6605_8_9, YPGCO10846_8_9, YPGCO1657_14_15, YPRD13687_20_21, TRRD34136_2_3, YPRDO5790_8_9, YPGC10846_26_27, YPRD04911_14_15, YPGCO4543_2_3, YPGCO4543_32_33, YPGC11249_32_33, YPGC11249_2_3, YPRD14197_14_15, YPGCO6879_44_45, TRRD34136_8_9, YPRD13687_38_39,	YPGO2807_20_21, YPRD06017_8_9, TRRD34136_10_11,	02-JUL-2012	29-JUN-2012	**3**	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

Australian Laboratory Services Pty. Ltd.
32 Shand Street
Stafford
Brisbane QLD 4053
Phone: +61 (7) 3243 7222 Fax: +61 (7) 3243 7218
www.alsglobal.com

Finalized Date: 11-JUL-2012
Account: ALSENV

CERTIFICATE BR12155012

Project: EP1205051

P.O. No.:

This report is for 57 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
10 HOD WAY
MALAGA WA 6090

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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Project: EP1205051

CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPGC10846_2_3		2.65	0.002	0.008	0.09	0.002	0.001	0.0286	0.002	19.45	0.309	0.11	0.122	0.013	0.002	0.025
YPRD10638_8_9		3.41	0.009	0.011	0.07	0.007	0.020	0.0067	<0.001	43.68	0.066	0.15	0.217	0.041	0.019	0.106
YPGCO1657_88_89		1.48	0.004	<0.001	0.02	<0.001	0.002	0.0047	0.001	59.01	0.009	0.01	0.338	<0.005	0.006	0.108
CAGC30291_14_15		5.54	0.008	0.086	0.12	0.004	0.021	0.0116	0.002	45.16	0.399	0.16	3.31	0.037	0.140	0.042
YPGCO2807_32_33		6.95	0.004	0.095	0.08	0.001	0.007	0.0114	<0.001	40.17	0.375	0.11	9.49	0.066	0.001	0.028
CAGC30291_8_9		9.90	0.004	0.056	0.19	0.046	0.004	0.0222	0.004	37.66	0.481	0.40	1.235	0.061	0.007	0.035
YPGCO3152_44_45		0.83	0.002	<0.001	0.01	<0.001	0.001	0.0128	<0.001	21.38	0.038	<0.01	0.233	<0.005	0.001	0.017
YPGCO4543_38_39		5.28	0.004	0.001	0.07	0.001	0.002	0.0125	0.001	54.27	0.029	0.11	0.479	<0.005	0.007	0.051
YPGC10846_20_21		5.44	0.003	0.024	0.06	0.004	0.002	0.0122	0.001	55.51	0.040	0.04	0.566	0.009	0.002	0.031
YPRD14197_38_39		3.52	0.001	0.004	0.04	0.002	0.002	0.0051	0.001	59.37	0.015	0.08	0.466	0.012	0.002	0.019
YPGCO5415_14_15		8.41	0.007	0.014	0.09	<0.001	<0.001	0.0302	0.003	26.28	0.418	0.14	0.094	<0.005	0.002	0.032
YPRD06017_15_16		9.13	0.005	0.006	0.06	0.007	0.004	0.0122	<0.001	46.15	0.175	0.12	0.840	0.039	0.006	0.014
YPGCO6143_14_15		6.97	0.003	0.131	0.19	0.007	0.026	0.0035	<0.001	35.73	0.384	0.15	17.75	0.073	0.009	0.024
TRRD33379_8_9		4.31	0.003	0.017	0.25	0.008	0.001	0.0102	<0.001	50.11	0.035	0.07	0.167	0.014	0.002	0.009
YPGCO2807_2_3		3.29	0.003	0.003	0.04	0.087	0.002	0.0120	<0.001	34.10	0.256	0.08	0.520	0.078	0.002	0.025
YPRD14197_20_21		10.50	0.005	0.005	0.09	0.001	0.002	0.0482	0.002	42.56	0.222	0.08	0.196	0.026	0.002	0.045
YPRD13687_20_21A		15.10	0.002	0.018	0.11	0.004	0.002	0.0304	0.005	20.81	0.444	0.18	0.221	0.037	0.004	0.038
TRRD33437_10_11		1.16	0.002	0.003	0.02	0.029	0.001	0.0043	0.001	60.14	0.008	0.02	0.170	0.025	0.002	0.059
YPGCO6605_8_9		7.22	0.008	0.013	0.09	0.010	0.001	0.0148	0.001	49.16	0.154	0.14	1.090	0.020	0.003	0.029
YPGCO665_26_27		1.54	0.003	<0.001	0.02	<0.001	<0.001	0.0101	<0.001	30.80	0.023	0.01	0.130	<0.005	<0.001	0.027
YPGCO10846_8_9		7.60	0.006	0.015	0.10	0.001	0.002	0.0387	0.003	34.10	0.395	0.22	0.240	0.018	0.003	0.041
YPRD11488_20_21		1.06	0.001	0.018	0.04	0.005	0.003	0.0033	0.001	56.75	0.219	0.07	6.61	0.045	<0.001	0.058
YPGCO1657_14_15		6.74	0.004	0.013	0.06	0.001	0.002	0.0110	0.001	51.02	0.059	0.03	0.051	0.006	0.002	0.045
YPRD04911_2_3		0.80	0.002	0.005	0.24	0.002	<0.001	0.0184	<0.001	29.64	0.030	0.03	0.172	<0.005	<0.001	0.026
YPRD13687_20_21		14.05	0.005	0.011	0.10	<0.001	0.002	0.0299	0.003	23.46	0.404	0.16	0.195	0.033	0.002	0.038
TRRD06576_4_5		4.32	0.004	<0.001	0.01	0.010	0.001	0.0174	<0.001	22.45	0.092	0.04	0.050	<0.005	0.002	0.060
TRRD34136_2_3		7.37	0.003	0.007	0.45	0.001	<0.001	0.0200	<0.001	50.53	0.029	0.07	0.082	0.008	0.002	0.030
TRRD33379_2_3		2.10	0.003	0.016	0.07	0.002	<0.001	0.0092	<0.001	48.43	0.054	0.05	0.095	0.037	<0.001	0.054
YPRD05790_8_9		2.87	0.001	<0.001	0.92	0.029	<0.001	0.0115	0.001	19.45	0.051	0.77	0.015	0.033	0.001	0.039
YPGCO0576_38_39		1.73	0.001	<0.001	0.01	<0.001	0.001	0.0184	<0.001	19.12	0.026	<0.01	0.054	<0.005	<0.001	0.024
YPGC10846_26_27		2.83	0.002	<0.001	0.04	0.003	0.002	0.0062	<0.001	59.36	0.025	0.04	0.867	0.005	0.002	0.024
YPRD04911_14_15		2.92	0.003	<0.001	0.01	0.004	0.002	0.0127	<0.001	25.95	0.038	<0.01	0.324	<0.005	0.002	0.007
YPGO2807_20_21		16.65	0.002	0.012	0.16	<0.001	<0.001	0.0248	0.006	14.71	0.708	0.28	0.092	0.020	0.003	0.031
YPGCO6879_32_33		2.60	0.002	<0.001	0.04	0.002	0.002	0.0063	0.002	60.57	0.011	0.10	0.164	<0.005	0.003	0.034
YPGCO4543_2_3		3.15	0.002	0.008	0.02	0.002	0.001	0.0178	0.002	14.72	0.353	0.07	0.087	<0.005	0.002	0.021
YPGCO2056_15_16		13.95	0.003	0.011	0.12	0.001	0.001	0.0292	0.006	15.74	0.652	0.30	0.062	0.014	0.004	0.030
QC3		13.50	0.003	0.009	0.12	0.005	0.001	0.0294	0.006	16.47	0.615	0.27	0.064	0.016	0.003	0.030
YPGCO4543_32_33		12.00	0.004	0.055	0.13	<0.001	0.002	0.0391	0.002	38.18	0.264	0.16	1.235	0.030	0.002	0.030
YPRD06017_8_9		9.84	0.006	0.003	0.03	0.001	0.002	0.0365	0.003	47.71	0.019	0.04	0.136	0.011	0.009	0.022
YPRD13687_2_3		10.35	0.002	0.018	0.18	0.032	0.002	0.0249	0.004	18.06	0.704	0.41	0.148	0.061	0.007	0.022

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Project: EP1205051

CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPGC10846_2_3		<0.001	0.271	64.2	<0.001	0.001	0.12	0.003	0.008	<0.001	99.98	3.73	0.07	1.31	17.4	100
YPRD10638_8_9		<0.001	0.022	23.8	<0.001	<0.001	0.12	<0.001	0.002	<0.001	100.05	9.22	0.04	1.67	69.9	140
YPGCO1657_88_89		<0.001	0.028	2.72	<0.001	<0.001	0.04	<0.001	0.002	<0.001	99.99	10.53	0.05	0.74	21.0	30
CAGC30291_14_15		0.011	0.059	13.05	0.002	0.010	0.18	0.006	0.002	0.009	100.00	10.74	0.06	2.82	70.3	770
YPGCO2807_32_33		<0.001	0.040	10.05	<0.001	0.006	0.42	0.007	0.005	0.010	99.52	10.53	0.11	3.58	21.2	860
CAGC30291_8_9		<0.001	0.046	23.5	<0.001	0.003	0.78	0.018	0.002	0.027	100.05	8.73	0.30	4.91	25.1	540
YPGCO3152_44_45		<0.001	0.004	65.0	0.002	<0.001	0.04	<0.001	<0.001	<0.001	100.00	3.13	0.05	0.42	4.9	30
YPGCO4543_38_39		<0.001	0.052	5.88	<0.001	<0.001	0.32	0.004	0.002	0.008	100.00	9.75	0.05	2.64	25.1	40
YPGC10846_20_21		<0.001	0.053	6.66	0.002	<0.001	0.31	0.005	0.006	0.007	100.00	7.01	0.11	2.58	16.5	210
YPRD14197_38_39		0.003	0.029	3.95	0.004	0.003	0.16	0.002	0.002	0.007	100.00	6.54	0.05	1.71	7.1	40
YPGCO5415_14_15		<0.001	0.045	46.9	0.001	0.003	0.61	0.015	0.006	0.016	100.00	5.42	0.25	4.11	44.3	170
YPRD06017_15_16		<0.001	0.030	11.15	0.001	<0.001	0.52	0.004	0.002	0.010	99.99	11.47	0.18	4.52	29.3	100
YPGCO6143_14_15		<0.001	0.040	3.25	<0.001	0.010	0.24	0.006	0.012	0.007	100.10	12.75	0.16	3.52	21.1	1150
TRRD33379_8_9		<0.001	0.021	18.80	0.002	<0.001	0.19	0.003	0.001	0.002	100.00	4.32	0.04	2.18	11.7	180
YPGCO2807_2_3		<0.001	0.156	41.4	0.002	<0.001	0.18	0.002	0.005	0.003	99.96	4.59	0.05	1.53	12.6	50
YPRD14197_20_21		<0.001	0.026	21.7	<0.001	<0.001	0.86	0.020	0.003	0.026	100.05	5.12	0.21	5.15	32.7	70
YPRD13687_20_21A		0.004	0.017	46.2	0.002	0.003	1.12	0.018	0.006	0.030	100.05	6.52	0.05	7.01	27.7	170
TRRD33437_10_11		<0.001	0.045	8.36	0.002	<0.001	0.06	<0.001	<0.001	<0.001	100.00	3.85	0.04	0.60	4.2	40
YPGCO6605_8_9		<0.001	0.098	10.50	0.001	<0.001	0.34	0.006	0.002	0.010	100.00	9.35	0.07	3.54	55.0	150
YPGCO665_26_27		<0.001	0.009	50.5	0.002	<0.001	0.06	<0.001	<0.001	<0.001	99.96	3.47	0.03	0.78	7.6	30
YPGCO10846_8_9		<0.001	0.042	35.8	0.002	0.003	0.47	0.012	0.007	0.012	99.98	5.98	0.19	3.52	34.4	150
YPRD11488_20_21		0.002	0.008	2.71	<0.001	0.008	0.05	0.001	0.003	0.004	99.83	5.11	0.04	0.54	4.8	130
YPGCO1657_14_15		<0.001	0.088	9.73	0.002	<0.001	0.58	0.004	0.002	0.014	99.99	9.37	0.05	3.43	21.3	120
YPRD04911_2_3		<0.001	0.008	52.6	0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.00	3.56	0.03	0.40	3.7	100
YPRD13687_20_21		<0.001	0.017	43.5	<0.001	0.001	1.08	0.018	0.005	0.026	100.00	6.59	0.09	6.74	27.8	160
TRRD06576_4_5		<0.001	0.018	58.2	0.003	<0.001	0.23	0.004	0.003	0.001	99.98	4.67	0.03	2.03	22.8	50
TRRD34136_2_3		<0.001	0.040	9.80	0.002	0.001	0.88	0.015	<0.001	0.023	100.00	8.77	0.03	3.71	22.6	90
TRRD33379_2_3		<0.001	0.029	20.7	0.002	<0.001	0.19	0.003	0.001	0.003	100.00	7.18	0.05	1.01	13.2	140
YPRDO5790_8_9		<0.001	0.023	61.4	0.001	0.002	0.14	0.004	0.002	<0.001	100.00	5.82	0.03	1.44	6.2	40
YPGCO0576_38_39		<0.001	0.007	67.3	<0.001	<0.001	0.08	<0.001	<0.001	<0.001	100.00	3.34	0.03	0.87	6.9	40
YPGC10846_26_27		<0.001	0.038	3.65	0.002	<0.001	0.14	0.001	0.002	0.001	99.99	7.01	0.06	1.44	7.4	50
YPRD04911_14_15		<0.001	0.044	55.7	0.003	<0.001	0.14	0.002	0.002	0.001	100.05	3.51	0.08	1.51	15.1	50
YPGO2807_20_21		0.002	0.016	52.8	0.003	0.003	1.14	0.017	0.006	0.027	100.00	6.85	0.07	7.63	25.8	120
YPGCO6879_32_33		0.004	0.022	4.42	0.003	<0.001	0.10	0.001	0.004	0.002	100.00	5.73	0.07	1.39	9.6	10
YPGCO4543_2_3		<0.001	0.256	71.4	<0.001	<0.001	0.15	0.003	0.006	<0.001	100.00	2.98	0.09	1.60	19.3	140
YPGCO2056_15_16		<0.001	0.023	54.9	0.001	0.003	0.91	0.013	0.007	0.023	100.00	6.32	0.09	6.59	29.2	130
QC3		0.001	0.026	54.4	0.001	0.003	0.88	0.015	0.006	0.021	100.05	6.33	0.09	6.39	31.1	120
YPGCO4543_32_33		<0.001	0.015	24.8	0.003	0.002	1.20	0.020	0.004	0.035	100.00	4.83	0.06	5.87	25.2	500
YPRD06017_8_9		<0.001	0.036	10.65	<0.001	<0.001	0.49	0.020	0.020	0.017	100.00	10.25	0.18	4.98	48.7	50
YPRD13687_2_3		0.003	0.057	56.5	0.002	0.002	0.45	0.010	0.006	0.012	99.98	4.95	0.11	5.22	31.3	200

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPGC10846_2_3		0.93	0.08	0.07	0.09	17.30	6.0	142	0.57	20.6	19.20	3.73	0.29	0.6	0.055	0.25
YPRD10638_8_9		1.46	0.27	0.05	0.09	54.7	172.5	30	0.14	12.3	40.5	5.18	1.15	0.5	0.020	0.06
YPGCO1657_88_89		1.44	0.03	0.01	0.03	22.0	13.9	19	<0.05	3.7	>50	1.48	1.94	0.2	<0.005	0.01
CAGC30291_14_15		2.33	0.21	0.09	0.14	248	186.0	58	0.32	21.0	43.2	5.99	1.19	1.1	0.024	0.33
YPGCO2807_32_33		1.93	0.31	0.06	0.45	61.9	49.8	72	0.63	18.5	38.6	13.85	1.42	2.2	0.060	0.33
CAGC30291_8_9		2.13	0.77	0.14	0.16	80.5	25.2	123	2.03	41.6	35.1	23.3	0.93	5.0	0.083	0.40
YPGCO3152_44_45		0.59	0.02	0.01	0.02	8.73	2.9	63	0.11	6.0	21.0	1.65	0.36	0.2	<0.005	0.04
YPGCO4543_38_39		1.36	0.36	0.05	0.02	15.15	8.0	69	0.21	10.3	>50	8.84	2.42	2.0	0.048	0.03
YPGC10846_20_21		0.68	0.24	0.04	0.05	29.6	6.3	61	0.24	14.2	>50	6.68	1.78	1.7	0.051	0.03
YPRD14197_38_39		0.48	0.14	0.03	0.04	9.90	3.8	23	0.08	4.2	>50	3.50	5.05	0.8	0.014	0.01
YPGCO5415_14_15		1.38	0.48	0.07	0.06	51.9	7.6	187	1.78	48.6	24.9	15.85	0.70	3.5	0.132	0.35
YPRD06017_15_16		2.49	0.54	0.04	0.17	65.7	38.6	67	0.46	9.6	42.9	8.54	3.34	2.5	0.033	0.15
YPGCO6143_14_15		1.43	0.16	0.13	1.37	151.0	197.5	31	0.12	11.2	33.5	10.80	1.33	1.6	0.039	0.33
TRRD33379_8_9		0.70	0.16	0.16	0.02	8.69	2.2	41	0.19	5.0	46.8	5.22	2.54	0.9	0.020	0.03
YPGCO2807_2_3		1.59	0.15	0.03	0.16	18.45	10.5	60	0.56	18.3	29.8	4.79	0.58	0.8	0.038	0.20
YPRD14197_20_21		0.91	0.51	0.06	0.04	32.1	5.5	284	2.33	31.1	38.7	24.7	1.79	4.9	0.137	0.19
YPRD13687_20_21A		1.58	0.54	0.08	0.07	50.9	10.7	170	3.62	49.5	19.85	23.6	0.52	5.0	0.130	0.36
TRRD33437_10_11		0.44	0.05	0.01	<0.02	7.58	1.8	14	0.09	4.4	>50	1.41	1.85	0.2	0.010	0.01
YPGCO6605_8_9		1.00	0.72	0.07	0.06	34.2	10.9	86	0.36	14.0	45.4	10.10	1.98	2.5	0.053	0.14
YPGCO665_26_27		0.51	0.06	0.02	0.02	7.80	2.7	73	0.11	3.9	28.7	1.56	0.40	0.3	0.012	0.02
YPGCO10846_8_9		1.02	0.37	0.07	0.12	36.4	7.8	209	1.88	35.0	29.4	12.10	1.35	2.4	0.090	0.30
YPRD11488_20_21		0.62	0.09	0.03	0.32	45.2	14.6	16	0.08	3.2	>50	2.70	1.33	0.2	0.008	0.18
YPGCO1657_14_15		0.90	0.22	0.04	0.10	12.80	4.9	64	0.36	12.3	47.8	9.17	3.09	2.1	0.044	0.05
YPRD04911_2_3		0.47	0.03	0.17	0.03	6.61	2.3	73	0.14	4.8	27.1	1.27	0.34	0.2	0.008	0.03
YPRD13687_20_21		1.04	0.50	0.08	0.06	47.1	9.4	175	3.34	47.7	21.5	21.7	0.43	4.6	0.118	0.33
TRRD06576_4_5		1.50	0.21	0.01	0.08	35.5	4.2	97	0.28	15.3	21.1	5.76	0.50	0.9	0.028	0.08
TRRD34136_2_3		0.52	0.43	0.31	0.03	12.00	2.9	107	0.16	7.3	47.1	16.40	2.37	3.1	0.073	0.03
TRRD33379_2_3		0.48	0.26	0.05	0.03	8.07	2.1	69	0.43	7.3	43.8	6.01	3.14	1.1	0.029	0.05
YPRDO5790_8_9		0.89	0.16	0.67	0.02	10.60	1.9	102	0.12	15.6	19.90	4.03	0.22	0.8	0.023	0.05
YPGCO0576_38_39		0.64	0.08	0.01	0.02	11.00	1.9	204	0.12	9.5	19.50	2.34	0.22	0.4	0.011	0.03
YPGC10846_26_27		0.55	0.11	0.03	0.04	14.00	19.2	22	<0.05	8.1	>50	2.86	5.21	0.5	0.014	0.03
YPRD04911_14_15		0.75	0.14	0.01	0.17	23.0	8.4	71	0.11	12.6	25.6	3.85	0.32	0.8	0.019	0.04
YPGO2807_20_21		0.96	0.58	0.12	0.05	42.0	8.2	149	4.06	60.6	14.25	22.1	0.49	4.9	0.153	0.56
YPGCO6879_32_33		0.69	0.09	0.03	0.07	10.55	3.6	30	0.08	8.9	>50	2.56	3.57	0.6	0.015	0.02
YPGCO4543_2_3		0.69	0.12	0.02	0.08	18.85	7.8	114	0.85	27.5	15.00	4.93	0.22	0.8	0.044	0.30
YPGCO2056_15_16		0.98	0.56	0.09	0.07	50.5	7.8	163	3.50	62.8	15.30	19.35	0.54	4.3	0.152	0.51
QC3		0.90	0.55	0.09	0.08	50.6	8.1	174	3.43	63.1	15.65	19.20	0.80	4.3	0.151	0.48
YPGCO4543_32_33		0.90	0.64	0.10	0.12	63.9	14.2	223	2.21	26.4	35.6	26.2	1.25	6.2	0.149	0.22
YPRD06017_8_9		1.76	0.56	0.03	0.04	36.4	16.2	207	0.11	43.5	45.7	18.05	1.93	4.0	0.103	0.02
YPRD13687_2_3		1.43	0.28	0.14	0.08	40.5	14.2	150	3.92	42.0	18.25	14.00	0.33	2.3	0.091	0.59

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Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPGC10846_2_3		9.7	5.8	0.08	1130	0.71	0.03	1.7	33.5	230	8.0	8.7	<0.002	0.25	0.99	4.5
YPRD10638_8_9		14.4	2.5	0.10	1980	0.77	0.04	1.7	185.5	990	10.5	1.9	0.002	0.02	2.22	4.4
YPGCO1657_88_89		37.9	0.3	0.02	3010	2.19	<0.01	0.9	45.8	990	4.9	0.3	0.002	0.03	0.54	2.0
CAGC30291_14_15		24.6	5.0	0.09	31600	0.78	0.04	2.9	1330	410	129.0	6.8	0.002	0.05	4.08	9.9
YPGCO2807_32_33		34.4	20.7	0.08	84900	1.47	0.06	6.3	28.0	270	57.4	8.8	<0.002	0.03	1.91	10.0
CAGC30291_8_9		34.4	13.8	0.23	11800	1.07	0.06	11.2	83.9	330	32.9	30.6	0.002	0.04	1.96	16.2
YPGCO3152_44_45		4.1	4.4	0.02	2210	0.84	0.01	0.8	11.5	160	4.5	1.9	<0.002	0.01	0.42	1.9
YPGCO4543_38_39		28.5	4.4	0.08	4250	1.28	0.01	5.1	62.1	460	9.7	2.0	0.002	0.05	1.61	5.3
YPGC10846_20_21		3.8	6.3	0.03	4660	1.51	0.01	4.7	15.4	270	17.9	1.8	0.002	0.05	1.30	5.2
YPRD14197_38_39		3.1	13.0	0.04	4020	0.68	0.01	2.6	15.1	180	12.7	0.5	<0.002	0.03	0.65	5.6
YPGCO5415_14_15		23.3	13.3	0.10	926	2.41	0.02	8.3	28.6	300	23.6	21.6	<0.002	0.04	3.21	12.1
YPRD06017_15_16		26.2	10.4	0.08	7590	1.73	0.04	7.1	59.2	130	14.3	4.4	<0.002	0.03	1.25	9.1
YPGCO6143_14_15		67.8	32.9	0.09	>100000	0.85	0.06	2.9	95.2	220	38.5	4.6	0.002	0.03	1.01	12.9
TRRD33379_8_9		3.4	4.0	0.05	1600	0.66	0.02	2.9	15.0	90	10.2	1.5	<0.002	0.02	2.10	5.8
YPGCO2807_2_3		11.2	7.7	0.06	4330	3.64	0.07	2.6	33.5	210	8.5	7.4	0.002	0.14	1.40	4.5
YPRD14197_20_21		13.1	19.7	0.06	1700	2.26	0.03	12.1	25.4	400	21.4	18.0	<0.002	0.02	2.81	16.4
YPRD13687_20_21A		22.7	40.1	0.12	2020	2.06	0.04	15.1	38.8	340	26.0	32.6	<0.002	0.02	2.24	17.8
TRRD33437_10_11		1.4	1.0	0.02	1500	0.34	0.02	1.1	4.5	530	3.0	0.8	<0.002	0.04	0.39	5.6
YPGCO6605_8_9		10.8	4.8	0.09	9700	1.20	0.02	5.5	32.3	260	18.4	5.7	<0.002	0.09	3.24	15.0
YPGCO665_26_27		3.0	4.1	0.03	1180	0.55	0.01	1.0	9.9	260	4.8	1.4	<0.002	0.01	0.53	6.8
YPGCO10846_8_9		15.9	9.9	0.13	1990	1.83	0.03	6.9	39.2	370	17.0	23.7	<0.002	0.04	2.20	15.2
YPRD11488_20_21		11.1	1.7	0.03	57300	0.76	0.04	1.0	10.9	530	1.7	2.7	<0.002	0.01	0.42	5.5
YPGCO1657_14_15		4.2	4.3	0.03	488	2.60	0.01	9.0	18.0	410	18.4	3.5	<0.002	0.08	1.33	10.3
YPRD04911_2_3		2.5	3.0	0.04	1600	0.81	0.01	0.8	10.3	250	2.6	2.2	<0.002	0.01	0.40	4.2
YPRD13687_20_21		22.0	30.4	0.11	1780	2.00	0.04	14.5	32.4	340	25.9	32.2	<0.002	0.02	2.19	17.0
TRRD06576_4_5		9.3	9.1	0.04	461	1.30	0.02	3.1	28.8	520	14.5	5.1	<0.002	0.02	4.40	8.0
TRRD34136_2_3		4.4	5.0	0.05	694	1.95	0.01	12.9	11.2	280	15.3	2.0	<0.002	0.04	3.45	8.0
TRRD33379_2_3		4.8	1.2	0.04	816	0.87	0.04	3.3	15.9	480	7.0	3.4	0.002	0.03	2.05	7.3
YPRDO5790_8_9		5.0	6.3	0.46	171	1.38	0.05	2.2	12.4	380	7.6	2.3	<0.002	0.02	2.06	8.5
YPGCO0576_38_39		3.9	4.6	0.02	557	1.22	0.01	1.4	6.7	230	5.1	2.0	<0.002	0.01	1.80	4.7
YPGC10846_26_27		4.3	0.6	0.04	7660	0.63	0.01	2.2	13.7	230	4.7	0.5	<0.002	0.03	0.94	6.9
YPRD04911_14_15		13.4	4.9	0.02	3280	1.66	0.02	2.3	19.7	60	7.7	2.0	<0.002	0.04	1.52	6.1
YPGO2807_20_21		24.3	21.9	0.17	842	1.89	0.04	15.2	38.0	280	26.3	42.2	<0.002	0.02	2.00	18.0
YPGCO6879_32_33		6.2	1.7	0.07	1520	0.49	0.01	1.8	26.0	310	14.4	0.8	<0.002	0.02	0.97	6.6
YPGCO4543_2_3		10.0	7.2	0.06	986	1.12	0.02	2.4	29.5	200	11.2	10.9	<0.002	0.24	1.26	5.4
YPGCO2056_15_16		25.8	17.0	0.18	607	1.83	0.03	12.2	40.9	280	25.7	38.7	<0.002	0.02	2.14	17.6
QC3		25.7	16.2	0.17	606	1.87	0.03	12.0	40.5	290	24.8	37.3	<0.002	0.02	2.24	16.7
YPGCO4543_32_33		22.2	21.4	0.10	11450	2.19	0.03	17.4	30.9	280	32.8	20.4	<0.002	0.01	2.49	17.6
YPRD06017_8_9		22.5	7.7	0.04	1270	1.33	0.02	7.0	76.1	210	34.4	1.0	0.002	0.03	3.32	25.6
YPRD13687_2_3		21.3	28.6	0.26	1520	1.46	0.07	6.3	68.8	220	16.3	48.3	<0.002	0.06	1.65	12.3

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPGC10846_2_3		<1	0.5	20.4	0.11	0.12	2.5	0.058	0.20	0.7	45	0.9	8.4	82	21.4
YPRD10638_8_9		1	0.6	11.6	0.10	0.22	2.2	0.045	0.05	1.8	15	3.7	17.2	33	20.1
YPGCO1657_88_89		1	0.2	2.3	<0.05	0.39	1.0	0.015	0.11	1.6	8	1.4	60.4	26	7.5
CAGC30291_14_15		2	0.6	78.8	0.21	0.44	3.7	0.092	1.02	2.8	41	1.2	39.3	23	57.0
YPGCO2807_32_33		2	1.3	73.7	0.44	0.60	11.1	0.214	1.53	1.9	74	1.6	29.0	44	81.6
CAGC30291_8_9		2	2.5	37.1	0.81	0.37	23.3	0.378	0.52	3.0	176	1.6	25.5	34	183.5
YPGCO3152_44_45		<1	0.2	2.3	<0.05	0.09	0.8	0.020	0.02	0.7	8	1.2	11.2	11	7.4
YPGCO4543_38_39		3	1.0	6.8	0.35	0.38	7.9	0.160	0.02	2.2	51	1.1	42.3	24	71.5
YPGC10846_20_21		4	0.9	8.3	0.33	0.73	7.3	0.152	0.06	1.4	49	1.2	5.3	55	62.8
YPRD14197_38_39		<1	0.5	3.0	0.16	0.50	3.5	0.073	0.05	2.2	14	1.3	4.6	15	28.3
YPGCO5415_14_15		2	2.5	41.9	0.61	0.56	13.4	0.303	0.27	2.1	146	4.2	13.1	66	129.5
YPRD06017_15_16		2	1.3	14.5	0.55	0.35	9.9	0.234	0.11	5.4	48	1.4	26.0	24	86.7
YPGCO6143_14_15		1	0.7	96.2	0.21	0.59	7.4	0.085	0.51	4.3	58	1.9	26.0	97	57.8
TRRD33379_8_9		<1	0.6	15.3	0.20	0.31	3.0	0.100	<0.02	0.7	35	1.1	6.2	17	33.5
YPGCO2807_2_3		1	0.8	12.5	0.17	0.25	2.9	0.089	0.18	1.1	32	7.1	14.2	54	30.1
YPRD14197_20_21		2	2.7	16.9	0.87	0.48	28.3	0.433	0.43	3.6	196	2.0	8.9	35	174.0
YPRD13687_20_21A		1	3.2	29.0	1.27	0.37	17.7	0.558	0.66	2.7	163	2.2	14.8	60	178.0
TRRD33437_10_11		<1	0.2	2.6	0.07	0.23	1.2	0.026	0.02	0.4	9	1.0	3.8	9	9.5
YPGCO6605_8_9		2	1.3	19.5	0.40	0.35	12.3	0.163	0.24	2.4	65	1.8	13.1	27	87.4
YPGCO665_26_27		<1	0.2	3.8	0.07	0.12	1.1	0.028	0.05	0.5	11	1.1	5.1	10	10.0
YPGCO10846_8_9		2	1.7	36.3	0.53	0.29	11.5	0.220	0.43	2.1	113	1.8	12.5	76	86.0
YPRD11488_20_21		<1	0.2	39.6	0.05	0.23	0.6	0.020	0.12	1.2	5	1.5	9.6	17	7.0
YPGCO1657_14_15		1	1.7	10.4	0.68	0.29	7.5	0.299	0.14	2.1	55	1.7	8.2	23	79.6
YPRD04911_2_3		<1	0.2	6.8	<0.05	0.10	0.7	0.019	0.02	0.3	9	1.4	5.2	13	6.6
YPRD13687_20_21		1	3.1	29.8	1.07	0.32	17.1	0.547	0.63	2.5	159	2.1	15.6	54	172.0
TRRD06576_4_5		1	0.7	4.8	0.22	0.15	3.2	0.119	0.04	1.4	44	1.9	13.9	35	36.0
TRRD34136_2_3		3	2.3	14.7	0.99	0.35	12.7	0.432	0.02	1.7	132	2.7	5.4	12	113.5
TRRD33379_2_3		1	0.6	10.8	0.23	0.27	4.2	0.097	0.05	0.8	40	1.4	9.0	17	39.2
YPRD05790_8_9		<1	0.5	40.4	0.18	0.11	3.6	0.078	<0.02	1.5	53	2.2	9.3	25	29.7
YPGCO0576_38_39		<1	0.3	2.7	0.10	0.06	1.7	0.047	0.02	0.7	22	1.9	7.3	12	14.8
YPGC10846_26_27		1	0.4	8.4	0.15	0.31	2.2	0.063	0.04	0.9	17	1.1	6.0	18	20.0
YPRD04911_14_15		<1	0.5	3.0	0.19	0.12	2.9	0.078	0.19	0.9	29	1.9	16.9	37	28.1
YPGO2807_20_21		1	3.6	39.4	1.15	0.34	14.1	0.571	0.33	2.7	158	2.4	15.2	68	177.5
YPGCO6879_32_33		1	0.3	2.9	0.10	0.25	2.4	0.051	<0.02	1.2	20	1.1	12.2	41	21.0
YPGCO4543_2_3		1	0.7	23.8	0.17	0.12	2.8	0.085	0.24	0.7	51	1.0	6.2	64	30.3
YPGCO2056_15_16		2	3.3	44.9	0.93	0.33	14.1	0.460	0.38	2.7	145	2.1	15.7	73	161.0
QC3		1	3.2	42.2	0.92	0.37	14.4	0.441	0.35	2.8	149	1.9	15.4	74	158.0
YPGCO4543_32_33		2	3.7	34.8	1.35	0.39	28.4	0.598	0.43	3.5	194	2.6	18.2	42	212
YPRD06017_8_9		2	1.4	6.6	0.52	0.34	21.3	0.201	0.03	5.3	192	2.9	51.1	199	128.5
YPRD13687_2_3		1	1.9	36.9	0.49	0.26	8.0	0.245	0.56	1.4	108	2.0	13.4	74	83.1

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPGC11249_32_33		3.43	0.002	0.028	0.15	0.005	0.006	0.0035	0.003	48.67	0.287	0.17	10.75	0.050	0.003	0.017
YPGCO2807_14_15		13.75	0.004	0.020	0.17	<0.001	0.001	0.0327	0.007	16.30	0.842	0.38	0.097	0.028	0.005	0.031
YPGC11249_2_3		7.67	0.004	0.021	0.10	0.009	0.002	0.0223	0.002	33.73	0.448	0.27	0.470	0.026	0.005	0.031
YPGC11249_8_9		9.97	0.005	0.059	0.13	0.001	0.002	0.0387	0.002	37.77	0.436	0.26	0.586	0.030	0.005	0.033
YPRD14197_14_15		11.45	0.003	0.007	0.08	0.010	0.001	0.0330	0.004	17.72	0.634	0.22	0.092	0.026	0.003	0.028
YPGCO5415_2_3		3.98	0.004	0.007	0.04	0.001	0.002	0.0192	0.003	33.26	0.341	0.14	0.168	0.010	0.005	0.039
YPGCO6879_44_45		2.71	0.004	<0.001	0.03	0.001	<0.001	0.0114	0.001	23.80	0.029	0.01	0.080	<0.005	0.001	0.023
TRRD33437_15_16		1.04	0.002	<0.001	0.07	0.033	<0.001	0.0045	<0.001	61.04	0.023	0.03	0.161	0.040	0.001	0.046
TRRD34136_8_9		6.86	0.004	0.007	0.07	0.001	0.001	0.0146	<0.001	43.26	0.028	0.01	0.036	0.022	0.002	0.042
YPRD10638_20_21		2.22	0.005	0.003	0.04	0.016	0.001	0.0103	<0.001	30.03	0.037	0.03	0.249	<0.005	<0.001	0.032
QC3A		1.52	0.004	0.001	0.03	0.001	0.001	0.0117	<0.001	23.60	0.035	0.02	0.198	<0.005	<0.001	0.021
QC4		4.63	0.004	0.011	0.10	0.024	0.001	0.0286	0.002	17.46	0.328	0.20	0.122	0.026	0.002	0.017
QC5		2.03	0.002	0.002	0.02	0.004	<0.001	0.0060	0.001	58.49	0.002	0.04	0.623	<0.005	0.001	0.022
YPRD13687_38_39		12.00	0.004	<0.001	0.11	0.001	0.002	0.0176	<0.001	45.30	0.025	0.16	0.767	<0.005	0.002	0.013
TRRD34136_10_11		2.60	<0.001	0.003	0.02	<0.001	0.001	0.0145	<0.001	13.05	0.011	0.01	0.009	<0.005	<0.001	0.006
YPGCO5415_32_33		5.13	0.003	0.012	0.07	0.002	0.003	0.0070	0.002	53.57	0.074	0.30	2.35	0.025	0.010	0.015

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPGC11249_32_33		<0.001	0.014	3.99	<0.001	0.014	0.09	<0.001	0.007	0.001	100.30	7.44	0.11	1.81	8.1	290
YPGCO2807_14_15		0.001	0.053	53.4	0.002	0.006	0.90	0.017	0.010	0.023	99.95	6.67	0.12	6.84	38.8	220
YPGC11249_2_3		<0.001	0.066	36.9	0.002	0.004	0.36	0.013	0.006	0.013	100.00	5.00	0.10	3.97	34.4	200
YPGC11249_8_9		<0.001	0.028	26.2	0.001	0.002	0.61	0.015	0.003	0.018	99.95	7.17	0.22	4.92	25.5	540
YPRD14197_14_15		<0.001	0.024	55.3	0.002	0.001	0.77	0.012	0.009	0.019	100.05	5.85	0.11	5.60	33.9	120
YPGCO5415_2_3		<0.001	0.136	42.1	0.003	<0.001	0.22	0.007	0.012	0.005	99.96	4.82	0.13	2.02	26.8	80
YPGCO6879_44_45		<0.001	0.009	59.6	0.001	<0.001	0.15	0.004	0.002	0.001	100.05	3.26	0.03	1.35	27.2	20
TRRD33437_15_16		<0.001	0.060	5.32	0.001	<0.001	0.06	<0.001	0.001	<0.001	100.00	5.62	0.05	0.52	6.7	30
TRRD34136_8_9		<0.001	0.043	22.7	0.001	<0.001	0.48	0.006	0.002	0.011	99.98	7.63	0.04	3.50	17.6	90
YPRD10638_20_21		<0.001	0.006	51.4	<0.001	<0.001	0.12	<0.001	<0.001	<0.001	100.00	2.73	0.05	1.11	31.7	60
QC3A		<0.001	0.004	62.3	0.002	<0.001	0.08	<0.001	<0.001	<0.001	99.95	1.88	0.05	0.79	30.7	50
QC4		0.003	0.051	65.9	0.002	0.003	0.21	0.008	0.006	0.007	100.00	3.20	0.10	2.37	47.1	120
QC5		<0.001	0.034	8.62	0.001	<0.001	0.07	<0.001	<0.001	<0.001	100.00	4.57	0.03	1.00	4.5	40
YPRD13687_38_39		<0.001	0.026	10.65	<0.001	<0.001	0.89	0.012	0.003	0.030	100.00	10.17	0.05	5.98	24.1	30
TRRD34136_10_11		0.001	0.018	75.6	0.001	<0.001	0.09	<0.001	0.001	<0.001	99.98	2.91	0.01	1.31	4.0	60
YPGCO5415_32_33		<0.001	0.027	4.75	<0.001	0.006	0.20	0.002	0.005	0.002	99.99	9.42	0.03	2.61	12.5	150

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPGC11249_32_33		0.48	0.08	0.11	0.23	258	40.9	26	0.15	26.9	46.7	4.78	3.13	0.4	0.014	0.26
YPGCO2807_14_15		1.27	0.63	0.13	0.14	59.3	11.2	201	3.77	80.3	16.40	20.7	0.28	4.6	0.179	0.69
YPGC11249_2_3		1.18	0.24	0.08	0.10	48.4	11.3	147	2.02	31.4	30.7	10.90	0.57	1.8	0.070	0.39
YPGC11249_8_9		1.61	0.36	0.10	0.31	82.5	18.9	222	1.97	41.5	33.7	14.60	0.95	3.4	0.095	0.36
YPRD14197_14_15		1.29	0.45	0.07	0.05	35.0	7.5	206	3.11	52.2	17.60	16.55	0.38	3.8	0.124	0.52
YPGCO5415_2_3		1.08	0.18	0.03	0.13	20.8	9.3	106	1.00	33.6	31.0	5.96	0.81	1.1	0.050	0.29
YPGCO6879_44_45		1.32	0.16	0.03	0.07	20.0	2.4	58	0.16	17.8	22.6	4.34	0.45	0.7	0.023	0.03
TRRD33437_15_16		0.52	0.05	0.04	0.02	5.18	1.6	21	0.06	6.7	>50	1.62	7.55	0.2	0.011	0.02
TRRD34136_8_9		0.53	0.31	0.06	0.02	9.94	2.2	82	0.12	14.9	40.5	9.10	3.67	2.1	0.049	0.03
YPRD10638_20_21		0.94	0.09	0.04	0.08	48.8	6.5	94	0.15	5.4	28.6	3.09	6.14	0.5	0.020	0.04
QC3A		0.83	0.06	0.03	0.07	38.7	4.3	68	0.14	3.6	23.2	2.44	0.40	0.4	0.012	0.04
QC4		1.14	0.15	0.08	0.06	21.8	8.3	180	1.51	28.3	18.25	6.64	0.29	1.1	0.050	0.28
QC5		0.19	0.09	0.01	<0.02	18.70	1.0	28	0.05	3.5	>50	1.97	1.42	0.5	0.014	0.01
YPRD13687_38_39		0.47	1.10	0.08	0.05	88.7	13.6	88	0.17	6.5	42.7	20.8	1.86	4.9	0.118	0.03
TRRD34136_10_11		0.24	0.07	0.02	<0.02	3.38	0.8	89	0.09	4.2	13.65	2.64	0.18	0.6	0.019	0.02
YPGCO5415_32_33		1.13	0.21	0.06	0.07	45.5	25.1	33	0.07	20.7	45.3	5.18	2.20	0.9	0.044	0.07

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Project: EP1205051

CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPGC11249_32_33		9.1	63.6	0.11	98800	1.55	0.05	1.5	43.3	170	5.2	4.4	<0.002	0.01	0.88	7.5
YPGCO2807_14_15		28.1	20.9	0.24	1050	2.25	0.04	12.3	52.5	300	28.7	47.1	<0.002	0.05	2.63	17.1
YPGC11249_2_3		15.9	17.4	0.15	4600	1.55	0.03	5.1	56.6	300	17.9	26.9	<0.002	0.07	2.09	10.0
YPGC11249_8_9		27.4	21.8	0.16	5170	1.36	0.04	8.5	56.1	310	25.6	29.4	<0.002	0.03	1.45	14.4
YPRD14197_14_15		20.5	19.4	0.15	906	1.84	0.04	10.3	43.0	270	20.7	36.8	0.002	0.02	2.33	15.4
YPGCO5415_2_3		9.5	7.5	0.10	1440	1.64	0.02	3.3	47.1	350	13.1	13.5	<0.002	0.12	1.92	6.5
YPGCO6879_44_45		10.4	10.9	0.03	730	1.22	0.01	2.3	15.5	210	15.5	1.9	<0.002	0.01	2.44	5.7
TRRD33437_15_16		1.7	0.7	0.03	1400	0.42	0.04	1.3	9.1	410	3.0	0.8	<0.002	0.05	0.61	2.5
TRRD34136_8_9		4.0	7.6	0.03	340	1.18	0.03	7.1	20.2	390	15.9	1.4	<0.002	0.04	2.43	6.9
YPRD10638_20_21		11.0	10.7	0.04	2370	1.71	0.02	2.0	24.1	310	5.5	1.8	<0.002	0.01	0.76	4.3
QC3A		7.8	9.7	0.03	1840	0.89	0.01	1.4	8.9	220	3.9	1.9	<0.002	0.01	0.70	2.9
QC4		11.5	13.8	0.12	1180	1.14	0.04	2.9	42.1	180	12.9	18.9	<0.002	0.05	1.65	6.6
QC5		0.9	0.6	0.03	5510	0.32	0.01	1.3	3.2	200	5.0	0.3	<0.002	0.03	0.39	4.6
YPRD13687_38_39		13.8	18.3	0.11	6970	0.76	0.01	12.4	25.3	130	37.3	1.2	<0.002	0.02	4.98	19.0
TRRD34136_10_11		1.9	4.7	0.03	134	0.36	0.02	1.6	6.3	60	4.7	1.3	<0.002	0.02	0.74	2.3
YPGCO5415_32_33		18.0	21.3	0.18	22700	1.18	0.03	2.8	95.8	150	11.6	1.2	<0.002	0.02	0.75	8.0

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CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPGC11249_32_33		<1	0.3	150.5	0.10	0.27	1.9	0.045	0.53	1.6	16	2.6	7.8	59	15.1
YPGCO2807_14_15		2	3.5	68.2	0.94	0.61	14.4	0.474	0.64	2.8	167	2.0	19.2	103	169.5
YPGC11249_2_3		1	1.4	22.1	0.38	0.26	7.6	0.192	0.66	1.2	117	1.7	10.4	80	65.0
YPGC11249_8_9		2	1.8	31.7	0.66	0.31	18.5	0.306	0.61	2.9	154	1.4	22.7	44	121.0
YPRD14197_14_15		2	2.5	27.9	0.80	0.30	13.1	0.403	0.37	2.2	138	2.3	12.1	97	135.0
YPGCO5415_2_3		1	0.8	12.4	0.23	0.25	4.8	0.113	0.31	1.1	71	1.3	11.1	120	42.2
YPGCO6879_44_45		1	0.5	3.8	0.16	0.14	2.9	0.079	<0.02	1.3	43	1.6	15.9	25	26.5
TRRD33437_15_16		<1	0.2	7.0	0.06	0.28	1.0	0.026	<0.02	0.4	11	1.1	6.0	18	8.8
TRRD34136_8_9		2	1.5	12.3	0.52	0.30	9.5	0.239	<0.02	1.4	73	2.1	5.5	35	76.6
YPRD10638_20_21		<1	0.5	14.9	0.13	0.16	1.7	0.058	0.06	0.6	25	1.9	15.0	16	20.5
QC3A		<1	0.3	11.0	0.09	0.13	1.2	0.041	0.02	0.5	19	1.3	10.5	9	14.6
QC4		1	0.9	19.6	0.22	0.20	4.3	0.114	0.35	0.9	74	1.2	8.6	59	37.5
QC5		<1	0.2	2.8	0.08	0.29	2.6	0.031	<0.02	0.6	13	0.8	1.8	4	17.7
YPRD13687_38_39		1	2.7	10.5	1.09	0.43	21.4	0.438	0.04	4.1	130	2.6	26.3	38	167.5
TRRD34136_10_11		1	0.4	5.1	0.12	0.06	2.8	0.051	<0.02	0.4	13	1.3	1.6	7	22.8
YPGCO5415_32_33		<1	0.6	75.5	0.21	0.28	3.6	0.097	0.23	3.3	27	1.5	17.5	48	33.0

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Project: EP1205051

CERTIFICATE OF ANALYSIS BR12155012

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

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Finalized Date: 11-JUL-2012
Account: ALSENV

QC CERTIFICATE BR12155012

Project: EP1205051

P.O. No.:

This report is for 57 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
10 HOD WAY
MALAGA WA 6090

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method Analyte Units LOR	ME-XRF21n Al2O3 % 0.01	ME-XRF21n As % 0.001	ME-XRF21n Ba % 0.001	ME-XRF21n CaO % 0.01	ME-XRF21n Cl % 0.001	ME-XRF21n Co % 0.001	ME-XRF21n Cr2O3 % 0.0006	ME-XRF21n Cu % 0.001	ME-XRF21n Fe % 0.01	ME-XRF21n K2O % 0.001	ME-XRF21n MgO % 0.01	ME-XRF21n Mn % 0.001	ME-XRF21n Na2O % 0.005	ME-XRF21n Ni % 0.001	ME-XRF21n P % 0.001
STANDARDS																
GBM908-10																
Target Range - Lower Bound																
Upper Bound																
GEOMS-03																
GEOMS-03																
Target Range - Lower Bound																
Upper Bound																
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08																
Target Range - Lower Bound																
Upper Bound																
MW-1		0.30	0.001	0.003	0.05	0.001	0.180	0.1260	0.002	65.91	0.013	0.03	0.018	0.013	0.084	0.010
MW-1		0.31	0.001	0.002	0.06	0.001	0.184	0.1260	0.001	65.88	0.013	0.03	0.016	0.015	0.084	0.010
Target Range - Lower Bound		0.29	<0.001	<0.001	0.04	<0.001	0.176	0.1230	<0.001	65.41	0.012	<0.01	0.015	<0.005	0.081	0.009
Upper Bound		0.31	0.003	0.003	0.07	0.003	0.197	0.1370	0.004	66.75	0.015	0.05	0.018	0.025	0.092	0.013
OGGeo08																
OGGeo08																
Target Range - Lower Bound																
Upper Bound																
SARM-12		0.81	0.001	0.004	1.12	0.013	0.022	0.0038	0.048	66.51	0.013	2.85	0.171	0.016	0.030	0.047
Target Range - Lower Bound		0.75	<0.001	<0.001	1.07	0.009	0.021	0.0018	0.045	65.98	0.011	2.76	0.165	<0.005	0.026	0.044
Upper Bound		0.79	0.003	0.005	1.11	0.013	0.025	0.0042	0.051	67.33	0.015	2.84	0.174	0.022	0.031	0.051
SARM-39		4.22	<0.001	0.176	9.69	0.039	0.006	0.1930	0.006	6.56	1.065	26.2	0.132	0.654	0.098	0.636
SARM-39		4.26	<0.001	0.176	9.68	0.029	0.006	0.1905	0.005	6.56	1.070	26.3	0.129	0.653	0.098	0.631
Target Range - Lower Bound		4.24	<0.001	0.166	9.58	0.032	0.006	0.1800	0.005	6.42	1.010	25.9	0.128	0.584	0.094	0.604
Upper Bound		4.34	0.004	0.175	9.80	0.038	0.010	0.200	0.009	6.57	1.070	26.5	0.135	0.656	0.106	0.670
SARM-45		26.3	0.002	0.082	0.76	0.003	0.004	0.0352	0.001	8.80	3.16	3.39	0.073	0.793	0.007	0.033
Target Range - Lower Bound		25.9	<0.001	0.082	0.76	0.005	0.002	0.0346	<0.001	8.71	3.08	3.35	0.075	0.793	0.006	0.032
Upper Bound		26.5	0.005	0.088	0.80	0.009	0.006	0.0395	0.003	8.91	3.28	3.43	0.080	0.887	0.010	0.038

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
STANDARDS																
GBM908-10													2.90	6.87	56.0	1020
Target Range - Lower Bound													2.69	6.40	49.3	930
Upper Bound													3.31	7.84	60.7	1280
GEOMS-03													0.70	4.82	585	2330
GEOMS-03													0.71	5.02	616	2410
Target Range - Lower Bound													0.67	4.61	570	2060
Upper Bound													0.85	5.65	697	2810
LAT-CS9												12.76				
LAT-CS9												12.78				
LAT-CS9												12.84				
LAT-CS9												12.66				
Target Range - Lower Bound												12.34				
Upper Bound												13.12				
MRGeo08													4.24	7.19	32.7	1000
Target Range - Lower Bound													4.16	7.00	29.7	920
Upper Bound													5.10	8.57	36.7	1270
MW-1		0.005	0.010	4.61	0.001	0.001	0.14	0.004	0.001	0.003	100.00					
MW-1		<0.001	0.007	4.65	0.003	0.003	0.13	0.004	<0.001	0.002	100.00					
Target Range - Lower Bound		<0.001	0.009	4.54	<0.001	<0.001	0.11	<0.001	<0.001	<0.001	<0.01					
Upper Bound		0.003	0.013	4.66	0.003	0.003	0.15	0.005	0.004	0.003	0.02					
OGGeo08													19.45	6.28	101.0	820
OGGeo08													20.6	6.67	119.5	830
Target Range - Lower Bound													18.35	6.24	103.5	590
Upper Bound													22.5	7.64	133.5	830
SARM-12		0.005	0.068	0.34	0.003	0.014	0.73	0.050	0.018	0.006	99.99					
Target Range - Lower Bound		0.002	0.063	0.33	<0.001	0.011	0.70	0.048	0.012	0.005	<0.01					
Upper Bound		0.006	0.074	0.35	0.004	0.015	0.74	0.056	0.016	0.009	0.02					
SARM-39		0.002	0.307	33.5	<0.001	0.149	1.60	0.011	0.006	0.022	100.00					
SARM-39		0.002	0.302	33.4	0.001	0.150	1.60	0.011	0.006	0.026	99.99					
Target Range - Lower Bound		<0.001	0.287	33.1	<0.001	0.136	1.54	0.009	0.005	0.022	<0.01					
Upper Bound		0.004	0.320	33.7	0.003	0.152	1.62	0.013	0.009	0.026	0.02					
SARM-45		0.002	0.046	49.6	0.004	0.008	1.82	0.026	0.007	0.030	100.00					
Target Range - Lower Bound		0.002	0.044	49.1	<0.001	0.007	1.77	0.025	0.005	0.029	<0.01					
Upper Bound		0.006	0.050	50.1	0.003	0.011	1.87	0.029	0.009	0.034	0.02					

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
STANDARDS																
GBM908-10		1.55	1.75	3.84	1.72	109.0	25.0	138	3.63	3770	5.72	19.80	0.22	3.6	0.070	2.17
Target Range - Lower Bound		1.19	1.09	3.33	1.52	99.0	21.5	118	3.37	3270	5.21	18.65	0.18	3.2	0.064	1.86
Upper Bound		1.57	1.55	4.10	1.90	121.0	26.5	146	4.23	3990	6.39	22.9	0.40	4.1	0.092	2.29
GEOMS-03		1.47	0.33	0.40	0.32	51.3	11.0	113	9.42	132.5	4.27	12.50	0.21	1.9	0.042	1.14
GEOMS-03		1.53	0.35	0.42	0.31	52.3	11.3	115	9.63	138.5	4.40	13.45	0.16	1.8	0.048	1.18
Target Range - Lower Bound		1.34	0.31	0.38	0.30	47.0	10.7	105	9.04	120.5	3.64	12.00	0.06	1.1	0.032	1.03
Upper Bound		1.74	0.41	0.43	0.42	57.4	13.3	131	11.15	147.5	4.48	14.75	0.28	1.7	0.056	1.29
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		2.82	0.65	2.64	2.09	73.6	18.7	90	11.45	646	4.03	17.80	0.18	3.2	0.169	3.16
Target Range - Lower Bound		2.80	0.63	2.35	2.01	72.9	18.4	82	11.00	568	3.61	17.50	<0.05	2.8	0.161	2.79
Upper Bound		3.54	0.79	2.90	2.50	89.1	22.8	102	13.60	694	4.43	21.5	0.27	3.6	0.207	3.43
MW-1																
MW-1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		3.24	10.35	2.13	18.20	67.6	88.8	77	10.25	8160	5.32	16.50	0.44	2.8	1.375	2.83
OGGeo08		2.83	10.55	2.27	19.30	70.8	93.6	83	10.80	8660	5.63	17.25	0.36	2.8	1.485	3.01
Target Range - Lower Bound		2.59	9.89	1.98	18.05	64.8	83.6	73	9.85	7550	4.89	16.05	0.25	2.5	1.320	2.59
Upper Bound		3.27	12.10	2.44	22.1	79.2	102.5	93	12.15	9230	5.99	19.75	0.49	3.3	1.620	3.19
SARM-12																
Target Range - Lower Bound																
Upper Bound																
SARM-39																
SARM-39																
Target Range - Lower Bound																
Upper Bound																
SARM-45																
Target Range - Lower Bound																
Upper Bound																

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
STANDARDS																
GBM908-10		56.7	12.1	1.84	780	60.1	2.21	11.0	2180	950	1980	167.5	<0.002	0.36	1.69	18.7
Target Range - Lower Bound		49.0	5.5	1.59	704	57.9	2.02	9.3	2030	870	1860	153.0	<0.002	0.33	1.30	17.0
Upper Bound		61.0	7.2	1.97	871	70.9	2.50	11.6	2430	1090	2270	187.0	0.006	0.43	1.88	21.0
GEOMS-03		27.7	38.6	0.51	514	3.76	0.08	15.7	53.2	1030	5.6	63.2	0.003	0.03	17.00	12.7
GEOMS-03		29.3	44.2	0.53	536	3.41	0.09	16.0	53.0	1070	7.6	64.5	0.003	0.03	18.10	14.4
Target Range - Lower Bound		25.6	37.6	0.48	483	3.05	0.06	15.1	48.1	970	5.5	55.7	<0.002	0.02	15.85	12.4
Upper Bound		32.4	46.4	0.60	601	3.83	0.11	16.3	59.3	1210	8.2	68.3	0.006	0.06	21.5	15.4
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		36.8	30.6	1.36	544	14.35	1.97	22.1	678	990	1040	209	0.007	0.29	4.29	13.0
Target Range - Lower Bound		36.3	30.4	1.24	506	13.65	1.76	19.3	617	910	965	187.0	0.006	0.27	4.08	11.0
Upper Bound		45.5	37.6	1.54	630	16.75	2.18	23.8	755	1140	1130	229	0.016	0.35	5.64	13.6
MW-1																
MW-1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		32.2	35.1	1.21	481	899	1.75	17.5	8100	770	6730	171.5	1.300	2.52	24.9	9.7
OGGeo08		35.1	33.4	1.29	507	959	1.85	18.3	8820	820	7150	189.0	1.375	2.67	26.7	10.8
Target Range - Lower Bound		31.0	30.0	1.08	447	841	1.62	17.9	8020	760	6520	171.0	1.235	2.58	23.6	9.2
Upper Bound		39.0	37.2	1.34	557	1030	2.00	22.1	9800	950	7950	209	1.575	3.18	32.0	11.4
SARM-12																
Target Range - Lower Bound																
Upper Bound																
SARM-39																
SARM-39																
Target Range - Lower Bound																
Upper Bound																
SARM-45																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
STANDARDS															
GBM908-10		1	3.1	278	0.73	0.07	18.2	0.631	1.20	2.3	138	4.4	38.0	1020	131.5
Target Range - Lower Bound		<1	2.5	258	0.68	<0.05	16.9	0.591	1.00	2.0	123	2.7	36.2	939	109.0
Upper Bound		4	3.6	316	0.97	0.16	21.1	0.783	1.40	2.6	153	3.9	44.5	1155	148.5
GEOMS-03		3	2.3	161.0	0.91	0.13	7.0	0.431	1.16	3.8	108	21.3	23.6	44	68.3
GEOMS-03		2	2.5	170.5	0.97	0.18	7.0	0.447	1.33	3.9	111	22.3	23.8	49	66.1
Target Range - Lower Bound		<1	2.0	157.5	0.80	<0.05	6.2	0.409	0.99	3.1	104	19.3	19.8	40	44.0
Upper Bound		5	3.0	192.5	1.10	0.24	8.0	0.511	1.39	4.0	130	26.4	24.4	54	60.8
LAT-CS9															
LAT-CS9															
LAT-CS9															
LAT-CS9															
Target Range - Lower Bound															
Upper Bound															
MRGeo08		1	3.8	287	1.49	0.05	20.1	0.466	0.96	5.6	107	4.7	27.3	754	107.5
Target Range - Lower Bound		<1	3.5	272	1.43	<0.05	19.2	0.454	0.87	5.6	99	4.3	24.3	712	92.2
Upper Bound		4	4.7	332	1.92	0.15	26.9	0.566	1.23	7.0	123	6.1	29.9	874	126.0
MW-1															
MW-1															
Target Range - Lower Bound															
Upper Bound															
OGGeo08		10	13.1	228	1.24	0.27	18.0	0.360	1.59	5.1	80	4.4	21.8	6640	91.8
OGGeo08		11	14.0	243	1.32	0.28	17.9	0.382	1.60	5.3	85	4.5	24.2	7050	93.3
Target Range - Lower Bound		8	12.9	219	1.19	0.09	16.7	0.364	1.43	4.9	77	4.0	21.1	6410	87.1
Upper Bound		14	16.3	268	1.57	0.31	20.9	0.456	1.98	6.3	97	5.6	26.1	7830	119.0
SARM-12															
Target Range - Lower Bound															
Upper Bound															
SARM-39															
SARM-39															
Target Range - Lower Bound															
Upper Bound															
SARM-45															
Target Range - Lower Bound															
Upper Bound															

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Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
BLANKS																
BLANK																
BLANK																
BLANK																
Target Range = Lower Bound																
Upper Bound																
BLANK		0.11	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.24	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
BLANK		0.10	0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.24	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
BLANK		0.12	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.26	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Target Range = Lower Bound		<0.01		<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Upper Bound		0.02		0.002	0.02	0.002	0.002	0.0012	0.002	0.02	0.002	0.02	0.002	0.010	0.002	0.002
DUPLICATES																
YPGC00576_32_33		0.79	0.001	0.003	0.02	0.002	<0.001	0.0138	<0.001	44.18	0.015	0.02	0.152	<0.005	0.001	0.072
DUP		0.79	0.001	0.005	0.02	0.003	<0.001	0.0145	<0.001	44.23	0.016	0.02	0.151	<0.005	0.001	0.071
Target Range = Lower Bound		0.78	<0.001	0.003	<0.01	<0.001	<0.001	0.0132	<0.001	43.97	0.014	<0.01	0.149	<0.005	<0.001	0.069
Upper Bound		0.80	0.002	0.005	0.03	0.004	0.002	0.0151	0.002	44.44	0.017	0.03	0.154	0.010	0.002	0.074
YPGC00027_8_9																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPRD14197_38_39																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPRD06017_15_16																
DUP																
Target Range = Lower Bound																
Upper Bound																
TRRD34136_2_3																
DUP																
Target Range = Lower Bound																
Upper Bound																

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Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
BLANKS																
BLANK													<0.01	<0.01	<0.2	<10
BLANK													<0.01	<0.01	<0.2	<10
BLANK													<0.01	<0.01	<0.2	<10
Target Range - Lower Bound													<0.01	<0.01	<0.2	<10
Upper Bound													0.02	0.02	0.4	20
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	99.99					
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	99.98					
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.05					
Target Range - Lower Bound			<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001						
Upper Bound			0.002	0.02	0.002	0.002	0.02	0.002	0.002	0.002						
DUPLICATES																
YPGC00576_32_33		<0.001	0.008	29.2	0.001	0.007	0.04	0.002	0.002	0.004	99.97					
DUP		0.001	0.008	29.2	0.001	0.007	0.04	0.001	0.001	0.004	100.05					
Target Range - Lower Bound		<0.001	0.007	29.0	<0.001	0.006	0.03	<0.001	<0.001	0.003	99.00					
Upper Bound		0.002	0.009	29.4	0.002	0.008	0.05	0.002	0.002	0.005	101.00					
YPGC00027_8_9													0.07	1.66	11.5	50
DUP													0.06	1.64	11.5	50
Target Range - Lower Bound													0.05	1.56	10.7	40
Upper Bound													0.08	1.74	12.3	60
YPRD14197_38_39												6.54				
DUP												6.47				
Target Range - Lower Bound												6.33				
Upper Bound												6.68				
YPRD06017_15_16													0.18	4.52	29.3	100
DUP													0.20	4.65	31.2	100
Target Range - Lower Bound													0.17	4.35	28.5	80
Upper Bound													0.21	4.82	32.0	120
TRRD34136_2_3												8.77	0.03	3.71	22.6	90
DUP												8.79	0.05	3.70	22.6	90
Target Range - Lower Bound												8.55	0.03	3.51	21.3	70
Upper Bound												9.01	0.05	3.90	23.9	110

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Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
BLANKS																
BLANK		<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	2	<0.05	<0.2	0.01	0.10	0.09	<0.1	<0.005	<0.01
BLANK		<0.05	0.01	<0.01	<0.02	<0.01	<0.1	1	<0.05	<0.2	<0.01	<0.05	<0.05	<0.1	<0.005	<0.01
BLANK		<0.05	0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	0.2	<0.01	0.05	0.07	<0.1	<0.005	<0.01
Target Range - Lower Bound		<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	<0.2	<0.01	<0.05	<0.05	<0.1	<0.005	<0.01
Upper Bound		0.10	0.02	0.02	0.04	0.02	0.2	2	0.10	0.4	0.02	0.10	0.10	0.2	0.010	0.02
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
YPGC00576_32_33																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC00027_8_9		0.64	0.14	0.03	0.09	20.9	4.3	70	0.16	8.8	47.4	6.73	3.12	1.3	0.035	0.03
DUP		0.78	0.16	0.03	0.08	21.9	4.4	68	0.18	8.7	47.9	7.27	2.33	1.4	0.034	0.03
Target Range - Lower Bound		0.62	0.13	0.02	0.06	20.3	4.0	65	0.11	8.1	45.3	6.60	2.54	1.2	0.028	0.02
Upper Bound		0.80	0.17	0.04	0.11	22.5	4.7	73	0.23	9.4	50.0	7.40	2.91	1.5	0.041	0.04
YPRD14197_38_39																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPRD06017_15_16		2.49	0.54	0.04	0.17	65.7	38.6	67	0.46	9.6	42.9	8.54	3.34	2.5	0.033	0.15
DUP		2.70	0.57	0.05	0.20	80.0	40.8	66	0.51	10.8	43.8	9.23	3.37	2.6	0.030	0.15
Target Range - Lower Bound		2.42	0.52	0.03	0.16	69.2	37.6	62	0.41	9.5	41.2	8.39	3.14	2.3	0.025	0.13
Upper Bound		2.77	0.59	0.06	0.21	76.5	41.8	71	0.56	10.9	45.5	9.38	3.57	2.8	0.038	0.17
TRRD34136_2_3		0.52	0.43	0.31	0.03	12.00	2.9	107	0.16	7.3	47.1	16.40	2.37	3.1	0.073	0.03
DUP		0.62	0.46	0.31	0.03	12.60	3.0	111	0.17	7.3	47.1	16.95	1.68	3.2	0.072	0.03
Target Range - Lower Bound		0.49	0.41	0.28	<0.02	11.70	2.7	103	0.11	6.7	44.7	15.80	1.87	2.9	0.064	0.02
Upper Bound		0.65	0.48	0.34	0.04	12.95	3.2	115	0.22	7.9	49.5	17.55	2.18	3.4	0.081	0.04

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1
BLANKS																
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	0.1
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	<0.1
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	0.1	<0.002	<0.01	<0.05	0.1
Target Range = Lower Bound		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	<0.1
Upper Bound		1.0	0.4	0.02	10	0.10	0.02	0.2	0.4	20	1.0	0.2	0.004	0.02	0.10	0.2
BLANK																
BLANK																
BLANK																
Target Range = Lower Bound																
Upper Bound																
DUPLICATES																
YPGCO0576_32_33																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGC00027_8_9		4.0	4.8	0.04	2710	1.11	0.02	4.2	15.8	260	12.4	1.6	<0.002	0.04	1.28	5.1
DUP		4.1	5.7	0.04	2690	1.15	0.01	4.2	14.6	260	11.8	1.6	<0.002	0.04	1.39	5.4
Target Range = Lower Bound		3.3	4.8	0.03	2560	1.02	<0.01	3.9	14.2	240	11.0	1.4	<0.002	0.03	1.18	4.9
Upper Bound		4.8	5.7	0.05	2840	1.24	0.02	4.5	16.2	280	13.2	1.8	0.004	0.05	1.49	5.6
YPRD14197_38_39																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPRD06017_15_16		26.2	10.4	0.08	7590	1.73	0.04	7.1	59.2	130	14.3	4.4	<0.002	0.03	1.25	9.1
DUP		27.8	11.2	0.08	7490	2.01	0.04	7.4	62.5	130	18.2	4.6	0.003	0.03	1.31	9.7
Target Range = Lower Bound		25.2	10.1	0.07	7160	1.73	0.03	6.8	57.6	110	14.9	4.2	<0.002	0.02	1.13	8.8
Upper Bound		28.9	11.5	0.09	7920	2.01	0.05	7.7	64.1	150	17.6	4.8	0.004	0.04	1.43	10.0
TRRD34136_2_3		4.4	5.0	0.05	694	1.95	0.01	12.9	11.2	280	15.3	2.0	<0.002	0.04	3.45	8.0
DUP		4.5	5.9	0.05	745	1.92	0.01	12.7	11.3	280	15.8	2.0	0.002	0.04	3.54	7.3
Target Range = Lower Bound		3.7	5.0	0.04	679	1.79	<0.01	12.1	10.5	260	14.3	1.8	<0.002	0.03	3.13	7.2
Upper Bound		5.2	5.9	0.06	760	2.08	0.02	13.5	12.0	300	16.3	2.2	0.004	0.05	3.61	8.1

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
BLANKS															
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	0.1	<0.1	<2	<0.5
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	1	<0.1	<0.1	<2	<0.5
Target Range - Lower Bound		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Upper Bound		5	0.4	0.4	0.10	0.10	0.4	0.010	0.04	0.2	2	0.2	0.2	4	1.0
BLANK															
BLANK															
BLANK															
Target Range - Lower Bound															
Upper Bound															
DUPLICATES															
YPGC00576_32_33															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPGC00027_8_9		1	0.8	5.6	0.26	0.37	6.2	0.122	0.11	1.0	46	1.2	6.8	23	48.6
DUP		1	0.9	5.7	0.29	0.50	6.6	0.122	0.09	1.1	46	1.3	7.2	22	49.4
Target Range - Lower Bound		<1	0.6	5.2	0.21	0.36	5.9	0.111	0.07	0.9	43	1.1	6.6	19	46.1
Upper Bound		2	1.1	6.1	0.34	0.51	6.9	0.133	0.13	1.2	49	1.4	7.5	26	52.0
YPRD14197_38_39															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPRD06017_15_16		2	1.3	14.5	0.55	0.35	9.9	0.234	0.11	5.4	48	1.4	26.0	24	86.7
DUP		2	1.3	15.3	0.58	0.39	10.6	0.234	0.12	5.8	48	1.5	27.9	22	92.6
Target Range - Lower Bound		<1	1.0	14.0	0.49	0.30	9.5	0.217	0.09	5.2	45	1.2	25.5	20	84.7
Upper Bound		3	1.6	15.8	0.64	0.44	11.0	0.251	0.14	6.0	51	1.7	28.4	26	94.6
TRRD34136_2_3		3	2.3	14.7	0.99	0.35	12.7	0.432	0.02	1.7	132	2.7	5.4	12	113.5
DUP		2	2.4	14.7	1.01	0.39	13.6	0.431	<0.02	1.8	131	2.7	5.5	9	114.0
Target Range - Lower Bound		<1	2.0	13.8	0.90	0.30	12.3	0.405	<0.02	1.6	124	2.4	5.1	8	107.5
Upper Bound		4	2.7	15.6	1.10	0.44	14.0	0.458	0.04	1.9	139	3.0	5.8	13	120.0

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
DUPLICATES																
YPGCO0576_38_39		1.73	0.001	<0.001	0.01	<0.001	0.001	0.0184	<0.001	19.12	0.026	<0.01	0.054	<0.005	<0.001	0.024
DUP		1.72	<0.001	<0.001	0.01	0.001	0.001	0.0189	<0.001	19.12	0.028	<0.01	0.055	<0.005	<0.001	0.024
Target Range = Lower Bound		1.71	<0.001	<0.001	<0.01	<0.001	<0.001	0.0176	<0.001	19.01	0.026	<0.01	0.053	<0.005	<0.001	0.022
Upper Bound		1.74	0.002	0.002	0.02	0.002	0.002	0.0197	0.002	19.23	0.028	0.02	0.056	0.010	0.002	0.026
YPGC11249_8_9																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGCO6879_44_45		2.71	0.004	<0.001	0.03	0.001	<0.001	0.0114	0.001	23.80	0.029	0.01	0.080	<0.005	0.001	0.023
DUP		2.72	0.004	<0.001	0.03	0.001	0.001	0.0121	0.001	23.61	0.030	0.01	0.078	<0.005	<0.001	0.024
Target Range = Lower Bound		2.69	0.003	<0.001	0.02	<0.001	<0.001	0.0109	<0.001	23.58	0.028	<0.01	0.077	<0.005	<0.001	0.022
Upper Bound		2.74	0.005	0.002	0.04	0.002	0.002	0.0126	0.002	23.83	0.031	0.02	0.081	0.010	0.002	0.025
QC4		4.63	0.004	0.011	0.10	0.024	0.001	0.0286	0.002	17.46	0.328	0.20	0.122	0.026	0.002	0.017
DUP		4.61	0.005	0.013	0.11	0.022	0.001	0.0267	0.002	17.48	0.334	0.22	0.122	0.030	0.002	0.017
Target Range = Lower Bound		4.59	0.003	0.011	0.09	0.021	<0.001	0.0264	<0.001	17.37	0.325	0.20	0.120	0.022	<0.001	0.016
Upper Bound		4.65	0.006	0.013	0.12	0.025	0.002	0.0289	0.003	17.57	0.337	0.22	0.124	0.034	0.003	0.018
YPGCO5415_32_33																
DUP																
Target Range = Lower Bound																
Upper Bound																

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Pb % 0.001	ME-XRF21n S % 0.001	ME-XRF21n SiO2 % 0.01	ME-XRF21n Sn % 0.001	ME-XRF21n Sr % 0.001	ME-XRF21n TiO2 % 0.01	ME-XRF21n V % 0.001	ME-XRF21n Zn % 0.001	ME-XRF21n Zr % 0.001	ME-XRF21n Total % 0.01	ME-GRA05 LOI % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10
DUPLICATES																
YPGCO0576_38_39		<0.001	0.007	67.3	<0.001	<0.001	0.08	<0.001	<0.001	<0.001	100.00					
DUP		0.002	0.007	67.3	<0.001	<0.001	0.08	<0.001	0.001	<0.001	100.00					
Target Range - Lower Bound		<0.001	0.006	67.0	<0.001	<0.001	0.07	<0.001	<0.001	<0.001	98.99					
Upper Bound		0.002	0.008	67.6	0.002	0.002	0.09	0.002	0.002	0.002	101.00					
YPGC11249_8_9												7.17				
DUP												7.17				
Target Range - Lower Bound												6.98				
Upper Bound												7.36				
YPGCO6879_44_45		<0.001	0.009	59.6	0.001	<0.001	0.15	0.004	0.002	0.001	100.05		0.03	1.35	27.2	20
DUP		<0.001	0.008	59.8	<0.001	<0.001	0.14	0.003	0.002	<0.001	99.96		0.04	1.40	27.7	20
Target Range - Lower Bound		<0.001	0.007	59.4	<0.001	<0.001	0.13	0.002	<0.001	<0.001	98.99		0.02	1.30	25.9	<10
Upper Bound		0.002	0.010	60.0	0.002	0.002	0.16	0.005	0.003	0.002	101.00		0.05	1.45	29.0	30
QC4		0.003	0.051	65.9	0.002	0.003	0.21	0.008	0.006	0.007	100.00					
DUP		0.002	0.051	65.8	0.001	0.003	0.21	0.008	0.006	0.007	99.95					
Target Range - Lower Bound		<0.001	0.049	65.5	<0.001	0.002	0.20	0.007	0.005	0.006	98.97					
Upper Bound		0.004	0.053	66.2	0.002	0.004	0.22	0.009	0.007	0.008	101.00					
YPGCO5415_32_33												9.42	0.03	2.61	12.5	150
DUP												9.42	0.05	2.55	13.6	140
Target Range - Lower Bound												9.17	0.03	2.44	12.2	120
Upper Bound												9.67	0.05	2.72	13.9	170

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
		DUPLICATES														
YPGCO0576_38_39																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC11249_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO6879_44_45		1.32	0.16	0.03	0.07	20.0	2.4	58	0.16	17.8	22.6	4.34	0.45	0.7	0.023	0.03
DUP		1.39	0.15	0.03	0.05	20.2	2.5	59	0.17	19.5	24.4	4.43	0.36	0.8	0.024	0.03
Target Range - Lower Bound		1.24	0.14	0.02	0.04	19.10	2.2	55	0.11	17.5	22.3	4.12	0.33	0.6	0.017	0.02
Upper Bound		1.47	0.17	0.04	0.08	21.1	2.7	62	0.22	19.8	24.7	4.65	0.48	0.9	0.030	0.04
QC4																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO5415_32_33		1.13	0.21	0.06	0.07	45.5	25.1	33	0.07	20.7	45.3	5.18	2.20	0.9	0.044	0.07
DUP		1.17	0.20	0.06	0.08	45.3	25.1	31	0.09	20.7	44.3	5.12	2.11	0.9	0.037	0.07
Target Range - Lower Bound		1.04	0.18	0.05	0.05	43.1	23.7	29	<0.05	19.5	42.6	4.84	2.00	0.8	0.033	0.06
Upper Bound		1.26	0.23	0.07	0.10	47.7	26.5	35	0.10	21.9	47.1	5.46	2.31	1.0	0.043	0.08

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QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
DUPLICATES																
YPGCO0576_38_39																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC11249_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO6879_44_45		10.4	10.9	0.03	730	1.22	0.01	2.3	15.5	210	15.5	1.9	<0.002	0.01	2.44	5.7
DUP		10.5	11.7	0.03	823	1.27	0.01	2.4	16.3	230	18.0	1.9	<0.002	0.01	2.49	6.0
Target Range - Lower Bound		9.4	10.5	0.02	733	1.13	<0.01	2.1	14.9	200	15.4	1.7	<0.002	<0.01	2.23	5.5
Upper Bound		11.5	12.1	0.04	820	1.36	0.02	2.6	16.9	240	18.1	2.1	0.004	0.02	2.70	6.2
QC4																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO5415_32_33		18.0	21.3	0.18	22700	1.18	0.03	2.8	95.8	150	11.6	1.2	<0.002	0.02	0.75	8.0
DUP		17.3	20.2	0.18	21800	1.16	0.03	2.8	93.1	140	11.7	1.4	0.002	0.02	0.82	8.2
Target Range - Lower Bound		16.3	19.5	0.16	21100	1.06	0.02	2.6	89.5	130	10.6	1.1	<0.002	<0.01	0.68	7.6
Upper Bound		19.0	22.0	0.20	23400	1.28	0.04	3.0	99.4	160	12.7	1.5	0.004	0.03	0.89	8.6

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
DUPLICATES															
YPGCO0576_38_39	DUP														
	Target Range - Lower Bound														
	Upper Bound														
YPGC11249_8_9	DUP														
	Target Range - Lower Bound														
	Upper Bound														
YPGCO6879_44_45		1	0.5	3.8	0.16	0.14	2.9	0.079	<0.02	1.3	43	1.6	15.9	25	26.5
	DUP	<1	0.5	4.0	0.18	0.17	3.0	0.082	<0.02	1.3	46	1.5	16.1	26	26.5
	Target Range - Lower Bound	<1	0.3	3.5	0.11	0.10	2.6	0.071	<0.02	1.1	41	1.3	15.1	22	24.7
	Upper Bound	2	0.7	4.3	0.23	0.21	3.3	0.090	0.04	1.5	48	1.8	16.9	29	28.3
QC4	DUP														
	Target Range - Lower Bound														
	Upper Bound														
YPGCO5415_32_33		<1	0.6	75.5	0.21	0.28	3.6	0.097	0.23	3.3	27	1.5	17.5	48	33.0
	DUP	1	0.6	75.2	0.22	0.21	3.7	0.096	0.24	3.3	25	1.4	17.4	47	33.1
	Target Range - Lower Bound	<1	0.4	71.4	0.15	0.18	3.3	0.087	0.20	3.0	24	1.2	16.5	43	30.9
	Upper Bound	2	0.8	79.3	0.28	0.31	4.0	0.106	0.27	3.6	28	1.7	18.4	52	35.2

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Project: EP1205051

QC CERTIFICATE OF ANALYSIS BR12155012

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (**Date**): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
1	YPGC00576_26_27	Soil			B	1	1	1	1	1	1	1	1	1						
2	YPRD10638_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
3	TRRD33437_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
4	TRRD34136_4_5	Soil			B	1	1	1	1	1	1	1	1	1						
5	YPGC00027_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
	X TRRD06576_13_14	Soil			B	1	1	1	1	1	1	1	1	1						
6	YPGCO0027_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
7	TRRD33379_4_5	Soil			B	1	1	1	1	1	1	1	1	1						
8	QC6	Soil			B	1	1	1	1	1	1	1	1	1						
9	YPGCO6879_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
10	YPGCO3152_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
11	YPGCO6605_20_21	Soil			B	1	1	1	1	1	1	1	1	1						

Environmental Division
Perth
Work Order
EP1205053
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RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: M Westwell	Date: 22/6	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY:
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE:
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
12	YPGCO0576_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
	YPGCO2807_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
13	YPGCO2056_44_45	Soil			B	1	1	1	1	1	1	1	1	1					
14	YPGCO4543_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
15	YPRD14197_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
16	YPGCO3152_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
17	YPGCO3152_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
18	YPRD13687_34_35	Soil			B	1	1	1	1	1	1	1	1	1					
19	YPGCO4543_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
20	YPRD14197_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
21	YPGCO614320_21	Soil			B	1	1	1	1	1	1	1	1	1					
22	YPGCO2056_14_15	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc. **REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL**
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
23	QC7	Soil			B	1	1	1	1	1	1	1	1	1						
	X YPRDO5790_3_4	Soil			B	1	1	1	1	1	1	1	1	1						
24	QC8	Soil			B	1	1	1	1	1	1	1	1	1						
25	QC9	Soil			B	1	1	1	1	1	1	1	1	1						
26	YPGCO2056_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
27	TRRDO6576_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
28	QC10	Soil			B	1	1	1	1	1	1	1	1	1						
29	YPGCO6143_26_27	Soil			B	1	1	1	1	1	1	1	1	1						
30	YPGCO0576_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
31	YPGCO0576_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
32	YPGCO2056_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
33	YPGCO6879_26_27	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: M Westmore	Date: 22/6	Con' Note No:
Of:	Time:	Of: ACJ	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (**Date**): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc. **REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL**
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
34	YPGCO1657_32_33	Soil			B	1	1	1	1	1	1	1	1	1						
35	YPGCO6879_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
	X TRRD34136_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
36	QC11	Soil			B	1	1	1	1	1	1	1	1	1						
37	YPGCO1657_44_45	Soil			B	1	1	1	1	1	1	1	1	1						
38	YPGCO5415_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
39	QC12	Soil			B	1	1	1	1	1	1	1	1	1						
40	YPGC00027_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
41	YPGCO8967_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
42	YPGCO896732_33	Soil			B	1	1	1	1	1	1	1	1	1						
43	YPGCO8967_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
44	YPGCO8967_26_27	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

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ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (**Date**): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						Notes: e.g. Highly contaminated samples e.g. "High PAHs expected". Extra volume for QC or trace LORs etc. **REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL**
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
45	YPGCO4543_26_27 (4545)	Soil			B	1	1	1	1	1	1	1	1	1						
46	YPGCO8967_20_21	Soil			B	1	1	1	1	1	1	1	1	1						
47	YPGCO8967_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
	X YPGCO8967_35_36	Soil			B	1	1	1	1	1	1	1	1	1						
48	CAGC30291/Y096100	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: M Dedrick	Date: 22/6	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1205053**

Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	Page	: 1 of 10
Order number	: ----		
C-O-C number	: ----	Quote number	: ----
Site	: CHRISTMAS CREEK		
Sampler	: C.C.S.P	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 22-JUN-2012	Issue Date	: 10-JUL-2012 17:12
Client Requested Due Date	: 11-JUL-2012	Scheduled Reporting Date	: **11-JUL-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 12.7
No. of coolers/boxes	: 10 MED HARD	No. of samples received	: 48
Security Seal	: Not intact.	No. of samples analysed	: 48

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method *Client sample ID*	Sample Container Received	Preferred Sample Container for Analysis
EP003TC : Total Carbon		
YPGC00576_26_27	- Calico Bag	- Pulp Bag
YPRD10638_2_3	- Calico Bag	- Pulp Bag
TRRD33437_8_9	- Calico Bag	- Pulp Bag
TRRD34136_4_5	- Calico Bag	- Pulp Bag
YPGC00027_2_3	- Calico Bag	- Pulp Bag
YPGCO0027_14_15	- Calico Bag	- Pulp Bag
TRRD33379_4_5	- Calico Bag	- Pulp Bag
QC6	- Calico Bag	- Pulp Bag
YPGCO6879_20_21	- Calico Bag	- Pulp Bag
YPGCO3152_14_15	- Calico Bag	- Pulp Bag
YPGOC6605_20_21	- Calico Bag	- Pulp Bag
YPGCO0576_2_3	- Calico Bag	- Pulp Bag
YPGCO2056_44_45	- Calico Bag	- Pulp Bag
YPGCO4543_8_9	- Calico Bag	- Pulp Bag
YPRD14197_2_3	- Calico Bag	- Pulp Bag
YPGCO3152_20_21	- Calico Bag	- Pulp Bag
YPGCO3152_8_9	- Calico Bag	- Pulp Bag
YPRD13687_34_35	- Calico Bag	- Pulp Bag
YPGCO4543_14_15	- Calico Bag	- Pulp Bag
YPRD14198_8_9	- Calico Bag	- Pulp Bag
YPGCO614320_21	- Calico Bag	- Pulp Bag
YPGCO2056_14_15	- Calico Bag	- Pulp Bag
QC7	- Calico Bag	- Pulp Bag
QC8	- Calico Bag	- Pulp Bag
QC9	- Calico Bag	- Pulp Bag
YPGCO2056_2_3	- Calico Bag	- Pulp Bag
TRRDO6576_2_3	- Calico Bag	- Pulp Bag
QC10	- Calico Bag	- Pulp Bag
YPGCO6143_26_27	- Calico Bag	- Pulp Bag
YPGCO0576_32_33	- Calico Bag	- Pulp Bag
YPGCO0576_20_21	- Calico Bag	- Pulp Bag
YPGCO2056_20_21	- Calico Bag	- Pulp Bag
YPGCO6879_26_27	- Calico Bag	- Pulp Bag
YPGCO1657_32_33	- Calico Bag	- Pulp Bag
YPGCO6879_2_3	- Calico Bag	- Pulp Bag
QC11	- Calico Bag	- Pulp Bag
YPGCO1657_44_45	- Calico Bag	- Pulp Bag
YPGCO5415_20_21	- Calico Bag	- Pulp Bag
QC12	- Calico Bag	- Pulp Bag
YPGC00027_8_9	- Calico Bag	- Pulp Bag
YPGCO8967_8_9	- Calico Bag	- Pulp Bag
YPGCO896732_33	- Calico Bag	- Pulp Bag
YPGCO8967_14_15	- Calico Bag	- Pulp Bag
YPGCO8967_26_27	- Calico Bag	- Pulp Bag
YPGCO4545_26_27	- Calico Bag	- Pulp Bag
YPGCO8967_20_21	- Calico Bag	- Pulp Bag
YPGCO8967_2_3	- Calico Bag	- Pulp Bag
CAGC30291/Y096100	- Calico Bag	- Pulp Bag

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205053-001	22-JUN-2012 15:20	YPGC00576_26_27	✓		✓	✓		✓	✓	
	26-JUN-2012 12:00	YPGC00576_26_27		✓			✓			✓
EP1205053-002	05-JUL-2012 12:00	YPRD10638_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPRD10638_2_3	✓		✓	✓		✓	✓	
EP1205053-003	05-JUL-2012 12:00	TRRD33437_8_9		✓			✓			✓
	22-JUN-2012 15:20	TRRD33437_8_9	✓		✓	✓		✓	✓	
EP1205053-004	05-JUL-2012 12:00	TRRD34136_4_5		✓			✓			✓
	22-JUN-2012 15:20	TRRD34136_4_5	✓		✓	✓		✓	✓	
EP1205053-005	05-JUL-2012 12:00	YPGC00027_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPGC00027_2_3	✓		✓	✓		✓	✓	
EP1205053-006	05-JUL-2012 12:00	YPGCO0027_14_15		✓			✓			✓
	22-JUN-2012 15:20	YPGCO0027_14_15	✓		✓	✓		✓	✓	
EP1205053-007	05-JUL-2012 12:00	TRRD33379_4_5		✓			✓			✓
	22-JUN-2012 15:20	TRRD33379_4_5	✓		✓	✓		✓	✓	
EP1205053-008	05-JUL-2012 12:00	QC6		✓			✓			✓
	22-JUN-2012 15:20	QC6	✓		✓	✓		✓	✓	
EP1205053-009	05-JUL-2012 12:00	YPGCO6879_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO6879_20_21	✓		✓	✓		✓	✓	
EP1205053-010	05-JUL-2012 12:00	YPGCO3152_14_15		✓			✓			✓
	22-JUN-2012 15:20	YPGCO3152_14_15	✓		✓	✓		✓	✓	
EP1205053-011	05-JUL-2012 12:00	YPGOC6605_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGOC6605_20_21	✓		✓	✓		✓	✓	
EP1205053-012	05-JUL-2012 12:00	YPGCO0576_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPGCO0576_2_3	✓		✓	✓		✓	✓	
EP1205053-013	05-JUL-2012 12:00	YPGCO2056_44_45		✓			✓			✓
	22-JUN-2012 15:20	YPGCO2056_44_45	✓		✓	✓		✓	✓	
EP1205053-014	05-JUL-2012 12:00	YPGCO4543_8_9		✓			✓			✓
	22-JUN-2012 15:20	YPGCO4543_8_9	✓		✓	✓		✓	✓	
EP1205053-015	06-JUL-2012 12:00	YPRD14197_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPRD14197_2_3	✓		✓	✓		✓	✓	
EP1205053-016	06-JUL-2012 12:00	YPGCO3152_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO3152_20_21	✓		✓	✓		✓	✓	
EP1205053-017	06-JUL-2012 12:00	YPGCO3152_8_9		✓			✓			✓
	22-JUN-2012 15:20	YPGCO3152_8_9	✓		✓	✓		✓	✓	
EP1205053-018	06-JUL-2012 12:00	YPRD13687_34_35		✓			✓			✓
	22-JUN-2012 15:20	YPRD13687_34_35	✓		✓	✓		✓	✓	
EP1205053-019	06-JUL-2012 12:00	YPGCO4543_14_15		✓			✓			✓
	22-JUN-2012 15:20	YPGCO4543_14_15	✓		✓	✓		✓	✓	
EP1205053-020	06-JUL-2012 12:00	YPRD14198_8_9		✓			✓			✓
	22-JUN-2012 15:20	YPRD14198_8_9	✓		✓	✓		✓	✓	
EP1205053-021	06-JUL-2012 12:00	YPGCO614320_21		✓			✓			✓

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205053-021	22-JUN-2012 15:20	YPGCO614320_21	✓		✓	✓		✓	✓	
EP1205053-022	06-JUL-2012 12:00	YPGCO2056_14_15		✓			✓			✓
	22-JUN-2012 15:20	YPGCO2056_14_15	✓		✓	✓		✓	✓	
EP1205053-023	06-JUL-2012 12:00	QC7		✓			✓			✓
	22-JUN-2012 15:20	QC7	✓		✓	✓		✓	✓	
EP1205053-024	06-JUL-2012 12:00	QC8		✓			✓			✓
	22-JUN-2012 15:20	QC8	✓		✓	✓		✓	✓	
EP1205053-025	06-JUL-2012 12:00	QC9		✓			✓			✓
	22-JUN-2012 15:20	QC9	✓		✓	✓		✓	✓	
EP1205053-026	06-JUL-2012 12:00	YPGCO2056_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPGCO2056_2_3	✓		✓	✓		✓	✓	
EP1205053-027	06-JUL-2012 12:00	TRRDO6576_2_3		✓			✓			✓
	22-JUN-2012 15:20	TRRDO6576_2_3	✓		✓	✓		✓	✓	
EP1205053-028	06-JUL-2012 12:00	QC10		✓			✓			✓
	22-JUN-2012 15:20	QC10	✓		✓	✓		✓	✓	
EP1205053-029	06-JUL-2012 12:00	YPGCO6143_26_27		✓			✓			✓
	22-JUN-2012 15:20	YPGCO6143_26_27	✓		✓	✓		✓	✓	
EP1205053-030	06-JUL-2012 12:00	YPGCO0576_32_33		✓			✓			✓
	22-JUN-2012 15:20	YPGCO0576_32_33	✓		✓	✓		✓	✓	
EP1205053-031	06-JUL-2012 12:00	YPGCO0576_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO0576_20_21	✓		✓	✓		✓	✓	
EP1205053-032	06-JUL-2012 12:00	YPGCO2056_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO2056_20_21	✓		✓	✓		✓	✓	
EP1205053-033	06-JUL-2012 12:00	YPGCO6879_26_27		✓			✓			✓
	22-JUN-2012 15:20	YPGCO6879_26_27	✓		✓	✓		✓	✓	
EP1205053-034	06-JUL-2012 12:00	YPGCO1657_32_33		✓			✓			✓
	22-JUN-2012 15:20	YPGCO1657_32_33	✓		✓	✓		✓	✓	
EP1205053-035	06-JUL-2012 12:00	YPGCO6879_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPGCO6879_2_3	✓		✓	✓		✓	✓	
EP1205053-036	06-JUL-2012 12:00	QC11		✓			✓			✓
	22-JUN-2012 15:20	QC11	✓		✓	✓		✓	✓	
EP1205053-037	06-JUL-2012 12:00	YPGCO1657_44_45		✓			✓			✓
	22-JUN-2012 15:20	YPGCO1657_44_45	✓		✓	✓		✓	✓	
EP1205053-038	09-JUL-2012 12:00	YPGCO5415_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO5415_20_21	✓		✓	✓		✓	✓	
EP1205053-039	09-JUL-2012 12:00	QC12		✓			✓			✓
	22-JUN-2012 15:20	QC12	✓		✓	✓		✓	✓	
EP1205053-040	09-JUL-2012 12:00	YPGC00027_8_9		✓			✓			✓
	22-JUN-2012 15:20	YPGC00027_8_9	✓		✓	✓		✓	✓	
EP1205053-041	09-JUL-2012 12:00	YPGCO8967_8_9		✓			✓			✓
	22-JUN-2012 15:20	YPGCO8967_8_9	✓		✓	✓		✓	✓	

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205053-042	09-JUL-2012 12:00	YPGCO896732_33		✓			✓			✓
	22-JUN-2012 15:20	YPGCO896732_33	✓		✓	✓		✓	✓	
EP1205053-043	09-JUL-2012 12:00	YPGCO8967_14_15		✓			✓			✓
	22-JUN-2012 15:20	YPGCO8967_14_15	✓		✓	✓		✓	✓	
EP1205053-044	09-JUL-2012 12:00	YPGCO8967_26_27		✓			✓			✓
	22-JUN-2012 15:20	YPGCO8967_26_27	✓		✓	✓		✓	✓	
EP1205053-045	09-JUL-2012 12:00	YPGCO4545_26_27		✓			✓			✓
	22-JUN-2012 15:20	YPGCO4545_26_27	✓		✓	✓		✓	✓	
EP1205053-046	09-JUL-2012 12:00	YPGCO8967_20_21		✓			✓			✓
	22-JUN-2012 15:20	YPGCO8967_20_21	✓		✓	✓		✓	✓	
EP1205053-047	09-JUL-2012 12:00	YPGCO8967_2_3		✓			✓			✓
	22-JUN-2012 15:20	YPGCO8967_2_3	✓		✓	✓		✓	✓	
EP1205053-048	09-JUL-2012 12:00	CAGC30291/Y096100		✓			✓			✓
	22-JUN-2012 15:20	CAGC30291/Y096100	✓		✓	✓		✓	✓	

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205053-001	22-JUN-2012 15:20	YPGC00576_26_27	✓	✓	✓	✓	✓	✓		
	26-JUN-2012 12:00	YPGC00576_26_27							✓	✓
EP1205053-002	05-JUL-2012 12:00	YPRD10638_2_3							✓	✓
	22-JUN-2012 15:20	YPRD10638_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-003	05-JUL-2012 12:00	TRRD33437_8_9							✓	✓
	22-JUN-2012 15:20	TRRD33437_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-004	05-JUL-2012 12:00	TRRD34136_4_5							✓	✓
	22-JUN-2012 15:20	TRRD34136_4_5	✓	✓	✓	✓	✓	✓		
EP1205053-005	05-JUL-2012 12:00	YPGC00027_2_3							✓	✓
	22-JUN-2012 15:20	YPGC00027_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-006	05-JUL-2012 12:00	YPGCO0027_14_15							✓	✓
	22-JUN-2012 15:20	YPGCO0027_14_15	✓	✓	✓	✓	✓	✓		
EP1205053-007	05-JUL-2012 12:00	TRRD33379_4_5							✓	✓
	22-JUN-2012 15:20	TRRD33379_4_5	✓	✓	✓	✓	✓	✓		
EP1205053-008	05-JUL-2012 12:00	QC6							✓	✓
	22-JUN-2012 15:20	QC6	✓	✓	✓	✓	✓	✓		

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205053-009	05-JUL-2012 12:00	YPGCO6879_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO6879_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-010	05-JUL-2012 12:00	YPGCO3152_14_15							✓	✓
	22-JUN-2012 15:20	YPGCO3152_14_15	✓	✓	✓	✓	✓	✓		
EP1205053-011	05-JUL-2012 12:00	YPGOC6605_20_21							✓	✓
	22-JUN-2012 15:20	YPGOC6605_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-012	05-JUL-2012 12:00	YPGCO0576_2_3							✓	✓
	22-JUN-2012 15:20	YPGCO0576_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-013	05-JUL-2012 12:00	YPGCO2056_44_45							✓	✓
	22-JUN-2012 15:20	YPGCO2056_44_45	✓	✓	✓	✓	✓	✓		
EP1205053-014	05-JUL-2012 12:00	YPGCO4543_8_9							✓	✓
	22-JUN-2012 15:20	YPGCO4543_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-015	06-JUL-2012 12:00	YPRD14197_2_3							✓	✓
	22-JUN-2012 15:20	YPRD14197_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-016	06-JUL-2012 12:00	YPGCO3152_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO3152_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-017	06-JUL-2012 12:00	YPGCO3152_8_9							✓	✓
	22-JUN-2012 15:20	YPGCO3152_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-018	06-JUL-2012 12:00	YPRD13687_34_35							✓	✓
	22-JUN-2012 15:20	YPRD13687_34_35	✓	✓	✓	✓	✓	✓		
EP1205053-019	06-JUL-2012 12:00	YPGCO4543_14_15							✓	✓
	22-JUN-2012 15:20	YPGCO4543_14_15	✓	✓	✓	✓	✓	✓		
EP1205053-020	06-JUL-2012 12:00	YPRD14198_8_9							✓	✓
	22-JUN-2012 15:20	YPRD14198_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-021	06-JUL-2012 12:00	YPGCO614320_21							✓	✓
	22-JUN-2012 15:20	YPGCO614320_21	✓	✓	✓	✓	✓	✓		
EP1205053-022	06-JUL-2012 12:00	YPGCO2056_14_15							✓	✓
	22-JUN-2012 15:20	YPGCO2056_14_15	✓	✓	✓	✓	✓	✓		
EP1205053-023	06-JUL-2012 12:00	QC7							✓	✓
	22-JUN-2012 15:20	QC7	✓	✓	✓	✓	✓	✓		
EP1205053-024	06-JUL-2012 12:00	QC8							✓	✓
	22-JUN-2012 15:20	QC8	✓	✓	✓	✓	✓	✓		
EP1205053-025	06-JUL-2012 12:00	QC9							✓	✓
	22-JUN-2012 15:20	QC9	✓	✓	✓	✓	✓	✓		
EP1205053-026	06-JUL-2012 12:00	YPGCO2056_2_3							✓	✓
	22-JUN-2012 15:20	YPGCO2056_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-027	06-JUL-2012 12:00	TRRDO6576_2_3							✓	✓
	22-JUN-2012 15:20	TRRDO6576_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-028	06-JUL-2012 12:00	QC10							✓	✓
	22-JUN-2012 15:20	QC10	✓	✓	✓	✓	✓	✓		
EP1205053-029	06-JUL-2012 12:00	YPGCO6143_26_27							✓	✓

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205053-029	22-JUN-2012 15:20	YPGCO6143_26_27	✓	✓	✓	✓	✓	✓		
EP1205053-030	06-JUL-2012 12:00	YPGCO0576_32_33							✓	✓
	22-JUN-2012 15:20	YPGCO0576_32_33	✓	✓	✓	✓	✓	✓		
EP1205053-031	06-JUL-2012 12:00	YPGCO0576_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO0576_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-032	06-JUL-2012 12:00	YPGCO2056_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO2056_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-033	06-JUL-2012 12:00	YPGCO6879_26_27							✓	✓
	22-JUN-2012 15:20	YPGCO6879_26_27	✓	✓	✓	✓	✓	✓		
EP1205053-034	06-JUL-2012 12:00	YPGCO1657_32_33							✓	✓
	22-JUN-2012 15:20	YPGCO1657_32_33	✓	✓	✓	✓	✓	✓		
EP1205053-035	06-JUL-2012 12:00	YPGCO6879_2_3							✓	✓
	22-JUN-2012 15:20	YPGCO6879_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-036	06-JUL-2012 12:00	QC11							✓	✓
	22-JUN-2012 15:20	QC11	✓	✓	✓	✓	✓	✓		
EP1205053-037	06-JUL-2012 12:00	YPGCO1657_44_45							✓	✓
	22-JUN-2012 15:20	YPGCO1657_44_45	✓	✓	✓	✓	✓	✓		
EP1205053-038	09-JUL-2012 12:00	YPGCO5415_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO5415_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-039	09-JUL-2012 12:00	QC12							✓	✓
	22-JUN-2012 15:20	QC12	✓	✓	✓	✓	✓	✓		
EP1205053-040	09-JUL-2012 12:00	YPGC00027_8_9							✓	✓
	22-JUN-2012 15:20	YPGC00027_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-041	09-JUL-2012 12:00	YPGCO8967_8_9							✓	✓
	22-JUN-2012 15:20	YPGCO8967_8_9	✓	✓	✓	✓	✓	✓		
EP1205053-042	09-JUL-2012 12:00	YPGCO896732_33							✓	✓
	22-JUN-2012 15:20	YPGCO896732_33	✓	✓	✓	✓	✓	✓		
EP1205053-043	09-JUL-2012 12:00	YPGCO8967_14_15							✓	✓
	22-JUN-2012 15:20	YPGCO8967_14_15	✓	✓	✓	✓	✓	✓		
EP1205053-044	09-JUL-2012 12:00	YPGCO8967_26_27							✓	✓
	22-JUN-2012 15:20	YPGCO8967_26_27	✓	✓	✓	✓	✓	✓		
EP1205053-045	09-JUL-2012 12:00	YPGCO4545_26_27							✓	✓
	22-JUN-2012 15:20	YPGCO4545_26_27	✓	✓	✓	✓	✓	✓		
EP1205053-046	09-JUL-2012 12:00	YPGCO8967_20_21							✓	✓
	22-JUN-2012 15:20	YPGCO8967_20_21	✓	✓	✓	✓	✓	✓		
EP1205053-047	09-JUL-2012 12:00	YPGCO8967_2_3							✓	✓
	22-JUN-2012 15:20	YPGCO8967_2_3	✓	✓	✓	✓	✓	✓		
EP1205053-048	09-JUL-2012 12:00	CAGC30291/Y096100							✓	✓
	22-JUN-2012 15:20	CAGC30291/Y096100	✓	✓	✓	✓	✓	✓		

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205053-001	22-JUN-2012 15:20	YPGC00576_26_27		✓	✓	✓	✓
	26-JUN-2012 12:00	YPGC00576_26_27	✓				
EP1205053-002	05-JUL-2012 12:00	YPRD10638_2_3	✓				
	22-JUN-2012 15:20	YPRD10638_2_3		✓	✓	✓	✓
EP1205053-003	05-JUL-2012 12:00	TRRD33437_8_9	✓				
	22-JUN-2012 15:20	TRRD33437_8_9		✓	✓	✓	✓
EP1205053-004	05-JUL-2012 12:00	TRRD34136_4_5	✓				
	22-JUN-2012 15:20	TRRD34136_4_5		✓	✓	✓	✓
EP1205053-005	05-JUL-2012 12:00	YPGC00027_2_3	✓				
	22-JUN-2012 15:20	YPGC00027_2_3		✓	✓	✓	✓
EP1205053-006	05-JUL-2012 12:00	YPGCO0027_14_15	✓				
	22-JUN-2012 15:20	YPGCO0027_14_15		✓	✓	✓	✓
EP1205053-007	05-JUL-2012 12:00	TRRD33379_4_5	✓				
	22-JUN-2012 15:20	TRRD33379_4_5		✓	✓	✓	✓
EP1205053-008	05-JUL-2012 12:00	QC6	✓				
	22-JUN-2012 15:20	QC6		✓	✓	✓	✓
EP1205053-009	05-JUL-2012 12:00	YPGCO6879_20_21	✓				
	22-JUN-2012 15:20	YPGCO6879_20_21		✓	✓	✓	✓
EP1205053-010	05-JUL-2012 12:00	YPGCO3152_14_15	✓				
	22-JUN-2012 15:20	YPGCO3152_14_15		✓	✓	✓	✓
EP1205053-011	05-JUL-2012 12:00	YPGOC6605_20_21	✓				
	22-JUN-2012 15:20	YPGOC6605_20_21		✓	✓	✓	✓
EP1205053-012	05-JUL-2012 12:00	YPGCO0576_2_3	✓				
	22-JUN-2012 15:20	YPGCO0576_2_3		✓	✓	✓	✓
EP1205053-013	05-JUL-2012 12:00	YPGCO2056_44_45	✓				
	22-JUN-2012 15:20	YPGCO2056_44_45		✓	✓	✓	✓
EP1205053-014	05-JUL-2012 12:00	YPGCO4543_8_9	✓				
	22-JUN-2012 15:20	YPGCO4543_8_9		✓	✓	✓	✓
EP1205053-015	06-JUL-2012 12:00	YPRD14197_2_3	✓				
	22-JUN-2012 15:20	YPRD14197_2_3		✓	✓	✓	✓
EP1205053-016	06-JUL-2012 12:00	YPGCO3152_20_21	✓				
	22-JUN-2012 15:20	YPGCO3152_20_21		✓	✓	✓	✓
EP1205053-017	06-JUL-2012 12:00	YPGCO3152_8_9	✓				
	22-JUN-2012 15:20	YPGCO3152_8_9		✓	✓	✓	✓
EP1205053-018	06-JUL-2012 12:00	YPRD13687_34_35	✓				
	22-JUN-2012 15:20	YPRD13687_34_35		✓	✓	✓	✓
EP1205053-019	06-JUL-2012 12:00	YPGCO4543_14_15	✓				
	22-JUN-2012 15:20	YPGCO4543_14_15		✓	✓	✓	✓
EP1205053-020	06-JUL-2012 12:00	YPRD14198_8_9	✓				
	22-JUN-2012 15:20	YPRD14198_8_9		✓	✓	✓	✓
EP1205053-021	06-JUL-2012 12:00	YPGCO614320_21	✓				

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205053-021	22-JUN-2012 15:20	YPGCO614320_21		✓	✓	✓	✓
EP1205053-022	06-JUL-2012 12:00	YPGCO2056_14_15	✓				
	22-JUN-2012 15:20	YPGCO2056_14_15		✓	✓	✓	✓
EP1205053-023	06-JUL-2012 12:00	QC7	✓				
	22-JUN-2012 15:20	QC7		✓	✓	✓	✓
EP1205053-024	06-JUL-2012 12:00	QC8	✓				
	22-JUN-2012 15:20	QC8		✓	✓	✓	✓
EP1205053-025	06-JUL-2012 12:00	QC9	✓				
	22-JUN-2012 15:20	QC9		✓	✓	✓	✓
EP1205053-026	06-JUL-2012 12:00	YPGCO2056_2_3	✓				
	22-JUN-2012 15:20	YPGCO2056_2_3		✓	✓	✓	✓
EP1205053-027	06-JUL-2012 12:00	TRRDO6576_2_3	✓				
	22-JUN-2012 15:20	TRRDO6576_2_3		✓	✓	✓	✓
EP1205053-028	06-JUL-2012 12:00	QC10	✓				
	22-JUN-2012 15:20	QC10		✓	✓	✓	✓
EP1205053-029	06-JUL-2012 12:00	YPGCO6143_26_27	✓				
	22-JUN-2012 15:20	YPGCO6143_26_27		✓	✓	✓	✓
EP1205053-030	06-JUL-2012 12:00	YPGCO0576_32_33	✓				
	22-JUN-2012 15:20	YPGCO0576_32_33		✓	✓	✓	✓
EP1205053-031	06-JUL-2012 12:00	YPGCO0576_20_21	✓				
	22-JUN-2012 15:20	YPGCO0576_20_21		✓	✓	✓	✓
EP1205053-032	06-JUL-2012 12:00	YPGCO2056_20_21	✓				
	22-JUN-2012 15:20	YPGCO2056_20_21		✓	✓	✓	✓
EP1205053-033	06-JUL-2012 12:00	YPGCO6879_26_27	✓				
	22-JUN-2012 15:20	YPGCO6879_26_27		✓	✓	✓	✓
EP1205053-034	06-JUL-2012 12:00	YPGCO1657_32_33	✓				
	22-JUN-2012 15:20	YPGCO1657_32_33		✓	✓	✓	✓
EP1205053-035	06-JUL-2012 12:00	YPGCO6879_2_3	✓				
	22-JUN-2012 15:20	YPGCO6879_2_3		✓	✓	✓	✓
EP1205053-036	06-JUL-2012 12:00	QC11	✓				
	22-JUN-2012 15:20	QC11		✓	✓	✓	✓
EP1205053-037	06-JUL-2012 12:00	YPGCO1657_44_45	✓				
	22-JUN-2012 15:20	YPGCO1657_44_45		✓	✓	✓	✓
EP1205053-038	09-JUL-2012 12:00	YPGCO5415_20_21	✓				
	22-JUN-2012 15:20	YPGCO5415_20_21		✓	✓	✓	✓
EP1205053-039	09-JUL-2012 12:00	QC12	✓				
	22-JUN-2012 15:20	QC12		✓	✓	✓	✓
EP1205053-040	09-JUL-2012 12:00	YPGC00027_8_9	✓				
	22-JUN-2012 15:20	YPGC00027_8_9		✓	✓	✓	✓
EP1205053-041	09-JUL-2012 12:00	YPGCO8967_8_9	✓				
	22-JUN-2012 15:20	YPGCO8967_8_9		✓	✓	✓	✓

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - ME-MS61 (Subcontracted) Merged 4-Acid Metals package	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205053-042	09-JUL-2012 12:00	YPGCO896732_33	✓				
	22-JUN-2012 15:20	YPGCO896732_33		✓	✓	✓	✓
EP1205053-043	09-JUL-2012 12:00	YPGCO8967_14_15	✓				
	22-JUN-2012 15:20	YPGCO8967_14_15		✓	✓	✓	✓
EP1205053-044	09-JUL-2012 12:00	YPGCO8967_26_27	✓				
	22-JUN-2012 15:20	YPGCO8967_26_27		✓	✓	✓	✓
EP1205053-045	09-JUL-2012 12:00	YPGCO4545_26_27	✓				
	22-JUN-2012 15:20	YPGCO4545_26_27		✓	✓	✓	✓
EP1205053-046	09-JUL-2012 12:00	YPGCO8967_20_21	✓				
	22-JUN-2012 15:20	YPGCO8967_20_21		✓	✓	✓	✓
EP1205053-047	09-JUL-2012 12:00	YPGCO8967_2_3	✓				
	22-JUN-2012 15:20	YPGCO8967_2_3		✓	✓	✓	✓
EP1205053-048	09-JUL-2012 12:00	CAGC30291/Y096100	✓				
	22-JUN-2012 15:20	CAGC30291/Y096100		✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ELENA CHIN

- *AU Certificate of Analysis - NATA (COA)	Email	elena.chin@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	elena.chin@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	elena.chin@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	elena.chin@urs.com
- Attachment - Report (SUBCO)	Email	elena.chin@urs.com
- Chain of Custody (CoC) (COC)	Email	elena.chin@urs.com
- EDI Format - ENMRG (ENMRG)	Email	elena.chin@urs.com
- EDI Format - ESDAT (ESDAT)	Email	elena.chin@urs.com
- EDI Format - XTab (XTAB)	Email	elena.chin@urs.com

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	Perth.Accounts@urs.com

TRACY HASSELL

- *AU Certificate of Analysis - NATA (COA)	Email	tracey.hassell@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tracey.hassell@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tracey.hassell@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tracey.hassell@urs.com
- Attachment - Report (SUBCO)	Email	tracey.hassell@urs.com
- Chain of Custody (CoC) (COC)	Email	tracey.hassell@urs.com
- EDI Format - ENMRG (ENMRG)	Email	tracey.hassell@urs.com
- EDI Format - ESDAT (ESDAT)	Email	tracey.hassell@urs.com
- EDI Format - XTab (XTAB)	Email	tracey.hassell@urs.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP1205053**	Page	: 1 of 32
Amendment	: **1**		
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Site	: CHRISTMAS CREEK		
		No. of samples received	: 48
Quote number	: ----	No. of samples analysed	: 48

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Myles.Clark	Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Stephen Hislop	Senior Inorganic Chemist	Brisbane Inorganics
Stephen Hislop	Senior Inorganic Chemist	Stafford Minerals - AY

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **16/07/2012: This report has been amended and re-released to allow the reporting of additional analytical data.**
- **ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.**

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC00576_26_27 Client sampling date / time: 26-JUN-2012 12:00 EP1205053-001	Client sample ID: YPRD10638_2_3 Client sampling date / time: 05-JUL-2012 12:00 EP1205053-002	Client sample ID: TRRD33437_8_9 Client sampling date / time: 05-JUL-2012 12:00 EP1205053-003	Client sample ID: TRRD34136_4_5 Client sampling date / time: 05-JUL-2012 12:00 EP1205053-004	Client sample ID: YPGC00027_2_3 Client sampling date / time: 05-JUL-2012 12:00 EP1205053-005
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.64	8.08	6.67	6.87	7.15
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	18	126	154	16	28
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	11	66	82	<10	20
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	5	26	3	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	12	28	<1	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	7	2	<1	<1
Magnesium	7439-95-4	1	mg/L	<1	3	4	<1	<1
Sodium	7440-23-5	1	mg/L	4	16	24	3	7
Potassium	7440-09-7	1	mg/L	<1	2	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	5.16	0.52	<0.01	0.21	3.05
Antimony	7440-36-0	0.001	mg/L	<0.001	0.002	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Barium	7440-39-3	0.001	mg/L	0.358	1.01	0.425	0.246	0.814
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0002	<0.0001	<0.0001	0.0002
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	<0.001	<0.001	0.008
Cobalt	7440-48-4	0.001	mg/L	0.002	<0.001	<0.001	<0.001	0.003
Copper	7440-50-8	0.001	mg/L	0.003	<0.001	<0.001	<0.001	0.008
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.984	0.009	<0.001	0.005	0.102
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	<0.001	<0.001	<0.001	0.008
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.146	0.335	0.252	0.085	0.499
Boron	7440-42-8	0.05	mg/L	0.32	1.05	0.35	0.32	0.95
Iron	7439-89-6	0.05	mg/L	18.5	0.68	<0.05	1.17	5.66
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO0027_14_15	TRRD33379_4_5	QC6	YPGCO6879_20_21	YPGCO3152_14_15
				Client sampling date / time: 05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00
				EP1205053-006	EP1205053-007	EP1205053-008	EP1205053-009	EP1205053-010
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.13	8.27	7.67	7.01	6.75
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	32	37	37	24	15
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	30	30	22	18	<10
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	2	<1	2	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	<1	<1	1	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	5	2	<1	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	8	3	9	7	3
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	2.48	0.36	4.39	4.35	0.75
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.630	0.273	1.04	2.04	0.360
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.003	<0.001	0.005	0.003	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	<0.001	0.008	0.007	0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.124	0.013	0.053	0.808	0.012
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	<0.001	0.005	0.003	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.441	0.062	0.592	0.934	0.231
Boron	7440-42-8	0.05	mg/L	0.72	0.29	1.17	2.09	0.52
Iron	7439-89-6	0.05	mg/L	8.27	1.93	3.18	4.74	3.18
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGOC6605_20_21	YPGCO0576_2_3	YPGCO2056_44_45	YPGCO4543_8_9	YPRD14197_2_3
				Client sampling date / time: 05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	05-JUL-2012 12:00	06-JUL-2012 12:00
				EP1205053-011	EP1205053-012	EP1205053-013	EP1205053-014	EP1205053-015
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.12	7.89	6.94	7.21	7.02
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	26	106	24	36	63
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	22	82	12	24	52
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	5	2	4	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	2	2	<1	<1	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	7	<1	<1	2
Magnesium	7439-95-4	1	mg/L	<1	2	<1	<1	<1
Sodium	7440-23-5	1	mg/L	8	13	3	8	14
Potassium	7440-09-7	1	mg/L	<1	2	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.50	2.66	0.19	2.16	4.74
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.002	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.768	2.69	0.399	0.784	3.36
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0002	<0.0001	<0.0001	0.0002
Chromium	7440-47-3	0.001	mg/L	<0.001	0.003	<0.001	0.007	0.006
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.001	0.002
Copper	7440-50-8	0.001	mg/L	0.001	0.005	<0.001	0.004	0.012
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Manganese	7439-96-5	0.001	mg/L	0.078	0.032	0.059	0.073	0.188
Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.002	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.005	0.001	0.004	0.009
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.417	0.866	0.168	0.328	1.33
Boron	7440-42-8	0.05	mg/L	1.08	2.67	0.60	1.10	3.63
Iron	7439-89-6	0.05	mg/L	3.72	2.59	3.02	3.20	5.57
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO3152_20_21	YPGCO3152_8_9	YPRD13687_34_35	YPGCO4543_14_15	YPRD14198_8_9
				Client sampling date / time: 06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00
				EP1205053-016	EP1205053-017	EP1205053-018	EP1205053-019	EP1205053-020
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.79	6.87	7.28	7.51	7.48
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	61	35	49	44	43
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	50	22	26	36	26
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	3	9	2	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	2	1	<1	<1	1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	4	<1	3	2	2
Magnesium	7439-95-4	1	mg/L	1	<1	1	<1	<1
Sodium	7440-23-5	1	mg/L	10	8	6	10	10
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	2.03	1.76	0.11	2.13	1.61
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Barium	7440-39-3	0.001	mg/L	3.03	0.827	3.56	1.38	1.26
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.0002	0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	<0.001	0.002	0.002
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.001	<0.001	<0.001	0.001
Copper	7440-50-8	0.001	mg/L	0.002	0.003	<0.001	0.003	0.003
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.025	0.025	0.009	0.025	0.057
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	0.004	0.001	0.002	0.004
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.799	0.373	0.907	0.288	0.222
Boron	7440-42-8	0.05	mg/L	2.74	1.20	3.13	0.99	0.89
Iron	7439-89-6	0.05	mg/L	2.91	1.52	<0.05	1.23	1.55
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO614320_21	YPGCO2056_14_15	QC7	QC8	QC9
				Client sampling date / time	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00
					EP1205053-021	EP1205053-022	EP1205053-023	EP1205053-024	EP1205053-025
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.17	7.15	6.53	7.49	7.37
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		47	47	151	41	46
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		38	40	90	40	38
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		2	2	26	2	1
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		2	1	24	2	<1
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		2	2	2	4	2
Magnesium	7439-95-4	1	mg/L		<1	<1	4	<1	<1
Sodium	7440-23-5	1	mg/L		8	10	25	5	8
Potassium	7440-09-7	1	mg/L		<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.58	1.74	<0.01	0.89	1.28
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	0.001	<0.001
Barium	7440-39-3	0.001	mg/L		2.56	1.32	0.836	0.634	1.00
Cadmium	7440-43-9	0.0001	mg/L		0.0002	0.0002	0.0001	<0.0001	0.0002
Chromium	7440-47-3	0.001	mg/L		<0.001	0.010	<0.001	<0.001	0.002
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	0.003	<0.001	0.001	0.003
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	0.002
Manganese	7439-96-5	0.001	mg/L		0.264	0.012	<0.001	0.104	0.022
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		0.002	0.005	<0.001	0.009	0.004
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		0.354	0.265	0.238	0.140	0.372
Boron	7440-42-8	0.05	mg/L		1.58	1.16	0.50	0.48	0.95
Iron	7439-89-6	0.05	mg/L		5.25	1.10	<0.05	2.94	8.63
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO2056_2_3	TRRDO6576_2_3	QC10	YPGCO6143_26_27	YPGCO0576_32_33
				Client sampling date / time: 06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00
				EP1205053-026	EP1205053-027	EP1205053-028	EP1205053-029	EP1205053-030
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.32	6.50	6.52	7.06	7.06
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	58	14	20	36	26
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	42	<10	<10	26	40
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	1	2	2	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	4	1	2	2	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	4	<1	<1	2	1
Magnesium	7439-95-4	1	mg/L	1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	8	3	5	6	6
Potassium	7440-09-7	1	mg/L	1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	3.59	0.06	<0.01	0.61	0.28
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	0.001	<0.001
Barium	7440-39-3	0.001	mg/L	2.52	3.04	0.387	2.74	0.450
Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0003	<0.0001	0.0003	0.0001
Chromium	7440-47-3	0.001	mg/L	0.021	<0.001	<0.001	0.002	<0.001
Cobalt	7440-48-4	0.001	mg/L	0.075	0.001	<0.001	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.944	0.008	0.001	0.005	0.001
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	<0.001	0.003	<0.001
Manganese	7439-96-5	0.001	mg/L	0.914	0.008	0.006	0.117	0.170
Molybdenum	7439-98-7	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.055	0.002	<0.001	0.005	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.758	0.565	0.096	0.614	0.154
Boron	7440-42-8	0.05	mg/L	1.56	2.32	0.46	2.00	0.51
Iron	7439-89-6	0.05	mg/L	9.20	0.09	<0.05	5.49	3.35
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO0576_20_21	YPGCO2056_20_21	YPGCO6879_26_27	YPGCO1657_32_33	YPGCO6879_2_3
				Client sampling date / time: 06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00	06-JUL-2012 12:00
				EP1205053-031	EP1205053-032	EP1205053-033	EP1205053-034	EP1205053-035
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.17	6.97	7.07	6.86	7.14
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	47	22	49	20	62
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	36	14	26	18	40
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	<1	1	2	3
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1	<1	2	<1	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	<1	2	1	4
Magnesium	7439-95-4	1	mg/L	1	<1	<1	<1	2
Sodium	7440-23-5	1	mg/L	10	4	8	4	12
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	2
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	4.10	1.49	0.83	0.08	7.57
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Barium	7440-39-3	0.001	mg/L	1.58	0.572	1.52	0.288	3.30
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.0003	<0.0001	0.0004
Chromium	7440-47-3	0.001	mg/L	0.006	0.002	0.001	<0.001	0.018
Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	<0.001	<0.001	0.008
Copper	7440-50-8	0.001	mg/L	0.009	0.001	0.003	<0.001	0.026
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.004
Manganese	7439-96-5	0.001	mg/L	0.125	0.012	0.192	0.021	0.376
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.007	<0.001	0.004	<0.001	0.025
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	0.02
Zinc	7440-66-6	0.005	mg/L	0.692	0.142	0.489	0.101	1.27
Boron	7440-42-8	0.05	mg/L	1.27	0.50	1.17	0.32	1.78
Iron	7439-89-6	0.05	mg/L	7.25	0.93	7.58	1.19	11.3
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: QC11	YPGCO1657_44_45	YPGCO5415_20_21	QC12	YPGC00027_8_9
				Client sampling date / time: 06-JUL-2012 12:00	06-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00
				EP1205053-036	EP1205053-037	EP1205053-038	EP1205053-039	EP1205053-040
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.98	7.05	7.36	7.83	7.26
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	18	46	77	98	54
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	38	60	82	38
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	1	<1	5	4
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	1	2	<1	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	2	3	13	2
Magnesium	7439-95-4	1	mg/L	<1	<1	1	<1	<1
Sodium	7440-23-5	1	mg/L	4	9	12	5	9
Potassium	7440-09-7	1	mg/L	<1	<1	1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.90	1.11	17.3	0.32	0.86
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.433	1.68	1.70	0.891	0.859
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0002	0.0003	0.0001	0.0002
Chromium	7440-47-3	0.001	mg/L	<0.001	0.002	0.012	<0.001	0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	0.012	<0.001	0.002
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.003	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.003	0.017	0.308	0.003	0.035
Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.010	<0.001	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.134	0.335	0.656	0.132	0.192
Boron	7440-42-8	0.05	mg/L	0.37	1.29	1.25	0.55	0.82
Iron	7439-89-6	0.05	mg/L	2.14	2.20	27.3	0.25	2.48
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO8967_8_9	YPGCO896732_33	YPGCO8967_14_15	YPGCO8967_26_27	YPGCO4545_26_27
				Client sampling date / time: 09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00
				EP1205053-041	EP1205053-042	EP1205053-043	EP1205053-044	EP1205053-045
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.00	7.31	7.22	7.34	7.42
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	42	55	61	34	44
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	34	44	36	32	32
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	6	<1	4
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	4	3	5	1	3
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	3	3	2	<1
Magnesium	7439-95-4	1	mg/L	1	<1	1	<1	<1
Sodium	7440-23-5	1	mg/L	5	8	8	5	9
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.04	0.36	0.10	0.38	3.62
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.513	0.956	1.12	0.390	0.642
Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0002	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.001	<0.001	0.005
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	<0.001	<0.001	0.003
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.003	0.077	0.170	0.182	0.075
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.002	<0.001	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.130	0.218	0.212	0.117	0.203
Boron	7440-42-8	0.05	mg/L	0.46	0.76	0.89	0.43	0.54
Iron	7439-89-6	0.05	mg/L	0.11	2.19	1.74	5.09	3.56
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO8967_20_21	YPGCO8967_2_3	CAGC30291/Y096100	----	----
				Client sampling date / time	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	----	----
					EP1205053-046	EP1205053-047	EP1205053-048	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.28**	**7.29**	**7.35**	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**35**	**89**	**47**	----	----
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L		**28**	**52**	**34**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**2**	**4**	<1	----	----
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		**2**	**5**	**1**	----	----
ED093W: Water Leachable Major Cations									
Calcium	7440-70-2	1	mg/L		**2**	**5**	**2**	----	----
Magnesium	7439-95-4	1	mg/L		<1	**1**	<1	----	----
Sodium	7440-23-5	1	mg/L		**5**	**13**	**8**	----	----
Potassium	7440-09-7	1	mg/L		<1	<1	<1	----	----
EG020W: Water Leachable Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.09**	**1.63**	**0.22**	----	----
Antimony	7440-36-0	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Barium	7440-39-3	0.001	mg/L		**0.505**	**1.30**	**1.26**	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	**0.0002**	**0.0002**	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	**0.007**	<0.001	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	**0.004**	**0.001**	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	**0.001**	<0.001	----	----
Manganese	7439-96-5	0.001	mg/L		**0.235**	**0.405**	**0.040**	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	**0.005**	**0.002**	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Silver	7440-22-4	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Uranium	7440-61-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	----	----
Zinc	7440-66-6	0.005	mg/L		**0.121**	**0.401**	**0.294**	----	----
Boron	7440-42-8	0.05	mg/L		**0.40**	**1.15**	**1.04**	----	----
Iron	7439-89-6	0.05	mg/L		**1.54**	**8.83**	**7.12**	----	----
EG035W: Water Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC00576_26_27 Client sampling date / time: 22-JUN-2012 15:20 EP1205053-001	YPRD10638_2_3 22-JUN-2012 15:20 EP1205053-002	TRRD33437_8_9 22-JUN-2012 15:20 EP1205053-003	TRRD34136_4_5 22-JUN-2012 15:20 EP1205053-004	YPGC00027_2_3 22-JUN-2012 15:20 EP1205053-005
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.9	8.3	6.3	6.8	7.5
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	1.61	1.69	3.01	0.70	2.30
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	17	293	573	31	23
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.0	8.1	6.2	6.3	7.1
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.3	0.3	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	<0.5	3.9	1.9	<0.5	1.6
ANC as CaCO3	----	0.1	% CaCO3	<0.1	0.4	0.2	<0.1	0.2
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	8.8	6.9	5.2	3.2	4.2
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	0.2	6.9	0.6	0.9	4.8
Exchangeable Magnesium	----	0.1	meq/100g	0.1	2.4	1.6	0.2	2.5
Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.7	<0.1	<0.1	0.7
Exchangeable Sodium	----	0.1	meq/100g	0.2	1.2	2.2	0.2	0.6
Cation Exchange Capacity	----	0.1	meq/100g	0.5	11.1	4.4	1.4	8.6
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	28.3	10.5	49.3	13.8	7.0
Exchangeable Magnesium Percent	----	0.1	%	28.0	21.3	36.1	17.0	29.1
Exchangeable Potassium Percent	----	0.1	%	9.1	6.5	1.7	6.5	7.8
Exchangeable Calcium Percent	----	0.1	%	34.6	61.7	13.0	62.7	56.0
Calcium/Magnesium Ratio	----	0.1	.	2.0	2.9	0.4	3.7	1.9
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	210	790	120	160
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	90	470	40	20
Sulfur as S	63705-05-5	10	mg/kg	<10	30	160	10	<10
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	0.02	0.06	0.05	0.25

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC00576_26_27	YPRD10638_2_3	TRRD33437_8_9	TRRD34136_4_5	YPGC00027_2_3
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-001	EP1205053-002	EP1205053-003	EP1205053-004	EP1205053-005
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	<10	**280**	**580**	**10**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**8.0**	**8.2**	**7.6**	**6.7**	**6.9**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.16**	**0.08**	**0.10**	**0.03**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO0027_14_15	TRRD33379_4_5	QC6	YPGCO6879_20_21	YPGCO3152_14_15
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-006	EP1205053-007	EP1205053-008	EP1205053-009	EP1205053-010
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.6	8.1	7.2	7.0	6.2
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		5.26	0.57	3.16	5.53	1.00
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		22	59	8	44	24
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.6	7.0	7.0	8.0	6.6
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.2	<0.1	<0.1	<0.1	0.2
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	<0.5	2.6	<0.5
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	0.3	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		4.6	4.4	12.3	7.0	7.6
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.8	2.8	2.0	2.4	0.7
Exchangeable Magnesium	----	0.1	meq/100g		0.5	0.5	2.5	1.7	0.4
Exchangeable Potassium	----	0.1	meq/100g		0.2	0.2	0.4	0.4	0.1
Exchangeable Sodium	----	0.1	meq/100g		0.6	0.5	0.3	0.7	0.2
Cation Exchange Capacity	----	0.1	meq/100g		2.1	4.0	5.2	5.2	1.4
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		27.3	12.2	5.7	13.1	10.7
Exchangeable Magnesium Percent	----	0.1	%		24.6	11.9	49.0	32.2	27.3
Exchangeable Potassium Percent	----	0.1	%		12.0	5.6	6.9	7.0	9.1
Exchangeable Calcium Percent	----	0.1	%		36.2	70.3	38.4	47.6	52.9
Calcium/Magnesium Ratio	----	0.1	.		1.4	5.6	0.8	1.5	2.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		120	100	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		40	30	<10	40	30
Sulfur as S	63705-05-5	10	mg/kg		10	<10	<10	10	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.05	0.02	0.01	0.02	0.04

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO0027_14_15	TRRD33379_4_5	QC6	YPGCO6879_20_21	YPGCO3152_14_15
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-006	EP1205053-007	EP1205053-008	EP1205053-009	EP1205053-010
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**10**	**20**	<10	**30**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.1**	**8.4**	**7.7**	**7.4**	**7.3**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.07**	**0.03**	**0.03**	**0.05**	**0.12**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGOC6605_20_21	YPGCO0576_2_3	YPGCO2056_44_45	YPGCO4543_8_9	YPRD14197_2_3
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-011	EP1205053-012	EP1205053-013	EP1205053-014	EP1205053-015
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.6	8.1	6.8	7.5	5.9
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.31	0.89	0.44	3.31	1.04
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		58	156	26	29	59
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.1	8.7	7.4	7.2	7.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.0	3.8	0.6	<0.5	0.9
ANC as CaCO3	----	0.1	% CaCO3		0.1	0.4	<0.1	<0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		8.0	4.5	2.8	3.8	6.7
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.0	8.2	0.3	3.6	4.3
Exchangeable Magnesium	----	0.1	meq/100g		0.8	3.0	0.3	3.5	2.0
Exchangeable Potassium	----	0.1	meq/100g		<0.1	0.7	<0.1	0.6	0.6
Exchangeable Sodium	----	0.1	meq/100g		0.3	0.4	<0.1	0.5	0.2
Cation Exchange Capacity	----	0.1	meq/100g		2.1	12.3	0.7	8.3	7.2
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	0.2
Exchangeable Sodium Percent	----	0.1	%		12.7	3.5	10.7	6.1	3.6
Exchangeable Magnesium Percent	----	0.1	%		37.4	24.6	38.1	42.2	28.6
Exchangeable Potassium Percent	----	0.1	%		5.0	5.4	3.6	7.9	7.7
Exchangeable Calcium Percent	----	0.1	%		45.0	66.5	47.6	43.8	60.1
Calcium/Magnesium Ratio	----	0.1	.		1.1	2.7	1.3	1.0	2.2
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	210	<100	230	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		60	100	30	40	40
Sulfur as S	63705-05-5	10	mg/kg		20	30	10	10	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	0.20	<0.01	0.71	0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGOC6605_20_21	YPGCO0576_2_3	YPGCO2056_44_45	YPGCO4543_8_9	YPRD14197_2_3
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-011	EP1205053-012	EP1205053-013	EP1205053-014	EP1205053-015
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**40**	**40**	**10**	**10**	**40**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.3**	**8.1**	**7.8**	**7.6**	**6.5**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.12**	**0.07**	**0.05**	**0.03**	**0.05**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO3152_20_21	YPGCO3152_8_9	YPRD13687_34_35	YPGCO4543_14_15	YPRD14198_8_9
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-016	EP1205053-017	EP1205053-018	EP1205053-019	EP1205053-020
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		5.6	5.5	6.6	7.6	7.3
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		0.40	2.12	0.94	5.11	3.16
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		30	36	95	43	47
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		5.8	7.1	8.5	8.1	8.0
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.3	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	1.0	19.8	1.8	1.4
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	2.0	0.2	0.1
Fizz Rating	----	0	Fizz Unit		0	0	1	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.6	7.6	18.5	6.3	12.6
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.6	2.4	14.6	3.7	2.6
Exchangeable Magnesium	----	0.1	meq/100g		0.4	3.2	6.4	3.0	2.6
Exchangeable Potassium	----	0.1	meq/100g		0.1	0.8	1.4	0.7	0.6
Exchangeable Sodium	----	0.1	meq/100g		<0.1	0.3	0.8	0.6	0.5
Cation Exchange Capacity	----	0.1	meq/100g		1.2	6.7	23.2	8.0	6.3
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	0.2
Exchangeable Sodium Percent	----	0.1	%		6.4	5.2	3.3	8.0	8.2
Exchangeable Magnesium Percent	----	0.1	%		34.9	47.1	27.5	37.5	42.1
Exchangeable Potassium Percent	----	0.1	%		11.2	12.0	6.2	8.6	9.0
Exchangeable Calcium Percent	----	0.1	%		47.5	35.7	63.0	46.0	40.7
Calcium/Magnesium Ratio	----	0.1	.		1.2	0.7	2.3	1.2	1.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		130	160	150	<100	110
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		50	50	160	50	40
Sulfur as S	63705-05-5	10	mg/kg		20	20	50	20	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.05	0.08	<0.01	0.04	0.07

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGCO3152_20_21	YPGCO3152_8_9	YPRD13687_34_35	YPGCO4543_14_15	YPRD14198_8_9
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
Compound	CAS Number	LOR	Unit		EP1205053-016	EP1205053-017	EP1205053-018	EP1205053-019	EP1205053-020
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**10**	**20**	**10**	**20**	**30**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.3**	**6.5**	**6.6**	**7.7**	**7.7**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		**0.09**	**0.04**	**0.02**	**0.04**	**0.04**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO614320_21	YPGCO2056_14_15	QC7	QC8	QC9
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-021	EP1205053-022	EP1205053-023	EP1205053-024	EP1205053-025
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.4	6.5	6.1	8.3	7.9
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.19	1.81	6.80	1.86	2.29
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		54	44	480	65	14
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	7.6	7.0	8.3	6.9
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	0.6	1.1	1.3
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	<0.1	0.1	0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		6.3	5.8	9.7	3.5	8.9
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.8	3.2	0.6	1.3	0.8
Exchangeable Magnesium	----	0.1	meq/100g		0.4	2.5	1.5	0.5	0.6
Exchangeable Potassium	----	0.1	meq/100g		<0.1	0.6	<0.1	<0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.2	2.0	0.2	0.2
Cation Exchange Capacity	----	0.1	meq/100g		1.4	6.5	4.2	2.1	1.7
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		14.5	3.4	48.3	11.8	9.3
Exchangeable Magnesium Percent	----	0.1	%		29.8	38.2	36.1	23.0	35.5
Exchangeable Potassium Percent	----	0.1	%		3.4	8.5	2.4	4.5	7.3
Exchangeable Calcium Percent	----	0.1	%		52.3	49.8	13.2	60.6	47.9
Calcium/Magnesium Ratio	----	0.1	.		1.8	1.3	0.4	2.7	1.4
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	670	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		50	40	460	40	20
Sulfur as S	63705-05-5	10	mg/kg		20	10	150	10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.05	0.05	0.08	<0.01	0.07

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO614320_21	YPGCO2056_14_15	QC7	QC8	QC9
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-021	EP1205053-022	EP1205053-023	EP1205053-024	EP1205053-025
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**40**	**30**	**450**	**40**	<10
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.6**	**7.7**	**6.9**	**8.0**	**7.7**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.11**	**0.04**	**0.09**	**0.04**	**0.30**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO2056_2_3	TRRDO6576_2_3	QC10	YPGCO6143_26_27	YPGCO0576_32_33
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-026	EP1205053-027	EP1205053-028	EP1205053-029	EP1205053-030
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.0	5.4	5.4	7.0	7.5
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.27	7.27	15.3	2.28	4.19
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		72	24	40	41	19
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.8	5.8	5.3	6.9	6.9
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	1.5	2.5	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		4.9	<0.5	2.6	1.0	0.7
ANC as CaCO3	----	0.1	% CaCO3		0.5	<0.1	0.3	0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		4.6	2.1	3.7	7.4	5.6
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		3.0	0.2	0.2	0.7	0.2
Exchangeable Magnesium	----	0.1	meq/100g		0.9	0.3	0.4	0.4	0.1
Exchangeable Potassium	----	0.1	meq/100g		0.3	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.1	0.2	0.2	0.1
Cation Exchange Capacity	----	0.1	meq/100g		4.4	0.7	0.8	1.4	0.4
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		5.2	19.2	24.6	13.0	23.9
Exchangeable Magnesium Percent	----	0.1	%		21.0	47.2	43.9	32.0	26.6
Exchangeable Potassium Percent	----	0.1	%		6.6	11.1	10.7	3.2	9.3
Exchangeable Calcium Percent	----	0.1	%		67.1	22.6	20.9	51.7	40.2
Calcium/Magnesium Ratio	----	0.1	.		3.3	0.5	0.5	1.6	2.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		140	110	120	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		50	20	20	40	20
Sulfur as S	63705-05-5	10	mg/kg		20	<10	<10	10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.29	<0.01	<0.01	0.01	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO2056_2_3	TRRDO6576_2_3	QC10	YPGCO6143_26_27	YPGCO0576_32_33
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-026	EP1205053-027	EP1205053-028	EP1205053-029	EP1205053-030
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**60**	**30**	**40**	**30**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.2**	**6.3**	**6.2**	**7.5**	**7.6**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.22**	**0.04**	**0.07**	**0.11**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO0576_20_21	YPGCO2056_20_21	YPGCO6879_26_27	YPGCO1657_32_33	YPGCO6879_2_3
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-031	EP1205053-032	EP1205053-033	EP1205053-034	EP1205053-035
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.2	7.5	7.7	6.9	7.3
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.29	3.34	6.06	2.91	2.07
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		31	8	42	37	10
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	6.6	7.3	6.3	6.9
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	0.6	<0.1	0.5	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.6	1.2	1.6	0.6	1.3
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.1	0.2	<0.1	0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		9.2	7.3	8.3	4.5	10.9
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.2	2.0	0.9	0.4	3.5
Exchangeable Magnesium	----	0.1	meq/100g		1.2	1.7	0.8	0.3	2.9
Exchangeable Potassium	----	0.1	meq/100g		0.3	0.6	0.2	<0.1	0.4
Exchangeable Sodium	----	0.1	meq/100g		0.4	0.2	0.7	0.5	0.4
Cation Exchange Capacity	----	0.1	meq/100g		3.2	4.6	2.6	1.2	7.1
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		14.1	5.2	26.2	36.8	5.6
Exchangeable Magnesium Percent	----	0.1	%		38.4	38.2	32.4	23.5	40.2
Exchangeable Potassium Percent	----	0.1	%		9.8	13.8	5.8	5.5	5.6
Exchangeable Calcium Percent	----	0.1	%		37.6	42.8	35.7	34.2	48.7
Calcium/Magnesium Ratio	----	0.1	.		0.9	1.2	1.1	2.0	1.2
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		30	<10	40	40	10
Sulfur as S	63705-05-5	10	mg/kg		10	<10	10	20	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	<0.01	0.02	0.02	0.18

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO0576_20_21	YPGCO2056_20_21	YPGCO6879_26_27	YPGCO1657_32_33	YPGCO6879_2_3
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-031	EP1205053-032	EP1205053-033	EP1205053-034	EP1205053-035
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**20**	<10	**30**	**20**	**10**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.7**	**7.4**	**7.6**	**7.4**	**7.4**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.07**	**0.03**	**0.09**	**0.10**	**0.05**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: QC11	YPGCO1657_44_45	YPGCO5415_20_21	QC12	YPGC00027_8_9
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-036	EP1205053-037	EP1205053-038	EP1205053-039	EP1205053-040
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.5	7.3	7.6	8.5	7.6
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	5.78	4.86	4.60	3.45	9.89
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	30	33	26	110	66
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	5.8	7.2	6.6	9.4	7.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.7	<0.1	0.5	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	0.6	<0.5	1.8	7.8	<0.5
ANC as CaCO3	----	0.1	% CaCO3	<0.1	<0.1	0.2	0.8	<0.1
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	4.0	13.0	11.0	5.0	2.3
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	0.8	0.4	1.6	14.1	0.7
Exchangeable Magnesium	----	0.1	meq/100g	0.4	0.4	1.1	1.0	0.5
Exchangeable Potassium	----	0.1	meq/100g	0.2	<0.1	0.2	0.2	0.2
Exchangeable Sodium	----	0.1	meq/100g	0.6	0.2	0.3	0.9	0.5
Cation Exchange Capacity	----	0.1	meq/100g	2.1	1.0	3.3	16.2	2.0
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	29.1	20.6	9.7	5.4	26.2
Exchangeable Magnesium Percent	----	0.1	%	19.6	35.8	34.0	6.4	26.9
Exchangeable Potassium Percent	----	0.1	%	10.1	7.6	6.0	1.1	10.7
Exchangeable Calcium Percent	----	0.1	%	41.2	36.0	50.2	87.1	36.3
Calcium/Magnesium Ratio	----	0.1	.	2.0	1.0	1.5	13.2	1.3
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	<100	110	130
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	30	20	70	60
Sulfur as S	63705-05-5	10	mg/kg	<10	10	<10	20	20
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.03	<0.01	0.04	0.02	0.03

Analytical Results

Sub-Matrix: SOIL				Client sample ID	QC11	YPGCO1657_44_45	YPGCO5415_20_21	QC12	YPGC00027_8_9
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
Compound	CAS Number	LOR	Unit		EP1205053-036	EP1205053-037	EP1205053-038	EP1205053-039	EP1205053-040
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**20**	**30**	**30**	**20**	**40**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**7.8**	**7.7**	**7.0**	**8.1**	**7.2**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		**0.08**	**0.06**	**0.39**	**0.18**	**0.08**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO8967_8_9	YPGCO896732_33	YPGCO8967_14_15	YPGCO8967_26_27	YPGCO4545_26_27
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
					EP1205053-041	EP1205053-042	EP1205053-043	EP1205053-044	EP1205053-045
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.7	6.9	6.9	7.3	7.8
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.29	3.40	4.21	2.24	8.88
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		106	64	143	40	88
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.2	7.0	8.3	7.4	7.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		<0.5	<0.5	1.8	0.8	2.6
ANC as CaCO3	----	0.1	% CaCO3		<0.1	<0.1	0.2	<0.1	0.3
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		1.9	1.7	2.7	<1.0	5.8
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.7	0.4	1.5	0.6	2.5
Exchangeable Magnesium	----	0.1	meq/100g		1.0	0.3	0.8	0.4	2.4
Exchangeable Potassium	----	0.1	meq/100g		0.1	<0.1	0.2	<0.1	0.8
Exchangeable Sodium	----	0.1	meq/100g		0.4	0.3	0.9	0.2	2.2
Cation Exchange Capacity	----	0.1	meq/100g		2.2	1.0	3.4	1.3	7.9
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	0.1	<0.1	<0.1	0.2
Exchangeable Sodium Percent	----	0.1	%		18.3	29.8	26.8	15.8	28.6
Exchangeable Magnesium Percent	----	0.1	%		42.6	28.6	23.6	30.0	30.0
Exchangeable Potassium Percent	----	0.1	%		5.9	6.4	6.4	5.2	9.5
Exchangeable Calcium Percent	----	0.1	%		33.2	35.2	43.3	49.0	32.0
Calcium/Magnesium Ratio	----	0.1	.		0.8	1.3	1.9	1.5	1.1
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	140	<100	110
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		50	40	110	20	70
Sulfur as S	63705-05-5	10	mg/kg		20	10	40	<10	20
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	<0.01	0.01	<0.01	0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO8967_8_9	YPGCO896732_33	YPGCO8967_14_15	YPGCO8967_26_27	YPGCO4545_26_27
				Client sampling date / time: 22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20
				EP1205053-041	EP1205053-042	EP1205053-043	EP1205053-044	EP1205053-045
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**80**	**60**	**100**	**20**	**70**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.6**	**7.0**	**7.1**	**7.2**	**7.5**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.08**	<0.02	<0.02	<0.02	**0.09**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO8967_20_21	YPGCO8967_2_3	CAGC30291/Y096100	----	----
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	----	----
					EP1205053-046	EP1205053-047	EP1205053-048	----	----
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		**7.3**	**6.8**	**7.4**	----	----
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		**2.41**	**2.17**	**3.49**	----	----
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		**68**	**102**	**27**	----	----
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		**7.6**	**7.4**	**7.6**	----	----
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	----	----
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	----	----
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		**1.0**	**2.6**	**2.6**	----	----
ANC as CaCO3	----	0.1	% CaCO3		**0.1**	**0.3**	**0.3**	----	----
Fizz Rating	----	0	Fizz Unit		**0**	**0**	**0**	----	----
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		**1.7**	**9.6**	**4.9**	----	----
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		**1.1**	**3.3**	**1.3**	----	----
Exchangeable Magnesium	----	0.1	meq/100g		**0.3**	**1.7**	**1.0**	----	----
Exchangeable Potassium	----	0.1	meq/100g		<0.1	**0.2**	**0.1**	----	----
Exchangeable Sodium	----	0.1	meq/100g		**0.2**	**0.3**	**0.3**	----	----
Cation Exchange Capacity	----	0.1	meq/100g		**1.7**	**5.6**	**2.6**	----	----
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	----	----
Exchangeable Sodium Percent	----	0.1	%		**14.2**	**5.9**	**9.8**	----	----
Exchangeable Magnesium Percent	----	0.1	%		**18.9**	**30.7**	**37.2**	----	----
Exchangeable Potassium Percent	----	0.1	%		**3.2**	**3.6**	**5.4**	----	----
Exchangeable Calcium Percent	----	0.1	%		**63.7**	**59.7**	**47.5**	----	----
Calcium/Magnesium Ratio	----	0.1	.		**3.7**	**2.0**	**1.3**	----	----
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		**50**	**80**	**10**	----	----
Sulfur as S	63705-05-5	10	mg/kg		**20**	**30**	<10	----	----
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	<0.01	<0.01	----	----

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGCO8967_20_21	YPGCO8967_2_3	CAGC30291/Y096100	----	----
				Client sampling date / time	22-JUN-2012 15:20	22-JUN-2012 15:20	22-JUN-2012 15:20	----	----
Compound	CAS Number	LOR	Unit		EP1205053-046	EP1205053-047	EP1205053-048	----	----
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**50**	**90**	**20**	----	----
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**7.2**	**7.0**	**7.0**	----	----
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	**0.10**	<0.02	----	----

QUALITY CONTROL REPORT

Work Order	: **EP1205053**	Page	: 1 of 24
Amendment	: **1**		
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 48
Quote number	: ----	No. of samples analysed	: 48

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Myles.Clark	Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils
Stephen Hislop	Senior Inorganic Chemist	Brisbane Inorganics
Stephen Hislop	Senior Inorganic Chemist	Stafford Minerals - AY

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 2372347)									
EP1205051-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.7	8.7	11.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381270)									
EP1205053-002	YPRD10638_2_3	EA002: pH Value	----	0.1	pH Unit	8.3	8.3	0.0	0% - 20%
EP1205053-011	YPGOC6605_20_21	EA002: pH Value	----	0.1	pH Unit	6.6	6.8	2.4	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381274)									
EP1205053-022	YPGCO2056_14_15	EA002: pH Value	----	0.1	pH Unit	6.5	6.6	0.0	0% - 20%
EP1205053-031	YPGCO0576_20_21	EA002: pH Value	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381279)									
EP1205053-042	YPGCO896732_33	EA002: pH Value	----	0.1	pH Unit	6.9	7.2	4.1	0% - 20%
EP1205056-004	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.4	7.2	2.4	0% - 20%
EA010: Conductivity (QC Lot: 2372349)									
EP1205051-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	177	150	16.7	0% - 20%
EA010: Conductivity (QC Lot: 2381272)									
EP1205053-002	YPRD10638_2_3	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	293	307	4.7	0% - 20%
EP1205053-011	YPGOC6605_20_21	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	58	59	2.1	0% - 20%
EA010: Conductivity (QC Lot: 2381276)									
EP1205053-022	YPGCO2056_14_15	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	44	44	0.0	0% - 20%
EP1205053-031	YPGCO0576_20_21	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	31	30	0.0	0% - 20%
EA010: Conductivity (QC Lot: 2381281)									
EP1205053-042	YPGCO896732_33	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	64	62	4.1	0% - 20%
EP1205056-004	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	23	21	6.4	0% - 20%
EA011: Net Acid Generation (QC Lot: 2392040)									
EP1205053-001	YPGC00576_26_27	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.0	7.0	0.0	0% - 20%
EP1205053-012	YPGCO0576_2_3	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	8.7	8.7	0.0	0% - 20%
EA011: Net Acid Generation (QC Lot: 2392043)									
EP1205053-021	YPGCO614320_21	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	6.9	6.9	0.0	0% - 20%
EP1205053-032	YPGCO2056_20_21	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.6	0.6	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA011: Net Acid Generation (QC Lot: 2392043) - continued									
EP1205053-032	YPGCO2056_20_21	EA011: pH (OX)	----	0.1	pH Unit	6.6	6.5	1.5	0% - 20%
EA011: Net Acid Generation (QC Lot: 2392046)									
EP1205053-041	YPGCO8967_8_9	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.2	7.2	0.0	0% - 20%
EA013: Acid Neutralising Capacity (QC Lot: 2392039)									
EP1205053-001	YPGC00576_26_27	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EP1205053-012	YPGCO0576_2_3	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	3.8	3.6	5.7	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2392042)									
EP1205053-021	YPGCO614320_21	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EP1205053-032	YPGCO2056_20_21	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.2	1.2	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2392045)									
EP1205053-041	YPGCO8967_8_9	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2392041)									
EP1205053-001	YPGC00576_26_27	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205053-012	YPGCO0576_2_3	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2392044)									
EP1205053-021	YPGCO614320_21	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205053-032	YPGCO2056_20_21	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2392047)									
EP1205053-041	YPGCO8967_8_9	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA055: Moisture Content (QC Lot: 2386323)									
EP1205053-001	YPGC00576_26_27	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	8.8	9.4	6.8	No Limit
EP1205053-010	YPGCO3152_14_15	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.6	7.5	1.8	No Limit
EA055: Moisture Content (QC Lot: 2386324)									
EP1205053-021	YPGCO614320_21	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.3	6.3	0.0	No Limit
EP1205053-030	YPGCO0576_32_33	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.6	5.4	4.4	No Limit
EA055: Moisture Content (QC Lot: 2386336)									
EP1205053-031	YPGCO0576_20_21	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	8.9	3.4	No Limit
EP1205053-040	YPGC00027_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	2.3	2.3	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376958)									
EP1205053-001	YPGC00576_26_27	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.1	0.2	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
EP1205053-009	YPGCO6879_20_21	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.4	2.5	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.7	1.7	0.0	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED007: Exchangeable Cations (QC Lot: 2376958) - continued									
EP1205053-009	YPGCO6879_20_21	ED007: Exchangeable Sodium	----	0.1	meq/100g	0.7	0.7	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376959)									
EP1205053-021	YPGCO614320_21	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.8	0.8	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
EP1205053-029	YPGCO6143_26_27	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.7	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.4	0.5	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376970)									
EP1205053-041	YPGCO8967_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.7	0.8	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.0	1.0	0.0	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.1	0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2372348)									
EP1205051-001	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381271)									
EP1205053-002	YPRD10638_2_3	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	90	90	0.0	No Limit
EP1205053-011	YPGOC6605_20_21	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	60	60	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381275)									
EP1205053-022	YPGCO2056_14_15	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	30	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381280)									
EP1205053-042	YPGCO896732_33	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	30	0.0	No Limit
EP1205056-004	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399552)									
EP1205051-057	Anonymous	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205053-009	YPGCO6879_20_21	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399553)									
EP1205053-015	YPRD14197_2_3	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205053-024	QC8	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399554)									
EP1205053-035	YPGCO6879_2_3	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205053-044	YPGCO8967_26_27	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388694)									
EP1205053-001	YPGC00576_26_27	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
EP1205053-011	YPGOC6605_20_21	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
ED042T: Total Sulfur by LECO (QC Lot: 2388696)									
EP1205053-021	YPGCO614320_21	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.05	0.05	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388698)									
EP1205053-041	YPGCO8967_8_9	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2372350)									
EP1205051-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381273)									
EP1205053-002	YPRD10638_2_3	ED045G: Chloride	16887-00-6	10	mg/kg	280	320	15.0	0% - 20%
EP1205053-011	YPGOC6605_20_21	ED045G: Chloride	16887-00-6	10	mg/kg	40	40	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381278)									
EP1205053-022	YPGCO2056_14_15	ED045G: Chloride	16887-00-6	10	mg/kg	30	30	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381282)									
EP1205053-042	YPGCO896732_33	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
EP1205056-004	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388695)									
EP1205053-001	YPGC00576_26_27	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit
EP1205053-011	YPGOC6605_20_21	EP003TC: Total Carbon	----	0.02	%	0.12	0.12	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388697)									
EP1205053-021	YPGCO614320_21	EP003TC: Total Carbon	----	0.02	%	0.11	0.11	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	EP003TC: Total Carbon	----	0.02	%	0.07	0.06	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388699)									
EP1205053-041	YPGCO8967_8_9	EP003TC: Total Carbon	----	0.02	%	0.08	0.07	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 2379416)									
EP1205161-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.86	6.82	0.6	0% - 20%
EP1205165-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.57	7.55	0.3	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2392450)									
EP1205051-048	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.82	6.83	0.1	0% - 20%
EP1205053-002	YPRD10638_2_3	EA005-P: pH Value	----	0.01	pH Unit	8.08	8.22	1.7	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2392452)									
EP1205053-012	YPGCO0576_2_3	EA005-P: pH Value	----	0.01	pH Unit	7.89	8.02	1.6	0% - 20%
EP1205053-022	YPGCO2056_14_15	EA005-P: pH Value	----	0.01	pH Unit	7.15	7.12	0.4	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2392454)									
EP1205053-032	YPGCO2056_20_21	EA005-P: pH Value	----	0.01	pH Unit	6.97	6.93	0.6	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2395498)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA005P: pH by PC Titrator (QC Lot: 2395498) - continued									
EP1205053-038	YPGCO5415_20_21	EA005-P: pH Value	----	0.01	pH Unit	7.36	7.49	1.8	0% - 20%
EP1205053-048	CAGC30291/Y096100	EA005-P: pH Value	----	0.01	pH Unit	7.35	7.31	0.5	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2379415)									
EP1205161-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	963	962	0.1	0% - 20%
EP1205165-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4380	4340	0.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2392449)									
EP1205051-048	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	29	25	16.5	0% - 20%
EP1205053-002	YPRD10638_2_3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	126	126	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2392451)									
EP1205053-012	YPGCO0576_2_3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	106	100	5.4	0% - 20%
EP1205053-022	YPGCO2056_14_15	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	47	48	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2392453)									
EP1205053-032	YPGCO2056_20_21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	22	20	9.5	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2395497)									
EP1205053-038	YPGCO5415_20_21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	77	69	10.8	0% - 20%
EP1205053-048	CAGC30291/Y096100	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	47	47	0.0	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2377967)									
EP1205051-001	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	107	128	17.9	0% - 50%
EP1205091-006	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	1640	1680	2.4	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2392075)									
EP1205053-002	YPRD10638_2_3	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	66	72	8.7	No Limit
EP1205053-010	YPGCO3152_14_15	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	<10	0.0	No Limit
EA015: Total Dissolved Solids (QC Lot: 2392076)									
EP1205053-022	YPGCO2056_14_15	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	40	30	28.6	No Limit
EP1205053-030	YPGCO0576_32_33	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	40	20	66.7	No Limit
EA015: Total Dissolved Solids (QC Lot: 2395485)									
EP1205053-038	YPGCO5415_20_21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	60	42	35.3	No Limit
EP1205053-046	YPGCO8967_20_21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	28	26	7.4	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401507)									
EP1205051-042	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	4	0.0	No Limit
EP1205051-052	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401509)									
EP1205053-005	YPGC00027_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	0.0	No Limit
EP1205053-015	YPRD14197_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1	1	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401511)									
EP1205053-025	QC9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1	2	0.0	No Limit
EP1205053-035	YPGCO6879_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	1	80.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401513)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2401513) - continued									
EP1205053-045	YPGCO4545_26_27	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	3	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401506)									
EP1205051-042	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	4	4	0.0	No Limit
EP1205051-052	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401508)									
EP1205053-005	YPGC00027_2_3	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
EP1205053-015	YPRD14197_2_3	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401510)									
EP1205053-025	QC9	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
EP1205053-035	YPGCO6879_2_3	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2401512)									
EP1205053-045	YPGCO4545_26_27	ED045G: Chloride	16887-00-6	1	mg/L	3	4	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2378787)									
EP1205051-001	Anonymous	ED093W: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2391994)									
EP1205053-002	YPRD10638_2_3	ED093W: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	16	16	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EP1205053-011	YPGOC6605_20_21	ED093W: Calcium	7440-70-2	1	mg/L	1	1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	8	8	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2391997)									
EP1205053-022	YPGCO2056_14_15	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	10	10	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	10	10	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2396457)									
EP1205053-038	YPGCO5415_20_21	ED093W: Calcium	7440-70-2	1	mg/L	3	3	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	12	12	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED093W: Water Leachable Major Cations (QC Lot: 2396457) - continued									
EP1205053-038	YPGCO5415_20_21	ED093W: Potassium	7440-09-7	1	mg/L	1	<1	0.0	No Limit
EP1205053-047	YPGCO8967_2_3	ED093W: Calcium	7440-70-2	1	mg/L	5	5	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	13	13	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378785)									
EP1205051-001	Anonymous	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.319	0.315	1.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.033	0.033	0.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.070	0.069	1.6	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.84	1.80	1.9	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.25	0.25	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	3.21	3.12	2.8	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378786)									
EP1205051-001	Anonymous	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391992)									
EP1205053-002	YPRD10638_2_3	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.002	<0.001	84.5	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.01	1.02	1.1	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.335	0.335	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391992) - continued									
EP1205053-002	YPRD10638_2_3	EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.52	0.53	3.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.05	1.10	4.2	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.68	0.67	2.5	0% - 50%
EP1205053-011	YPGOC6605_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.768	0.777	1.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.078	0.080	2.2	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.417	0.439	5.1	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.50	0.52	4.2	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.08	1.13	4.3	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	3.72	3.80	2.1	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391993)									
EP1205053-002	YPRD10638_2_3	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205053-011	YPGOC6605_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391995)									
EP1205053-022	YPGCO2056_14_15	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.32	1.32	0.0	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.010	0.003	117	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.005	0.003	63.7	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391995) - continued									
EP1205053-022	YPGCO2056_14_15	EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.265	0.264	0.0	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.74	1.95	11.3	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.16	1.19	2.2	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	1.10	1.18	7.1	0% - 20%
EP1205053-031	YPGCO0576_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0003	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.58	1.61	2.1	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.125	0.123	1.7	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.692	0.705	1.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	4.10	4.29	4.7	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.27	1.33	4.3	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	7.25	7.41	2.1	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391996)									
EP1205053-022	YPGCO2056_14_15	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205053-031	YPGCO0576_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396455)									
EP1205053-038	YPGCO5415_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	56.4	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.70	1.76	3.6	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.012	0.017	38.9	0% - 50%
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.012	0.014	22.9	0% - 50%
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.308	0.352	13.4	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396455) - continued									
EP1205053-038	YPGCO5415_20_21	EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.010	0.014	27.9	0% - 50%
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.656	0.675	2.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	17.3	15.8	9.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	0.01	0.02	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.25	1.24	0.0	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	27.3	24.3	11.6	0% - 20%
EP1205053-047	YPGCO8967_2_3	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.30	1.31	0.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.007	0.006	17.6	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.405	0.381	6.3	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.401	0.397	0.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.63	1.74	6.8	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.15	1.15	0.0	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	8.83	9.30	5.2	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396456)									
EP1205053-038	YPGCO5415_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205053-047	YPGCO8967_2_3	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2378829)									
EP1205051-001	Anonymous	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2391940)									
EP1205053-002	YPRD10638_2_3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205053-012	YPGCO0576_2_3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2391941)									
EP1205053-022	YPGCO2056_14_15	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205053-032	YPGCO2056_20_21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2396438)									
EP1205053-038	YPGCO5415_20_21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2396438) - continued									
EP1205053-048	CAGC30291/Y096100	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002 : pH (Soils) (QCLot: 2372347)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381270)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381274)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	105	70	130
EA002 : pH (Soils) (QCLot: 2381279)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377018)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.01	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377019)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377027)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA010: Conductivity (QCLot: 2372349)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.5	93.6	106
EA010: Conductivity (QCLot: 2381272)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.9	93.6	106
EA010: Conductivity (QCLot: 2381276)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	93.6	106
EA010: Conductivity (QCLot: 2381281)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	93.6	106
EA011: Net Acid Generation (QCLot: 2392040)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	92.1	84	115
EA011: Net Acid Generation (QCLot: 2392043)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	90.7	84	115
EA011: Net Acid Generation (QCLot: 2392046)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	90.7	84	115
EA013: Acid Neutralising Capacity (QCLot: 2392039)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	117	80	121
EA013: Acid Neutralising Capacity (QCLot: 2392042)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	115	80	121
EA013: Acid Neutralising Capacity (QCLot: 2392045)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EA013: Acid Neutralising Capacity (QCLot: 2392045) - continued								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	105	80	121
EA026 : Chromium Reducible Sulfur (QCLot: 2392041)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2392044)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2392047)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
ED007: Exchangeable Cations (QCLot: 2376958)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.1	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.666 meq/100g	98.7	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.519 meq/100g	98.8	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.870 meq/100g	102	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	99.2	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376959)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	99.3	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.666 meq/100g	99.9	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.519 meq/100g	100	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.870 meq/100g	104	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.055 meq/100g	101	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376970)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	10 meq/100g	96.9	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	16.7 meq/100g	99.9	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	5.2 meq/100g	95.0	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	8.7 meq/100g	95.1	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	40.6 meq/100g	97.5	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED007: Exchangeable Cations (QCLot: 2376970) - continued								
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED040S: Soluble Major Anions (QCLot: 2372348)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	99.9	86	116
ED040S: Soluble Major Anions (QCLot: 2381271)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	99.8	86	116
ED040S: Soluble Major Anions (QCLot: 2381275)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	101	86	116
ED040S: Soluble Major Anions (QCLot: 2381280)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	98.9	86	116
ED040T : Total Sulfate by ICPAES (QCLot: 2399552)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399553)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399554)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED042T: Total Sulfur by LECO (QCLot: 2388694)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	97.2	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388696)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	103	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388698)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	104	70	130
ED045G: Chloride Discrete analyser (QCLot: 2372350)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	97.5	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381273)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	97.4	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381278)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.6	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381282)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.6	82	126
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388695)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	99.6	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388697)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	97.0	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388699)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	94.5	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 2379416)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2392450)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2392452)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2392454)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2395498)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA010P: Conductivity by PC Titrator (QCLot: 2379415)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	98.3	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2392449)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.6	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2392451)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.8	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2392453)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.0	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2395497)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.9	98	102
EA015: Total Dissolved Solids (QCLot: 2377967)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	93.5	79.8	116
EA015: Total Dissolved Solids (QCLot: 2392075)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	96.3	79.8	116
EA015: Total Dissolved Solids (QCLot: 2392076)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	87.7	79.8	116
EA015: Total Dissolved Solids (QCLot: 2395485)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	95.8	79.8	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401507)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.4	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401509)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401511)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	109	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401513)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.8	85	130
ED045G: Chloride Discrete analyser (QCLot: 2401506)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 2401506) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	97.7	78	130
ED045G: Chloride Discrete analyser (QCLot: 2401508)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	100	78	130
ED045G: Chloride Discrete analyser (QCLot: 2401510)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	87.6	78	130
ED045G: Chloride Discrete analyser (QCLot: 2401512)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	96.3	78	130
ED093W: Water Leachable Major Cations (QCLot: 2378787)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2391994)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2391997)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2396457)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.1	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.3	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.3	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785) - continued								
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.5	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.9	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	98.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378786)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	80.1	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391992)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	88.6	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	113	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.0	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	95.9	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.9	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.0	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.8	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.5	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.5	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	95.3	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	95.9	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.8	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	90.1	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.3	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.6	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	95.2	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	91.9	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391993)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	90.8	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391995)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	102	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	124	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	111	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	106	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	106	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391995) - continued								
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	109	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	108	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	98.6	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	105	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.9	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	108	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.6	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391996)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	99.9	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.4	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	116	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.7	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.4	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	97.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.9	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.3	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.4	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.5	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	90.1	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	95.9	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396456)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	79.4	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	105	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2391940)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035W: Water Leachable Mercury by FIMS (QCLot: 2391940) - continued								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	92.7	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2391941)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	93.4	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396438)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	92.4	76	126

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 2372350)							
EP1205053-001	YPGC00576_26_27	ED045G: Chloride	16887-00-6	1250 mg/kg	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381273)							
EP1205053-003	TRRD33437_8_9	ED045G: Chloride	16887-00-6	1250 mg/kg	103	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381278)							
EP1205053-023	QC7	ED045G: Chloride	16887-00-6	1250 mg/kg	105	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381282)							
EP1205053-043	YPGCO8967_14_15	ED045G: Chloride	16887-00-6	1250 mg/kg	106	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401507)							
EP1205051-042	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	101	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401509)							
EP1205053-005	YPGC00027_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	104	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401511)							
EP1205053-025	QC9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	99.4	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2401513)							
EP1205053-045	YPGCO4545_26_27	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	103	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401506)							
EP1205051-042	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	114	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401508)							
EP1205053-005	YPGC00027_2_3	ED045G: Chloride	16887-00-6	250 mg/L	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401510)							
EP1205053-025	QC9	ED045G: Chloride	16887-00-6	250 mg/L	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2401512)							
EP1205053-045	YPGCO4545_26_27	ED045G: Chloride	16887-00-6	250 mg/L	111	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)							
EP1205053-001	YPGC00576_26_27	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	99.6	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	105	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	99.3	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	94.2	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785) - continued							
EP1205053-001	YPGC00576_26_27	EG020A-W: Cobalt	7440-48-4	1.000 mg/L	99.1	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	96.9	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	97.7	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	99.2	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	99.2	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	99.4	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	95.8	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391992)							
EP1205053-003	TRRD33437_8_9	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	98.1	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	101	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	99.1	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	104	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	112	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	97.9	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	107	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	104	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	98.2	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	106	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	94.5	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391995)							
EP1205053-023	QC7	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	110	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	118	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	117	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	120	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	121	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	108	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	126	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	123	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	107	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	121	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	105	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455)							
EP1205053-039	QC12	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	107	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	111	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	108	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	116	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	118	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	105	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: Spike Recovery (%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455) - continued							
EP1205053-039	QC12	EG020A-W: Lead	7439-92-1	1.000 mg/L	119	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	118	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	110	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	117	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	101	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)							
EP1205053-001	YPGC00576_26_27	EG035W: Mercury	7439-97-6	0.0100 mg/L	74.9	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2391940)							
EP1205053-003	TRRD33437_8_9	EG035W: Mercury	7439-97-6	0.0100 mg/L	76.3	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2391941)							
EP1205053-023	QC7	EG035W: Mercury	7439-97-6	0.0100 mg/L	82.5	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396438)							
EP1205053-039	QC12	EG035W: Mercury	7439-97-6	0.0100 mg/L	81.5	70	130

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EP1205053**	Page	: 1 of 34
Amendment	: **1**		
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
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Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 48
Quote number	: ----	No. of samples analysed	: 48

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	04-JUL-2012	×
Soil Glass Jar - Unpreserved YPGC00576_26_27	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	28-JUN-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	**---**	05-JUL-2012	----	**09-JUL-2012**	05-JUL-2012	×
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	**---**	06-JUL-2012	----	**09-JUL-2012**	06-JUL-2012	×
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	**---**	09-JUL-2012	----	**10-JUL-2012**	09-JUL-2012	×
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	**---**	26-JUN-2012	----	**29-JUN-2012**	26-JUN-2012	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA006: Sodium Adsorption Ratio (SAR)							
Calico Bag							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**09-JUL-2012**	19-DEC-2012	✓	**10-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010: Conductivity							
Soil Glass Jar - Unpreserved							
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	01-AUG-2012	✓
Soil Glass Jar - Unpreserved							
YPGC00576_26_27	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	---	02-AUG-2012	----	**09-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	---	03-AUG-2012	----	**09-JUL-2012**	03-AUG-2012	✓
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	---	06-AUG-2012	----	**10-JUL-2012**	06-AUG-2012	✓
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	---	24-JUL-2012	----	**29-JUN-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA011: Net Acid Generation							
80* dried soil							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA013: Acid Neutralising Capacity							
80* dried soil							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	**----**	----	----	**09-JUL-2012**	12-JUL-2012	✓
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	**----**	----	----	**09-JUL-2012**	13-JUL-2012	✓
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	**----**	----	----	**10-JUL-2012**	16-JUL-2012	✓
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	**----**	----	----	**28-JUN-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA026 : Chromium Reducible Sulfur							
80* dried soil							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	07-OCT-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved							
YPGC00576_26_27, YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, QC7, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, QC11, YPGCO6879_2_3, YPGCO1657_44_45, YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**----**	----	----	**04-JUL-2012**	06-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Calico Bag							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**04-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040: Sulfur as SO4 2-							
Soil Glass Jar - Unpreserved							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**13-JUL-2012**	29-JUN-2012	×	**13-JUL-2012**	10-AUG-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved							
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGCO00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**10-JUL-2012**	01-AUG-2012	✓
Soil Glass Jar - Unpreserved							
YPGC00576_26_27	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**28-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	---	02-AUG-2012	----	**16-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	---	03-AUG-2012	----	**16-JUL-2012**	03-AUG-2012	✓
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	---	06-AUG-2012	----	**16-JUL-2012**	06-AUG-2012	✓
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	---	24-JUL-2012	----	**16-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED042T: Total Sulfur by LECO							
80* dried soil							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	---	02-AUG-2012	----	**16-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	---	03-AUG-2012	----	**16-JUL-2012**	03-AUG-2012	✓
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	---	06-AUG-2012	----	**16-JUL-2012**	06-AUG-2012	✓
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	---	24-JUL-2012	----	**16-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser - Continued							
Soil Glass Jar - Unpreserved							
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	01-AUG-2012	✓
Soil Glass Jar - Unpreserved							
YPGC00576_26_27	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093W: Water Leachable Major Cations							
Clear Plastic Bottle - Natural YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	**10-JUL-2012**	12-JUL-2012	✓	**10-JUL-2012**	12-JUL-2012	✓
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	**10-JUL-2012**	13-JUL-2012	✓	**10-JUL-2012**	13-JUL-2012	✓
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	**11-JUL-2012**	16-JUL-2012	✓	**11-JUL-2012**	16-JUL-2012	✓
Clear Plastic Bottle - Natural YPGC00576_26_27	**26-JUN-2012**	**02-JUL-2012**	03-JUL-2012	✓	**02-JUL-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020W: Water Leachable Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	**10-JUL-2012**	01-JAN-2013	✓	**10-JUL-2012**	01-JAN-2013	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	**10-JUL-2012**	02-JAN-2013	✓	**10-JUL-2012**	02-JAN-2013	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	**11-JUL-2012**	05-JAN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGC00576_26_27	**26-JUN-2012**	**02-JUL-2012**	23-DEC-2012	✓	**02-JUL-2012**	23-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035W: Water Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	**05-JUL-2012**	**----**	----	----	**10-JUL-2012**	02-AUG-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	**06-JUL-2012**	**----**	----	----	**10-JUL-2012**	03-AUG-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**09-JUL-2012**	**----**	----	----	**11-JUL-2012**	06-AUG-2012	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered YPGC00576_26_27	**26-JUN-2012**	**----**	----	----	**02-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN60: Bottle Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal							
YPGC00576_26_27, YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, QC7, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, QC11, YPGCO6879_2_3, YPGCO1657_44_45, YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	**22-JUN-2012**	**---**	20-JUL-2012	----	**10-JUL-2012**	20-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP003TC: Total Carbon (TC) in Soil							
Calico Bag							
YPGC00576_26_27, TRRD33437_8_9, YPGC00027_2_3, TRRD33379_4_5, YPGCO6879_20_21, YPGOC6605_20_21, YPGCO2056_44_45, YPRD14197_2_3, QC7, YPGCO4543_14_15, YPGCO614320_21, QC8, QC9, TRRDO6576_2_3, YPGCO6143_26_27, YPGCO0576_20_21, YPGCO6879_26_27, QC11, YPGCO6879_2_3, QC12, YPGCO8967_8_9, YPGCO8967_14_15, YPGCO4545_26_27, YPGCO8967_2_3, YPRD10638_2_3, TRRD34136_4_5, YPGCO0027_14_15, QC6, YPGCO3152_14_15, YPGCO0576_2_3, YPGCO4543_8_9, YPGCO3152_20_21, YPGCO3152_8_9, YPRD14198_8_9, YPGCO2056_14_15, YPGCO2056_2_3, QC10, YPGCO0576_32_33, YPGCO2056_20_21, YPGCO1657_32_33, YPGCO1657_44_45, YPGC00027_8_9, YPGCO896732_33, YPGCO8967_26_27, YPGCO8967_20_21, CAGC30291/Y096100, YPRD13687_34_35, YPGCO5415_20_21,	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	02-AUG-2012	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acid Neutralising Capacity (ANC)	EA013	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	7	63	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	7	63	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	7	63	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	6	48	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	7	63	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	6	50	**12.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	5	48	**10.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acid Neutralising Capacity (ANC)	EA013	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	8	63	**12.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	4	63	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	4	63	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	8	63	**12.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	4	63	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	4	63	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	4	63	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sodium Adsorption Ratio (SAR)	EA006	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	3	50	**6.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	3	48	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	4	63	**6.3**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	7	64	**10.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	9	86	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	9	86	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	7	64	**10.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	8	76	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	7	59	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	7	50	**14.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	7	59	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	7	59	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	8	64	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	15	86	**17.4**	**15.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	10	86	**11.6**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	8	64	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	4	76	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	4	50	**8.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	4	59	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	4	59	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	4	64	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	5	86	**5.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	64	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	4	76	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	4	59	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	4	50	**8.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	4	59	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	4	59	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	4	64	**6.3**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	64	**6.3**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	4	50	**8.0**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	4	59	**6.8**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
pH by PC Titrator	EA005-P	SOIL	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sodium Adsorption Ratio (SAR)	EA006	SOIL	USEPA 600/2 - 78 - 54. The concentration as meq of Ca, Mg and Na are determined on saturated soil by water leach. Results are used to calculate SAR.
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 104)
Conductivity by PC Titrator	EA010-P	SOIL	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Net Acid Generation	EA011	SOIL	Miller (1998) Titremetric procedure determines net acidity in a soil following peroxide oxidation. Titrations to both pH 4.5 and pH 7 are reported.
Acid Neutralising Capacity (ANC)	EA013	SOIL	USEPA 600/2-78-054, I. Miller (2000). A fizz test is done to semiquanititatively estimate the likely reactivity. The soil is then reacted with an known excess quanitity of an appropriate acid. Titration determines the acid remaining, and the ANC can be calculated from comparison with a blank titration.
Total Dissolved Solids (High Level)	EA015H	SOIL	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chromium Reducible Sulphur	EA026	SOIL	Sullivan et al (1998) The CRS method converts reduced inorganic sulfur to H2S by CrCl2 solution ; the evolved H2S is trapped in a zinc acetate solution as ZnS which is quantified by iodometric titration.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Higginson (1992) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (1999) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Sulfate as SO4 2- Total	ED040T	SOIL	In-house. Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	SOIL	APHA 21st ed., 4500-SO4 Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfur - Total as S (LECO)	ED042T	SOIL	In-house. Dried and pulverised sample is combusted in a LECO furnace at 1350C in the presence of strong oxidants / catalysts. The evolved S (as SO2) is measured by infra-red detector
Chloride by Discrete Analyser	ED045G	SOIL	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003

Analytical Methods	Method	Matrix	Method Descriptions
Water Leachable Major Cations	ED093W	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010; ALS QWI-EN/EG005, QWI-EN/ED093) The ICPAES technique quickly breaks the sample down into atoms and ions under extremely hot plasma. Atoms are then ionised, emitting a characteristic spectrum. The spectrometer then separates the wavelengths, prior to comparison of intensities against matrix matched standards for quantification.
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, AS 4439.3, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Mercury by FIMS	EG035W	SOIL	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection ($SnCl_2$)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by $SnCl_2$ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Carbon	EP003TC	SOIL	In-house C-IR07. Dried and pulverised sample is combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved Carbon (as CO_2) is measured by infra-red detector
Merged 4-Acid Metals package	ME-MS61	SOIL	Merged Package 4-Acid Digest with ICP-AES & ICPMS finish. Analysis conducted by ALS Minerals.
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory

Preparation Methods	Method	Matrix	Method Descriptions
SAR Prep	EA006PR	SOIL	USEPA 600/2. Soil is bought to saturation with distilled water by capiliary action.
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH_4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
Digestion for Total Recoverable Metals in DI Water Leachate	EN25W	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Deionised Water Leach	EN60-DIa	SOIL	AS4439.3 Preparation of Leachates

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils)						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	04-JUL-2012	29-JUN-2012	**5**	05-JUL-2012	04-JUL-2012	**1**
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9	----	----	----	09-JUL-2012	05-JUL-2012	**4**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC7, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, YPGCO1657_44_45	----	----	----	09-JUL-2012	06-JUL-2012	**3**
Clear Plastic Bottle - Natural YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	----	----	----	10-JUL-2012	09-JUL-2012	**1**
Clear Plastic Bottle - Natural YPGC00576_26_27	----	----	----	29-JUN-2012	26-JUN-2012	**3**
EA010: Conductivity						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA010: Conductivity - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	04-JUL-2012	29-JUN-2012	**5**	----	----	----
ED040: Sulfur as SO4 2-						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040: Sulfur as SO4 2- - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPGC00576_26_27, YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, QC7, YPGCO3152_8_9, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC8, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, QC11, YPGCO6879_2_3, YPGCO1657_44_45, YPGCO5415_20_21, QC12, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	13-JUL-2012	29-JUN-2012	**14**	----	----	----
ED040S : Soluble Sulfate by ICPAES						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040S : Soluble Sulfate by ICPAES - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	04-JUL-2012	29-JUN-2012	**5**	----	----	----
ED045G: Chloride Discrete analyser						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED045G: Chloride Discrete analyser - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD10638_2_3, TRRD33437_8_9, TRRD34136_4_5, YPGC00027_2_3, YPGCO0027_14_15, TRRD33379_4_5, QC6, YPGCO6879_20_21, YPGCO3152_14_15, YPGOC6605_20_21, YPGCO0576_2_3, YPGCO2056_44_45, YPGCO4543_8_9, YPRD14197_2_3, YPGCO3152_20_21, YPGCO3152_8_9, QC7, QC8, YPRD13687_34_35, YPGCO4543_14_15, YPRD14198_8_9, YPGCO614320_21, YPGCO2056_14_15, QC9, YPGCO2056_2_3, TRRDO6576_2_3, QC10, YPGCO6143_26_27, YPGCO0576_32_33, YPGCO0576_20_21, YPGCO2056_20_21, YPGCO6879_26_27, YPGCO1657_32_33, YPGCO6879_2_3, QC11, QC12, YPGCO1657_44_45, YPGCO5415_20_21, YPGC00027_8_9, YPGCO8967_8_9, YPGCO896732_33, YPGCO8967_14_15, YPGCO8967_26_27, YPGCO4545_26_27, YPGCO8967_20_21, YPGCO8967_2_3, CAGC30291/Y096100	04-JUL-2012	29-JUN-2012	**5**	----	----	----

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

Australian Laboratory Services Pty. Ltd.
32 Shand Street
Stafford
Brisbane QLD 4053
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www.alsglobal.com

Finalized Date: 11-JUL-2012
Account: ALSENV

CERTIFICATE BR12155011

Project: EP1205053

P.O. No.:

This report is for 48 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
32 SHAND STREET
STAFFORD QLD 4053

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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Project: EP1205053

CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPGC00576_26_27		0.88	0.001	0.004	0.02	0.003	<0.001	0.0512	0.002	33.85	0.028	0.01	0.253	<0.005	0.018	0.046
YPRD10638_2_3		5.67	0.005	0.030	0.26	0.029	0.001	0.0103	0.002	30.08	0.237	0.35	0.359	0.092	0.001	0.024
TRRD33437_8_9		4.16	0.003	0.030	0.04	0.056	0.001	0.0091	0.002	52.85	0.007	0.15	0.451	0.079	0.001	0.026
TRRD34136_4_5		6.71	0.004	<0.001	0.08	0.003	<0.001	0.0120	0.002	49.20	0.038	0.05	0.161	<0.005	0.006	0.043
YPGC00027_2_3		4.10	0.004	0.006	0.10	0.004	<0.001	0.0229	0.004	24.37	0.503	0.16	0.126	<0.005	0.010	0.027
YPGC0027_14_15		3.19	0.003	<0.001	0.08	0.003	<0.001	0.0178	0.002	54.88	0.029	0.09	0.410	<0.005	0.017	0.039
TRRD33379_4_5		3.39	0.003	0.004	0.13	0.008	<0.001	0.0247	0.002	41.77	0.073	0.17	0.206	0.045	0.007	0.022
QC6		11.85	0.004	0.003	0.10	0.002	<0.001	0.0342	0.005	17.36	0.625	0.21	0.077	<0.005	0.006	0.029
YPGCO6879_20_21		10.50	0.004	0.033	0.13	0.002	0.001	0.0291	0.004	35.67	0.356	0.16	2.30	<0.005	0.008	0.034
YPGCO3152_14_15		5.98	0.003	<0.001	0.06	0.005	<0.001	0.0088	0.002	51.22	0.040	0.03	0.144	<0.005	0.003	0.030
YPGCO6605_20_21		9.71	0.004	<0.001	0.07	0.004	0.002	0.0132	0.002	47.74	0.036	0.17	0.643	<0.005	0.004	0.027
YPGCO0576_2_3		6.21	0.003	0.009	0.26	0.005	0.001	0.0229	0.005	18.14	0.837	0.35	0.099	<0.005	0.007	0.024
YPGCO2056_44_45		1.36	0.004	<0.001	0.05	0.001	<0.001	0.0053	0.001	57.39	0.007	0.09	0.249	<0.005	0.010	0.076
YPGCO4543_8_9		7.00	0.004	0.013	0.13	0.003	<0.001	0.0299	0.006	23.26	0.912	0.26	0.126	<0.005	0.007	0.032
YPRD14197_2_3		9.88	0.003	0.014	0.14	0.003	<0.001	0.0299	0.004	25.07	0.739	0.24	0.422	<0.005	0.013	0.030
YPGCO3152_20_21		2.80	0.003	<0.001	0.06	0.002	<0.001	0.0091	0.002	57.06	0.042	0.07	0.346	<0.005	0.007	0.023
YPGCO3152_8_9		8.45	0.003	0.012	0.10	0.003	<0.001	0.0248	0.004	19.27	0.539	0.23	0.077	<0.005	0.012	0.036
YPRD13687_34_35		13.05	0.002	0.145	0.97	0.001	0.015	<0.0006	0.002	11.99	0.997	0.53	>25.0	0.050	0.016	0.009
YPGCO4543_14_15		13.10	0.005	0.007	0.16	0.003	<0.001	0.0349	0.006	22.02	0.705	0.34	0.112	<0.005	0.005	0.033
YPRD14197_8_9		8.24	0.004	0.017	0.15	0.005	0.001	0.0303	0.005	22.78	0.722	0.28	0.706	<0.005	0.007	0.032
YPGCO614320_21		6.95	0.004	<0.001	0.08	0.006	<0.001	0.0142	0.002	53.11	0.067	0.18	1.725	<0.005	0.009	0.023
YPGCO2056_14_15		10.25	0.004	0.009	0.14	0.004	<0.001	0.0282	0.006	18.91	0.614	0.25	0.106	<0.005	0.004	0.031
QC7		4.50	0.003	0.039	0.04	0.051	0.001	0.0086	0.002	52.61	0.011	0.15	0.483	0.077	<0.001	0.024
QC8		2.04	0.001	0.011	0.09	0.002	<0.001	0.0183	0.001	7.79	0.043	<0.01	0.093	<0.005	0.001	0.008
QC9		5.44	0.004	<0.001	0.12	0.002	<0.001	0.0094	0.001	52.90	0.014	0.07	0.079	<0.005	0.002	0.024
YPGCO2056_2_3		5.26	0.003	0.015	0.20	0.006	<0.001	0.0247	0.005	30.73	0.584	0.19	0.659	<0.005	0.010	0.034
TRRDO6576_2_3		2.53	0.002	<0.001	0.02	0.002	<0.001	0.0145	0.002	20.83	0.064	<0.01	0.027	<0.005	0.001	0.031
QC10		3.62	0.002	<0.001	0.02	0.004	<0.001	0.0116	0.002	30.90	0.095	0.01	0.043	<0.005	0.002	0.048
YPGCO6143_26_27		5.61	0.007	<0.001	0.06	0.003	0.004	0.0255	0.002	54.63	0.014	0.14	0.342	<0.005	0.028	0.080
YPGCO0576_32_33		0.79	0.001	0.002	0.02	0.002	<0.001	0.0084	0.002	44.19	0.015	0.02	0.150	<0.005	0.001	0.072
YPGCO0576_20_21		7.37	0.003	<0.001	0.09	0.006	<0.001	0.0102	0.003	48.51	0.178	0.16	0.320	<0.005	0.003	0.026
YPGCO2056_20_21		10.75	0.003	0.005	0.11	0.002	<0.001	0.0290	0.005	19.94	0.407	0.12	0.071	<0.005	0.002	0.032
YPGCO6879_26_27		3.58	0.006	<0.001	0.07	0.003	<0.001	0.0052	0.001	51.60	0.020	0.23	0.634	<0.005	0.003	0.020
YPGCO1657_32_33		4.83	0.003	<0.001	0.05	0.004	<0.001	0.0049	0.001	54.66	0.011	0.11	0.498	<0.005	0.006	0.019
YPGCO6879_2_3		8.16	0.003	0.016	0.10	0.004	<0.001	0.0217	0.005	18.16	0.772	0.26	0.131	<0.005	0.005	0.026
QC11		6.03	0.003	<0.001	0.08	0.005	<0.001	0.0170	0.002	44.80	0.028	0.02	0.064	<0.005	0.003	0.044
YPGCO1657_44_45		3.52	0.002	<0.001	0.03	0.005	<0.001	0.0156	0.002	17.70	0.341	0.08	0.049	<0.005	0.005	0.014
YPGCO5415_20_21		7.37	0.004	0.020	0.09	0.005	<0.001	0.0240	0.004	39.39	0.205	0.09	0.582	<0.005	0.003	0.029
QC12		7.97	0.003	<0.001	0.46	0.007	<0.001	0.0206	0.001	47.65	0.068	0.08	0.083	<0.005	0.002	0.030
YPGC00027_8_9		3.30	0.002	<0.001	0.06	0.005	<0.001	0.0133	0.002	57.76	0.031	0.07	0.312	<0.005	0.002	0.030

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Project: EP1205053

CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPGC00576_26_27		<0.001	0.006	47.0	<0.001	<0.001	0.02	<0.001	<0.001	0.001	100.00	3.09	0.04	0.45	7.6	130
YPRD10638_2_3		<0.001	0.032	41.7	0.002	0.003	0.33	0.006	0.001	0.012	99.96	7.56	0.04	2.75	32.7	280
TRRD33437_8_9		<0.001	0.103	10.00	0.002	0.001	0.24	0.004	0.001	0.007	100.00	8.69	0.06	2.07	15.4	260
TRRD34136_4_5		<0.001	0.079	10.30	<0.001	<0.001	0.36	0.008	0.002	0.007	100.00	11.55	0.05	3.49	32.8	50
YPGC00027_2_3		<0.001	0.274	54.8	<0.001	0.002	0.22	0.006	0.011	0.007	99.98	4.24	0.12	2.04	38.5	140
YPGC0027_14_15		0.003	0.065	9.18	<0.001	<0.001	0.22	0.003	0.002	0.004	100.00	7.86	0.07	1.64	20.9	70
TRRD33379_4_5		<0.001	0.044	27.8	<0.001	<0.001	0.24	0.003	0.002	0.004	100.00	7.93	0.05	1.72	15.8	160
QC6		<0.001	0.020	55.2	<0.001	0.001	0.80	0.015	0.010	0.021	100.00	6.05	0.12	5.82	32.2	100
YPGCO6879_20_21		<0.001	0.026	26.9	<0.001	0.004	0.85	0.015	0.003	0.023	99.94	6.56	0.08	5.11	34.2	390
YPGCO3152_14_15		<0.001	0.060	8.98	<0.001	<0.001	0.17	0.003	0.002	0.004	100.00	11.05	0.05	3.00	15.3	20
YPGCO6605_20_21		<0.001	0.040	9.60	<0.001	<0.001	0.30	0.004	0.003	0.006	100.00	10.75	0.06	4.84	24.0	30
YPGCO0576_2_3		<0.001	0.226	60.8	<0.001	0.002	0.37	0.006	0.010	0.012	99.99	4.36	0.10	3.07	25.5	170
YPGCO2056_44_45		<0.001	0.024	4.70	<0.001	<0.001	0.05	<0.001	0.002	<0.001	100.00	11.08	0.05	0.71	25.6	30
YPGCO4543_8_9		<0.001	0.752	49.0	<0.001	0.003	0.33	0.010	0.010	0.010	100.05	6.89	0.17	3.54	34.3	210
YPRD14197_2_3		0.002	0.036	46.9	<0.001	0.002	0.49	0.011	0.007	0.016	99.97	4.86	0.08	4.69	27.6	210
YPGCO3152_20_21		<0.001	0.073	6.28	<0.001	<0.001	0.10	0.001	0.001	0.002	100.00	8.32	0.09	1.35	18.1	50
YPGCO3152_8_9		0.001	0.107	56.3	<0.001	0.002	0.49	0.008	0.006	0.016	100.05	5.75	0.12	4.31	23.6	170
YPRD13687_34_35		<0.001	0.026	11.95	<0.001	0.120	0.52	0.005	0.013	0.018	100.25	14.65	0.05	6.44	9.3	1310
YPGCO4543_14_15		0.001	0.050	46.3	<0.001	0.003	0.83	0.018	0.010	0.023	99.95	6.53	0.14	6.48	44.6	150
YPRD14197_8_9		0.001	0.077	50.4	<0.001	0.004	0.50	0.011	0.012	0.015	99.99	5.74	0.16	4.07	30.3	260
YPGCO614320_21		0.002	0.055	5.50	<0.001	<0.001	0.39	0.006	0.003	0.010	100.00	8.24	0.12	3.62	33.3	110
YPGCO2056_14_15		0.002	0.059	54.9	<0.001	0.005	0.69	0.014	0.008	0.021	99.96	5.57	0.14	4.99	41.5	160
QC7		<0.001	0.103	9.99	0.004	0.002	0.25	0.005	0.002	0.009	99.99	8.63	0.07	2.24	15.6	330
QC8		0.001	0.014	84.1	<0.001	<0.001	0.06	<0.001	0.001	0.001	99.98	2.28	0.02	0.99	5.4	130
QC9		<0.001	0.102	5.93	<0.001	<0.001	0.14	0.002	0.003	0.007	100.00	12.20	0.06	2.59	20.8	20
YPGCO2056_2_3		0.002	0.307	42.5	<0.001	0.003	0.29	0.007	0.009	0.008	99.97	5.14	0.11	2.59	24.9	230
TRRDO6576_2_3		0.001	0.010	64.2	<0.001	<0.001	0.11	0.002	0.003	0.004	99.97	3.09	0.07	1.27	10.0	30
QC10		0.002	0.011	47.6	<0.001	<0.001	0.18	0.004	0.002	0.006	100.00	4.04	0.08	1.85	11.5	30
YPGCO6143_26_27		0.003	0.024	6.12	<0.001	<0.001	0.35	0.008	0.006	0.007	100.00	8.77	0.15	2.79	52.6	20
YPGCO0576_32_33		<0.001	0.009	29.2	0.001	0.005	0.04	0.002	0.002	0.004	99.99	6.28	0.05	0.40	5.2	40
YPGCO0576_20_21		<0.001	0.040	11.45	<0.001	<0.001	0.31	0.004	0.006	0.005	100.00	10.43	0.11	3.62	18.9	70
YPGCO2056_20_21		0.001	0.019	53.9	<0.001	0.001	0.75	0.013	0.005	0.019	99.99	5.11	0.13	5.00	27.3	120
YPGCO6879_26_27		<0.001	0.032	12.00	<0.001	<0.001	0.11	<0.001	0.002	<0.001	99.99	9.16	0.08	1.80	43.9	10
YPGCO1657_32_33		<0.001	0.044	5.34	<0.001	<0.001	0.10	0.002	0.004	0.002	100.00	10.53	0.06	2.40	19.0	10
YPGCO6879_2_3		0.001	0.198	59.1	<0.001	0.003	0.43	0.008	0.008	0.013	100.00	4.37	0.09	3.99	24.9	200
QC11		<0.001	0.041	21.5	<0.001	<0.001	0.39	0.004	0.002	0.010	100.00	7.56	0.07	3.05	17.2	60
YPGCO1657_44_45		0.002	0.014	67.1	<0.001	<0.001	0.15	0.005	0.002	0.004	100.00	3.30	0.10	1.73	20.5	30
YPGCO5415_20_21		0.002	0.049	28.8	<0.001	0.001	0.60	0.012	0.005	0.018	100.00	5.42	0.15	3.77	27.1	280
QC12		0.001	0.039	13.25	<0.001	<0.001	0.87	0.012	0.001	0.020	99.99	8.80	0.07	3.96	22.4	80
YPGC00027_8_9		0.002	0.044	6.58	<0.001	<0.001	0.24	0.004	0.002	0.006	100.00	6.49	0.07	1.66	11.5	50

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Project: EP1205053

CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPGC00576_26_27		0.50	0.03	0.01	0.05	19.10	4.5	39	0.32	4.2	31.3	1.29	0.44	0.1	<0.005	0.03
YPRD10638_2_3		1.18	0.23	0.19	0.03	52.6	17.1	58	1.02	14.0	27.5	7.96	0.99	1.4	0.034	0.19
TRRD33437_8_9		0.51	0.25	0.03	<0.02	21.1	8.1	45	0.64	11.2	48.7	5.63	2.65	1.4	0.026	0.01
TRRD34136_4_5		0.78	0.28	0.05	0.02	21.7	8.5	50	1.36	19.3	47.1	8.73	3.19	1.6	0.040	0.03
YPGC00027_2_3		1.07	0.18	0.07	0.15	23.2	10.2	110	1.25	39.6	24.1	6.83	0.38	1.2	0.063	0.41
YPGC0027_14_15		0.40	0.27	0.05	0.02	15.00	4.8	45	0.12	11.1	>50	6.33	3.58	1.2	0.027	0.03
TRRD33379_4_5		0.86	0.25	0.08	0.02	9.32	2.5	50	0.44	13.4	39.0	6.73	2.85	1.2	0.027	0.06
QC6		1.29	0.50	0.06	0.06	34.2	8.2	181	3.35	52.5	16.65	18.30	0.43	4.0	0.126	0.53
YPGCO6879_20_21		0.92	0.56	0.09	0.14	82.6	22.6	139	1.93	40.5	31.9	18.90	1.83	4.3	0.106	0.29
YPGCO3152_14_15		0.57	0.24	0.04	0.07	6.22	6.2	135	0.22	21.8	47.4	5.22	2.36	1.4	0.037	0.04
YPGCO6605_20_21		0.79	0.34	0.04	0.02	24.5	27.3	66	0.13	13.7	43.0	9.32	2.49	1.8	0.038	0.03
YPGCO0576_2_3		1.02	0.23	0.18	0.14	30.1	14.8	117	2.31	47.0	18.30	8.93	0.34	1.7	0.073	0.68
YPGCO2056_44_45		2.27	0.07	0.03	0.06	11.75	6.3	18	0.08	4.9	>50	2.04	1.86	0.3	0.005	0.01
YPGCO4543_8_9		1.31	0.29	0.08	0.14	33.6	10.0	175	1.56	55.0	22.7	9.85	0.44	1.9	0.115	0.75
YPRD14197_2_3		1.56	0.31	0.09	0.10	42.2	14.3	152	3.25	40.7	23.3	13.95	1.26	2.4	0.088	0.57
YPGCO3152_20_21		0.59	0.14	0.03	<0.02	11.70	15.1	35	0.14	10.8	48.8	3.03	3.39	0.6	0.022	0.03
YPGCO3152_8_9		1.19	0.30	0.07	0.08	39.2	11.4	129	2.28	44.4	19.25	12.30	0.81	2.5	0.082	0.44
YPRD13687_34_35		1.34	0.27	0.69	0.76	103.0	83.9	12	0.33	6.8	11.30	15.05	1.08	1.7	0.038	0.83
YPGCO4543_14_15		1.04	0.64	0.11	0.12	55.0	10.4	236	3.20	74.7	21.3	22.8	1.11	4.5	0.185	0.57
YPRD14197_8_9		1.17	0.33	0.10	0.24	43.1	16.3	170	2.63	50.6	22.5	13.20	0.48	2.5	0.085	0.58
YPGCO614320_21		0.71	0.70	0.05	0.21	46.6	14.4	111	0.15	15.0	>50	12.30	1.54	2.9	0.048	0.06
YPGCO2056_14_15		0.93	0.55	0.09	0.08	49.0	7.8	183	2.71	65.6	18.55	17.45	0.68	3.9	0.159	0.49
QC7		0.44	0.28	0.03	<0.02	22.9	8.2	45	0.06	10.9	49.2	6.14	2.33	1.6	0.032	0.01
QC8		1.54	0.07	0.05	0.05	9.85	6.5	106	0.18	6.4	8.03	2.35	0.22	0.5	0.008	0.03
QC9		0.48	0.21	0.08	0.04	6.99	4.6	54	0.18	9.7	46.3	6.53	3.01	1.8	0.035	0.01
YPGCO2056_2_3		1.19	0.22	0.13	0.19	40.4	14.1	161	1.32	37.1	27.4	8.03	0.78	1.4	0.069	0.47
TRRDO6576_2_3		0.88	0.10	0.01	0.03	9.31	2.4	82	0.39	14.0	21.1	4.06	0.32	0.7	0.018	0.05
QC10		1.18	0.15	0.01	0.04	16.30	4.7	184	0.52	19.2	28.9	5.34	3.68	1.0	0.028	0.08
YPGCO6143_26_27		0.85	0.32	0.03	0.05	26.1	49.0	86	0.05	18.1	49.3	6.89	2.00	1.4	0.034	0.01
YPGCO0576_32_33		0.68	0.02	0.01	0.04	16.95	3.3	54	0.07	5.2	41.3	1.33	1.89	0.1	<0.005	0.01
YPGCO0576_20_21		1.63	0.30	0.05	0.08	33.2	14.3	60	1.26	31.0	43.4	9.79	2.77	1.5	0.041	0.15
YPGCO2056_20_21		0.91	0.45	0.07	0.02	33.0	6.5	180	2.52	47.2	18.75	16.60	0.40	3.5	0.113	0.33
YPGCO6879_26_27		1.06	0.22	0.05	0.03	11.25	4.2	21	0.13	20.8	47.6	3.21	1.84	0.8	0.020	0.02
YPGCO1657_32_33		0.62	0.18	0.03	0.06	33.0	8.0	33	0.05	7.7	49.8	3.46	2.78	0.8	0.019	0.01
YPGCO6879_2_3		1.24	0.27	0.07	0.07	35.6	12.5	125	2.62	46.5	17.00	10.75	0.36	2.1	0.074	0.60
QC11		0.53	0.26	0.05	<0.02	11.15	2.6	78	0.11	14.2	41.6	7.87	3.84	1.8	0.037	0.02
YPGCO1657_44_45		0.66	0.21	0.02	<0.02	18.05	3.5	80	0.44	14.5	16.15	4.61	0.25	0.8	0.042	0.28
YPGCO5415_20_21		1.25	0.38	0.05	0.09	49.4	13.8	171	1.12	33.4	36.2	13.65	0.78	3.2	0.089	0.17
QC12		0.69	0.38	0.31	0.03	12.75	3.2	114	0.21	9.3	43.6	16.65	2.30	3.0	0.061	0.06
YPGC00027_8_9		0.64	0.14	0.03	0.09	20.9	4.3	70	0.16	8.8	47.4	6.73	3.12	1.3	0.035	0.03

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPGC00576_26_27		5.8	1.6	0.02	2340	0.84	0.01	0.7	5.5	420	1.4	1.4	<0.002	0.01	0.28	1.4
YPRD10638_2_3		8.5	5.5	0.20	3260	0.95	0.08	4.1	38.0	220	15.3	10.4	0.002	0.03	0.86	8.0
TRRD33437_8_9		2.8	0.6	0.08	4060	0.77	0.06	3.5	14.4	240	11.8	0.2	<0.002	0.10	2.19	10.8
TRRD34136_4_5		8.4	3.9	0.04	1440	1.60	0.02	5.4	22.8	400	10.3	1.6	<0.002	0.08	3.61	7.3
YPGC00027_2_3		11.3	7.8	0.12	1160	1.55	0.03	3.3	49.6	250	13.3	15.9	<0.002	0.26	2.35	6.9
YPGC0027_14_15		3.2	1.5	0.06	3700	1.52	0.02	3.7	12.5	350	12.1	0.9	<0.002	0.06	2.74	8.4
TRRD33379_4_5		3.7	0.8	0.11	1880	1.08	0.08	3.8	15.3	200	8.6	2.4	<0.002	0.04	2.52	15.6
QC6		21.0	18.3	0.15	757	2.14	0.03	11.1	46.3	270	21.1	36.8	<0.002	0.02	2.22	15.3
YPGCO6879_20_21		24.1	11.1	0.10	20200	1.88	0.05	12.2	29.3	320	26.0	20.6	<0.002	0.02	2.32	16.4
YPGCO3152_14_15		6.2	1.4	0.03	1300	1.94	0.01	3.2	62.8	280	10.5	2.1	<0.002	0.06	1.61	13.6
YPGCO6605_20_21		7.6	12.4	0.10	5670	0.94	0.02	4.7	37.6	250	16.4	1.3	<0.002	0.04	2.89	10.4
YPGCO0576_2_3		13.8	11.2	0.23	1200	2.00	0.06	4.9	61.2	220	15.2	31.3	0.002	0.21	1.61	8.5
YPGCO2056_44_45		11.0	0.8	0.05	2230	0.81	0.01	1.3	85.1	710	2.9	0.3	0.002	0.02	0.71	3.1
YPGCO4543_8_9		17.1	10.5	0.17	1060	1.67	0.05	4.9	48.2	310	17.7	23.6	<0.002	0.73	2.11	10.3
YPRD14197_2_3		20.3	20.6	0.16	3840	1.70	0.03	6.6	61.8	270	19.8	44.4	<0.002	0.03	1.77	11.5
YPGCO3152_20_21		8.3	0.8	0.05	2950	1.12	0.01	2.0	23.3	200	9.5	1.4	<0.002	0.07	1.09	6.2
YPGCO3152_8_9		20.0	21.4	0.16	713	1.78	0.04	6.9	50.6	340	16.4	31.2	<0.002	0.11	1.54	11.5
YPRD13687_34_35		22.3	45.5	0.29	>100000	6.99	0.05	7.0	201	100	14.1	7.2	<0.002	0.01	1.11	6.3
YPGCO4543_14_15		27.1	17.0	0.23	1140	2.90	0.04	12.0	62.1	310	28.7	39.2	<0.002	0.05	2.91	17.2
YPRD14197_8_9		17.8	13.4	0.18	6500	2.20	0.05	7.1	64.5	310	20.7	37.1	<0.002	0.07	2.24	11.7
YPGCO614320_21		13.3	4.3	0.10	16150	2.28	0.02	6.2	57.2	220	25.6	1.9	0.002	0.06	1.64	13.3
YPGCO2056_14_15		23.4	11.5	0.17	1000	2.28	0.03	9.8	41.8	290	25.9	31.3	0.002	0.06	2.67	14.2
QC7		3.0	0.8	0.08	4360	0.79	0.06	3.6	14.5	230	12.7	0.4	<0.002	0.10	2.12	10.8
QC8		5.7	6.6	0.03	954	0.83	0.01	1.0	17.4	80	5.4	2.2	<0.002	0.01	1.01	3.5
QC9		1.3	1.3	0.05	689	0.90	0.01	2.9	15.1	200	9.6	0.7	<0.002	0.09	1.59	6.6
YPGCO2056_2_3		16.4	12.2	0.12	5970	3.09	0.04	4.2	54.4	310	22.1	16.5	<0.002	0.30	1.93	7.0
TRRDO6576_2_3		5.0	5.0	0.03	277	0.89	0.01	2.1	12.0	290	10.8	4.6	<0.002	0.01	1.82	4.5
QC10		8.4	5.3	0.03	392	2.44	0.01	3.1	51.9	450	14.7	6.1	<0.002	0.01	2.10	7.4
YPGCO6143_26_27		14.1	12.3	0.08	2980	1.63	0.01	4.8	119.5	720	29.5	0.4	0.002	0.02	1.45	8.3
YPGCO0576_32_33		13.2	1.3	0.01	1380	1.49	0.01	0.9	11.6	670	2.8	0.7	<0.002	0.01	1.25	1.5
YPGCO0576_20_21		8.2	5.7	0.10	2810	1.56	0.02	4.7	48.9	230	9.4	13.0	0.002	0.04	2.74	10.1
YPGCO2056_20_21		16.0	16.1	0.10	663	1.87	0.02	9.8	26.9	280	21.0	25.0	<0.002	0.02	1.92	12.1
YPGCO6879_26_27		4.5	0.7	0.14	5710	0.75	0.01	1.9	23.3	190	13.9	1.2	<0.002	0.03	1.91	10.5
YPGCO1657_32_33		13.1	3.3	0.07	4370	0.88	0.01	2.0	35.7	170	7.8	0.5	<0.002	0.04	0.76	7.3
YPGCO6879_2_3		18.7	15.7	0.17	1160	1.36	0.04	5.8	61.7	230	16.8	36.6	<0.002	0.19	1.62	9.7
QC11		4.3	5.3	0.03	595	1.24	0.02	6.1	20.3	380	13.4	1.2	<0.002	0.04	2.06	6.1
YPGCO1657_44_45		13.7	5.1	0.08	460	2.53	0.01	2.1	20.8	130	6.0	9.6	<0.002	0.01	2.59	6.0
YPGCO5415_20_21		12.1	12.3	0.06	4910	3.62	0.02	8.5	24.4	260	18.9	12.0	<0.002	0.05	1.97	10.9
QC12		5.5	6.0	0.05	721	2.00	0.02	12.6	13.4	270	14.0	3.1	<0.002	0.04	3.07	7.0
YPGC00027_8_9		4.0	4.8	0.04	2710	1.11	0.02	4.2	15.8	260	12.4	1.6	<0.002	0.04	1.28	5.1

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPGC00576_26_27		<1	0.2	5.3	<0.05	0.12	0.5	0.014	0.17	0.3	4	1.3	4.4	5	5.7
YPRD10638_2_3		1	0.8	26.0	0.31	0.14	5.6	0.162	0.11	1.7	53	2.5	9.2	18	54.0
TRRD33437_8_9		2	0.6	7.2	0.24	0.56	6.9	0.123	<0.02	1.3	39	1.6	5.2	15	52.2
TRRD34136_4_5		2	1.0	7.9	0.39	0.33	6.2	0.194	<0.02	1.7	82	1.5	6.1	34	60.1
YPGC00027_2_3		1	0.9	24.9	0.23	0.23	3.9	0.115	0.44	0.9	74	1.0	11.2	109	43.4
YPGC0027_14_15		2	0.7	6.8	0.25	0.53	5.3	0.123	0.03	1.1	38	1.6	5.3	23	45.9
TRRD33379_4_5		1	0.8	12.9	0.27	0.27	4.4	0.131	0.15	0.8	47	1.3	7.2	24	47.2
QC6		2	2.8	28.9	0.83	0.30	13.2	0.414	0.37	2.2	142	2.2	12.0	93	148.0
YPGCO6879_20_21		2	2.5	53.3	0.88	0.41	18.0	0.426	0.48	3.0	150	2.3	17.5	42	155.5
YPGCO3152_14_15		3	0.7	4.4	0.21	0.49	5.9	0.090	0.02	2.0	46	3.1	7.7	39	51.6
YPGCO6605_20_21		1	1.1	6.4	0.35	0.40	8.1	0.161	0.03	2.8	52	2.1	7.0	39	65.5
YPGCO0576_2_3		1	1.2	34.5	0.35	0.23	5.3	0.190	0.57	1.3	72	2.9	10.9	96	66.3
YPGCO2056_44_45		<1	0.2	1.9	0.06	0.24	1.2	0.029	<0.02	1.1	12	1.0	52.3	25	12.4
YPGCO4543_8_9		2	1.4	42.9	0.35	0.30	6.7	0.172	0.37	1.5	102	1.5	15.4	102	68.5
YPRD14197_2_3		1	1.8	27.7	0.48	0.24	8.5	0.240	0.86	1.5	115	2.6	16.6	70	90.6
YPGCO3152_20_21		1	0.4	5.2	0.12	0.41	3.6	0.050	0.02	1.5	23	2.6	9.9	23	24.2
YPGCO3152_8_9		1	1.7	38.1	0.53	0.21	9.6	0.253	0.26	1.8	92	2.4	21.4	69	92.0
YPRD13687_34_35		1	1.2	1125	0.62	0.69	5.6	0.244	0.97	7.6	39	1.7	21.8	93	62.8
YPGCO4543_14_15		2	3.4	56.0	0.87	0.51	16.4	0.427	0.48	2.8	181	3.3	17.0	106	166.5
YPRD14197_8_9		2	1.7	52.2	0.51	0.25	10.1	0.259	0.67	2.0	111	2.0	16.3	122	96.7
YPGCO614320_21		1	1.5	10.8	0.44	0.50	12.9	0.200	0.18	5.3	72	2.6	11.7	52	107.5
YPGCO2056_14_15		2	2.8	60.8	0.73	0.42	13.2	0.353	0.35	2.4	142	2.0	15.3	79	145.5
QC7		1	0.7	7.7	0.25	0.60	7.5	0.127	<0.02	1.4	42	1.9	5.0	17	55.8
QC8		<1	0.3	6.2	0.08	0.07	2.1	0.035	0.21	0.9	19	1.3	4.0	9	19.2
QC9		2	0.6	4.9	0.20	0.52	8.7	0.075	<0.02	2.5	39	1.4	3.5	36	66.5
YPGCO2056_2_3		1	1.1	31.3	0.29	0.31	5.4	0.151	0.76	1.3	83	3.1	15.3	86	52.4
TRRDO6576_2_3		1	0.5	3.8	0.15	0.11	3.0	0.063	0.02	1.0	37	1.4	7.5	22	26.7
QC10		1	0.7	4.5	0.21	0.16	4.1	0.097	0.04	1.6	57	3.0	12.5	37	37.5
YPGCO6143_26_27		1	0.8	7.3	0.35	0.41	5.6	0.150	0.03	4.5	84	2.5	10.8	61	50.0
YPGCO0576_32_33		<1	<0.2	37.8	<0.05	0.20	0.5	0.015	<0.02	0.9	6	1.3	6.6	14	5.3
YPGCO0576_20_21		1	1.2	9.7	0.34	0.29	6.1	0.163	0.20	2.1	55	2.0	8.9	62	58.6
YPGCO2056_20_21		2	2.4	25.1	0.74	0.28	11.5	0.377	0.40	2.4	135	2.0	10.9	48	128.5
YPGCO6879_26_27		1	0.3	4.2	0.12	0.36	3.9	0.054	0.02	1.9	24	1.0	9.1	38	29.5
YPGCO1657_32_33		1	0.4	2.5	0.12	0.39	3.7	0.056	0.02	2.0	32	1.6	14.8	42	30.6
YPGCO6879_2_3		1	1.4	34.2	0.42	0.21	6.8	0.216	0.46	1.4	88	1.4	13.0	73	77.1
QC11		2	1.2	10.0	0.43	0.25	8.3	0.202	<0.02	1.3	62	1.9	5.9	32	69.0
YPGCO1657_44_45		1	0.8	4.0	0.15	0.14	3.3	0.076	0.05	1.5	58	3.8	10.7	15	31.2
YPGCO5415_20_21		2	1.8	18.4	0.61	0.39	14.6	0.293	0.41	2.5	117	2.1	9.3	48	117.5
QC12		2	2.2	13.7	0.98	0.31	12.1	0.423	<0.02	1.8	122	3.0	6.1	12	115.5
YPGC00027_8_9		1	0.8	5.6	0.26	0.37	6.2	0.122	0.11	1.0	46	1.2	6.8	23	48.6

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPGCO8967_8_9		2.13	0.003	<0.001	0.05	0.010	<0.001	0.0087	0.001	56.03	0.014	0.08	0.235	<0.005	0.002	0.051
YPGCO8967_32_33		0.73	0.001	<0.001	0.02	0.006	<0.001	0.0162	0.001	9.46	0.022	<0.01	0.093	<0.005	0.001	0.005
YPGCO8967_14_15		1.76	0.003	0.007	0.13	0.017	0.002	0.0033	0.002	53.95	0.097	0.20	4.15	0.075	<0.001	0.054
YPGCO8967_26_27		0.85	0.001	<0.001	0.05	0.005	<0.001	0.0167	0.002	22.79	0.016	<0.01	0.174	<0.005	0.002	0.018
YPGCO4545_26_27		8.44	0.004	0.011	0.14	0.025	<0.001	0.0329	0.004	46.50	0.154	0.12	0.506	0.014	0.004	0.037
YPGCO8967_20_21		0.98	0.003	0.007	0.09	0.008	<0.001	0.0077	0.002	60.11	0.104	0.15	3.62	0.009	0.002	0.063
YPGCO8967_2_3		8.34	0.003	0.067	0.13	0.012	0.002	0.0186	0.004	36.89	0.497	0.21	4.87	<0.005	0.009	0.036
CAGC30291/Y096100		1.46	0.002	<0.001	0.06	0.004	<0.001	0.0150	0.001	33.35	0.040	0.01	0.381	<0.005	0.009	0.016

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPGCO8967_8_9		<0.001	0.015	9.29	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.00	7.79	0.05	1.12	14.5	10
YPGCO8967_32_33		<0.001	0.004	84.6	<0.001	<0.001	0.03	<0.001	<0.001	<0.001	99.96	0.86	0.04	0.36	3.9	10
YPGCO8967_14_15		0.001	0.024	5.33	0.001	0.015	0.07	0.002	0.002	0.004	99.43	8.62	0.04	0.88	20.9	70
YPGCO8967_26_27		<0.001	0.006	64.2	<0.001	<0.001	0.04	<0.001	<0.001	0.002	99.97	1.91	0.03	0.41	8.6	10
YPGCO4545_26_27		0.002	0.036	16.35	<0.001	0.001	0.62	0.015	0.006	0.018	99.99	6.65	0.19	4.38	33.3	210
YPGCO8967_20_21		0.003	0.008	2.16	<0.001	0.007	0.03	<0.001	0.002	<0.001	100.00	5.29	0.05	0.51	17.8	160
YPGCO8967_2_3		0.003	0.021	22.0	<0.001	0.009	0.41	0.011	0.003	0.014	99.99	8.58	0.13	4.18	20.1	700
CAGC30291/Y096100		<0.001	0.008	47.8	<0.001	<0.001	0.04	<0.001	0.002	0.002	99.99	2.28	0.04	0.71	9.0	20

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPGCO8967_8_9		1.18	0.05	0.03	<0.02	6.40	1.9	41	<0.05	4.6	>50	1.79	2.50	0.2	0.006	0.02
YPGCO8967_32_33		0.45	0.02	0.01	<0.02	9.35	3.4	106	0.07	6.6	9.88	1.19	0.21	0.2	<0.005	0.02
YPGCO8967_14_15		1.48	0.05	0.09	0.20	51.4	5.0	14	0.11	5.2	47.2	2.96	3.07	0.3	0.007	0.08
YPGCO8967_26_27		0.59	0.04	0.02	<0.02	6.32	1.1	79	0.07	3.9	22.4	1.33	0.34	0.2	0.005	0.01
YPGCO4545_26_27		0.84	0.45	0.09	0.10	37.6	13.3	189	1.03	37.8	43.1	15.75	2.94	3.8	0.094	0.13
YPGCO8967_20_21		0.67	0.02	0.05	0.30	13.95	5.5	10	0.08	3.2	>50	2.10	2.87	0.2	<0.005	0.09
YPGCO8967_2_3		2.60	0.32	0.08	0.41	101.0	37.7	89	1.83	34.1	33.1	12.35	1.41	2.3	0.062	0.40
CAGC30291/Y096100		1.15	0.05	0.03	0.06	15.40	4.1	46	0.13	5.0	30.3	1.96	0.50	0.3	0.005	0.03

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPGCO8967_8_9		3.8	1.9	0.05	2100	0.51	0.01	1.2	16.9	460	2.2	0.6	<0.002	0.01	0.68	3.0
YPGCO8967_32_33		4.2	4.4	0.02	870	0.94	0.01	0.6	7.5	60	1.7	1.4	<0.002	<0.01	0.55	1.3
YPGCO8967_14_15		17.6	6.0	0.11	39400	1.04	0.06	1.3	30.8	500	2.4	1.9	<0.002	0.02	0.76	2.3
YPGCO8967_26_27		3.7	3.1	0.02	1640	1.14	0.01	0.8	7.4	150	2.1	0.8	<0.002	<0.01	0.51	1.2
YPGCO4545_26_27		10.4	7.0	0.08	4610	1.59	0.05	9.2	29.6	340	20.0	9.7	<0.002	0.04	2.70	13.4
YPGCO8967_20_21		16.7	5.7	0.07	33100	0.58	0.02	1.0	16.3	570	1.5	1.5	<0.002	0.01	0.44	1.2
YPGCO8967_2_3		49.5	15.6	0.13	43700	1.69	0.05	6.1	67.7	310	27.0	25.0	0.002	0.02	1.39	11.0
CAGC30291/Y096100		6.7	7.1	0.03	3370	1.28	0.01	1.1	18.8	140	3.4	1.6	<0.002	0.01	0.95	1.7

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CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPGCO8967_8_9		<1	0.2	6.8	0.06	0.22	1.2	0.027	<0.02	0.9	14	1.2	9.4	12	9.8
YPGCO8967_32_33		<1	0.2	3.1	<0.05	<0.05	0.6	0.019	<0.02	0.2	9	1.2	3.8	4	6.7
YPGCO8967_14_15		<1	0.2	140.0	0.07	0.32	1.2	0.030	0.21	2.1	12	1.3	24.9	22	12.4
YPGCO8967_26_27		<1	0.2	5.9	0.05	0.09	0.7	0.022	<0.02	0.3	9	1.9	5.2	7	6.7
YPGCO4545_26_27		3	1.8	16.1	0.66	0.47	18.7	0.315	0.47	3.3	144	2.0	11.5	58	135.5
YPGCO8967_20_21		<1	<0.2	64.4	<0.05	0.26	0.8	0.018	0.31	1.0	6	1.3	10.9	19	6.8
YPGCO8967_2_3		1	1.3	90.6	0.43	0.35	9.4	0.210	1.13	2.5	108	3.3	32.5	40	86.2
CAGC30291/Y096100		<1	0.2	10.2	0.07	0.14	1.2	0.025	0.03	0.5	8	2.4	8.5	16	11.5

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CERTIFICATE OF ANALYSIS BR12155011

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

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Finalized Date: 11-JUL-2012
Account: ALSENV

QC CERTIFICATE BR12155011

Project: EP1205053

P.O. No.:

This report is for 48 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
32 SHAND STREET
STAFFORD QLD 4053

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Al2O3 % 0.01	ME-XRF21n As % 0.001	ME-XRF21n Ba % 0.001	ME-XRF21n CaO % 0.01	ME-XRF21n Cl % 0.001	ME-XRF21n Co % 0.001	ME-XRF21n Cr2O3 % 0.0006	ME-XRF21n Cu % 0.001	ME-XRF21n Fe % 0.01	ME-XRF21n K2O % 0.001	ME-XRF21n MgO % 0.01	ME-XRF21n Mn % 0.001	ME-XRF21n Na2O % 0.005	ME-XRF21n Ni % 0.001	ME-XRF21n P % 0.001
STANDARDS																
GBM908-10																
	Target Range - Lower Bound															
	Upper Bound															
GEOMS-03																
	Target Range - Lower Bound															
	Upper Bound															
LAT-CS9																
LAT-CS9																
LAT-CS9																
	Target Range - Lower Bound															
	Upper Bound															
MRGeo08																
	Target Range - Lower Bound															
	Upper Bound															
MW-1		0.29	0.002	<0.001	0.06	0.003	0.187	0.1305	0.002	65.95	0.013	0.04	0.016	0.016	0.084	0.013
MW-1		0.31	0.001	0.001	0.06	0.002	0.184	0.1260	0.002	65.88	0.013	0.03	0.016	0.015	0.084	0.010
	Target Range - Lower Bound	0.29	<0.001	<0.001	0.04	<0.001	0.176	0.1230	<0.001	65.41	0.012	<0.01	0.015	<0.005	0.081	0.009
	Upper Bound	0.31	0.003	0.003	0.07	0.003	0.197	0.1370	0.004	66.75	0.015	0.05	0.018	0.025	0.092	0.013
OGGeo08																
	Target Range - Lower Bound															
	Upper Bound															
SARM-12		0.79	0.001	<0.001	1.14	0.010	0.020	0.0028	0.045	66.51	0.013	2.87	0.170	0.012	0.030	0.046
	Target Range - Lower Bound	0.75	<0.001	<0.001	1.07	0.009	0.021	0.0018	0.045	65.93	0.011	2.76	0.165	<0.005	0.026	0.044
	Upper Bound	0.79	0.003	0.005	1.11	0.013	0.025	0.0042	0.051	67.33	0.015	2.84	0.174	0.022	0.031	0.051
SARM-39		4.19	<0.001	0.172	9.69	0.033	0.008	0.1980	0.006	6.54	1.065	26.2	0.130	0.572	0.099	0.637
SARM-39		4.22	<0.001	0.172	9.69	0.032	0.006	0.1905	0.007	6.56	1.070	26.3	0.127	0.653	0.098	0.631
	Target Range - Lower Bound	4.24	<0.001	0.166	9.58	0.032	0.006	0.1800	0.005	6.42	1.010	25.9	0.128	0.584	0.094	0.604
	Upper Bound	4.34	0.004	0.175	9.80	0.038	0.010	0.200	0.009	6.57	1.070	26.5	0.135	0.656	0.106	0.670
SARM-45		26.2	0.003	0.082	0.78	0.006	0.004	0.0337	0.002	8.81	3.13	3.41	0.074	0.774	0.009	0.035
	Target Range - Lower Bound	25.9	<0.001	0.082	0.76	0.005	0.002	0.0346	<0.001	8.71	3.08	3.35	0.075	0.793	0.006	0.032
	Upper Bound	26.5	0.005	0.088	0.80	0.009	0.006	0.0395	0.003	8.91	3.28	3.43	0.080	0.887	0.010	0.038

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
STANDARDS																
GBM908-10													2.88	6.60	55.4	990
Target Range - Lower Bound													2.69	6.40	49.3	930
Upper Bound													3.31	7.84	60.7	1280
GEOMS-03													0.70	4.82	585	2330
Target Range - Lower Bound													0.67	4.61	570	2060
Upper Bound													0.85	5.65	697	2810
LAT-CS9												12.53				
LAT-CS9												12.64				
LAT-CS9												12.68				
Target Range - Lower Bound												12.34				
Upper Bound												13.12				
MRGeo08													4.29	6.61	30.9	960
Target Range - Lower Bound													4.16	7.00	29.7	920
Upper Bound													5.10	8.57	36.7	1270
MW-1		0.001	0.009	4.55	<0.001	0.001	0.12	0.003	<0.001	0.001	100.00					
MW-1		<0.001	0.007	4.65	0.002	<0.001	0.13	0.004	<0.001	0.002	100.00					
Target Range - Lower Bound		<0.001	0.009	4.54	<0.001	<0.001	0.11	<0.001	<0.001	<0.001	<0.01					
Upper Bound		0.003	0.013	4.66	0.003	0.003	0.15	0.005	0.004	0.003	0.02					
OGGeo08													19.45	6.28	101.0	820
Target Range - Lower Bound													18.35	6.24	108.5	590
Upper Bound													22.5	7.64	133.5	830
SARM-12		0.002	0.066	0.36	<0.001	0.013	0.73	0.051	0.015	0.005	100.00					
Target Range - Lower Bound		0.002	0.065	0.33	<0.001	0.011	0.70	0.048	0.012	0.005	<0.01					
Upper Bound		0.006	0.074	0.35	0.004	0.015	0.74	0.055	0.016	0.009	0.02					
SARM-39		0.003	0.305	33.7	<0.001	0.146	1.60	0.011	0.006	0.024	100.05					
SARM-39		0.002	0.305	33.4	0.001	0.147	1.60	0.011	0.006	0.026	99.97					
Target Range - Lower Bound		<0.001	0.287	33.1	<0.001	0.136	1.54	0.009	0.005	0.022	<0.01					
Upper Bound		0.004	0.320	33.7	0.003	0.152	1.62	0.013	0.009	0.026	0.02					
SARM-45		0.002	0.046	49.7	<0.001	0.009	1.81	0.027	0.008	0.033	100.05					
Target Range - Lower Bound		0.002	0.044	49.1	<0.001	0.007	1.77	0.025	0.005	0.029	<0.01					
Upper Bound		0.006	0.050	50.1	0.003	0.011	1.87	0.029	0.009	0.034	0.02					

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
STANDARDS																
GBM908-10		1.42	1.50	3.74	1.65	102.0	25.3	131	3.58	3600	5.57	20.2	0.28	3.6	0.074	2.08
Target Range - Lower Bound		1.19	1.09	3.53	1.52	99.0	21.5	118	3.37	3270	5.21	18.65	0.18	3.2	0.064	1.86
Upper Bound		1.57	1.35	4.10	1.90	121.0	26.5	146	4.23	3990	6.39	22.9	0.40	4.1	0.092	2.29
GEOMS-03		1.47	0.33	0.40	0.32	51.3	11.0	113	9.42	132.5	4.27	12.50	0.21	1.9	0.042	1.14
Target Range - Lower Bound		1.34	0.31	0.33	0.30	47.0	10.7	105	9.04	120.5	3.64	12.00	0.06	1.1	0.032	1.03
Upper Bound		1.74	0.41	0.43	0.42	57.4	13.3	131	11.15	147.5	4.48	14.75	0.23	1.7	0.056	1.29
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		3.15	0.63	2.55	2.05	63.1	18.9	84	11.35	624	3.85	18.35	0.23	3.1	0.162	3.05
Target Range - Lower Bound		2.80	0.63	2.35	2.01	72.9	18.4	82	11.00	568	3.61	17.50	<0.05	2.8	0.161	2.79
Upper Bound		3.54	0.79	2.90	2.50	89.1	22.8	102	13.60	694	4.43	21.5	0.27	3.6	0.207	3.43
MW-1																
MW-1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		3.24	10.35	2.13	18.20	67.6	88.8	77	10.25	8160	5.32	16.50	0.44	2.8	1.375	2.83
Target Range - Lower Bound		2.59	9.89	1.98	18.05	64.8	83.6	78	9.85	7550	4.89	16.05	0.25	2.5	1.320	2.59
Upper Bound		3.27	12.10	2.44	22.1	79.2	102.5	98	12.15	9230	5.99	19.75	0.49	3.3	1.620	3.19
SARM-12																
Target Range - Lower Bound																
Upper Bound																
SARM-39																
SARM-39																
Target Range - Lower Bound																
Upper Bound																
SARM-45																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description / Method / Analyte / Units / LOR	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1
STANDARDS															
GBM908-10	53.0	11.2	1.79	757	61.5	2.10	11.2	2080	930	1930	157.5	<0.002	0.35	1.72	18.5
Target Range - Lower Bound	49.0	5.5	1.59	704	57.9	2.02	9.3	2030	870	1860	153.0	<0.002	0.38	1.30	17.0
Upper Bound	61.0	7.2	1.97	871	70.9	2.50	11.6	2480	1090	2270	187.0	0.005	0.43	1.88	21.0
GEOMS-03	27.7	38.6	0.51	514	3.76	0.08	15.7	53.2	1030	5.6	63.2	0.003	0.03	17.00	12.7
Target Range - Lower Bound	25.6	37.6	0.48	483	3.05	0.05	13.1	48.1	970	5.5	55.7	<0.002	0.02	15.35	12.4
Upper Bound	32.4	46.4	0.60	601	3.83	0.11	16.3	59.3	1210	8.2	68.3	0.006	0.06	21.5	15.4
LAT-CS9															
LAT-CS9															
LAT-CS9															
Target Range - Lower Bound															
Upper Bound															
MRGeo08	30.4	32.4	1.28	523	15.30	1.90	21.4	669	950	1010	174.0	0.008	0.28	4.24	11.2
Target Range - Lower Bound	36.3	30.4	1.24	506	13.65	1.76	19.3	617	910	965	167.0	0.006	0.27	4.08	11.0
Upper Bound	45.5	37.6	1.54	630	16.75	2.18	23.8	755	1140	1180	229	0.016	0.35	5.64	13.6
MW-1															
MW-1															
Target Range - Lower Bound															
Upper Bound															
OGGeo08	32.2	35.1	1.21	481	899	1.75	17.5	8100	770	6730	171.5	1.300	2.52	24.9	9.7
Target Range - Lower Bound	31.0	30.0	1.08	447	841	1.62	17.9	8020	760	6520	171.0	1.285	2.58	23.6	9.2
Upper Bound	39.0	37.2	1.34	557	1030	2.00	22.1	9800	950	7960	209	1.575	3.18	32.0	11.4
SARM-12															
Target Range - Lower Bound															
Upper Bound															
SARM-39															
SARM-39															
Target Range - Lower Bound															
Upper Bound															
SARM-45															
Target Range - Lower Bound															
Upper Bound															

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
STANDARDS															
GBM908-10		1	3.0	266	0.72	0.07	17.2	0.605	1.15	2.3	133	3.3	37.6	980	136.5
Target Range - Lower Bound		<1	2.5	258	0.68	<0.05	16.9	0.591	1.00	2.0	123	2.7	36.2	939	109.0
Upper Bound		4	3.6	316	0.97	0.16	21.1	0.783	1.40	2.6	153	3.9	44.5	1155	148.5
GEOMS-03		3	2.3	161.0	0.91	0.13	7.0	0.431	1.16	3.8	108	21.3	23.6	44	68.3
Target Range - Lower Bound		<1	2.0	157.5	0.80	<0.05	6.2	0.409	0.99	3.1	104	19.3	19.8	40	44.0
Upper Bound		5	3.0	192.5	1.10	0.24	8.0	0.511	1.39	4.0	130	26.4	24.4	54	60.8
LAT-CS9															
LAT-CS9															
LAT-CS9															
Target Range - Lower Bound															
Upper Bound															
MRGeo08		1	3.8	270	1.50	0.05	17.6	0.449	0.99	4.9	102	4.7	24.3	736	105.0
Target Range - Lower Bound		<1	3.5	272	1.48	<0.05	19.2	0.454	0.87	5.6	99	4.3	24.3	712	92.2
Upper Bound		4	4.7	332	1.92	0.15	23.9	0.566	1.23	7.0	123	6.1	29.9	874	126.0
MW-1															
MW-1															
Target Range - Lower Bound															
Upper Bound															
OGGeo08		10	13.1	228	1.24	0.27	18.0	0.360	1.59	5.1	80	4.4	21.8	6640	91.8
Target Range - Lower Bound		8	12.9	219	1.19	0.09	16.7	0.364	1.43	4.9	77	4.0	21.1	6410	87.1
Upper Bound		14	16.3	268	1.57	0.31	20.9	0.456	1.98	6.3	97	5.6	26.1	7830	119.0
SARM-12															
Target Range - Lower Bound															
Upper Bound															
SARM-39															
SARM-39															
Target Range - Lower Bound															
Upper Bound															
SARM-45															
Target Range - Lower Bound															
Upper Bound															

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Al2O3 % 0.01	ME-XRF21n As % 0.001	ME-XRF21n Ba % 0.001	ME-XRF21n CaO % 0.01	ME-XRF21n Cl % 0.001	ME-XRF21n Co % 0.001	ME-XRF21n Cr2O3 % 0.0006	ME-XRF21n Cu % 0.001	ME-XRF21n Fe % 0.01	ME-XRF21n K2O % 0.001	ME-XRF21n MgO % 0.01	ME-XRF21n Mn % 0.001	ME-XRF21n Na2O % 0.005	ME-XRF21n Ni % 0.001	ME-XRF21n P % 0.001
BLANKS																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		0.15	<0.001	<0.001	0.02	0.001	<0.001	<0.0006	<0.001	0.26	<0.001	<0.01	0.001	<0.005	<0.001	<0.001
BLANK		0.15	<0.001	<0.001	0.02	<0.001	<0.001	<0.0006	<0.001	0.25	<0.001	<0.01	0.001	<0.005	<0.001	<0.001
BLANK		0.12	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.26	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Target Range - Lower Bound		<0.01		<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Upper Bound		0.02		0.002	0.02	0.002	0.002	0.0012	0.002	0.02	0.002	0.02	0.002	0.010	0.002	0.002
DUPLICATES																
YPGC00027_2_3																
DUP																
Target Range - Lower Bound																
Upper Bound																
TRRD33379_4_5																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC03152_14_15		5.98	0.003	<0.001	0.06	0.005	<0.001	0.0088	0.002	51.22	0.040	0.03	0.144	<0.005	0.003	0.030
DUP		5.94	0.003	<0.001	0.06	0.003	<0.001	0.0088	0.002	51.25	0.040	0.03	0.144	<0.005	0.002	0.030
Target Range - Lower Bound		5.92	0.002	<0.001	0.05	0.003	<0.001	0.0080	<0.001	50.97	0.038	0.02	0.142	<0.005	<0.001	0.028
Upper Bound		6.00	0.004	0.002	0.07	0.005	0.002	0.0096	0.003	51.50	0.042	0.04	0.146	0.010	0.004	0.032
QC8																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC9																
DUP																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
BLANKS																
BLANK													<0.01	<0.01	<0.2	<10
BLANK													<0.01	<0.01	<0.2	<10
Target Range - Lower Bound													<0.01	<0.01	<0.2	<10
Upper Bound													0.02	0.02	0.4	20
BLANK		<0.001	<0.001	99.4	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	99.98					
BLANK		<0.001	<0.001	99.4	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	99.97					
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.05					
Target Range - Lower Bound			<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001						
Upper Bound			0.002	0.02	0.002	0.002	0.02	0.002	0.002	0.002						
DUPLICATES																
YPGC00027_2_3													0.12	2.04	38.5	140
DUP													0.12	2.01	34.5	140
Target Range - Lower Bound													0.10	1.91	34.5	120
Upper Bound													0.14	2.14	38.5	160
TRRD33379_4_5												7.93				
DUP												7.92				
Target Range - Lower Bound												7.72				
Upper Bound												8.13				
YPGCO3152_14_15		<0.001	0.060	8.98	<0.001	<0.001	0.17	0.003	0.002	0.004	100.00					
DUP		<0.001	0.061	8.98	<0.001	<0.001	0.17	0.003	0.002	0.004	100.00					
Target Range - Lower Bound		<0.001	0.058	8.93	<0.001	<0.001	0.16	0.002	<0.001	0.003	99.99					
Upper Bound		0.002	0.063	9.03	0.002	0.002	0.18	0.004	0.003	0.005	101.00					
QC8												2.28				
DUP												2.27				
Target Range - Lower Bound												2.21				
Upper Bound												2.34				
QC9													0.06	2.59	20.8	20
DUP													0.06	2.71	21.1	20
Target Range - Lower Bound													0.05	2.51	19.7	<10
Upper Bound													0.07	2.79	22.2	30

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
BLANKS																
BLANK		<0.05	0.01	<0.01	<0.02	<0.01	<0.1	1	<0.05	<0.2	0.01	0.10	0.08	<0.1	<0.005	<0.01
BLANK		<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	2	<0.05	<0.2	0.01	0.10	0.09	<0.1	<0.005	<0.01
Target Range - Lower Bound		<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	<0.2	<0.01	<0.05	<0.05	<0.1	<0.005	<0.01
Upper Bound		0.10	0.02	0.02	0.04	0.02	0.2	2	0.10	0.4	0.02	0.10	0.10	0.2	0.010	0.02
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
YPGC00027_2_3		1.07	0.18	0.07	0.15	23.2	10.2	110	1.25	39.6	24.1	6.83	0.38	1.2	0.063	0.41
DUP		1.11	0.18	0.06	0.14	29.6	10.2	111	1.20	38.8	23.7	6.72	0.41	1.1	0.067	0.40
Target Range - Lower Bound		0.99	0.16	0.05	0.12	25.1	9.6	104	1.11	37.0	22.7	6.39	0.33	1.0	0.057	0.37
Upper Bound		1.19	0.20	0.08	0.17	27.7	10.8	117	1.34	41.4	25.1	7.16	0.46	1.3	0.073	0.44
TRRD33379_4_5																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC03152_14_15																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC8																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC9		0.48	0.21	0.08	0.04	6.99	4.6	54	0.18	9.7	46.3	6.53	3.01	1.8	0.035	0.01
DUP		0.49	0.22	0.08	0.06	7.18	4.5	57	0.18	10.2	48.6	6.31	2.87	1.9	0.040	0.02
Target Range - Lower Bound		0.41	0.19	0.07	0.03	6.72	4.2	52	0.12	9.3	45.1	6.05	2.74	1.7	0.031	<0.01
Upper Bound		0.56	0.24	0.09	0.07	7.45	4.9	59	0.24	10.6	49.8	6.79	3.14	2.0	0.044	0.02

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
BLANKS																
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	0.1	<0.002	<0.01	<0.05	<0.1
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	0.1
Target Range - Lower Bound		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	<0.1
Upper Bound		1.0	0.4	0.02	10	0.10	0.02	0.2	0.4	20	1.0	0.2	0.004	0.02	0.10	0.2
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
YPGC00027_2_3		11.3	7.8	0.12	1160	1.55	0.03	3.3	49.6	250	13.3	15.9	<0.002	0.26	2.35	6.9
DUP		14.2	8.3	0.12	1170	1.51	0.03	3.2	48.6	250	13.3	15.4	<0.002	0.25	2.26	6.8
Target Range - Lower Bound		11.6	7.4	0.10	1100	1.40	0.02	3.0	46.4	230	12.1	14.8	<0.002	0.23	2.08	6.4
Upper Bound		13.9	8.7	0.14	1230	1.66	0.04	3.5	51.8	270	14.5	16.5	0.004	0.28	2.53	7.3
TRRD33379_4_5																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO3152_14_15																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC8																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC9		1.3	1.3	0.05	689	0.90	0.01	2.9	15.1	200	9.6	0.7	<0.002	0.09	1.59	6.6
DUP		1.3	1.4	0.05	689	0.94	0.01	3.1	15.5	220	9.9	0.8	<0.002	0.10	1.69	6.7
Target Range - Lower Bound		0.7	1.1	0.04	650	0.82	<0.01	2.8	14.3	190	8.8	0.6	<0.002	0.08	1.47	6.2
Upper Bound		1.9	1.6	0.06	728	1.02	0.02	3.3	16.3	230	10.7	0.9	0.004	0.11	1.81	7.1

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
BLANKS															
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	0.1	<0.1	<2	<0.5
Target Range = Lower Bound		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Upper Bound		5	0.4	0.4	0.10	0.10	0.4	0.010	0.04	0.2	2	0.2	0.2	4	1.0
BLANK															
BLANK															
BLANK															
Target Range = Lower Bound															
Upper Bound															
DUPLICATES															
YPGC00027_2_3		1	0.9	24.9	0.23	0.23	3.9	0.115	0.44	0.9	74	1.0	11.2	109	43.4
DUP		1	0.9	25.0	0.23	0.19	4.1	0.113	0.47	0.9	74	1.2	10.9	112	42.3
Target Range = Lower Bound		<1	0.7	23.5	0.17	0.15	3.6	0.103	0.40	0.8	69	0.9	10.4	103	40.2
Upper Bound		2	1.1	26.4	0.29	0.27	4.4	0.125	0.51	1.0	79	1.3	11.7	118	45.5
TRRD33379_4_5															
DUP															
Target Range = Lower Bound															
Upper Bound															
YPGCO3152_14_15															
DUP															
Target Range = Lower Bound															
Upper Bound															
QC8															
DUP															
Target Range = Lower Bound															
Upper Bound															
QC9		2	0.6	4.9	0.20	0.52	8.7	0.075	<0.02	2.5	39	1.4	3.5	36	66.5
DUP		2	0.6	5.1	0.20	0.49	8.9	0.079	<0.02	2.6	39	1.3	3.7	39	68.0
Target Range = Lower Bound		<1	0.4	4.6	0.14	0.43	8.2	0.068	<0.02	2.3	36	1.1	3.3	34	63.4
Upper Bound		3	0.8	5.5	0.26	0.58	9.4	0.086	0.04	2.8	42	1.6	3.9	41	71.1

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
DUPLICATES																
YPGCO0576_32_33		0.79	0.001	0.002	0.02	0.002	<0.001	0.0084	0.002	44.19	0.015	0.02	0.150	<0.005	0.001	0.072
DUP		0.79	0.001	0.004	0.02	0.003	<0.001	0.0145	0.002	44.20	0.016	0.02	0.148	<0.005	0.001	0.071
Target Range - Lower Bound		0.78	<0.001	0.002	<0.01	<0.001	<0.001	0.0106	<0.001	43.96	0.014	<0.01	0.147	<0.005	<0.001	0.069
Upper Bound		0.80	0.002	0.004	0.03	0.004	0.002	0.0123	0.003	44.43	0.017	0.03	0.151	0.010	0.002	0.074
YPGCO0027_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO8967_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO8967_20_21		0.98	0.003	0.007	0.09	0.008	<0.001	0.0077	0.002	60.11	0.104	0.15	3.62	0.009	0.002	0.063
DUP		0.97	0.003	0.005	0.09	0.006	<0.001	0.0081	0.001	60.12	0.106	0.15	3.62	0.009	0.003	0.063
Target Range - Lower Bound		0.96	0.002	0.005	0.08	0.006	<0.001	0.0071	<0.001	59.80	0.102	0.14	3.58	<0.005	<0.001	0.060
Upper Bound		0.99	0.004	0.007	0.10	0.008	0.002	0.0087	0.002	60.43	0.108	0.16	3.66	0.010	0.004	0.066
YPRD06017_15_16																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC4		4.56	0.004	0.009	0.10	0.026	0.001	0.0286	0.004	17.47	0.328	0.20	0.118	0.026	0.002	0.017
DUP		4.55	0.005	0.012	0.11	0.024	0.001	0.0267	0.003	17.50	0.334	0.22	0.120	0.030	0.002	0.017
Target Range - Lower Bound		4.52	0.003	0.009	0.09	0.023	<0.001	0.0264	0.002	17.39	0.325	0.20	0.117	0.022	<0.001	0.016
Upper Bound		4.59	0.006	0.012	0.12	0.027	0.002	0.0289	0.005	17.58	0.337	0.22	0.121	0.034	0.003	0.018

***** See Appendix Page for comments regarding this certificate *****

Australian Laboratory Services Pty. Ltd.
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Project: EP1205053

QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
DUPLICATES																
YPGCO0576_32_33		<0.001	0.009	29.2	0.001	0.005	0.04	0.002	0.002	0.004	99.99					
DUP		0.001	0.008	29.2	0.001	0.004	0.04	0.001	0.001	0.004	100.00					
Target Range - Lower Bound		<0.001	0.007	29.0	<0.001	0.003	0.03	<0.001	<0.001	0.003	98.99					
Upper Bound		0.002	0.010	29.4	0.002	0.006	0.05	0.002	0.002	0.005	101.00					
YPGC00027_8_9													0.07	1.66	11.5	50
DUP													0.06	1.64	11.5	50
Target Range - Lower Bound													0.05	1.56	10.7	40
Upper Bound													0.08	1.74	12.3	60
YPGCO8967_8_9												7.79				
DUP												7.90				
Target Range - Lower Bound												7.64				
Upper Bound												8.05				
YPGCO8967_20_21		0.003	0.008	2.16	<0.001	0.007	0.03	<0.001	0.002	<0.001	100.00					
DUP		0.002	0.008	2.16	<0.001	0.007	0.03	<0.001	0.001	<0.001	100.00					
Target Range - Lower Bound		<0.001	0.007	2.14	<0.001	0.005	0.02	<0.001	<0.001	<0.001	98.99					
Upper Bound		0.004	0.009	2.18	0.002	0.008	0.04	0.002	0.002	0.002	101.00					
YPRD06017_15_16													0.18	4.52	29.3	100
DUP													0.20	4.65	31.2	100
Target Range - Lower Bound													0.17	4.35	28.5	80
Upper Bound													0.21	4.82	32.0	120
QC4		0.003	0.051	65.9	0.002	0.002	0.21	0.008	0.006	0.007	99.96					
DUP		0.002	0.050	65.9	0.001	0.002	0.21	0.008	0.006	0.007	100.00					
Target Range - Lower Bound		<0.001	0.043	65.6	<0.001	<0.001	0.20	0.007	0.005	0.006	98.97					
Upper Bound		0.004	0.053	66.2	0.002	0.003	0.22	0.009	0.007	0.008	101.00					

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QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
		DUPLICATES														
YPGCO0576_32_33																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC00027_8_9		0.64	0.14	0.03	0.09	20.9	4.3	70	0.16	8.8	47.4	6.73	3.12	1.3	0.035	0.03
DUP		0.78	0.16	0.03	0.08	21.9	4.4	68	0.18	8.7	47.9	7.27	2.33	1.4	0.034	0.03
Target Range - Lower Bound		0.62	0.13	0.02	0.06	20.3	4.0	65	0.11	8.1	45.3	6.60	2.54	1.2	0.028	0.02
Upper Bound		0.80	0.17	0.04	0.11	22.5	4.7	73	0.23	9.4	50.0	7.40	2.91	1.5	0.041	0.04
YPGCO8967_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO8967_20_21																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPRD06017_15_16		2.49	0.54	0.04	0.17	65.7	38.6	67	0.46	9.6	42.9	8.54	3.34	2.5	0.033	0.15
DUP		2.70	0.57	0.05	0.20	80.0	40.8	66	0.51	10.8	43.8	9.23	3.37	2.6	0.030	0.15
Target Range - Lower Bound		2.42	0.52	0.03	0.16	69.2	37.6	62	0.41	9.5	41.2	8.39	3.14	2.3	0.025	0.13
Upper Bound		2.77	0.59	0.06	0.21	76.5	41.8	71	0.56	10.9	45.5	9.38	3.57	2.8	0.038	0.17
QC4																
DUP																
Target Range - Lower Bound																
Upper Bound																

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Project: EP1205053

QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description	Method / Analyte / Units / LOR	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1
		DUPLICATES														
YPGCO0576_32_33																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGCO0027_8_9		4.0	4.8	0.04	2710	1.11	0.02	4.2	15.8	260	12.4	1.6	<0.002	0.04	1.28	5.1
DUP		4.1	5.7	0.04	2690	1.15	0.01	4.2	14.6	260	11.8	1.6	<0.002	0.04	1.39	5.4
Target Range = Lower Bound		3.3	4.8	0.03	2560	1.02	<0.01	3.9	14.2	240	11.0	1.4	<0.002	0.03	1.18	4.9
Upper Bound		4.8	5.7	0.05	2840	1.24	0.02	4.5	16.2	280	13.2	1.8	0.004	0.05	1.49	5.6
YPGCO8967_8_9																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGCO8967_20_21																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPRD06017_15_16		26.2	10.4	0.08	7590	1.73	0.04	7.1	59.2	130	14.3	4.4	<0.002	0.03	1.25	9.1
DUP		27.8	11.2	0.08	7490	2.01	0.04	7.4	62.5	130	18.2	4.6	0.003	0.03	1.31	9.7
Target Range = Lower Bound		25.2	10.1	0.07	7160	1.73	0.03	6.8	57.6	110	14.9	4.2	<0.002	0.02	1.15	8.8
Upper Bound		28.9	11.5	0.09	7920	2.01	0.05	7.7	64.1	150	17.6	4.8	0.004	0.04	1.43	10.0
QC4																
DUP																
Target Range = Lower Bound																
Upper Bound																

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Project: EP1205053

QC CERTIFICATE OF ANALYSIS BR12155011

Sample Description / Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
DUPLICATES														
YPGCO0576_32_33														
DUP														
Target Range - Lower Bound														
Upper Bound														
YPGCO0027_8_9	1	0.8	5.6	0.26	0.37	6.2	0.122	0.11	1.0	46	1.2	6.8	23	48.6
DUP	1	0.9	5.7	0.29	0.50	6.6	0.122	0.09	1.1	46	1.3	7.2	22	49.4
Target Range - Lower Bound	≤1	0.6	5.2	0.21	0.36	5.9	0.111	0.07	0.9	43	1.1	6.6	19	46.1
Upper Bound	2	1.1	6.1	0.34	0.51	6.9	0.133	0.13	1.2	49	1.4	7.5	26	52.0
YPGCO8967_8_9														
DUP														
Target Range - Lower Bound														
Upper Bound														
YPGCO8967_20_21														
DUP														
Target Range - Lower Bound														
Upper Bound														
YPRD06017_15_16	2	1.3	14.5	0.55	0.35	9.9	0.234	0.11	5.4	48	1.4	26.0	24	86.7
DUP	2	1.3	15.3	0.58	0.39	10.6	0.234	0.12	5.8	48	1.5	27.9	22	92.6
Target Range - Lower Bound	≤1	1.0	14.0	0.49	0.30	9.5	0.217	0.09	5.2	45	1.2	25.5	20	84.7
Upper Bound	3	1.6	15.8	0.64	0.44	11.0	0.251	0.14	6.0	51	1.7	28.4	26	94.6
QC4														
DUP														
Target Range - Lower Bound														
Upper Bound														

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205053

QC CERTIFICATE OF ANALYSIS BR12155011

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

284-80

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth

ADDRESS / OFFICE: Level 4 , 226 Adelaide Terrace, Perth 6000

PROJECT MANAGER (PM): Tracey Hassell

PROJECT ID: 42908001

SITE: Christmas Creek P.O. NO.:

RESULTS REQUIRED (Date): QUOTE NO.: refer to W/O EP1204221

SAMPLER: Christams Creek Site Personnel

MOBILE: c/o Tracey Hassell 0407 861 462

PHONE:

EMAIL REPORT TO: tracey.hassell@urs.com

EMAIL INVOICE TO: (if different to report) perth.accounts@urs.com

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Please return unused samples to URS Australia - Perth

Refer to attached table for suite descriptions

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

ALS ID	SAMPLE ID	MATRIX	DATE	Time	Container Type / Code	Total bottles	pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan (full suite)
	X YPGC06605_28_29	Soil	n/a		B	1	1	1	1	1	1	1	1	1
1	YPRD04911_8_9	Soil	n/a		B	1	1	1	1	1	1	1	1	1
2	QC1	Soil	n/a		B	1	1	1	1	1	1	1	1	1
3	YPGC10846_14_15	Soil	n/a		B	1	1	1	1	1	1	1	1	1
4	CAGC30291_44_45	Soil	n/a		B	1	1	1	1	1	1	1	1	1
5	YPGC02807_26_27	Soil	n/a		B	1	1	1	1	1	1	1	1	1
6	YPRD11438_26_27	Soil	n/a		B	1	1	1	1	1	1	1	1	1
	X TRRD06576_8_9	Soil	n/a		B	1	1	1	1	1	1	1	1	1
7	YPGC03152_2_3	Soil	n/a		B	1	1	1	1	1	1	1	1	1
8	YPGC06605_2_3	Soil	n/a		B	1	1	1	1	1	1	1	1	1
9	YPGC06143_2_3	Soil	n/a		B	1	1	1	1	1	1	1	1	1
10	YPGCO3152_32_33	Soil	n/a		B	1	1	1	1	1	1	1	1	1

Environmental Division
Perth
Work Order
EP1205056

Telephone : +61-8-9209 7655

RELINQUISHED BY:

Name: NATHAN CROOK Date: 22/6/12

Of: URS Perth Time:

Name: Date:

Of: Time:

RECEIVED BY

Name: N Westwick Date: 22/6

Of: ALS Time: 1520

Name: Date:

Of: Time:

METHOD OF SHIPMENT

Con' Note No:

Transport Co:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth

ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000

PROJECT MANAGER (PM): Tracey Hassell

PROJECT ID:

SITE: P.O. NO.:

RESULTS REQUIRED (**Date**): QUOTE NO.:

SAMPLER:

MOBILE:

PHONE:

EMAIL REPORT TO:

EMAIL INVOICE TO: (if different to report)

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact: Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
11	YPGC00027_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
12	YPRD014197_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
13	YPGC10846_44_45	Soil			B	1	1	1	1	1	1	1	1	1					
14	YPRD06017_15_16	Soil			B	1	1	1	1	1	1	1	1	1					
15	YPGC00576_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
16	CAGC30291_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
17	YPGC06143_32_33	Soil			B	1	1	1	1	1	1	1	1	1					
18	YPRD06017_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
19	YPGC06879_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
20	YPGC02807_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
21	YPGC06143_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
22	YPGC04543_22_23	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth

ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000

PROJECT MANAGER (PM): Tracey Hassell

PROJECT ID:

SITE: P.O. NO.:

RESULTS REQUIRED (**Date**): QUOTE NO.:

SAMPLER:

MOBILE:

PHONE:

EMAIL REPORT TO:

EMAIL INVOICE TO: (if different to report)

FOR LABORATORY USE ONLY

COOLER SEAL (circle appropriate)

Intact Yes No N/A

SAMPLE TEMPERATURE

CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
	X YPGC05415_56_57	Soil			B	1	1	1	1	1	1	1	1	1					
23	YPRD06017_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
24	TRRD33379_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
25	YPRD04911_11_12	Soil			B	1	1	1	1	1	1	1	1	1					
26	YPGCO3152_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
27	YPGC06879_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
28	YPGCO2056_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
29	YPGC05415_26_27	Soil			B	1	1	1	1	1	1	1	1	1					
30	YPGCO6143_8_9	Soil			B	1	1	1	1	1	1	1	1	1					
31	YPGC066505_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
32	TRRD33379_10_11	Soil			B	1	1	1	1	1	1	1	1	1					
33	YPGC11249_26_27	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: m Westrich	Date: 22/6	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	**ANALYSIS REQUIRED including SUITES** (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan					
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles													
34	YPRD11438_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
35	CAGC30291_20_21	Soil			B	1	1	1	1	1	1	1	1	1					
36	TRRD06576_1_2	Soil			B	1	1	1	1	1	1	1	1	1					
37	YPRD10638_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
38	YPRD06017_2_3	Soil			B	1	1	1	1	1	1	1	1	1					
39	YPGC01249_14_15	Soil			B	1	1	1	1	1	1	1	1	1					
40	YPGC02056_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
41	YPGC11249_38_39	Soil			B	1	1	1	1	1	1	1	1	1					
42	YPRD06017_26_29 (27)	Soil			B	1	1	1	1	1	1	1	1	1					
43	TRRD33437_4_5	Soil			B	1	1	1	1	1	1	1	1	1					
	X YPRD04911/Y096173	Soil			B	1	1	1	1	1	1	1	1	1					
	X YPGCO1657/Y219108	Soil			B	1	1	1	1	1	1	1	1	1					

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name:	Date:	Con' Note No:
Of:	Time:	Of:	Time:	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

ENFM (204/5)

CHAIN OF CUSTODY DOCUMENTATION

ALS Laboratory Group

CLIENT: URS Perth	SAMPLER:
ADDRESS / OFFICE: Level 4, 226 Adelaide Terrace, Perth 6000	MOBILE:
PROJECT MANAGER (PM): Tracey Hassell	PHONE:
PROJECT ID:	EMAIL REPORT TO:
SITE: P.O. NO.:	EMAIL INVOICE TO: (if different to report)
RESULTS REQUIRED (Date): QUOTE NO.:	

ANALYSIS REQUIRED including SUITES (note - suite codes must be listed to attract suite prices)

FOR LABORATORY USE ONLY
COOLER SEAL (circle appropriate)
Intact: Yes No N/A
SAMPLE TEMPERATURE
CHILLED: Yes No

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

Notes: e.g. Highly contaminated samples
e.g. "High PAHs expected".
Extra volume for QC or trace LORs etc.

REFER TO ATTACHED TABLE FOR ANALYSIS DETAIL

SAMPLE INFORMATION (note: S = Soil, W=Water)					CONTAINER INFORMATION		pH and EC	ABA	Multi elements Solids	ICP/MS leachable metals	Multi-element leachate	CEC/ESP/SAR	Soluable SO4 and Cl	XRF scan						
ALS ID	SAMPLE ID	MATRIX	DATE	Time	Type / Code	Total bottles														
44	YPGCO1657_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
45	YPRD11438_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
46	YPRD13687_14_15 (1367)	Soil			B	1	1	1	1	1	1	1	1	1						
47	QC2	Soil			B	1	1	1	1	1	1	1	1	1						
48	YPGC02807_38_39	Soil			B	1	1	1	1	1	1	1	1	1						
49	YPGC11249_44_45 (1249)	Soil			B	1	1	1	1	1	1	1	1	1						
50	YPGC02056_8_9	Soil			B	1	1	1	1	1	1	1	1	1						
	X YPGC11249_14_15	Soil			B	1	1	1	1	1	1	1	1	1						
51	YPRD05790_11_12	Soil			B	1	1	1	1	1	1	1	1	1						
52	YPRD11438_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
53	TRRD33437_2_3	Soil			B	1	1	1	1	1	1	1	1	1						
54	YPRDO5790_4_5	Soil			B	1	1	1	1	1	1	1	1	1						

RELINQUISHED BY:		RECEIVED BY		METHOD OF SHIPMENT
Name:	Date:	Name: M Wesbrook	Date: 22/6/12	Con' Note No:
Of:	Time:	Of: ALS	Time: 1520	
Name:	Date:	Name:	Date:	Transport Co:
Of:	Time:	Of:	Time:	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VS = VOA Vial Sulphuric Preserved; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS LABORATORY GROUP

YPGC11249_20_21 (55)

YPGC1657_20_21 (56)

YPGC03152_14_15 (57)

YPGC 10846_8_9 (58)

YPGC02056_44_45 (59)

YPGC08967_38_39 (60)

YPGC06605_32_33 (61)

YPGC02807_58_59 (62)

YPGC05415_53_54 (63)

YPGC03152_50_51 (64)

YPRD13687_8_9 (65)

YPRD05790_2_3 (66)

YPRD04911_4_5 (67)

YPRD10638_26_27 (68)

Y219261_38_39 (69)

TRRD33379_8_9 (10)

TRRD06576_12_13 (11)

TRRD06576_11_12 (12)

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **EP1205056**

Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: TRACY HASSELL	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: tracey.hassell@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	Page	: 1 of 14
Order number	: ----		
C-O-C number	: ----	Quote number	: ----
Site	: CHRISTMAS CREEK		
Sampler	: C.C.S.P	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 22-JUN-2012	Issue Date	: 25-JUN-2012 14:54
Client Requested Due Date	: 11-JUL-2012	Scheduled Reporting Date	: **11-JUL-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 12.7
No. of coolers/boxes	: 10 MED HARD	No. of samples received	: 72
Security Seal	: Not intact.	No. of samples analysed	: 72

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- **Sample containers do not comply to pretreatment / preservation standards (AS, APHA, USEPA). Please refer to the Sample Container(s)/Preservation Non-Compliance Log at the end of this report for details.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method / Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
EP003TC : Total Carbon		
YPRD04911_8_9	- 80* dried soil	- Pulp Bag
QC1	- 80* dried soil	- Pulp Bag
YPGC10846_14_15	- 80* dried soil	- Pulp Bag
CAGC30291_44_45	- 80* dried soil	- Pulp Bag
YPGC02807_26_27	- 80* dried soil	- Pulp Bag
YPRD11438_26_27	- 80* dried soil	- Pulp Bag
YPGC03152_2_3	- 80* dried soil	- Pulp Bag
YPGC06605_2_3	- 80* dried soil	- Pulp Bag
YPGC06143_2_3	- 80* dried soil	- Pulp Bag
YPGCO3152_32_33	- 80* dried soil	- Pulp Bag
YPGC00027_26_27	- 80* dried soil	- Pulp Bag
YPRD014197_26_27	- 80* dried soil	- Pulp Bag
YPGC10846_44_45	- 80* dried soil	- Pulp Bag
YPRD06017_15_16	- 80* dried soil	- Pulp Bag
YPGC00576_8_9	- 80* dried soil	- Pulp Bag
CAGC30291_26_27	- 80* dried soil	- Pulp Bag
YPGC06143_32_33	- 80* dried soil	- Pulp Bag
YPRD06017_20_21	- 80* dried soil	- Pulp Bag
YPGC06879_8_9	- 80* dried soil	- Pulp Bag
YPGC02807_8_9	- 80* dried soil	- Pulp Bag
YPGC06143_38_39	- 80* dried soil	- Pulp Bag
YPGC04543_22_23	- 80* dried soil	- Pulp Bag
YPRD06017_26_27	- 80* dried soil	- Pulp Bag
TRRD33379_2_3	- 80* dried soil	- Pulp Bag
YPRD04911_11_12	- 80* dried soil	- Pulp Bag
YPGCO3152_26_27	- 80* dried soil	- Pulp Bag
YPGC06879_38_39	- 80* dried soil	- Pulp Bag
YPGCO2056_26_27	- 80* dried soil	- Pulp Bag
YPGC05415_26_27	- 80* dried soil	- Pulp Bag
YPGCO6143_8_9	- 80* dried soil	- Pulp Bag
YPGC066505_14_15	- 80* dried soil	- Pulp Bag
TRRD33379_10_11	- 80* dried soil	- Pulp Bag
YPGC11249_26_27	- 80* dried soil	- Pulp Bag
YPRD11438_14_15	- 80* dried soil	- Pulp Bag
CAGC30291_20_21	- 80* dried soil	- Pulp Bag
TRRD06576_1_2	- 80* dried soil	- Pulp Bag
YPRD10638_14_15	- 80* dried soil	- Pulp Bag
YPRD06017_2_3	- 80* dried soil	- Pulp Bag
YPGC1249_14_15	- 80* dried soil	- Pulp Bag
YPGC02056_38_39	- 80* dried soil	- Pulp Bag
YPGC11249_238_39	- 80* dried soil	- Pulp Bag
YPRD06017_26_27	- 80* dried soil	- Pulp Bag
TRRD33437_4_5	- 80* dried soil	- Pulp Bag
YPGCO1657_8_9	- 80* dried soil	- Pulp Bag
YPRD11438_8_9	- 80* dried soil	- Pulp Bag
YPRD1387_14_15	- 80* dried soil	- Pulp Bag
QC2	- 80* dried soil	- Pulp Bag
YPGC02807_238_39	- 80* dried soil	- Pulp Bag
YPGC1249_44_45	- 80* dried soil	- Pulp Bag
YPGC02056_8_9	- 80* dried soil	- Pulp Bag
YPRD05790_11_12	- 80* dried soil	- Pulp Bag
YPRD11438_2_3	- 80* dried soil	- Pulp Bag
TRRD33437_2_3	- 80* dried soil	- Pulp Bag
YPRDO5790_4_5	- 80* dried soil	- Pulp Bag
YPGC11249_20_21	- 80* dried soil	- Pulp Bag
YPGC1657_20_21	- 80* dried soil	- Pulp Bag
YPGCO3152_14_15	- 80* dried soil	- Pulp Bag
YPGC10846_8_9	- 80* dried soil	- Pulp Bag
YPGCO2056_44_45	- 80* dried soil	- Pulp Bag
YPGCO8967_38_39	- 80* dried soil	- Pulp Bag
YPGCO6605_32_33	- 80* dried soil	- Pulp Bag
YPGCO2807_58_59	- 80* dried soil	- Pulp Bag
YPGCO5415_53_54	- 80* dried soil	- Pulp Bag
YPGCO3152_50_51	- 80* dried soil	- Pulp Bag

Method *Client sample ID*	Sample Container Received	Preferred Sample Container for Analysis
EP003TC : Total Carbon		
YPRD13687_8_9	- 80* dried soil	- Pulp Bag
YPRDO5790_2_3	- 80* dried soil	- Pulp Bag
YPRDO4911_4_5	- 80* dried soil	- Pulp Bag
YPRD10638_26_27	- 80* dried soil	- Pulp Bag
Y219261_38_39	- 80* dried soil	- Pulp Bag
TRRD33379_8_9	- 80* dried soil	- Pulp Bag
TRRD06576_12_13	- 80* dried soil	- Pulp Bag
TRRD06576_11_12	- 80* dried soil	- Pulp Bag

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205056-001	22-JUN-2012 15:00	YPRD04911_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD04911_8_9		✓			✓			✓
EP1205056-002	22-JUN-2012 15:00	QC1	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	QC1		✓			✓			✓
EP1205056-003	22-JUN-2012 15:00	YPGC10846_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC10846_14_15		✓			✓			✓
EP1205056-004	22-JUN-2012 15:00	CAGC30291_44_45	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	CAGC30291_44_45		✓			✓			✓
EP1205056-005	22-JUN-2012 15:00	YPGC02807_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC02807_26_27		✓			✓			✓
EP1205056-006	22-JUN-2012 15:00	YPRD11438_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD11438_26_27		✓			✓			✓
EP1205056-007	22-JUN-2012 15:00	YPGC03152_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC03152_2_3		✓			✓			✓
EP1205056-008	22-JUN-2012 15:00	YPGC06605_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06605_2_3		✓			✓			✓
EP1205056-009	22-JUN-2012 15:00	YPGC06143_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06143_2_3		✓			✓			✓
EP1205056-010	22-JUN-2012 15:00	YPGCO3152_32_33	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO3152_32_33		✓			✓			✓
EP1205056-011	22-JUN-2012 15:00	YPGC00027_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC00027_26_27		✓			✓			✓
EP1205056-012	22-JUN-2012 15:00	YPRD014197_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD014197_26_27		✓			✓			✓
EP1205056-013	22-JUN-2012 15:00	YPGC10846_44_45	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC10846_44_45		✓			✓			✓
EP1205056-014	22-JUN-2012 15:00	YPRD06017_15_16	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD06017_15_16		✓			✓			✓
EP1205056-015	22-JUN-2012 15:00	YPGC00576_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC00576_8_9		✓			✓			✓

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205056-016	22-JUN-2012 15:00	CAGC30291_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	CAGC30291_26_27		✓			✓			✓
EP1205056-017	22-JUN-2012 15:00	YPGC06143_32_33	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06143_32_33		✓			✓			✓
EP1205056-018	22-JUN-2012 15:00	YPRD06017_20_21	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD06017_20_21		✓			✓			✓
EP1205056-019	22-JUN-2012 15:00	YPGC06879_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06879_8_9		✓			✓			✓
EP1205056-020	22-JUN-2012 15:00	YPGC02807_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC02807_8_9		✓			✓			✓
EP1205056-021	22-JUN-2012 15:00	YPGC06143_38_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06143_38_39		✓			✓			✓
EP1205056-022	22-JUN-2012 15:00	YPGC04543_22_23	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC04543_22_23		✓			✓			✓
EP1205056-023	22-JUN-2012 15:00	YPRD06017_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD06017_26_27		✓			✓			✓
EP1205056-024	22-JUN-2012 15:00	TRRD33379_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD33379_2_3		✓			✓			✓
EP1205056-025	22-JUN-2012 15:00	YPRD04911_11_12	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD04911_11_12		✓			✓			✓
EP1205056-026	22-JUN-2012 15:00	YPGCO3152_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO3152_26_27		✓			✓			✓
EP1205056-027	22-JUN-2012 15:00	YPGC06879_38_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC06879_38_39		✓			✓			✓
EP1205056-028	22-JUN-2012 15:00	YPGCO2056_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO2056_26_27		✓			✓			✓
EP1205056-029	22-JUN-2012 15:00	YPGC05415_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC05415_26_27		✓			✓			✓
EP1205056-030	22-JUN-2012 15:00	YPGCO6143_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO6143_8_9		✓			✓			✓
EP1205056-031	22-JUN-2012 15:00	YPGC066505_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC066505_14_15		✓			✓			✓
EP1205056-032	22-JUN-2012 15:00	TRRD33379_10_11	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD33379_10_11		✓			✓			✓
EP1205056-033	22-JUN-2012 15:00	YPGC11249_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC11249_26_27		✓			✓			✓
EP1205056-034	22-JUN-2012 15:00	YPRD11438_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD11438_14_15		✓			✓			✓
EP1205056-035	22-JUN-2012 15:00	CAGC30291_20_21	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	CAGC30291_20_21		✓			✓			✓
EP1205056-036	22-JUN-2012 15:00	TRRD06576_1_2	✓		✓	✓		✓	✓	

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205056-036	25-JUN-2012 15:00	TRRD06576_1_2		✓			✓			✓
EP1205056-037	22-JUN-2012 15:00	YPRD10638_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD10638_14_15		✓			✓			✓
EP1205056-038	22-JUN-2012 15:00	YPRD06017_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD06017_2_3		✓			✓			✓
EP1205056-039	22-JUN-2012 15:00	YPGC1249_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC1249_14_15		✓			✓			✓
EP1205056-040	22-JUN-2012 15:00	YPGC02056_38_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC02056_38_39		✓			✓			✓
EP1205056-041	22-JUN-2012 15:00	YPGC11249_238_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC11249_238_39		✓			✓			✓
EP1205056-042	22-JUN-2012 15:00	YPRD06017_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD06017_26_27		✓			✓			✓
EP1205056-043	22-JUN-2012 15:00	TRRD33437_4_5	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD33437_4_5		✓			✓			✓
EP1205056-044	22-JUN-2012 15:00	YPGCO1657_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO1657_8_9		✓			✓			✓
EP1205056-045	22-JUN-2012 15:00	YPRD11438_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD11438_8_9		✓			✓			✓
EP1205056-046	22-JUN-2012 15:00	YPRD1387_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD1387_14_15		✓			✓			✓
EP1205056-047	22-JUN-2012 15:00	QC2	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	QC2		✓			✓			✓
EP1205056-048	22-JUN-2012 15:00	YPGC02807_238_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC02807_238_39		✓			✓			✓
EP1205056-049	22-JUN-2012 15:00	YPGC1249_44_45	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC1249_44_45		✓			✓			✓
EP1205056-050	22-JUN-2012 15:00	YPGC02056_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC02056_8_9		✓			✓			✓
EP1205056-051	22-JUN-2012 15:00	YPRD05790_11_12	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD05790_11_12		✓			✓			✓
EP1205056-052	22-JUN-2012 15:00	YPRD11438_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD11438_2_3		✓			✓			✓
EP1205056-053	22-JUN-2012 15:00	TRRD33437_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD33437_2_3		✓			✓			✓
EP1205056-054	22-JUN-2012 15:00	YPRDO5790_4_5	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRDO5790_4_5		✓			✓			✓
EP1205056-055	22-JUN-2012 15:00	YPGC11249_20_21	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC11249_20_21		✓			✓			✓
EP1205056-056	22-JUN-2012 15:00	YPGC1657_20_21	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC1657_20_21		✓			✓			✓

			SOIL - EA002 pH (1:5)	SOIL - EA005P pH (PC)	SOIL - EA006 (solids) Sodium Adsorption Ratio	SOIL - EA010 (solids): Electrical Conductivity (1:5) Electrical Conductivity (1:5)	SOIL - EA010P Conductivity (PC)	SOIL - EA011 Net Acid Generation (NAG)	SOIL - EA013 Acid Neutralising Capacity (ANC)	SOIL - EA015H Total Dissolved Solids - High Level
EP1205056-057	22-JUN-2012 15:00	YPGCO3152_14_15	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO3152_14_15		✓			✓			✓
EP1205056-058	22-JUN-2012 15:00	YPGC10846_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGC10846_8_9		✓			✓			✓
EP1205056-059	22-JUN-2012 15:00	YPGCO2056_44_45	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO2056_44_45		✓			✓			✓
EP1205056-060	22-JUN-2012 15:00	YPGCO8967_38_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO8967_38_39		✓			✓			✓
EP1205056-061	22-JUN-2012 15:00	YPGCO6605_32_33	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO6605_32_33		✓			✓			✓
EP1205056-062	22-JUN-2012 15:00	YPGCO2807_58_59	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO2807_58_59		✓			✓			✓
EP1205056-063	22-JUN-2012 15:00	YPGCO5415_53_54	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO5415_53_54		✓			✓			✓
EP1205056-064	22-JUN-2012 15:00	YPGCO3152_50_51	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPGCO3152_50_51		✓			✓			✓
EP1205056-065	22-JUN-2012 15:00	YPRD13687_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD13687_8_9		✓			✓			✓
EP1205056-066	22-JUN-2012 15:00	YPRDO5790_2_3	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRDO5790_2_3		✓			✓			✓
EP1205056-067	22-JUN-2012 15:00	YPRDO4911_4_5	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRDO4911_4_5		✓			✓			✓
EP1205056-068	22-JUN-2012 15:00	YPRD10638_26_27	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	YPRD10638_26_27		✓			✓			✓
EP1205056-069	22-JUN-2012 15:00	Y219261_38_39	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	Y219261_38_39		✓			✓			✓
EP1205056-070	22-JUN-2012 15:00	TRRD33379_8_9	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD33379_8_9		✓			✓			✓
EP1205056-071	22-JUN-2012 15:00	TRRD06576_12_13	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD06576_12_13		✓			✓			✓
EP1205056-072	22-JUN-2012 15:00	TRRD06576_11_12	✓		✓	✓		✓	✓	
	25-JUN-2012 15:00	TRRD06576_11_12		✓			✓			✓

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205056-001	22-JUN-2012 15:00	YPRD04911_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD04911_8_9							✓	✓
EP1205056-002	22-JUN-2012 15:00	QC1	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	QC1							✓	✓
EP1205056-003	22-JUN-2012 15:00	YPGC10846_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC10846_14_15							✓	✓
EP1205056-004	22-JUN-2012 15:00	CAGC30291_44_45	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	CAGC30291_44_45							✓	✓
EP1205056-005	22-JUN-2012 15:00	YPGC02807_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC02807_26_27							✓	✓
EP1205056-006	22-JUN-2012 15:00	YPRD11438_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD11438_26_27							✓	✓
EP1205056-007	22-JUN-2012 15:00	YPGC03152_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC03152_2_3							✓	✓
EP1205056-008	22-JUN-2012 15:00	YPGC06605_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC06605_2_3							✓	✓
EP1205056-009	22-JUN-2012 15:00	YPGC06143_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC06143_2_3							✓	✓
EP1205056-010	22-JUN-2012 15:00	YPGCO3152_32_33	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO3152_32_33							✓	✓
EP1205056-011	22-JUN-2012 15:00	YPGC00027_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC00027_26_27							✓	✓
EP1205056-012	22-JUN-2012 15:00	YPRD014197_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD014197_26_27							✓	✓
EP1205056-013	22-JUN-2012 15:00	YPGC10846_44_45	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC10846_44_45							✓	✓
EP1205056-014	22-JUN-2012 15:00	YPRD06017_15_16	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD06017_15_16							✓	✓
EP1205056-015	22-JUN-2012 15:00	YPGC00576_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC00576_8_9							✓	✓
EP1205056-016	22-JUN-2012 15:00	CAGC30291_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	CAGC30291_26_27							✓	✓
EP1205056-017	22-JUN-2012 15:00	YPGC06143_32_33	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC06143_32_33							✓	✓
EP1205056-018	22-JUN-2012 15:00	YPRD06017_20_21	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD06017_20_21							✓	✓
EP1205056-019	22-JUN-2012 15:00	YPGC06879_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC06879_8_9							✓	✓
EP1205056-020	22-JUN-2012 15:00	YPGC02807_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC02807_8_9							✓	✓
EP1205056-021	22-JUN-2012 15:00	YPGC06143_38_39	✓	✓	✓	✓	✓	✓		

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205056-021	25-JUN-2012 15:00	YPGC06143_38_39							✓	✓
EP1205056-022	22-JUN-2012 15:00	YPGC04543_22_23	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC04543_22_23							✓	✓
EP1205056-023	22-JUN-2012 15:00	YPRD06017_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD06017_26_27							✓	✓
EP1205056-024	22-JUN-2012 15:00	TRRD33379_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD33379_2_3							✓	✓
EP1205056-025	22-JUN-2012 15:00	YPRD04911_11_12	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD04911_11_12							✓	✓
EP1205056-026	22-JUN-2012 15:00	YPGCO3152_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO3152_26_27							✓	✓
EP1205056-027	22-JUN-2012 15:00	YPGC06879_38_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC06879_38_39							✓	✓
EP1205056-028	22-JUN-2012 15:00	YPGCO2056_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO2056_26_27							✓	✓
EP1205056-029	22-JUN-2012 15:00	YPGC05415_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC05415_26_27							✓	✓
EP1205056-030	22-JUN-2012 15:00	YPGCO6143_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO6143_8_9							✓	✓
EP1205056-031	22-JUN-2012 15:00	YPGC066505_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC066505_14_15							✓	✓
EP1205056-032	22-JUN-2012 15:00	TRRD33379_10_11	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD33379_10_11							✓	✓
EP1205056-033	22-JUN-2012 15:00	YPGC11249_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC11249_26_27							✓	✓
EP1205056-034	22-JUN-2012 15:00	YPRD11438_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD11438_14_15							✓	✓
EP1205056-035	22-JUN-2012 15:00	CAGC30291_20_21	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	CAGC30291_20_21							✓	✓
EP1205056-036	22-JUN-2012 15:00	TRRD06576_1_2	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD06576_1_2							✓	✓
EP1205056-037	22-JUN-2012 15:00	YPRD10638_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD10638_14_15							✓	✓
EP1205056-038	22-JUN-2012 15:00	YPRD06017_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD06017_2_3							✓	✓
EP1205056-039	22-JUN-2012 15:00	YPGC1249_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC1249_14_15							✓	✓
EP1205056-040	22-JUN-2012 15:00	YPGC02056_38_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC02056_38_39							✓	✓
EP1205056-041	22-JUN-2012 15:00	YPGC11249_238_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC11249_238_39							✓	✓

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205056-042	22-JUN-2012 15:00	YPRD06017_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD06017_26_27							✓	✓
EP1205056-043	22-JUN-2012 15:00	TRRD33437_4_5	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD33437_4_5							✓	✓
EP1205056-044	22-JUN-2012 15:00	YPGCO1657_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO1657_8_9							✓	✓
EP1205056-045	22-JUN-2012 15:00	YPRD11438_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD11438_8_9							✓	✓
EP1205056-046	22-JUN-2012 15:00	YPRD1387_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD1387_14_15							✓	✓
EP1205056-047	22-JUN-2012 15:00	QC2	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	QC2							✓	✓
EP1205056-048	22-JUN-2012 15:00	YPGC02807_238_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC02807_238_39							✓	✓
EP1205056-049	22-JUN-2012 15:00	YPGC1249_44_45	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC1249_44_45							✓	✓
EP1205056-050	22-JUN-2012 15:00	YPGC02056_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC02056_8_9							✓	✓
EP1205056-051	22-JUN-2012 15:00	YPRD05790_11_12	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD05790_11_12							✓	✓
EP1205056-052	22-JUN-2012 15:00	YPRD11438_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD11438_2_3							✓	✓
EP1205056-053	22-JUN-2012 15:00	TRRD33437_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD33437_2_3							✓	✓
EP1205056-054	22-JUN-2012 15:00	YPRDO5790_4_5	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRDO5790_4_5							✓	✓
EP1205056-055	22-JUN-2012 15:00	YPGC11249_20_21	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC11249_20_21							✓	✓
EP1205056-056	22-JUN-2012 15:00	YPGC1657_20_21	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC1657_20_21							✓	✓
EP1205056-057	22-JUN-2012 15:00	YPGCO3152_14_15	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO3152_14_15							✓	✓
EP1205056-058	22-JUN-2012 15:00	YPGC10846_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGC10846_8_9							✓	✓
EP1205056-059	22-JUN-2012 15:00	YPGCO2056_44_45	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO2056_44_45							✓	✓
EP1205056-060	22-JUN-2012 15:00	YPGCO8967_38_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO8967_38_39							✓	✓
EP1205056-061	22-JUN-2012 15:00	YPGCO6605_32_33	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO6605_32_33							✓	✓
EP1205056-062	22-JUN-2012 15:00	YPGCO2807_58_59	✓	✓	✓	✓	✓	✓		

			SOIL - EA026 Chromium Reducible Sulphur	SOIL - EA055-103 Moisture Content	SOIL - ED007 CEC / Exchangeable Cations (ED007) -All Parameters	SOIL - ED040S Soluble Major Anions	SOIL - ED042T Sulfur - Total as S (LECO)	SOIL - ED045G (solids) Chloride Soluble by Discrete Analyser	SOIL - ED093W Water Leachable Major Cations	SOIL - EG020W Water Leachable Metals by ICPMS
EP1205056-062	25-JUN-2012 15:00	YPGCO2807_58_59							✓	✓
EP1205056-063	22-JUN-2012 15:00	YPGCO5415_53_54	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO5415_53_54							✓	✓
EP1205056-064	22-JUN-2012 15:00	YPGCO3152_50_51	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPGCO3152_50_51							✓	✓
EP1205056-065	22-JUN-2012 15:00	YPRD13687_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD13687_8_9							✓	✓
EP1205056-066	22-JUN-2012 15:00	YPRDO5790_2_3	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRDO5790_2_3							✓	✓
EP1205056-067	22-JUN-2012 15:00	YPRDO4911_4_5	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRDO4911_4_5							✓	✓
EP1205056-068	22-JUN-2012 15:00	YPRD10638_26_27	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	YPRD10638_26_27							✓	✓
EP1205056-069	22-JUN-2012 15:00	Y219261_38_39	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	Y219261_38_39							✓	✓
EP1205056-070	22-JUN-2012 15:00	TRRD33379_8_9	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD33379_8_9							✓	✓
EP1205056-071	22-JUN-2012 15:00	TRRD06576_12_13	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD06576_12_13							✓	✓
EP1205056-072	22-JUN-2012 15:00	TRRD06576_11_12	✓	✓	✓	✓	✓	✓		
	25-JUN-2012 15:00	TRRD06576_11_12							✓	✓

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205056-001	22-JUN-2012 15:00	YPRD04911_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPRD04911_8_9	✓			
EP1205056-002	22-JUN-2012 15:00	QC1		✓	✓	✓
	25-JUN-2012 15:00	QC1	✓			
EP1205056-003	22-JUN-2012 15:00	YPGC10846_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPGC10846_14_15	✓			
EP1205056-004	22-JUN-2012 15:00	CAGC30291_44_45		✓	✓	✓
	25-JUN-2012 15:00	CAGC30291_44_45	✓			
EP1205056-005	22-JUN-2012 15:00	YPGC02807_26_27		✓	✓	✓

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205056-005	25-JUN-2012 15:00	YPGC02807_26_27	✓			
EP1205056-006	22-JUN-2012 15:00	YPRD11438_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPRD11438_26_27	✓			
EP1205056-007	22-JUN-2012 15:00	YPGC03152_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPGC03152_2_3	✓			
EP1205056-008	22-JUN-2012 15:00	YPGC06605_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPGC06605_2_3	✓			
EP1205056-009	22-JUN-2012 15:00	YPGC06143_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPGC06143_2_3	✓			
EP1205056-010	22-JUN-2012 15:00	YPGCO3152_32_33		✓	✓	✓
	25-JUN-2012 15:00	YPGCO3152_32_33	✓			
EP1205056-011	22-JUN-2012 15:00	YPGC00027_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPGC00027_26_27	✓			
EP1205056-012	22-JUN-2012 15:00	YPRD014197_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPRD014197_26_27	✓			
EP1205056-013	22-JUN-2012 15:00	YPGC10846_44_45		✓	✓	✓
	25-JUN-2012 15:00	YPGC10846_44_45	✓			
EP1205056-014	22-JUN-2012 15:00	YPRD06017_15_16		✓	✓	✓
	25-JUN-2012 15:00	YPRD06017_15_16	✓			
EP1205056-015	22-JUN-2012 15:00	YPGC00576_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGC00576_8_9	✓			
EP1205056-016	22-JUN-2012 15:00	CAGC30291_26_27		✓	✓	✓
	25-JUN-2012 15:00	CAGC30291_26_27	✓			
EP1205056-017	22-JUN-2012 15:00	YPGC06143_32_33		✓	✓	✓
	25-JUN-2012 15:00	YPGC06143_32_33	✓			
EP1205056-018	22-JUN-2012 15:00	YPRD06017_20_21		✓	✓	✓
	25-JUN-2012 15:00	YPRD06017_20_21	✓			
EP1205056-019	22-JUN-2012 15:00	YPGC06879_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGC06879_8_9	✓			
EP1205056-020	22-JUN-2012 15:00	YPGC02807_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGC02807_8_9	✓			
EP1205056-021	22-JUN-2012 15:00	YPGC06143_38_39		✓	✓	✓
	25-JUN-2012 15:00	YPGC06143_38_39	✓			
EP1205056-022	22-JUN-2012 15:00	YPGC04543_22_23		✓	✓	✓
	25-JUN-2012 15:00	YPGC04543_22_23	✓			
EP1205056-023	22-JUN-2012 15:00	YPRD06017_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPRD06017_26_27	✓			
EP1205056-024	22-JUN-2012 15:00	TRRD33379_2_3		✓	✓	✓
	25-JUN-2012 15:00	TRRD33379_2_3	✓			
EP1205056-025	22-JUN-2012 15:00	YPRD04911_11_12		✓	✓	✓
	25-JUN-2012 15:00	YPRD04911_11_12	✓			

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205056-026	22-JUN-2012 15:00	YPGCO3152_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPGCO3152_26_27	✓			
EP1205056-027	22-JUN-2012 15:00	YPGC06879_38_39		✓	✓	✓
	25-JUN-2012 15:00	YPGC06879_38_39	✓			
EP1205056-028	22-JUN-2012 15:00	YPGCO2056_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPGCO2056_26_27	✓			
EP1205056-029	22-JUN-2012 15:00	YPGC05415_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPGC05415_26_27	✓			
EP1205056-030	22-JUN-2012 15:00	YPGCO6143_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGCO6143_8_9	✓			
EP1205056-031	22-JUN-2012 15:00	YPGC066505_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPGC066505_14_15	✓			
EP1205056-032	22-JUN-2012 15:00	TRRD33379_10_11		✓	✓	✓
	25-JUN-2012 15:00	TRRD33379_10_11	✓			
EP1205056-033	22-JUN-2012 15:00	YPGC11249_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPGC11249_26_27	✓			
EP1205056-034	22-JUN-2012 15:00	YPRD11438_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPRD11438_14_15	✓			
EP1205056-035	22-JUN-2012 15:00	CAGC30291_20_21		✓	✓	✓
	25-JUN-2012 15:00	CAGC30291_20_21	✓			
EP1205056-036	22-JUN-2012 15:00	TRRD06576_1_2		✓	✓	✓
	25-JUN-2012 15:00	TRRD06576_1_2	✓			
EP1205056-037	22-JUN-2012 15:00	YPRD10638_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPRD10638_14_15	✓			
EP1205056-038	22-JUN-2012 15:00	YPRD06017_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPRD06017_2_3	✓			
EP1205056-039	22-JUN-2012 15:00	YPGC1249_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPGC1249_14_15	✓			
EP1205056-040	22-JUN-2012 15:00	YPGC02056_38_39		✓	✓	✓
	25-JUN-2012 15:00	YPGC02056_38_39	✓			
EP1205056-041	22-JUN-2012 15:00	YPGC11249_238_39		✓	✓	✓
	25-JUN-2012 15:00	YPGC11249_238_39	✓			
EP1205056-042	22-JUN-2012 15:00	YPRD06017_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPRD06017_26_27	✓			
EP1205056-043	22-JUN-2012 15:00	TRRD33437_4_5		✓	✓	✓
	25-JUN-2012 15:00	TRRD33437_4_5	✓			
EP1205056-044	22-JUN-2012 15:00	YPGCO1657_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGCO1657_8_9	✓			
EP1205056-045	22-JUN-2012 15:00	YPRD11438_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPRD11438_8_9	✓			
EP1205056-046	22-JUN-2012 15:00	YPRD1387_14_15		✓	✓	✓

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205056-046	25-JUN-2012 15:00	YPRD1387_14_15	✓			
EP1205056-047	22-JUN-2012 15:00	QC2		✓	✓	✓
	25-JUN-2012 15:00	QC2	✓			
EP1205056-048	22-JUN-2012 15:00	YPGC02807_238_39		✓	✓	✓
	25-JUN-2012 15:00	YPGC02807_238_39	✓			
EP1205056-049	22-JUN-2012 15:00	YPGC1249_44_45		✓	✓	✓
	25-JUN-2012 15:00	YPGC1249_44_45	✓			
EP1205056-050	22-JUN-2012 15:00	YPGC02056_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGC02056_8_9	✓			
EP1205056-051	22-JUN-2012 15:00	YPRD05790_11_12		✓	✓	✓
	25-JUN-2012 15:00	YPRD05790_11_12	✓			
EP1205056-052	22-JUN-2012 15:00	YPRD11438_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPRD11438_2_3	✓			
EP1205056-053	22-JUN-2012 15:00	TRRD33437_2_3		✓	✓	✓
	25-JUN-2012 15:00	TRRD33437_2_3	✓			
EP1205056-054	22-JUN-2012 15:00	YPRDO5790_4_5		✓	✓	✓
	25-JUN-2012 15:00	YPRDO5790_4_5	✓			
EP1205056-055	22-JUN-2012 15:00	YPGC11249_20_21		✓	✓	✓
	25-JUN-2012 15:00	YPGC11249_20_21	✓			
EP1205056-056	22-JUN-2012 15:00	YPGC1657_20_21		✓	✓	✓
	25-JUN-2012 15:00	YPGC1657_20_21	✓			
EP1205056-057	22-JUN-2012 15:00	YPGCO3152_14_15		✓	✓	✓
	25-JUN-2012 15:00	YPGCO3152_14_15	✓			
EP1205056-058	22-JUN-2012 15:00	YPGC10846_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPGC10846_8_9	✓			
EP1205056-059	22-JUN-2012 15:00	YPGCO2056_44_45		✓	✓	✓
	25-JUN-2012 15:00	YPGCO2056_44_45	✓			
EP1205056-060	22-JUN-2012 15:00	YPGCO8967_38_39		✓	✓	✓
	25-JUN-2012 15:00	YPGCO8967_38_39	✓			
EP1205056-061	22-JUN-2012 15:00	YPGCO6605_32_33		✓	✓	✓
	25-JUN-2012 15:00	YPGCO6605_32_33	✓			
EP1205056-062	22-JUN-2012 15:00	YPGCO2807_58_59		✓	✓	✓
	25-JUN-2012 15:00	YPGCO2807_58_59	✓			
EP1205056-063	22-JUN-2012 15:00	YPGCO5415_53_54		✓	✓	✓
	25-JUN-2012 15:00	YPGCO5415_53_54	✓			
EP1205056-064	22-JUN-2012 15:00	YPGCO3152_50_51		✓	✓	✓
	25-JUN-2012 15:00	YPGCO3152_50_51	✓			
EP1205056-065	22-JUN-2012 15:00	YPRD13687_8_9		✓	✓	✓
	25-JUN-2012 15:00	YPRD13687_8_9	✓			
EP1205056-066	22-JUN-2012 15:00	YPRDO5790_2_3		✓	✓	✓
	25-JUN-2012 15:00	YPRDO5790_2_3	✓			

			SOIL - EG035W Water Leachable Mercury by FIMS	SOIL - EN60-DI Suite Deionised Water Leach	SOIL - EP003TC Total Carbon in Soil	SOIL - MIS-SOL (Subcontracted) Miscellaneous Subcontracted Analysis (Solid)
EP1205056-067	22-JUN-2012 15:00	YPRDO4911_4_5		✓	✓	✓
	25-JUN-2012 15:00	YPRDO4911_4_5	✓			
EP1205056-068	22-JUN-2012 15:00	YPRD10638_26_27		✓	✓	✓
	25-JUN-2012 15:00	YPRD10638_26_27	✓			
EP1205056-069	22-JUN-2012 15:00	Y219261_38_39		✓	✓	✓
	25-JUN-2012 15:00	Y219261_38_39	✓			
EP1205056-070	22-JUN-2012 15:00	TRRD33379_8_9		✓	✓	✓
	25-JUN-2012 15:00	TRRD33379_8_9	✓			
EP1205056-071	22-JUN-2012 15:00	TRRD06576_12_13		✓	✓	✓
	25-JUN-2012 15:00	TRRD06576_12_13	✓			
EP1205056-072	22-JUN-2012 15:00	TRRD06576_11_12		✓	✓	✓
	25-JUN-2012 15:00	TRRD06576_11_12	✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

THE ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)	Email	Perth.Accounts@urs.com

TRACY HASSELL

- *AU Certificate of Analysis - NATA (COA)	Email	tracey.hassell@urs.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tracey.hassell@urs.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tracey.hassell@urs.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tracey.hassell@urs.com
- Attachment - Report (SUBCO)	Email	tracey.hassell@urs.com
- Chain of Custody (CoC) (COC)	Email	tracey.hassell@urs.com
- EDI Format - ENMRG (ENMRG)	Email	tracey.hassell@urs.com
- EDI Format - ESDAT (ESDAT)	Email	tracey.hassell@urs.com
- EDI Format - XTab (XTAB)	Email	tracey.hassell@urs.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP1205056**	Page	: 1 of 47
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Site	: CHRISTMAS CREEK		
		No. of samples received	: 72
Quote number	: ----	No. of samples analysed	: 71

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **ASS: EA013 (ANC) Fizz Rating: 0- None; 1- Slight; 2- Moderate; 3- Strong; 4- Very Strong; 5- Lime.**
- **EA006 (Sodium Adsorption ratio) : Sample EP1205056_011 (YPGC00027_26_27) could not be determined as both the Mg and Ca results were less than reportable limits.**

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD04911_8_9	QC1	YPGC10846_14_15	CAGC30291_44_45	YPGC02807_26_27
				Client sampling date / time: 26-JUN-2012 12:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-001	EP1205056-002	EP1205056-003	EP1205056-004	EP1205056-005
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.45	6.84	7.26	6.81	6.79
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	37	46	97	41	37
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	32	62	22	36
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	12	10	3	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	10	10	1	1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	2	6	2	1
Magnesium	7439-95-4	1	mg/L	<1	<1	4	<1	<1
Sodium	7440-23-5	1	mg/L	4	7	18	8	8
Potassium	7440-09-7	1	mg/L	<1	<1	3	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	3.77	0.70	25.9	0.06	2.88
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.005	0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.426	0.777	1.55	0.120	1.00
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0004	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.004	0.002	0.020	<0.001	0.004
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.005	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.003	0.004	0.033	<0.001	0.020
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.009	<0.001	0.002
Manganese	7439-96-5	0.001	mg/L	0.072	0.041	0.539	0.003	0.164
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.043	<0.001	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.05	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.174	0.209	0.863	0.023	0.419
Boron	7440-42-8	0.05	mg/L	0.32	1.07	1.22	0.16	1.51
Iron	7439-89-6	0.05	mg/L	17.0	9.36	17.5	0.25	7.56
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD11438_26_27	YPGC03152_2_3	YPGC06605_2_3	YPGC06143_2_3	YPGCO3152_32_33
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-006	EP1205056-007	EP1205056-008	EP1205056-009	EP1205056-010
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.80	6.83	7.26	7.54	6.73
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	44	43	206	254	25
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	40	42	152	172	14
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	2	30	13	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	<1	10	44	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	2	17	16	1
Magnesium	7439-95-4	1	mg/L	<1	<1	4	4	<1
Sodium	7440-23-5	1	mg/L	10	10	20	30	4
Potassium	7440-09-7	1	mg/L	<1	<1	2	1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.40	3.16	0.40	0.36	0.09
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.17	0.976	2.18	1.54	0.524
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.001	0.016	<0.001	0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.003	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	0.014	0.003	0.002	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	0.002	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	1.08	0.152	0.011	0.018	0.190
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.001	0.002	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.014	0.002	0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.566	0.517	0.438	0.287	0.109
Boron	7440-42-8	0.05	mg/L	1.44	1.62	1.80	1.24	0.22
Iron	7439-89-6	0.05	mg/L	18.3	14.1	0.81	0.67	0.62
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC00027_26_27	YPRD014197_26_27	YPGC10846_44_45	YPRD06017_15_16	YPGC00576_8_9
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-011	EP1205056-012	EP1205056-013	EP1205056-014	EP1205056-015
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.71	6.77	6.78	6.62	6.62
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	27	45	36	54	40
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	24	32	34	38	32
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	5	2	3	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	<1	<1	2	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	2	1	2	1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	6	8	8	12	10
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.46	1.22	0.46	0.46	1.84
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.588	0.859	0.776	1.10	0.894
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.004	0.001	0.006
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.002
Copper	7440-50-8	0.001	mg/L	0.010	0.003	0.003	0.002	0.007
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.012	0.032	0.156	0.104	0.018
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.001	0.004	0.005	0.002	0.004
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.236	0.372	0.432	0.397	0.466
Boron	7440-42-8	0.05	mg/L	0.27	1.13	1.79	1.70	1.80
Iron	7439-89-6	0.05	mg/L	2.45	14.8	22.4	3.76	4.05
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: CAGC30291_26_27	YPGC06143_32_33	YPRD06017_20_21	YPGC06879_8_9	YPGC06143_38_39
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-016	EP1205056-017	EP1205056-018	EP1205056-019	EP1205056-021
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.75	6.70	6.60	6.85	6.69
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	41	38	70	48	52
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	26	26	44	38	50
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	<1	<1	<1	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<2	<1	5	2	3
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	1	2	2	1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	8	8	13	12	11
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.78	0.26	0.41	2.24	0.36
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.29	0.867	1.44	1.09	1.12
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.003	<0.001	0.001	0.008	0.002
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	0.001	0.002	0.006	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Manganese	7439-96-5	0.001	mg/L	0.776	0.089	0.051	0.155	0.014
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.009	0.003	0.003	0.006	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.699	0.272	0.472	0.404	0.294
Boron	7440-42-8	0.05	mg/L	1.75	1.89	2.06	1.86	1.77
Iron	7439-89-6	0.05	mg/L	34.0	6.67	3.19	8.26	0.99
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC04543_22_23	YPRD06017_26_27	TRRD33379_2_3	YPRD04911_11_12	YPGCO3152_26_27
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-022	EP1205056-023	EP1205056-024	EP1205056-025	EP1205056-026
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.90	6.73	6.78	6.62	6.63
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	50	66	64	52	50
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	32	36	50	30	36
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	7	4	<1	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	2	4	3	2	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	2	2	2	2
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	11	14	11	10	10
Potassium	7440-09-7	1	mg/L	<1	1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	2.53	1.43	1.38	0.41	1.21
Antimony	7440-36-0	0.001	mg/L	<0.001	0.009	0.002	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.002	0.004	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.70	1.08	1.43	1.06	1.30
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.007	0.004	0.005	0.002	0.002
Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.009	0.002	0.005	0.002	0.003
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.316	0.090	0.085	0.020	0.039
Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.005	0.002	0.005	0.002	0.003
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.861	0.286	0.486	0.317	0.493
Boron	7440-42-8	0.05	mg/L	2.08	1.84	1.72	1.92	1.70
Iron	7439-89-6	0.05	mg/L	11.5	2.71	9.29	2.37	3.86
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC06879_38_39	YPGCO2056_26_27	YPGC05415_26_27	YPGCO6143_8_9	YPGC066505_14_15
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-027	EP1205056-028	EP1205056-029	EP1205056-030	EP1205056-031
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.69	6.82	6.84	7.03	6.80
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	51	44	52	77	56
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	34	26	40	58	38
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	4	<1	8	4
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	1	1	2	4	1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	1	2	3	2
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	10	10	11	15	12
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.15	1.81	2.17	0.24	1.69
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.41	1.04	1.47	0.305	1.13
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0002	<0.0001	0.0001
Chromium	7440-47-3	0.001	mg/L	0.001	0.004	0.003	0.001	0.005
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.004	<0.001	0.003
Copper	7440-50-8	0.001	mg/L	0.001	0.005	0.006	<0.001	0.004
Lead	7439-92-1	0.001	mg/L	<0.001	0.001	<0.001	<0.001	0.002
Manganese	7439-96-5	0.001	mg/L	0.008	0.168	1.28	0.172	1.94
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.016	<0.001	0.004
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.673	0.333	0.677	0.125	0.468
Boron	7440-42-8	0.05	mg/L	1.95	1.89	1.80	1.70	1.76
Iron	7439-89-6	0.05	mg/L	0.99	5.52	10.5	1.79	27.5
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD33379_10_11	YPGC11249_26_27	YPRD11438_14_15	CAGC30291_20_21	TRRD06576_1_2
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-032	EP1205056-033	EP1205056-034	EP1205056-035	EP1205056-036
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.98	6.75	6.08	6.72	6.36
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	72	57	184	44	46
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	64	44	112	36	32
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	5	4	24	2	4
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	4	24	2	6
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	2	3	2	2
Magnesium	7439-95-4	1	mg/L	<1	<1	2	<1	<1
Sodium	7440-23-5	1	mg/L	14	11	34	9	8
Potassium	7440-09-7	1	mg/L	<1	<1	1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.56	0.51	0.14	0.69	0.38
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	0.006	<0.001
Barium	7440-39-3	0.001	mg/L	1.47	0.919	1.41	1.16	0.868
Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.003	0.001	<0.001	0.002	0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Copper	7440-50-8	0.001	mg/L	0.005	0.002	0.001	0.089	0.001
Lead	7439-92-1	0.001	mg/L	0.001	<0.001	<0.001	0.004	<0.001
Manganese	7439-96-5	0.001	mg/L	0.135	0.551	0.664	1.12	0.012
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.008	0.002	0.008	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.637	0.291	0.380	0.351	0.418
Boron	7440-42-8	0.05	mg/L	1.69	1.65	1.55	1.48	0.33
Iron	7439-89-6	0.05	mg/L	26.7	5.55	1.46	5.82	0.72
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD10638_14_15	YPRD06017_2_3	YPGC1249_14_15	YPGC02056_38_39	YPGC11249_238_39
				Client sampling date / time: 06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00	06-JUL-2012 10:00
				EP1205056-037	EP1205056-038	EP1205056-039	EP1205056-040	EP1205056-041
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.65	7.15	6.77	6.66	6.77
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	156	122	60	51	81
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	90	78	44	34	74
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	13	9	2	4	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	17	8	3	1	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	5	7	2	2	3
Magnesium	7439-95-4	1	mg/L	4	4	<1	<1	<1
Sodium	7440-23-5	1	mg/L	24	14	13	10	16
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.02	0.03	1.50	0.08	0.05
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	2.37	1.42	1.45	1.00	1.26
Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.004	<0.001	0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.007	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.006	<0.001	0.003
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.006	0.001	0.369	0.009	0.293
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.006	0.001	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.333	0.329	0.614	0.308	0.385
Boron	7440-42-8	0.05	mg/L	3.17	2.30	2.18	2.15	3.47
Iron	7439-89-6	0.05	mg/L	0.12	<0.05	7.82	1.20	0.32
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD06017_26_27	TRRD33437_4_5	YPGCO1657_8_9	YPRD11438_8_9	YPRD1387_14_15
				Client sampling date / time: 06-JUL-2012 10:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00
				EP1205056-042	EP1205056-043	EP1205056-044	EP1205056-045	EP1205056-046
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.76	7.00	7.13	7.13	7.41
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	89	26	67	61	50
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	60	14	46	46	38
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	12	2	<1	5	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	5	<1	3	6	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	3	1	3	2	2
Magnesium	7439-95-4	1	mg/L	<1	<1	1	<1	<1
Sodium	7440-23-5	1	mg/L	18	4	12	11	10
Potassium	7440-09-7	1	mg/L	2	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.27	0.03	13.2	0.07	4.30
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.003	<0.001	0.001	<0.001	0.001
Barium	7440-39-3	0.001	mg/L	2.15	0.642	0.842	1.21	0.698
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.0002	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.006	<0.001	0.013	<0.001	0.005
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.004	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.006	<0.001	0.016	0.001	0.005
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.004	<0.001	0.001
Manganese	7439-96-5	0.001	mg/L	0.283	0.005	0.076	0.032	0.027
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.004	<0.001	0.017	0.001	0.003
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.991	0.177	0.555	0.280	0.235
Boron	7440-42-8	0.05	mg/L	3.18	0.46	0.94	0.82	0.66
Iron	7439-89-6	0.05	mg/L	3.29	0.15	7.74	1.42	3.07
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: QC2	YPGC02807_238_39	YPGC1249_44_45	YPGC02056_8_9	YPRD05790_11_12
				Client sampling date / time: 09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00
				EP1205056-047	EP1205056-048	EP1205056-049	EP1205056-050	EP1205056-051
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.49	7.22	7.45	7.34	7.28
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	63	36	55	53	138
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	38	22	46	40	106
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	<1	2	<1	16
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	4	<1	2	<1	16
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	1	2	3	3	4
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	1	3
Sodium	7440-23-5	1	mg/L	14	5	8	10	20
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.85	0.39	0.40	9.13	0.15
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.20	0.850	1.34	1.85	1.24
Cadmium	7440-43-9	0.0001	mg/L	0.0002	<0.0001	0.0002	0.0002	0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.011	<0.001
Cobalt	7440-48-4	0.001	mg/L	0.005	0.001	<0.001	0.003	<0.001
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.002	0.012	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Manganese	7439-96-5	0.001	mg/L	2.78	0.377	0.276	0.117	0.012
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.005	0.001	0.003	0.014	0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.353	0.210	0.377	0.587	0.326
Boron	7440-42-8	0.05	mg/L	0.85	0.63	0.94	1.14	0.82
Iron	7439-89-6	0.05	mg/L	7.14	3.78	10.0	7.68	0.57
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD11438_2_3	TRRD33437_2_3	YPRDO5790_4_5	YPGC11249_20_21	YPGC1657_20_21
				Client sampling date / time: 09-JUL-2012 12:00	09-JUL-2012 12:00	09-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00
				EP1205056-052	EP1205056-053	EP1205056-054	EP1205056-055	EP1205056-056
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.92	6.83	8.39	7.28	7.08
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	33	30	55	73	44
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	30	22	50	48	28
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	2	<1	5	2
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	<1	<1	3	2
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	<1	8	2	2
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	4	4	4	13	7
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.01	<0.01	0.40	1.68	0.29
Antimony	7440-36-0	0.001	mg/L	0.005	0.002	<0.001	0.004	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.792	0.372	0.350	1.26	0.976
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0002	0.0002	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.002	0.003	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.003	0.019	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Manganese	7439-96-5	0.001	mg/L	0.002	0.003	0.010	1.88	0.010
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.002	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.146	0.133	0.066	0.454	0.198
Boron	7440-42-8	0.05	mg/L	0.46	0.36	0.26	1.16	0.88
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	5.91	2.71	0.30
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO3152_14_15	YPGC10846_8_9	YPGCO2056_44_45	YPGCO8967_38_39	YPGCO6605_32_33
				Client sampling date / time: 10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00
				EP1205056-057	EP1205056-058	EP1205056-059	EP1205056-060	EP1205056-061
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.02	7.53	6.93	7.25	7.37
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	36	63	25	58	37
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	20	52	<10	38	36
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	<1	2	4	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	2	<1	6	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	2	2	1	2	2
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	5	13	4	9	6
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.65	1.35	<0.01	0.25	<0.01
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	0.831	1.30	0.580	0.655	0.425
Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0002	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.005	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.003	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.010	0.038	<0.001	0.008	<0.001
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.193	0.331	0.148	0.144	0.113
Boron	7440-42-8	0.05	mg/L	0.92	1.36	0.62	0.78	0.43
Iron	7439-89-6	0.05	mg/L	0.87	1.94	<0.05	0.25	0.63
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO2807_58_59	YPGCO5415_53_54	YPGCO3152_50_51	YPRD13687_8_9	YPRDO5790_2_3
				Client sampling date / time: 10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00
				EP1205056-062	EP1205056-063	EP1205056-064	EP1205056-065	EP1205056-066
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.78	7.13	7.29	7.50	8.28
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	64	38	26	36	53
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	50	28	16	30	28
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	4	2	3	1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	<1	4	<1	2	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	3	2	<1	<1	5
Magnesium	7439-95-4	1	mg/L	1	<1	<1	<1	<1
Sodium	7440-23-5	1	mg/L	12	5	5	8	5
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.46	<0.01	<0.01	0.81	0.10
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	1.57	0.397	0.399	0.783	0.979
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.004	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.005	<0.001	<0.001	0.002	0.002
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	0.067	<0.001	0.009	0.089	0.112
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.005	<0.001	<0.001	0.003	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	0.390	0.128	0.107	0.231	0.192
Boron	7440-42-8	0.05	mg/L	0.92	0.31	0.47	0.66	0.68
Iron	7439-89-6	0.05	mg/L	2.67	<0.05	0.43	0.94	0.78
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRDO4911_4_5	YPRD10638_26_27	Y219261_38_39	TRRD33379_8_9	TRRD06576_12_13
				Client sampling date / time: 10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00	10-JUL-2012 12:00
				EP1205056-067	EP1205056-068	EP1205056-069	EP1205056-070	EP1205056-071
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**8.96**	**7.92**	**7.35**	**8.56**	**7.23**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**60**	**58**	**27**	**96**	**9**
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**52**	**40**	**24**	**52**	<10
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**2**	**1**	**2**	**5**	<1
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	**2**	**7**	**2**	**5**	<1
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	**6**	<1	<1	**8**	<1
Magnesium	7439-95-4	1	mg/L	<1	<1	<1	**2**	<1
Sodium	7440-23-5	1	mg/L	**7**	**11**	**4**	**11**	**2**
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.14**	**0.02**	<0.01	<0.01	<0.01
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L	**0.571**	**0.677**	**0.348**	**0.525**	**0.137**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	<0.001	**0.063**	**0.005**	<0.001	**0.018**
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.140**	**0.328**	**0.148**	**0.081**	**0.091**
Boron	7440-42-8	0.05	mg/L	**0.42**	**0.75**	**0.50**	**0.65**	**0.29**
Iron	7439-89-6	0.05	mg/L	**1.92**	**2.57**	**0.55**	**0.76**	<0.05
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Analytical Results

Sub-Matrix: **DI WATER LEACHATE**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD06576_11_12	----	----	----	----
				Client sampling date / time: 10-JUL-2012 12:00	----	----	----	----
				EP1205056-072	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.93**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**26**	----	----	----	----
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**18**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**3**	----	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	**2**	----	----	----	----
ED093W: Water Leachable Major Cations								
Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
Sodium	7440-23-5	1	mg/L	**5**	----	----	----	----
Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	----	----	----	----
Antimony	7440-36-0	0.001	mg/L	<0.001	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Barium	7440-39-3	0.001	mg/L	**0.305**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	<0.001	----	----	----	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	----	----	----	----
Silver	7440-22-4	0.001	mg/L	<0.001	----	----	----	----
Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.122**	----	----	----	----
Boron	7440-42-8	0.05	mg/L	**0.50**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	----	----	----	----
EG035W: Water Leachable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD04911_8_9	QC1	YPGC10846_14_15	CAGC30291_44_45	YPGC02807_26_27
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-001	EP1205056-002	EP1205056-003	EP1205056-004	EP1205056-005
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.3	8.4	6.9	7.4	7.3
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		1.32	0.85	4.20	1.22	1.58
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		22	32	164	23	18
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		5.8	5.9	7.5	7.3	7.3
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		0.4	0.4	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.2	0.9	2.8	1.8	2.4
ANC as CaCO3	----	0.1	% CaCO3		0.1	<0.1	0.3	0.2	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		<1.0	<1.0	8.8	<1.0	3.6
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.2	0.5	2.3	0.2	2.2
Exchangeable Magnesium	----	0.1	meq/100g		0.1	0.2	2.1	0.2	1.7
Exchangeable Potassium	----	0.1	meq/100g		<0.1	<0.1	0.4	<0.1	0.4
Exchangeable Sodium	----	0.1	meq/100g		<0.1	<0.1	0.7	<0.1	0.2
Cation Exchange Capacity	----	0.1	meq/100g		0.5	0.8	5.6	0.5	4.5
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		15.8	11.1	13.2	15.2	3.8
Exchangeable Magnesium Percent	----	0.1	%		27.9	21.2	37.7	31.4	37.0
Exchangeable Potassium Percent	----	0.1	%		8.1	5.8	7.9	7.3	10.0
Exchangeable Calcium Percent	----	0.1	%		48.2	61.9	41.2	46.2	49.2
Calcium/Magnesium Ratio	----	0.1	.		2.0	2.0	1.1	1.5	1.3
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	150	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	20	120	20	<10
Sulfur as S	63705-05-5	10	mg/kg		<10	<10	40	<10	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	0.02	0.02	<0.01	0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD04911_8_9	QC1	YPGC10846_14_15	CAGC30291_44_45	YPGC02807_26_27
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-001	EP1205056-002	EP1205056-003	EP1205056-004	EP1205056-005
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**10**	**10**	**120**	**20**	**10**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**8.0**	**6.6**	**6.9**	**6.3**	**6.4**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.02**	<0.02	**0.03**	**0.03**	**0.06**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD11438_26_27	YPGC03152_2_3	YPGC06605_2_3	YPGC06143_2_3	YPGCO3152_32_33
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-006	EP1205056-007	EP1205056-008	EP1205056-009	EP1205056-010
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.6	7.0	7.8	7.8	6.4
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.48	1.24	2.02	5.22	0.75
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		28	26	441	560	19
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.2	7.0	8.2	8.2	8.0
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.7	1.8	4.4	4.7	2.6
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.2	0.4	0.5	0.3
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.2	3.6	7.5	5.5	2.2
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.6	1.8	8.2	7.4	0.3
Exchangeable Magnesium	----	0.1	meq/100g		0.5	1.0	2.7	2.5	0.1
Exchangeable Potassium	----	0.1	meq/100g		<0.1	0.3	0.7	0.3	<0.1
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.1	0.9	1.7	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		1.3	3.2	12.5	11.8	0.6
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		15.2	3.2	7.4	14.2	8.2
Exchangeable Magnesium Percent	----	0.1	%		36.9	31.4	21.6	21.0	22.3
Exchangeable Potassium Percent	----	0.1	%		5.9	10.0	5.5	2.4	11.5
Exchangeable Calcium Percent	----	0.1	%		42.1	55.4	65.5	62.4	58.0
Calcium/Magnesium Ratio	----	0.1	.		1.2	1.7	3.1	3.0	4.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	150	360	150	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	20	390	160	20
Sulfur as S	63705-05-5	10	mg/kg		<10	<10	130	50	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	0.28	0.25	0.02	0.01

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPRD11438_26_27	YPGC03152_2_3	YPGC06605_2_3	YPGC06143_2_3	YPGCO3152_32_33
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-006	EP1205056-007	EP1205056-008	EP1205056-009	EP1205056-010
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**20**	**10**	**170**	**640**	**10**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.8**	**6.5**	**6.8**	**7.5**	**6.3**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	**0.06**	**0.06**	**0.10**	**0.03**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC00027_26_27	YPRD014197_26_27	YPGC10846_44_45	YPRD06017_15_16	YPGC00576_8_9
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-011	EP1205056-012	EP1205056-013	EP1205056-014	EP1205056-015
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.4	6.8	7.4	6.3	4.9
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		----	1.23	1.03	5.50	3.23
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		34	52	11	83	32
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.0	7.3	7.2	7.7	5.5
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	0.4
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.3	1.1	0.7	1.4	1.7
ANC as CaCO3	----	0.1	% CaCO3		0.1	0.1	<0.1	0.1	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.2	4.6	4.0	2.4	5.8
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.5	0.8	0.5	0.9	1.4
Exchangeable Magnesium	----	0.1	meq/100g		0.5	0.6	0.3	0.5	2.4
Exchangeable Potassium	----	0.1	meq/100g		<0.1	0.1	<0.1	0.1	0.5
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.2	<0.1	0.4	0.2
Cation Exchange Capacity	----	0.1	meq/100g		1.4	1.8	0.9	2.0	4.5
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		16.4	9.6	6.9	20.0	4.0
Exchangeable Magnesium Percent	----	0.1	%		36.8	35.9	33.1	26.9	52.6
Exchangeable Potassium Percent	----	0.1	%		6.8	6.8	6.6	7.1	11.7
Exchangeable Calcium Percent	----	0.1	%		40.0	47.7	53.4	46.1	31.7
Calcium/Magnesium Ratio	----	0.1	.		1.0	1.3	2.0	1.7	0.6
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	<100	160
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		30	70	10	70	40
Sulfur as S	63705-05-5	10	mg/kg		<10	20	<10	20	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	0.07	<0.01	0.02	0.11

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGC00027_26_27	YPRD014197_26_27	YPGC10846_44_45	YPRD06017_15_16	YPGC00576_8_9
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-011	EP1205056-012	EP1205056-013	EP1205056-014	EP1205056-015
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**20**	**10**	<10	**60**	**20**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.4**	**6.7**	**6.5**	**6.3**	**6.2**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	**0.29**	<0.02	**0.12**	**0.03**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: CAGC30291_26_27	YPGC06143_32_33	YPRD06017_20_21	YPGC06879_8_9	YPGC06143_38_39
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-016	EP1205056-017	EP1205056-018	EP1205056-019	EP1205056-021
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.9	6.7	6.3	8.0	6.7
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	1.70	1.15	3.64	13.0	0.72
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	22	18	201	45	79
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.3	6.9	7.8	7.5	7.3
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	0.9	2.7	1.9	2.0	4.7
ANC as CaCO3	----	0.1	% CaCO3	<0.1	0.3	0.2	0.2	0.5
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	2.6	3.1	10.8	3.3	20.2
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	0.6	0.4	2.9	4.4	6.8
Exchangeable Magnesium	----	0.1	meq/100g	0.5	0.2	2.2	3.2	6.0
Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.2	0.6	0.5
Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.6	1.0	0.3
Cation Exchange Capacity	----	0.1	meq/100g	1.3	0.7	5.9	9.2	13.6
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	7.7	9.0	9.5	11.4	2.0
Exchangeable Magnesium Percent	----	0.1	%	37.5	33.8	38.1	34.6	44.2
Exchangeable Potassium Percent	----	0.1	%	4.9	3.9	3.4	6.3	3.9
Exchangeable Calcium Percent	----	0.1	%	49.9	53.2	48.9	47.8	49.8
Calcium/Magnesium Ratio	----	0.1	.	1.3	1.5	1.3	1.4	1.1
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	210	<100	190
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	10	180	30	70
Sulfur as S	63705-05-5	10	mg/kg	<10	<10	60	<10	20
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.02	0.05	0.17

Analytical Results

Sub-Matrix: SOIL				Client sample ID	CAGC30291_26_27	YPGC06143_32_33	YPRD06017_20_21	YPGC06879_8_9	YPGC06143_38_39
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-016	EP1205056-017	EP1205056-018	EP1205056-019	EP1205056-021
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**20**	**10**	**180**	**30**	**80**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.7**	**6.7**	**6.3**	**7.2**	**6.1**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	**0.02**	**0.04**	**0.06**	**0.11**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC04543_22_23	YPRD06017_26_27	TRRD33379_2_3	YPRD04911_11_12	YPGCO3152_26_27
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-022	EP1205056-023	EP1205056-024	EP1205056-025	EP1205056-026
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.9	7.6	7.5	6.5	6.4
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	3.89	4.84	3.47	2.62	1.67
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	22	86	45	44	41
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.8	7.8	6.8	6.8	7.0
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	1.9	2.4	0.8	1.0	1.5
ANC as CaCO3	----	0.1	% CaCO3	0.2	0.2	<0.1	0.1	0.2
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	11.1	16.2	5.1	2.0	5.5
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.4	2.1	1.3	0.3	0.9
Exchangeable Magnesium	----	0.1	meq/100g	1.8	1.8	0.7	0.3	0.6
Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.2	<0.1	0.2
Exchangeable Sodium	----	0.1	meq/100g	0.5	0.5	0.5	0.2	0.1
Cation Exchange Capacity	----	0.1	meq/100g	5.1	4.7	2.6	0.9	1.9
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	9.8	10.0	17.7	22.5	6.9
Exchangeable Magnesium Percent	----	0.1	%	34.9	37.8	26.0	37.8	32.9
Exchangeable Potassium Percent	----	0.1	%	8.2	7.7	6.5	6.4	12.0
Exchangeable Calcium Percent	----	0.1	%	47.1	44.6	49.8	33.3	48.2
Calcium/Magnesium Ratio	----	0.1	.	1.3	1.2	1.8	1.0	1.6
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	110	<100	130
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	90	40	50	30
Sulfur as S	63705-05-5	10	mg/kg	<10	30	10	20	10
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.03	0.02	0.02	<0.01	0.08

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGC04543_22_23	YPRD06017_26_27	TRRD33379_2_3	YPRD04911_11_12	YPGCO3152_26_27
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-022	EP1205056-023	EP1205056-024	EP1205056-025	EP1205056-026
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**20**	**60**	**40**	**30**	**30**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.3**	**6.2**	**6.4**	**6.3**	**6.4**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.07**	<0.02	**0.04**	<0.02	**0.14**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGC06879_38_39	YPGCO2056_26_27	YPGC05415_26_27	YPGCO6143_8_9	YPGC066505_14_15
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-027	EP1205056-028	EP1205056-029	EP1205056-030	EP1205056-031
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.8	7.1	6.7	6.4	6.2
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.94	3.83	1.94	5.41	3.27
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		40	7	19	164	60
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.8	7.3	7.7	7.5	7.2
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.0	1.6	3.4	2.9	3.4
ANC as CaCO3	----	0.1	% CaCO3		0.1	0.2	0.4	0.3	0.4
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		2.3	7.6	11.5	11.6	9.0
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.0	0.5	1.6	1.8	0.6
Exchangeable Magnesium	----	0.1	meq/100g		0.7	0.4	1.5	1.1	0.4
Exchangeable Potassium	----	0.1	meq/100g		0.2	<0.1	0.5	0.2	0.1
Exchangeable Sodium	----	0.1	meq/100g		0.1	0.2	0.3	0.2	0.3
Cation Exchange Capacity	----	0.1	meq/100g		2.0	1.2	3.9	3.3	1.5
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		6.8	18.8	7.2	5.2	19.3
Exchangeable Magnesium Percent	----	0.1	%		33.1	35.6	38.3	33.7	30.4
Exchangeable Potassium Percent	----	0.1	%		12.0	5.4	14.1	5.6	8.9
Exchangeable Calcium Percent	----	0.1	%		48.1	40.3	40.4	55.5	41.4
Calcium/Magnesium Ratio	----	0.1	.		1.5	1.2	1.1	1.6	1.5
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	160	120
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		30	<10	10	180	60
Sulfur as S	63705-05-5	10	mg/kg		10	<10	<10	60	20
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		<0.01	0.02	0.01	0.05	0.03

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGC06879_38_39	YPGCO2056_26_27	YPGC05415_26_27	YPGCO6143_8_9	YPGC066505_14_15
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-027	EP1205056-028	EP1205056-029	EP1205056-030	EP1205056-031
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**30**	<10	**20**	**100**	**50**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.4**	**6.8**	**6.5**	**6.8**	**6.5**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		**0.03**	**0.08**	**0.06**	**0.21**	**0.07**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD33379_10_11	YPGC11249_26_27	YPRD11438_14_15	CAGC30291_20_21	TRRD06576_1_2
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-032	EP1205056-033	EP1205056-034	EP1205056-035	EP1205056-036
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.6	6.9	6.4	7.0	4.9
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	7.35	3.30	11.4	1.24	2.42
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	138	68	507	51	138
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.8	7.4	8.3	7.8	6.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	2.2	2.5	3.1	3.1	1.5
ANC as CaCO3	----	0.1	% CaCO3	0.2	0.2	0.3	0.3	0.2
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	4.9	9.4	6.0	6.7	2.3
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	1.8	0.7	2.1	1.4	0.6
Exchangeable Magnesium	----	0.1	meq/100g	1.4	0.5	1.6	1.3	0.5
Exchangeable Potassium	----	0.1	meq/100g	0.2	<0.1	0.4	0.4	0.1
Exchangeable Sodium	----	0.1	meq/100g	0.8	0.3	2.6	0.2	0.6
Cation Exchange Capacity	----	0.1	meq/100g	4.3	1.7	6.7	3.4	1.8
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	19.8	19.0	38.4	7.2	31.8
Exchangeable Magnesium Percent	----	0.1	%	32.8	32.2	24.4	38.5	29.1
Exchangeable Potassium Percent	----	0.1	%	4.9	4.6	6.0	12.1	6.4
Exchangeable Calcium Percent	----	0.1	%	42.6	44.2	31.1	42.2	32.8
Calcium/Magnesium Ratio	----	0.1	.	1.4	1.4	1.2	1.1	1.0
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	470	<100	190
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	100	60	410	40	60
Sulfur as S	63705-05-5	10	mg/kg	30	20	140	10	20
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.02	0.02	<0.01

Analytical Results

Sub-Matrix: SOIL				Client sample ID	TRRD33379_10_11	YPGC11249_26_27	YPRD11438_14_15	CAGC30291_20_21	TRRD06576_1_2
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-032	EP1205056-033	EP1205056-034	EP1205056-035	EP1205056-036
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**120**	**50**	**390**	**50**	**160**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.6**	**7.0**	**5.7**	**6.0**	**5.8**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	**0.04**	<0.02	**0.04**	**0.21**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD10638_14_15	YPRD06017_2_3	YPGC1249_14_15	YPGC02056_38_39	YPGC11249_238_39
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-037	EP1205056-038	EP1205056-039	EP1205056-040	EP1205056-041
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.5	6.9	6.9	6.2	6.3
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.46	1.42	5.60	1.51	1.66
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		434	241	65	30	40
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.4	7.7	6.8	6.7	8.2
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.6	3.0	1.9	1.9	2.9
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.3	0.2	0.2	0.3
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		9.8	7.6	7.0	9.0	5.7
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.6	1.7	1.9	0.2	0.4
Exchangeable Magnesium	----	0.1	meq/100g		1.2	2.0	1.7	0.2	0.2
Exchangeable Potassium	----	0.1	meq/100g		0.1	0.2	0.4	<0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		1.1	0.3	0.8	<0.1	0.2
Cation Exchange Capacity	----	0.1	meq/100g		3.1	4.1	4.8	0.5	0.8
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		36.0	7.4	17.6	16.4	18.8
Exchangeable Magnesium Percent	----	0.1	%		39.3	47.2	34.8	32.5	26.3
Exchangeable Potassium Percent	----	0.1	%		3.7	5.0	7.3	9.9	7.4
Exchangeable Calcium Percent	----	0.1	%		20.9	40.3	40.3	41.2	47.5
Calcium/Magnesium Ratio	----	0.1	.		0.6	0.8	1.1	1.0	2.0
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		340	130	130	<100	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		340	100	40	40	30
Sulfur as S	63705-05-5	10	mg/kg		110	30	10	10	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.01	0.03	0.04	0.03	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD10638_14_15	YPRD06017_2_3	YPGC1249_14_15	YPGC02056_38_39	YPGC11249_238_39
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-037	EP1205056-038	EP1205056-039	EP1205056-040	EP1205056-041
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**430**	**180**	**70**	**20**	**40**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.0**	**6.4**	**6.3**	**6.2**	**6.2**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.03**	**0.15**	**0.31**	**0.11**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD06017_26_27	TRRD33437_4_5	YPGCO1657_8_9	YPRD11438_8_9	YPRD1387_14_15
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-042	EP1205056-043	EP1205056-044	EP1205056-045	EP1205056-046
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		7.5	6.5	5.8	7.0	7.6
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		3.23	2.14	4.19	8.29	8.74
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		69	18	52	135	50
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		7.7	6.8	6.3	7.0	6.8
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	0.2	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.6	3.5	1.1	0.9	1.8
ANC as CaCO3	----	0.1	% CaCO3		0.2	0.4	0.1	<0.1	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		19.0	2.3	8.8	6.3	6.5
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		2.4	0.1	2.9	0.2	2.3
Exchangeable Magnesium	----	0.1	meq/100g		2.0	0.1	3.4	0.4	1.8
Exchangeable Potassium	----	0.1	meq/100g		0.4	<0.1	0.9	0.1	0.3
Exchangeable Sodium	----	0.1	meq/100g		0.3	0.2	0.4	0.9	0.6
Cation Exchange Capacity	----	0.1	meq/100g		5.2	0.5	7.5	1.6	5.1
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		6.5	36.7	4.8	54.3	11.3
Exchangeable Magnesium Percent	----	0.1	%		39.3	29.0	45.2	24.1	36.6
Exchangeable Potassium Percent	----	0.1	%		7.9	5.7	11.4	7.7	6.5
Exchangeable Calcium Percent	----	0.1	%		46.3	28.6	38.5	14.0	45.6
Calcium/Magnesium Ratio	----	0.1	.		1.2	0.5	0.9	0.5	1.3
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		<100	<100	<100	110	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		60	20	30	90	30
Sulfur as S	63705-05-5	10	mg/kg		20	<10	<10	30	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.01	0.03	0.03	0.02	0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD06017_26_27	TRRD33437_4_5	YPGCO1657_8_9	YPRD11438_8_9	YPRD1387_14_15
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-042	EP1205056-043	EP1205056-044	EP1205056-045	EP1205056-046
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**60**	**10**	**70**	**140**	**40**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.0**	**6.4**	**6.9**	**6.7**	**7.5**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.03**	**0.02**	**0.14**	**0.04**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	QC2	YPGC02807_238_39	YPGC1249_44_45	YPGC02056_8_9	YPRD05790_11_12
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-047	EP1205056-048	EP1205056-049	EP1205056-050	EP1205056-051
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		8.0	6.8	6.9	6.3	7.0
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		21.1	1.94	3.05	3.60	6.69
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		145	26	44	16	421
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		8.4	7.3	7.2	7.0	6.9
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	0.2	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		3.5	1.9	1.6	2.8	1.6
ANC as CaCO3	----	0.1	% CaCO3		0.4	0.2	0.2	0.3	0.2
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		18.2	5.3	4.9	10.2	2.4
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		1.4	0.7	0.3	3.4	0.5
Exchangeable Magnesium	----	0.1	meq/100g		1.1	0.6	0.2	2.7	0.8
Exchangeable Potassium	----	0.1	meq/100g		0.4	<0.1	<0.1	0.8	0.2
Exchangeable Sodium	----	0.1	meq/100g		1.4	0.1	0.2	0.3	1.4
Cation Exchange Capacity	----	0.1	meq/100g		4.2	1.5	0.9	7.2	2.9
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		32.5	9.5	28.6	4.3	47.6
Exchangeable Magnesium Percent	----	0.1	%		25.8	38.2	28.7	37.2	27.0
Exchangeable Potassium Percent	----	0.1	%		8.3	3.9	6.4	11.0	7.7
Exchangeable Calcium Percent	----	0.1	%		33.4	48.4	36.3	47.5	17.8
Calcium/Magnesium Ratio	----	0.1	.		1.3	1.4	1.3	1.3	0.6
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		170	<100	<100	<100	390
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		150	30	30	20	370
Sulfur as S	63705-05-5	10	mg/kg		50	10	10	<10	120
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.02	0.01	<0.01	0.18	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: QC2	YPGC02807_238_39	YPGC1249_44_45	YPGC02056_8_9	YPRD05790_11_12
Client sampling date / time				22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-047	**EP1205056-048**	**EP1205056-049**	**EP1205056-050**	**EP1205056-051**
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**110**	**20**	**40**	<10	**350**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.6**	**7.5**	**7.5**	**7.4**	**7.2**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.05**	<0.02	**0.05**	**0.02**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPRD11438_2_3	TRRD33437_2_3	YPRDO5790_4_5	YPGC11249_20_21	YPGC1657_20_21
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-052	EP1205056-053	EP1205056-054	EP1205056-055	EP1205056-056
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		6.3	5.4	8.2	7.3	6.5
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		2.13	3.87	1.07	6.53	2.12
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		32	21	49	85	33
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.5	6.2	7.5	8.2	5.5
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	0.2	<0.1	<0.1	0.7
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		1.8	<0.5	1.6	5.2	1.2
ANC as CaCO3	----	0.1	% CaCO3		0.2	<0.1	0.2	0.5	0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		4.9	5.2	5.4	10.8	9.4
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.4	4.4	0.2	3.0	0.5
Exchangeable Magnesium	----	0.1	meq/100g		0.3	0.5	0.2	1.8	0.4
Exchangeable Potassium	----	0.1	meq/100g		<0.1	0.2	<0.1	0.3	0.2
Exchangeable Sodium	----	0.1	meq/100g		0.2	0.2	0.2	0.6	0.1
Cation Exchange Capacity	----	0.1	meq/100g		1.0	5.4	0.7	5.7	1.3
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%		17.1	4.5	31.1	10.6	9.9
Exchangeable Magnesium Percent	----	0.1	%		29.9	9.9	31.8	31.5	28.7
Exchangeable Potassium Percent	----	0.1	%		6.8	3.2	7.4	4.7	19.4
Exchangeable Calcium Percent	----	0.1	%		46.2	82.4	29.7	53.2	42.0
Calcium/Magnesium Ratio	----	0.1	.		1.3	7.6	1.0	1.7	1.5
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		190	<100	<100	<100	130
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		40	30	<10	70	40
Sulfur as S	63705-05-5	10	mg/kg		10	10	<10	20	10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.04	0.02	<0.01	0.01	0.06

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRD11438_2_3	TRRD33437_2_3	YPRDO5790_4_5	YPGC11249_20_21	YPGC1657_20_21
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-052	EP1205056-053	EP1205056-054	EP1205056-055	EP1205056-056
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**20**	**10**	**20**	**80**	**30**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**6.8**	**6.6**	**8.7**	**7.3**	**7.1**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	**0.15**	**0.04**	**0.04**	**0.13**	**0.09**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	YPGCO3152_14_15	YPGC10846_8_9	YPGCO2056_44_45	YPGCO8967_38_39	YPGCO6605_32_33
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
					EP1205056-057	EP1205056-058	EP1205056-059	EP1205056-060	EP1205056-061
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		5.7	7.5	6.0	6.3	6.3
EA006: Sodium Adsorption Ratio (SAR)									
Sodium Adsorption Ratio	----	0.01	-		0.88	9.43	1.59	3.94	1.76
EA010: Conductivity									
Electrical Conductivity @ 25°C	----	1	µS/cm		32	53	33	153	26
EA011: Net Acid Generation									
pH (OX)	----	0.1	pH Unit		6.9	7.5	7.2	8.0	7.3
NAG (pH 4.5)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t		<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity									
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t		0.9	3.1	0.9	0.9	0.9
ANC as CaCO3	----	0.1	% CaCO3		<0.1	0.3	<0.1	<0.1	<0.1
Fizz Rating	----	0	Fizz Unit		0	0	0	0	0
EA026 : Chromium Reducible Sulfur									
Chromium Reducible Sulphur	----	0.005	%		<0.005	<0.005	<0.005	<0.005	0.005
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		3.2	4.6	2.5	5.4	<1.0
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g		0.5	2.6	0.2	0.5	0.4
Exchangeable Magnesium	----	0.1	meq/100g		0.4	2.1	0.2	0.4	0.3
Exchangeable Potassium	----	0.1	meq/100g		0.2	0.4	<0.1	<0.1	<0.1
Exchangeable Sodium	----	0.1	meq/100g		<0.1	0.6	<0.1	0.3	<0.1
Cation Exchange Capacity	----	0.1	meq/100g		1.1	5.7	0.5	1.4	0.9
Exchangeable Aluminium	----	0.1	meq/100g		<0.1	<0.1	<0.1	0.2	<0.1
Exchangeable Sodium Percent	----	0.1	%		6.8	10.2	18.5	25.8	8.6
Exchangeable Magnesium Percent	----	0.1	%		34.7	37.6	32.9	31.0	37.8
Exchangeable Potassium Percent	----	0.1	%		14.4	6.7	7.1	6.7	5.5
Exchangeable Calcium Percent	----	0.1	%		44.2	45.5	41.6	36.6	48.2
Calcium/Magnesium Ratio	----	0.1	.		1.2	1.2	1.0	1.2	1.3
ED040: Sulfur as SO4 2-									
Sulfate as SO4 2-	14808-79-8	100	mg/kg		120	<100	<100	190	<100
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		60	50	40	120	20
Sulfur as S	63705-05-5	10	mg/kg		20	20	10	40	<10
ED042T: Total Sulfur by LECO									
Sulfur - Total as S (LECO)	----	0.01	%		0.05	0.03	0.01	<0.01	<0.01

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPGCO3152_14_15	YPGC10846_8_9	YPGCO2056_44_45	YPGCO8967_38_39	YPGCO6605_32_33
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-057	EP1205056-058	EP1205056-059	EP1205056-060	EP1205056-061
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		<10	**30**	**20**	**130**	**20**
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**7.0**	**7.5**	**6.9**	**7.2**	**7.4**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		**0.20**	**0.06**	**0.09**	<0.02	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO2807_58_59	YPGCO5415_53_54	YPGCO3152_50_51	YPRD13687_8_9	YPRDO5790_2_3
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-062	EP1205056-063	EP1205056-064	EP1205056-065	EP1205056-066
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	6.5	6.2	6.0	7.1	7.8
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	3.02	2.42	1.23	29.7	1.15
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	14	83	16	49	68
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	7.1	7.4	7.2	8.3	7.4
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	2.9	1.5	0.7	2.2	1.1
ANC as CaCO3	----	0.1	% CaCO3	0.3	0.2	<0.1	0.2	0.1
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	11.3	3.0	5.2	13.6	2.6
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	6.5	0.5	0.3	3.7	1.4
Exchangeable Magnesium	----	0.1	meq/100g	4.8	0.4	0.2	2.6	0.4
Exchangeable Potassium	----	0.1	meq/100g	0.7	<0.1	<0.1	0.7	<0.1
Exchangeable Sodium	----	0.1	meq/100g	0.4	0.3	<0.1	1.0	0.2
Cation Exchange Capacity	----	0.1	meq/100g	12.4	1.3	0.7	8.0	2.1
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	3.0	20.8	9.8	12.2	9.9
Exchangeable Magnesium Percent	----	0.1	%	38.5	34.5	33.5	33.2	19.6
Exchangeable Potassium Percent	----	0.1	%	6.0	6.1	8.7	8.7	4.6
Exchangeable Calcium Percent	----	0.1	%	52.5	38.5	48.0	45.9	65.9
Calcium/Magnesium Ratio	----	0.1	.	1.4	1.0	2.0	1.4	3.4
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	80	20	40	30
Sulfur as S	63705-05-5	10	mg/kg	<10	30	<10	10	<10
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	0.32	0.01	0.02	0.03	<0.01

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPGCO2807_58_59	YPGCO5415_53_54	YPGCO3152_50_51	YPRD13687_8_9	YPRDO5790_2_3
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-062	EP1205056-063	EP1205056-064	EP1205056-065	EP1205056-066
ED042T: Total Sulfur by LECO - Continued								
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	<10	**60**	**10**	**40**	**20**
EN60: Bottle Leaching Procedure								
Final pH	----	0.1	pH Unit	**7.8**	**7.1**	**7.3**	**7.5**	**8.3**
EP003TC: Total Carbon (TC) in Soil								
Total Carbon	----	0.02	%	<0.02	**0.04**	**0.03**	**0.03**	**0.06**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: YPRDO4911_4_5	YPRD10638_26_27	Y219261_38_39	TRRD33379_8_9	TRRD06576_12_13
				Client sampling date / time: 22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
				EP1205056-067	EP1205056-068	EP1205056-069	EP1205056-070	EP1205056-071
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.3	7.0	6.7	8.1	5.7
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	1.28	4.60	1.67	2.97	1.42
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	90	148	53	156	10
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	6.8	6.8	7.5	7.5	7.0
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	<0.1	<0.1	<0.1
NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.3	<0.1	<0.1	<0.1	<0.1
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	0.7	0.6	1.7	5.3	<0.5
ANC as CaCO3	----	0.1	% CaCO3	<0.1	<0.1	0.2	0.5	<0.1
Fizz Rating	----	0	Fizz Unit	0	0	0	0	0
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	0.005	<0.005	<0.005	<0.005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	2.3	7.1	11.5	9.9	<1.0
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	3.4	0.9	1.0	6.1	<0.1
Exchangeable Magnesium	----	0.1	meq/100g	0.4	1.4	0.9	1.9	<0.1
Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.2	<0.1	0.2	<0.1
Exchangeable Sodium	----	0.1	meq/100g	0.3	0.8	0.2	0.7	<0.1
Cation Exchange Capacity	----	0.1	meq/100g	4.2	3.3	2.1	8.9	0.2
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Exchangeable Sodium Percent	----	0.1	%	7.3	24.4	8.1	7.5	24.5
Exchangeable Magnesium Percent	----	0.1	%	9.8	42.0	42.4	21.3	40.1
Exchangeable Potassium Percent	----	0.1	%	2.5	6.6	2.7	2.2	10.2
Exchangeable Calcium Percent	----	0.1	%	80.3	27.0	46.8	69.0	25.2
Calcium/Magnesium Ratio	----	0.1	.	7.6	0.6	1.1	3.2	<0.1
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	<100	<100	<100
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	70	40	80	10
Sulfur as S	63705-05-5	10	mg/kg	10	20	10	20	<10
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	<0.01	0.01	<0.01

Analytical Results

Sub-Matrix: SOIL				Client sample ID	YPRDO4911_4_5	YPRD10638_26_27	Y219261_38_39	TRRD33379_8_9	TRRD06576_12_13
				Client sampling date / time	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00	22-JUN-2012 15:00
Compound	CAS Number	LOR	Unit		EP1205056-067	EP1205056-068	EP1205056-069	EP1205056-070	EP1205056-071
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**40**	**180**	**50**	**100**	<10
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**9.0**	**7.9**	**7.4**	**8.6**	**7.2**
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	<0.02	**0.04**	**0.03**	<0.02

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: TRRD06576_11_12	----	----	----	----
				Client sampling date / time: 22-JUN-2012 15:00	----	----	----	----
				EP1205056-072	----	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**5.8**	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR)								
Sodium Adsorption Ratio	----	0.01	-	**6.82**	----	----	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**60**	----	----	----	----
EA011: Net Acid Generation								
pH (OX)	----	0.1	pH Unit	**7.4**	----	----	----	----
NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	----	----	----	----
NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	----	----	----	----
EA013: Acid Neutralising Capacity								
ANC as H2SO4	----	0.5	kg H2SO4 equiv./t	**2.2**	----	----	----	----
ANC as CaCO3	----	0.1	% CaCO3	**0.2**	----	----	----	----
Fizz Rating	----	0	Fizz Unit	**0**	----	----	----	----
EA026 : Chromium Reducible Sulfur								
Chromium Reducible Sulphur	----	0.005	%	<0.005	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**4.6**	----	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	**0.2**	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	**0.4**	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	**0.3**	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	**1.0**	----	----	----	----
Exchangeable Aluminium	----	0.1	meq/100g	<0.1	----	----	----	----
Exchangeable Sodium Percent	----	0.1	%	**30.1**	----	----	----	----
Exchangeable Magnesium Percent	----	0.1	%	**41.2**	----	----	----	----
Exchangeable Potassium Percent	----	0.1	%	**9.7**	----	----	----	----
Exchangeable Calcium Percent	----	0.1	%	**19.0**	----	----	----	----
Calcium/Magnesium Ratio	----	0.1	.	**0.5**	----	----	----	----
ED040: Sulfur as SO4 2-								
Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**60**	----	----	----	----
Sulfur as S	63705-05-5	10	mg/kg	**20**	----	----	----	----
ED042T: Total Sulfur by LECO								
Sulfur - Total as S (LECO)	----	0.01	%	<0.01	----	----	----	----

Analytical Results

Sub-Matrix: SOIL				Client sample ID	TRRD06576_11_12	----	----	----	----
				Client sampling date / time	22-JUN-2012 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EP1205056-072	----	----	----	----
ED042T: Total Sulfur by LECO - Continued									
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	10	mg/kg		**50**	----	----	----	----
EN60: Bottle Leaching Procedure									
Final pH	----	0.1	pH Unit		**6.9**	----	----	----	----
EP003TC: Total Carbon (TC) in Soil									
Total Carbon	----	0.02	%		<0.02	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EP1205056**	Page	: 1 of 30
Client	: **URS AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 72
Quote number	: ----	No. of samples analysed	: 71

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Stafford Minerals - AY
SATISH.TRIVEDI	2 IC Acid Sulfate Soils Supervisor	Brisbane Acid Sulphate Soils

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 2372347)									
EP1205051-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.7	8.7	11.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381279)									
EP1205053-042	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.9	7.2	4.1	0% - 20%
EP1205056-004	CAGC30291_44_45	EA002: pH Value	----	0.1	pH Unit	7.4	7.2	2.4	0% - 20%
EA002 : pH (Soils) (QC Lot: 2381283)									
EP1205056-015	YPGC00576_8_9	EA002: pH Value	----	0.1	pH Unit	4.9	5.0	0.0	0% - 20%
EP1205056-025	YPRD04911_11_12	EA002: pH Value	----	0.1	pH Unit	6.5	6.6	0.0	0% - 20%
EA002 : pH (Soils) (QC Lot: 2382060)									
EP1205056-036	TRRD06576_1_2	EA002: pH Value	----	0.1	pH Unit	4.9	4.9	0.0	0% - 20%
EP1205056-045	YPRD11438_8_9	EA002: pH Value	----	0.1	pH Unit	7.0	7.2	1.8	0% - 20%
EA002 : pH (Soils) (QC Lot: 2382064)									
EP1205056-056	YPGC1657_20_21	EA002: pH Value	----	0.1	pH Unit	6.5	6.4	0.0	0% - 20%
EP1205056-065	YPRD13687_8_9	EA002: pH Value	----	0.1	pH Unit	7.1	7.2	0.0	0% - 20%
EA010: Conductivity (QC Lot: 2372349)									
EP1205051-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	177	150	16.7	0% - 20%
EA010: Conductivity (QC Lot: 2381281)									
EP1205053-042	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	64	62	4.1	0% - 20%
EP1205056-004	CAGC30291_44_45	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	23	21	6.4	0% - 20%
EA010: Conductivity (QC Lot: 2381285)									
EP1205056-015	YPGC00576_8_9	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	32	32	0.0	0% - 20%
EP1205056-025	YPRD04911_11_12	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	44	46	4.9	0% - 20%
EA010: Conductivity (QC Lot: 2382062)									
EP1205056-036	TRRD06576_1_2	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	138	138	0.0	0% - 20%
EP1205056-045	YPRD11438_8_9	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	135	126	7.3	0% - 20%
EA010: Conductivity (QC Lot: 2382066)									
EP1205056-056	YPGC1657_20_21	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	33	31	5.0	0% - 20%
EP1205056-065	YPRD13687_8_9	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	49	45	9.1	0% - 20%
EA011: Net Acid Generation (QC Lot: 2393566)									
EP1205056-001	YPRD04911_8_9	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.4	0.4	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	5.8	5.8	0.0	0% - 20%
EP1205056-012	YPRD014197_26_27	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.3	7.3	0.0	0% - 20%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA011: Net Acid Generation (QC Lot: 2393569)									
EP1205056-022	YPGC04543_22_23	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.8	7.8	0.0	0% - 20%
EP1205056-033	YPGC11249_26_27	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.4	7.3	1.4	0% - 20%
EA011: Net Acid Generation (QC Lot: 2393572)									
EP1205056-042	YPRD06017_26_27	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.7	7.9	2.6	0% - 20%
EP1205056-053	TRRD33437_2_3	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	0.2	0.2	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	6.2	6.3	1.6	0% - 20%
EA011: Net Acid Generation (QC Lot: 2393575)									
EP1205056-062	YPGCO2807_58_59	EA011: NAG (pH 4.5)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	<0.1	<0.1	0.0	No Limit
		EA011: pH (OX)	----	0.1	pH Unit	7.1	7.1	0.0	0% - 20%
EA013: Acid Neutralising Capacity (QC Lot: 2393565)									
EP1205056-001	YPRD04911_8_9	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.2	1.4	15.1	No Limit
EP1205056-012	YPRD014197_26_27	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.1	1.1	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2393568)									
EP1205056-022	YPGC04543_22_23	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.9	2.0	5.3	No Limit
EP1205056-033	YPGC11249_26_27	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	2.5	2.4	4.1	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2393571)									
EP1205056-042	YPRD06017_26_27	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	1.6	1.6	0.0	No Limit
EP1205056-053	TRRD33437_2_3	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	<0.5	<0.5	0.0	No Limit
EA013: Acid Neutralising Capacity (QC Lot: 2393574)									
EP1205056-062	YPGCO2807_58_59	EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	2.9	3.1	5.9	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2393567)									
EP1205056-001	YPRD04911_8_9	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205056-012	YPRD014197_26_27	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2393570)									
EP1205056-022	YPGC04543_22_23	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205056-033	YPGC11249_26_27	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2393573)									
EP1205056-042	YPRD06017_26_27	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EP1205056-053	TRRD33437_2_3	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA026 : Chromium Reducible Sulfur (QC Lot: 2393576)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA026 : Chromium Reducible Sulfur (QC Lot: 2393576) - continued									
EP1205056-062	YPGCO2807_58_59	EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	<0.005	0.0	No Limit
EA055: Moisture Content (QC Lot: 2374705)									
EP1205056-001	YPRD04911_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	0.0	No Limit
EP1205056-010	YPGCO3152_32_33	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	2.2	2.2	0.0	No Limit
EA055: Moisture Content (QC Lot: 2374706)									
EP1205056-021	YPGC06143_38_39	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	20.2	20.0	0.7	0% - 20%
EP1205056-030	YPGCO6143_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	11.6	11.4	2.0	0% - 50%
EA055: Moisture Content (QC Lot: 2386339)									
EP1205056-041	YPGC11249_238_39	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.7	5.7	0.0	No Limit
EP1205056-050	YPGC02056_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.2	10.3	0.0	0% - 50%
EA055: Moisture Content (QC Lot: 2386340)									
EP1205056-061	YPGCO6605_32_33	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	<1.0	0.0	No Limit
EP1205056-070	TRRD33379_8_9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.9	9.8	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376973)									
EP1205056-001	YPRD04911_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.2	0.3	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.1	0.2	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
EP1205056-009	YPGC06143_2_3	ED007: Exchangeable Calcium	----	0.1	meq/100g	7.4	6.8	8.6	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.5	2.4	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	1.7	1.6	0.0	0% - 50%
ED007: Exchangeable Cations (QC Lot: 2376974)									
EP1205056-022	YPGC04543_22_23	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.4	2.3	5.3	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.8	1.7	5.9	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.5	0.5	0.0	No Limit
EP1205056-030	YPGCO6143_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	1.8	1.9	0.0	0% - 50%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.1	1.2	0.0	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376989)									
EP1205056-042	YPRD06017_26_27	ED007: Exchangeable Calcium	----	0.1	meq/100g	2.4	2.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.0	2.1	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.4	0.0	No Limit
EP1205056-050	YPGC02056_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	3.4	3.4	0.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.7	2.7	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.8	0.8	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED007: Exchangeable Cations (QC Lot: 2376989) - continued									
EP1205056-050	YPGC02056_8_9	ED007: Exchangeable Sodium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
ED007: Exchangeable Cations (QC Lot: 2376990)									
EP1205056-062	YPGCO2807_58_59	ED007: Exchangeable Calcium	----	0.1	meq/100g	6.5	7.3	11.2	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	4.8	5.3	10.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.7	0.8	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
EP1205056-070	TRRD33379_8_9	ED007: Exchangeable Calcium	----	0.1	meq/100g	6.1	5.7	7.0	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	1.9	1.8	0.0	0% - 50%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.7	0.6	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2372348)									
EP1205051-001	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381280)									
EP1205053-042	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	30	0.0	No Limit
EP1205056-004	CAGC30291_44_45	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2381284)									
EP1205056-015	YPGC00576_8_9	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
EP1205056-025	YPRD04911_11_12	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	50	50	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2382061)									
EP1205056-036	TRRD06576_1_2	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	60	40	26.2	No Limit
EP1205056-045	YPRD11438_8_9	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	90	80	0.0	No Limit
ED040S: Soluble Major Anions (QC Lot: 2382065)									
EP1205056-056	YPGC1657_20_21	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	30	0.0	No Limit
EP1205056-065	YPRD13687_8_9	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	40	40	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399554)									
EP1205053-035	Anonymous	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205053-044	Anonymous	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399557)									
EP1205056-002	QC1	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205056-011	YPGC00027_26_27	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399558)									
EP1205056-023	YPRD06017_26_27	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
EP1205056-032	TRRD33379_10_11	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399560)									
EP1205056-038	YPRD06017_2_3	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	130	110	13.5	No Limit
EP1205056-047	QC2	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	170	140	23.1	No Limit
ED040T : Total Sulfate by ICPAES (QC Lot: 2399561)									
EP1205056-058	YPGC10846_8_9	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED040T : Total Sulfate by ICPAES (QC Lot: 2399561) - continued									
EP1205056-067	YPRDO4911_4_5	ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	<100	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388675)									
EP1205056-001	YPRD04911_8_9	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.02	0.02	0.0	No Limit
EP1205056-011	YPGC00027_26_27	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388677)									
EP1205056-022	YPGC04543_22_23	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.03	0.03	0.0	No Limit
EP1205056-032	TRRD33379_10_11	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388679)									
EP1205056-042	YPRD06017_26_27	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.01	0.01	0.0	No Limit
EP1205056-052	YPRD11438_2_3	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.04	0.04	0.0	No Limit
ED042T: Total Sulfur by LECO (QC Lot: 2388681)									
EP1205056-062	YPGCO2807_58_59	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	0.32	0.31	3.7	0% - 20%
EP1205056-072	TRRD06576_11_12	ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	<0.01	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2372350)									
EP1205051-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381282)									
EP1205053-042	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	60	60	0.0	No Limit
EP1205056-004	CAGC30291_44_45	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2381286)									
EP1205056-015	YPGC00576_8_9	ED045G: Chloride	16887-00-6	10	mg/kg	20	20	0.0	No Limit
EP1205056-025	YPRD04911_11_12	ED045G: Chloride	16887-00-6	10	mg/kg	30	30	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2382063)									
EP1205056-036	TRRD06576_1_2	ED045G: Chloride	16887-00-6	10	mg/kg	160	120	28.2	0% - 50%
EP1205056-045	YPRD11438_8_9	ED045G: Chloride	16887-00-6	10	mg/kg	140	120	8.9	0% - 50%
ED045G: Chloride Discrete analyser (QC Lot: 2382067)									
EP1205056-056	YPGC1657_20_21	ED045G: Chloride	16887-00-6	10	mg/kg	30	30	0.0	No Limit
EP1205056-065	YPRD13687_8_9	ED045G: Chloride	16887-00-6	10	mg/kg	40	40	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388676)									
EP1205056-001	YPRD04911_8_9	EP003TC: Total Carbon	----	0.02	%	0.02	0.02	0.0	No Limit
EP1205056-011	YPGC00027_26_27	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388678)									
EP1205056-022	YPGC04543_22_23	EP003TC: Total Carbon	----	0.02	%	0.07	0.07	0.0	No Limit
EP1205056-032	TRRD33379_10_11	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388680)									
EP1205056-042	YPRD06017_26_27	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit
EP1205056-052	YPRD11438_2_3	EP003TC: Total Carbon	----	0.02	%	0.15	0.15	0.0	No Limit
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388682)									
EP1205056-062	YPGCO2807_58_59	EP003TC: Total Carbon	----	0.02	%	<0.02	0.02	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP003TC: Total Carbon (TC) in Soil (QC Lot: 2388682) - continued									
EP1205056-072	TRRD06576_11_12	EP003TC: Total Carbon	----	0.02	%	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA005P: pH by PC Titrator (QC Lot: 2379416)									
EP1205161-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.86	6.82	0.6	0% - 20%
EP1205165-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.57	7.55	0.3	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2394931)									
EP1205056-003	YPGC10846_14_15	EA005-P: pH Value	----	0.01	pH Unit	7.26	6.86	5.7	0% - 20%
EP1205056-012	YPRD014197_26_27	EA005-P: pH Value	----	0.01	pH Unit	6.77	6.78	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2394933)									
EP1205056-024	TRRD33379_2_3	EA005-P: pH Value	----	0.01	pH Unit	6.78	6.74	0.6	0% - 20%
EP1205056-033	YPGC11249_26_27	EA005-P: pH Value	----	0.01	pH Unit	6.75	6.71	0.6	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2395498)									
EP1205053-038	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.36	7.49	1.8	0% - 20%
EP1205053-048	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.35	7.31	0.5	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2395500)									
EP1205056-052	YPRD11438_2_3	EA005-P: pH Value	----	0.01	pH Unit	6.92	6.95	0.4	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2397109)									
EP1205056-055	YPGC11249_20_21	EA005-P: pH Value	----	0.01	pH Unit	7.28	7.36	1.2	0% - 20%
EP1205056-065	YPRD13687_8_9	EA005-P: pH Value	----	0.01	pH Unit	7.50	7.46	0.5	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2379415)									
EP1205161-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	963	962	0.1	0% - 20%
EP1205165-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4380	4340	0.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2394930)									
EP1205056-003	YPGC10846_14_15	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	97	98	1.2	0% - 20%
EP1205056-012	YPRD014197_26_27	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	45	45	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2394932)									
EP1205056-024	TRRD33379_2_3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	64	56	14.0	0% - 20%
EP1205056-033	YPGC11249_26_27	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	57	56	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2395497)									
EP1205053-038	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	77	69	10.8	0% - 20%
EP1205053-048	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	47	47	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2395499)									
EP1205056-052	YPRD11438_2_3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	33	29	14.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2397108)									
EP1205056-055	YPGC11249_20_21	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	73	65	11.6	0% - 20%
EP1205056-065	YPRD13687_8_9	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	36	36	0.0	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2377967)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA015: Total Dissolved Solids (QC Lot: 2377967) - continued									
EP1205051-001	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	107	128	17.9	0% - 50%
EP1205091-006	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	1640	1680	2.4	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2392126)									
EP1205056-002	QC1	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	32	22	37.0	No Limit
EP1205056-010	YPGCO3152_32_33	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	14	16	13.3	No Limit
EA015: Total Dissolved Solids (QC Lot: 2392141)									
EP1205056-023	YPRD06017_26_27	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	36	50	32.6	No Limit
EP1205056-031	YPGC066505_14_15	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	38	28	30.3	No Limit
EA015: Total Dissolved Solids (QC Lot: 2395485)									
EP1205053-038	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	60	42	35.3	No Limit
EP1205053-046	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	28	26	7.4	No Limit
EA015: Total Dissolved Solids (QC Lot: 2395486)									
EP1205056-052	YPRD11438_2_3	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	30	26	14.3	No Limit
EA015: Total Dissolved Solids (QC Lot: 2397122)									
EP1205056-055	YPGC11249_20_21	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	48	80	50.0	No Limit
EP1205056-063	YPGCO5415_53_54	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	28	28	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2399539)									
EP1205056-001	YPRD04911_8_9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
EP1205056-011	YPGC00027_26_27	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	1	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2399541)									
EP1205056-022	YPGC04543_22_23	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
EP1205056-032	TRRD33379_10_11	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	5	5	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2399543)									
EP1205056-043	TRRD33437_4_5	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	1	56.8	No Limit
EP1205056-052	YPRD11438_2_3	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	4	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2399546)									
EP1205056-062	YPGCO2807_58_59	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
EP1205056-072	TRRD06576_11_12	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2399538)									
EP1205056-001	YPRD04911_8_9	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
EP1205056-011	YPGC00027_26_27	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2399540)									
EP1205056-022	YPGC04543_22_23	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
EP1205056-032	TRRD33379_10_11	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2399542)									
EP1205056-043	TRRD33437_4_5	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
EP1205056-052	YPRD11438_2_3	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2399544)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED045G: Chloride Discrete analyser (QC Lot: 2399544) - continued									
EP1205056-062	YPGCO2807_58_59	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
EP1205056-072	TRRD06576_11_12	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2378787)									
EP1205051-001	Anonymous	ED093W: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2391982)									
EP1205056-002	QC1	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205056-011	YPGC00027_26_27	ED093W: Calcium	7440-70-2	1	mg/L	1	1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	6	6	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2391985)									
EP1205056-023	YPRD06017_26_27	ED093W: Calcium	7440-70-2	1	mg/L	2	1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	14	13	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
EP1205056-032	TRRD33379_10_11	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	14	14	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2396457)									
EP1205053-038	Anonymous	ED093W: Calcium	7440-70-2	1	mg/L	3	3	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	12	12	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	1	<1	0.0	No Limit
EP1205053-047	Anonymous	ED093W: Calcium	7440-70-2	1	mg/L	5	5	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	1	1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	13	13	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ED093W: Water Leachable Major Cations (QC Lot: 2396460)									
EP1205056-052	YPRD11438_2_3	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	4	4	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
ED093W: Water Leachable Major Cations (QC Lot: 2397231)									
EP1205056-055	YPGC11249_20_21	ED093W: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	13	13	0.0	0% - 50%
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP1205056-064	YPGCO3152_50_51	ED093W: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093W: Sodium	7440-23-5	1	mg/L	5	5	0.0	No Limit
		ED093W: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378785)									
EP1205051-001	Anonymous	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.319	0.315	1.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.033	0.033	0.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.070	0.069	1.6	0% - 50%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.84	1.80	1.9	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.25	0.25	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	3.21	3.12	2.8	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2378786)									
EP1205051-001	Anonymous	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391980)									
EP1205056-002	QC1	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.777	0.777	0.0	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.041	0.040	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391980) - continued									
EP1205056-002	QC1	EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.209	0.202	3.1	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.70	0.73	5.4	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.07	1.10	2.4	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	9.36	9.29	0.7	0% - 20%
EP1205056-011	YPGC00027_26_27	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.588	0.569	3.4	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.236	0.224	5.4	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.46	0.45	4.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.27	0.26	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	2.45	2.53	2.9	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391981)									
EP1205056-002	QC1	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205056-011	YPGC00027_26_27	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391983)									
EP1205056-023	YPRD06017_26_27	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.009	0.002	123	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.08	1.09	1.5	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391983) - continued									
EP1205056-023	YPRD06017_26_27	EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.090	0.074	19.1	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.286	0.243	16.1	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.43	1.33	6.8	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.02	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.84	1.67	9.9	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	2.71	2.54	6.4	0% - 20%
EP1205056-032	TRRD33379_10_11	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.47	1.48	0.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.135	0.137	2.0	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.637	0.649	1.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.56	0.56	0.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.69	1.74	2.8	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	26.7	27.7	3.8	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2391984)									
EP1205056-023	YPRD06017_26_27	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205056-032	TRRD33379_10_11	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396455)									
EP1205053-038	Anonymous	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	0.001	0.002	56.4	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.70	1.76	3.6	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.012	0.017	38.9	0% - 50%
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.012	0.014	22.9	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396455) - continued									
EP1205053-038	Anonymous	EG020A-W: Lead	7439-92-1	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.308	0.352	13.4	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.010	0.014	27.9	0% - 50%
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.656	0.675	2.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	17.3	15.8	9.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	0.01	0.02	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.25	1.24	0.0	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	27.3	24.3	11.6	0% - 20%
EP1205053-047	Anonymous	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.30	1.31	0.2	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.007	0.006	17.6	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.405	0.381	6.3	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.401	0.397	0.8	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.63	1.74	6.8	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.15	1.15	0.0	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	8.83	9.30	5.2	0% - 20%
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396456)									
EP1205053-038	Anonymous	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205053-047	Anonymous	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396458)									
EP1205056-052	YPRD11438_2_3	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.005	0.003	60.8	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.792	0.810	2.3	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396458) - continued									
EP1205056-052	YPRD11438_2_3	EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.146	0.150	2.6	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	0.01	0.01	0.0	No Limit
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.46	0.46	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2396459)									
EP1205056-052	YPRD11438_2_3	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2397229)									
EP1205056-055	YPGC11249_20_21	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	0.004	0.002	67.5	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	1.26	1.25	0.8	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	0.019	0.019	0.0	0% - 50%
		EG020A-W: Lead	7439-92-1	0.001	mg/L	0.003	0.004	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	1.88	2.01	6.6	0% - 20%
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.454	0.456	0.4	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	1.68	1.68	0.0	0% - 20%
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	1.16	1.13	2.6	0% - 20%
		EG020A-W: Iron	7439-89-6	0.05	mg/L	2.71	2.80	3.3	0% - 20%
EP1205056-064	YPGCO3152_50_51	EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Barium	7440-39-3	0.001	mg/L	0.399	0.397	0.4	0% - 20%
		EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2397229) - continued									
EP1205056-064	YPGCO3152_50_51	EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Manganese	7439-96-5	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-W: Zinc	7440-66-6	0.005	mg/L	0.107	0.106	0.0	0% - 20%
		EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-W: Boron	7440-42-8	0.05	mg/L	0.47	0.47	0.0	No Limit
		EG020A-W: Iron	7439-89-6	0.05	mg/L	0.43	0.47	9.7	No Limit
EG020W: Water Leachable Metals by ICP-MS (QC Lot: 2397230)									
EP1205056-055	YPGC11249_20_21	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1205056-064	YPGCO3152_50_51	EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2378829)									
EP1205051-001	Anonymous	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2396446)									
EP1205056-045	YPRD11438_8_9	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205056-047	QC2	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2396447)									
EP1205056-048	YPGC02807_238_39	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205056-050	YPGC02056_8_9	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2396448)									
EP1205056-043	TRRD33437_4_5	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205056-053	TRRD33437_2_3	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035W: Water Leachable Mercury by FIMS (QC Lot: 2397228)									
EP1205056-055	YPGC11249_20_21	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1205056-065	YPRD13687_8_9	EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA002 : pH (Soils) (QCLot: 2372347)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381279)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2381283)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2382060)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA002 : pH (Soils) (QCLot: 2382064)								
EA002: pH Value	----	0.1	pH Unit	----	7.00 pH Unit	100	70	130
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377032)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377040)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377042)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2377047)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA006: Sodium Adsorption Ratio (SAR) (QCLot: 2388273)								
EA006: Sodium Adsorption Ratio	----	0.01		<0.05	----	----	----	----
EA010: Conductivity (QCLot: 2372349)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.5	93.6	106
EA010: Conductivity (QCLot: 2381281)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	100	93.6	106
EA010: Conductivity (QCLot: 2381285)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.1	93.6	106
EA010: Conductivity (QCLot: 2382062)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.7	93.6	106
EA010: Conductivity (QCLot: 2382066)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.5	93.6	106
EA011: Net Acid Generation (QCLot: 2393566)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	107	84	115
EA011: Net Acid Generation (QCLot: 2393569)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EA011: Net Acid Generation (QCLot: 2393569) - continued								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	92.4	84	115
EA011: Net Acid Generation (QCLot: 2393572)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	111	84	115
EA011: Net Acid Generation (QCLot: 2393575)								
EA011: NAG (pH 7.0)	----	0.1	kg H2SO4/t	----	14 kg H2SO4/t	113	84	115
EA013: Acid Neutralising Capacity (QCLot: 2393565)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	97.9	80	121
EA013: Acid Neutralising Capacity (QCLot: 2393568)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	97.5	80	121
EA013: Acid Neutralising Capacity (QCLot: 2393571)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	97.9	80	121
EA013: Acid Neutralising Capacity (QCLot: 2393574)								
EA013: ANC as H2SO4	----	0.5	kg H2SO4/t	----	9.9 kg H2SO4/t	97.5	80	121
EA026 : Chromium Reducible Sulfur (QCLot: 2393567)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2393570)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2393573)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
EA026 : Chromium Reducible Sulfur (QCLot: 2393576)								
EA026: Chromium Reducible Sulphur	----	0.005	%	<0.005	.28 %	95.6	80	120
ED007: Exchangeable Cations (QCLot: 2376973)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.3	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	99.8	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	.52 meq/100g	108	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	.87 meq/100g	104	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	102	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376974)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.4	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	99.8	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	.52 meq/100g	109	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	.87 meq/100g	105	79	107

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED007: Exchangeable Cations (QCLot: 2376974) - continued								
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	102	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376989)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.2	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	99.2	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	.52 meq/100g	110	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	.87 meq/100g	105	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	102	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED007: Exchangeable Cations (QCLot: 2376990)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	99.3	85	107
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	100	83	107
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	.52 meq/100g	111	70	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	.87 meq/100g	106	79	107
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	4.06 meq/100g	102	86	108
ED007: Exchangeable Calcium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Magnesium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Potassium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
ED007: Calcium/Magnesium Ratio	----	0.1	.	<0.1	----	----	----	----
ED040S: Soluble Major Anions (QCLot: 2372348)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	99.9	86	116
ED040S: Soluble Major Anions (QCLot: 2381280)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	98.9	86	116
ED040S: Soluble Major Anions (QCLot: 2381284)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	101	86	116
ED040S: Soluble Major Anions (QCLot: 2382061)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	98.4	86	116
ED040S: Soluble Major Anions (QCLot: 2382065)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	250 mg/kg	98.8	86	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED040T : Total Sulfate by ICPAES (QCLot: 2399554)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399557)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399558)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399560)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED040T : Total Sulfate by ICPAES (QCLot: 2399561)								
ED040T: Sulfate as SO4 2-	14808-79-8	100	mg/kg	<100	----	----	----	----
ED042T: Total Sulfur by LECO (QCLot: 2388675)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	103	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388677)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	103	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388679)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	99.9	70	130
ED042T: Total Sulfur by LECO (QCLot: 2388681)								
ED042T: Sulfur - Total as S (LECO)	----	0.01	%	<0.01	100 %	98.2	70	130
ED045G: Chloride Discrete analyser (QCLot: 2372350)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	97.5	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381282)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.6	82	126
ED045G: Chloride Discrete analyser (QCLot: 2381286)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	98.8	82	126
ED045G: Chloride Discrete analyser (QCLot: 2382063)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.4	82	126
ED045G: Chloride Discrete analyser (QCLot: 2382067)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	5000 mg/kg	99.5	82	126
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388676)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	95.5	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388678)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	98.7	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388680)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	97.5	70	130
EP003TC: Total Carbon (TC) in Soil (QCLot: 2388682)								
EP003TC: Total Carbon	----	0.02	%	<0.02	100 %	95.9	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 2379416)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2394931)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2394933)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2395498)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2395500)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2397109)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA010P: Conductivity by PC Titrator (QCLot: 2379415)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	98.3	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2394930)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.6	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2394932)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	101	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2395497)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.9	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2395499)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	101	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2397108)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	98.8	98	102
EA015: Total Dissolved Solids (QCLot: 2377967)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	93.5	79.8	116
EA015: Total Dissolved Solids (QCLot: 2392126)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	90.0	79.8	116
EA015: Total Dissolved Solids (QCLot: 2392141)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	93.8	79.8	116
EA015: Total Dissolved Solids (QCLot: 2395485)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	95.8	79.8	116
EA015: Total Dissolved Solids (QCLot: 2395486)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	94.5	79.8	116
EA015: Total Dissolved Solids (QCLot: 2397122)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	88.3	79.8	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399539)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399539) - continued								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.2	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399541)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.0	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399543)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.5	85	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399546)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.0	85	130
ED045G: Chloride Discrete analyser (QCLot: 2399538)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	98.3	78	130
ED045G: Chloride Discrete analyser (QCLot: 2399540)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	99.5	78	130
ED045G: Chloride Discrete analyser (QCLot: 2399542)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	95.5	78	130
ED045G: Chloride Discrete analyser (QCLot: 2399544)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	97.9	78	130
ED093W: Water Leachable Major Cations (QCLot: 2378787)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2391982)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2391985)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2396457)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2396460)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
ED093W: Water Leachable Major Cations (QCLot: 2396460) - continued								
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
ED093W: Water Leachable Major Cations (QCLot: 2397231)								
ED093W: Calcium	7440-70-2	1	mg/L	<1	----	----	----	----
ED093W: Magnesium	7439-95-4	1	mg/L	<1	----	----	----	----
ED093W: Sodium	7440-23-5	1	mg/L	<1	----	----	----	----
ED093W: Potassium	7440-09-7	1	mg/L	<1	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.1	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.3	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.3	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.5	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	99.9	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	104	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	98.0	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378786)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	80.1	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391980)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	121	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.6	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	107	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	105	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391980) - continued								
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	105	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	111	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	93.3	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	108	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	126	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	110	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391981)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	80.4	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391983)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.8	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	123	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.3	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	99.8	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.4	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.7	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.4	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	115	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.6	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	88.2	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	108	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.1	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	102	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.8	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391984)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	76.3	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.4	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	116	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.7	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	106	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455) - continued								
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.4	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	97.4	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.9	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	98.3	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.4	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.5	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	90.1	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	95.9	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396456)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	79.4	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396458)								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	96.0	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	120	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	103	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	104	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	107	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	106	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	95.3	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	105	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.5	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	91.1	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	104	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396459)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	97.9	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2397229)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2397229) - continued								
EG020A-W: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	84.9	70	130
EG020A-W: Antimony	7440-36-0	0.001	mg/L	<0.001	0.1 mg/L	108	70	130
EG020A-W: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	87.9	70	130
EG020A-W: Barium	7440-39-3	0.001	mg/L	<0.001	0.1 mg/L	82.0	70	130
EG020A-W: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	70	130
EG020A-W: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	103	70	130
EG020A-W: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	70	130
EG020A-W: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	70	130
EG020A-W: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	70	130
EG020A-W: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	70	130
EG020A-W: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	87.1	70	130
EG020A-W: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.8	70	130
EG020A-W: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	85.3	70	130
EG020A-W: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	100	70	130
EG020A-W: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.4	70	130
EG020A-W: Boron	7440-42-8	0.05	mg/L	<0.05	0.1 mg/L	89.2	70	130
EG020A-W: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	86.3	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2397230)								
EG020B-W: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	88.1	70	130
EG020B-W: Uranium	7440-61-1	0.001	mg/L	<0.001	----	----	----	----
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	105	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396446)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	96.2	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396447)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	97.6	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396448)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	90.7	76	126
EG035W: Water Leachable Mercury by FIMS (QCLot: 2397228)								
EG035W: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	89.9	76	126

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride Discrete analyser (QCLot: 2372350)							
EP1205053-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	116	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381282)							
EP1205053-043	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	106	70	130
ED045G: Chloride Discrete analyser (QCLot: 2381286)							
EP1205056-016	CAGC30291_26_27	ED045G: Chloride	16887-00-6	1250 mg/kg	108	70	130
ED045G: Chloride Discrete analyser (QCLot: 2382063)							
EP1205056-037	YPRD10638_14_15	ED045G: Chloride	16887-00-6	1250 mg/kg	108	70	130
ED045G: Chloride Discrete analyser (QCLot: 2382067)							
EP1205056-057	YPGCO3152_14_15	ED045G: Chloride	16887-00-6	1250 mg/kg	106	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399539)							
EP1205056-001	YPRD04911_8_9	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	105	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399541)							
EP1205056-022	YPGC04543_22_23	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	117	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399543)							
EP1205056-043	TRRD33437_4_5	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	103	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2399546)							
EP1205056-062	YPGCO2807_58_59	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	90.8	70	130
ED045G: Chloride Discrete analyser (QCLot: 2399538)							
EP1205056-001	YPRD04911_8_9	ED045G: Chloride	16887-00-6	250 mg/L	112	70	130
ED045G: Chloride Discrete analyser (QCLot: 2399540)							
EP1205056-022	YPGC04543_22_23	ED045G: Chloride	16887-00-6	250 mg/L	108	70	130
ED045G: Chloride Discrete analyser (QCLot: 2399542)							
EP1205056-043	TRRD33437_4_5	ED045G: Chloride	16887-00-6	250 mg/L	108	70	130
ED045G: Chloride Discrete analyser (QCLot: 2399544)							
EP1205056-062	YPGCO2807_58_59	ED045G: Chloride	16887-00-6	250 mg/L	108	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785)							
EP1205053-001	Anonymous	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	99.6	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	105	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2378785) - continued							
EP1205053-001	Anonymous	EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	99.3	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	94.2	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	99.1	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	96.9	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	97.7	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	99.2	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	99.2	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	99.4	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	95.8	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391980)							
EP1205056-003	YPGC10846_14_15	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	73.0	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	100	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	99.9	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	83.2	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	101	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	96.0	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	102	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	75.9	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	97.5	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	73.2	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	76.7	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2391983)							
EP1205056-024	TRRD33379_2_3	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	89.4	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	109	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	101	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	100	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	101	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	99.4	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	104	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	97.8	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	100	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	91.7	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	71.6	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455)							
EP1205053-039	Anonymous	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	107	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	111	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	108	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	116	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396455) - continued							
EP1205053-039	Anonymous	EG020A-W: Cobalt	7440-48-4	1.000 mg/L	118	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	105	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	119	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	118	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	110	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	117	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	101	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2396458)							
EP1205056-053	TRRD33437_2_3	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	107	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	110	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	108	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	116	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	120	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	108	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	121	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	119	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	112	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	117	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	101	70	130
EG020W: Water Leachable Metals by ICP-MS (QCLot: 2397229)							
EP1205056-056	YPGC1657_20_21	EG020A-W: Arsenic	7440-38-2	1.000 mg/L	91.3	70	130
		EG020A-W: Barium	7440-39-3	1.000 mg/L	105	70	130
		EG020A-W: Cadmium	7440-43-9	0.2500 mg/L	97.4	70	130
		EG020A-W: Chromium	7440-47-3	1.000 mg/L	98.8	70	130
		EG020A-W: Cobalt	7440-48-4	1.000 mg/L	96.1	70	130
		EG020A-W: Copper	7440-50-8	1.000 mg/L	90.7	70	130
		EG020A-W: Lead	7439-92-1	1.000 mg/L	100	70	130
		EG020A-W: Manganese	7439-96-5	1.000 mg/L	96.5	70	130
		EG020A-W: Nickel	7440-02-0	1.000 mg/L	90.3	70	130
		EG020A-W: Vanadium	7440-62-2	1.00 mg/L	98.8	70	130
		EG020A-W: Zinc	7440-66-6	1.000 mg/L	88.8	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2378829)							
EP1205053-001	Anonymous	EG035W: Mercury	7439-97-6	0.0100 mg/L	74.9	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396446)							
EP1205056-046	YPRD1387_14_15	EG035W: Mercury	7439-97-6	0.0100 mg/L	84.0	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396447)							
EP1205056-049	YPGC1249_44_45	EG035W: Mercury	7439-97-6	0.0100 mg/L	80.6	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG035W: Water Leachable Mercury by FIMS (QCLot: 2396448)							
EP1205056-044	YPGCO1657_8_9	EG035W: Mercury	7439-97-6	0.0100 mg/L	79.0	70	130
EG035W: Water Leachable Mercury by FIMS (QCLot: 2397228)							
EP1205056-056	YPGC1657_20_21	EG035W: Mercury	7439-97-6	0.0100 mg/L	88.7	70	130

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EP1205056**	Page	: 1 of 35
Client	: URS AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: ELENA CHIN	Contact	: Scott James
Address	: LEVEL 4, 226 ADELAIDE TERRACE Artarmon WA, AUSTRALIA 6000	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: elena.chin@urs.com	E-mail	: perth.enviro.services@alsglobal.com
Telephone	: +61 08 9326 0100	Telephone	: +61-8-9209 7655
Facsimile	: +61 08 9326 0296	Facsimile	: +61-8-9209 7600
Project	: 42908001	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CHRISTMAS CREEK		
C-O-C number	: ----	Date Samples Received	: 22-JUN-2012
Sampler	: C.C.S.P	Issue Date	: 16-JUL-2012
Order number	: ----		
		No. of samples received	: 72
Quote number	: ----	No. of samples analysed	: 71

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)								
Soil Glass Jar - Unpreserved								
QC1,	YPGC10846_14_15,	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	04-JUL-2012	×
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27,							
TRRD33437_4_5,	YPGCO1657_8_9,							
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5,							
YPGC11249_20_21,	YPGC1657_20_21,							
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils) - Continued							
Soil Glass Jar - Unpreserved							
YPRD04911_8_9	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	28-JUN-2012	✓
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27	**06-JUL-2012**	**---**	06-JUL-2012	----	**10-JUL-2012**	06-JUL-2012	×
Clear Plastic Bottle - Natural							
TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5	**09-JUL-2012**	**---**	09-JUL-2012	----	**10-JUL-2012**	09-JUL-2012	×
Clear Plastic Bottle - Natural							
YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**10-JUL-2012**	**---**	10-JUL-2012	----	**11-JUL-2012**	10-JUL-2012	×
Clear Plastic Bottle - Natural							
YPRD04911_8_9	**26-JUN-2012**	**---**	26-JUN-2012	----	**29-JUN-2012**	26-JUN-2012	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA006: Sodium Adsorption Ratio (SAR)							
Calico Bag							
YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39	**22-JUN-2012**	**04-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓
Calico Bag							
TRRD06576_1_2	**22-JUN-2012**	**09-JUL-2012**	19-DEC-2012	✓	**12-JUL-2012**	19-DEC-2012	✓
Calico Bag							
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**29-JUN-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010: Conductivity							
Soil Glass Jar - Unpreserved							
QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	01-AUG-2012	✓
Soil Glass Jar - Unpreserved							
YPRD04911_8_9	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	---	03-AUG-2012	----	**10-JUL-2012**	03-AUG-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Natural								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	---	06-AUG-2012	----	**10-JUL-2012**	06-AUG-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Natural								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	---	07-AUG-2012	----	**11-JUL-2012**	07-AUG-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Natural								
YPRD04911_8_9		**26-JUN-2012**	---	24-JUL-2012	----	**29-JUN-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA011: Net Acid Generation							
80* dried soil							
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA013: Acid Neutralising Capacity								
80* dried soil								
YPRD04911_8_9,	QC1,	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓
YPGC10846_14_15,	CAGC30291_44_45,							
YPGC02807_26_27,	YPRD11438_26_27,							
YPGC03152_2_3,	YPGC06605_2_3,							
YPGC06143_2_3,	YPGCO3152_32_33,							
YPGC00027_26_27,	YPRD014197_26_27,							
YPGC10846_44_45,	YPRD06017_15_16,							
YPGC00576_8_9,	CAGC30291_26_27,							
YPGC06143_32_33,	YPRD06017_20_21,							
YPGC06879_8_9,	YPGC06143_38_39,							
YPGC04543_22_23,	YPRD06017_26_27,							
TRRD33379_2_3,	YPRD04911_11_12,							
YPGCO3152_26_27,	YPGC06879_38_39,							
YPGCO2056_26_27,	YPGC05415_26_27,							
YPGCO6143_8_9,	YPGC066505_14_15,							
TRRD33379_10_11,	YPGC11249_26_27,							
YPRD11438_14_15,	CAGC30291_20_21,							
TRRD06576_1_2,	YPRD10638_14_15,							
YPRD06017_2_3,	YPGC1249_14_15,							
YPGC02056_38_39,	YPGC11249_238_39,							
YPRD06017_26_27,	TRRD33437_4_5,							
YPGCO1657_8_9,	YPRD11438_8_9,							
YPRD1387_14_15,	QC2,							
YPGC02807_238_39,	YPGC1249_44_45,							
YPGC02056_8_9,	YPRD05790_11_12,							
YPRD11438_2_3,	TRRD33437_2_3,							
YPRDO5790_4_5,	YPGC11249_20_21,							
YPGC1657_20_21,	YPGCO3152_14_15,							
YPGC10846_8_9,	YPGCO2056_44_45,							
YPGCO8967_38_39,	YPGCO6605_32_33,							
YPGCO2807_58_59,	YPGCO5415_53_54,							
YPGCO3152_50_51,	YPRD13687_8_9,							
YPRDO5790_2_3,	YPRDO4911_4_5,							
YPRD10638_26_27,	Y219261_38_39,							
TRRD33379_8_9,	TRRD06576_12_13,							
TRRD06576_11_12								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA015: Total Dissolved Solids								
Clear Plastic Bottle - Natural								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	**----**	----	----	**09-JUL-2012**	13-JUL-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Natural								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	**----**	----	----	**10-JUL-2012**	16-JUL-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Natural								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	**----**	----	----	**11-JUL-2012**	17-JUL-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Natural								
YPRD04911_8_9		**26-JUN-2012**	**----**	----	----	**28-JUN-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA026 : Chromium Reducible Sulfur							
80* dried soil							
YPRD04911_8_9, YPGC10846_14_15, YPGC02807_26_27, YPGC03152_2_3, YPGC06143_2_3, YPGC00027_26_27, YPGC10846_44_45, YPGC00576_8_9, YPGC06143_32_33, YPGC06879_8_9, YPGC04543_22_23, TRRD33379_2_3, YPGCO3152_26_27, YPGCO2056_26_27, YPGCO6143_8_9, TRRD33379_10_11, YPRD11438_14_15, TRRD06576_1_2, YPRD06017_2_3, YPGC02056_38_39, YPRD06017_26_27, YPGCO1657_8_9, YPRD1387_14_15, YPGC02807_238_39, YPGC02056_8_9, YPRD11438_2_3, YPRDO5790_4_5, YPGC1657_20_21, YPGC10846_8_9, YPGCO8967_38_39, YPGCO2807_58_59, YPGCO3152_50_51, YPRDO5790_2_3, YPRD10638_26_27, TRRD33379_8_9, TRRD06576_11_12, QC1, CAGC30291_44_45, YPRD11438_26_27, YPGC06605_2_3, YPGCO3152_32_33, YPRD014197_26_27, YPRD06017_15_16, CAGC30291_26_27, YPRD06017_20_21, YPGC06143_38_39, YPRD06017_26_27, YPRD04911_11_12, YPGC06879_38_39, YPGC05415_26_27, YPGC066505_14_15, YPGC11249_26_27, CAGC30291_20_21, YPRD10638_14_15, YPGC1249_14_15, YPGC11249_238_39, TRRD33437_4_5, YPRD11438_8_9, QC2, YPGC1249_44_45, YPRD05790_11_12, TRRD33437_2_3, YPGC11249_20_21, YPGCO3152_14_15, YPGCO2056_44_45, YPGCO6605_32_33, YPGCO5415_53_54, YPRD13687_8_9, YPRDO4911_4_5, Y219261_38_39, TRRD06576_12_13,	**22-JUN-2012**	**09-JUL-2012**	22-JUN-2013	✓	**11-JUL-2012**	07-OCT-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved								
YPRD04911_8_9,	QC1,	**22-JUN-2012**	**----**	----	----	**04-JUL-2012**	06-JUL-2012	✓
YPGC10846_14_15,	CAGC30291_44_45,							
YPGC02807_26_27,	YPRD11438_26_27,							
YPGC03152_2_3,	YPGC06605_2_3,							
YPGC06143_2_3,	YPGCO3152_32_33,							
YPGC00027_26_27,	YPRD014197_26_27,							
YPGC10846_44_45,	YPRD06017_15_16,							
YPGC00576_8_9,	CAGC30291_26_27,							
YPGC06143_32_33,	YPRD06017_20_21,							
YPGC06879_8_9,	YPGC06143_38_39,							
YPGC04543_22_23,	YPRD06017_26_27,							
TRRD33379_2_3,	YPRD04911_11_12,							
YPGCO3152_26_27,	YPGC06879_38_39,							
YPGCO2056_26_27,	YPGC05415_26_27,							
YPGCO6143_8_9,	YPGC066505_14_15,							
TRRD33379_10_11,	YPGC11249_26_27,							
YPRD11438_14_15,	CAGC30291_20_21,							
TRRD06576_1_2,	YPRD10638_14_15,							
YPRD06017_2_3,	YPGC1249_14_15,							
YPGC02056_38_39,	YPGC11249_238_39,							
YPRD06017_26_27,	TRRD33437_4_5,							
YPGCO1657_8_9,	YPRD11438_8_9,							
YPRD1387_14_15,	QC2,							
YPGC02807_238_39,	YPGC1249_44_45,							
YPGC02056_8_9,	YPRD05790_11_12,							
YPRD11438_2_3,	TRRD33437_2_3,							
YPRDO5790_4_5,	YPGC11249_20_21,							
YPGC1657_20_21,	YPGCO3152_14_15,							
YPGC10846_8_9,	YPGCO2056_44_45,							
YPGCO8967_38_39,	YPGCO6605_32_33,							
YPGCO2807_58_59,	YPGCO5415_53_54,							
YPGCO3152_50_51,	YPRD13687_8_9,							
YPRDO5790_2_3,	YPRDO4911_4_5,							
YPRD10638_26_27,	Y219261_38_39,							
TRRD33379_8_9,	TRRD06576_12_13,							
TRRD06576_11_12								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Calico Bag							
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**09-JUL-2012**	19-DEC-2012	✓	**11-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040: Sulfur as SO4 2-							
Soil Glass Jar - Unpreserved							
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**13-JUL-2012**	29-JUN-2012	×	**13-JUL-2012**	10-AUG-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved							
QC1, CAGC30291_44_45, YPRD11438_26_27, YPGC06605_2_3, YPGCO3152_32_33, YPRD014197_26_27, YPRD06017_15_16, CAGC30291_26_27, YPRD06017_20_21, YPGC06143_38_39, YPRD06017_26_27, YPRD04911_11_12, YPGC06879_38_39, YPGC05415_26_27, YPGC066505_14_15, YPGC11249_26_27, CAGC30291_20_21, YPRD10638_14_15, YPGC1249_14_15, YPGC11249_238_39, TRRD33437_4_5, YPRD11438_8_9, QC2, YPGC1249_44_45, YPRD05790_11_12, TRRD33437_2_3, YPGC11249_20_21, YPGCO3152_14_15, YPGCO2056_44_45, YPGCO6605_32_33, YPGCO5415_53_54, YPRD13687_8_9, YPRDO4911_4_5, Y219261_38_39, TRRD06576_12_13, YPGC10846_14_15, YPGC02807_26_27, YPGC03152_2_3, YPGC06143_2_3, YPGC00027_26_27, YPGC10846_44_45, YPGC00576_8_9, YPGC06143_32_33, YPGC06879_8_9, YPGC04543_22_23, TRRD33379_2_3, YPGCO3152_26_27, YPGCO2056_26_27, YPGCO6143_8_9, TRRD33379_10_11, YPRD11438_14_15, TRRD06576_1_2, YPRD06017_2_3, YPGC02056_38_39, YPRD06017_26_27, YPGCO1657_8_9, YPRD1387_14_15, YPGC02807_238_39, YPGC02056_8_9, YPRD11438_2_3, YPRDO5790_4_5, YPGC1657_20_21, YPGC10846_8_9, YPGCO8967_38_39, YPGCO2807_58_59, YPGCO3152_50_51, YPRDO5790_2_3, YPRD10638_26_27, TRRD33379_8_9, TRRD06576_11_12	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**10-JUL-2012**	01-AUG-2012	✓
Soil Glass Jar - Unpreserved							
YPRD04911_8_9	**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**28-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	**---**	03-AUG-2012	----	**12-JUL-2012**	03-AUG-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Natural								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	**---**	06-AUG-2012	----	**12-JUL-2012**	06-AUG-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Natural								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	**---**	07-AUG-2012	----	**12-JUL-2012**	07-AUG-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Natural								
YPRD04911_8_9		**26-JUN-2012**	**---**	24-JUL-2012	----	**12-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED042T: Total Sulfur by LECO							
Snap Lock Bag							
YPRD04911_8_9, YPGC10846_14_15, YPGC02807_26_27, YPGC03152_2_3, YPGC06143_2_3, YPGC00027_26_27, YPGC10846_44_45, YPGC00576_8_9, YPGC06143_32_33, YPGC06879_8_9, YPGC04543_22_23, TRRD33379_2_3, YPGCO3152_26_27, YPGCO2056_26_27, YPGCO6143_8_9, TRRD33379_10_11, YPRD11438_14_15, TRRD06576_1_2, YPRD06017_2_3, YPGC02056_38_39, YPRD06017_26_27, YPGCO1657_8_9, YPRD1387_14_15, YPGC02807_238_39, YPGC02056_8_9, YPRD11438_2_3, YPRDO5790_4_5, YPGC1657_20_21, YPGC10846_8_9, YPGCO8967_38_39, YPGCO2807_58_59, YPGCO3152_50_51, YPRDO5790_2_3, YPRD10638_26_27, TRRD33379_8_9, TRRD06576_11_12, QC1, CAGC30291_44_45, YPRD11438_26_27, YPGC06605_2_3, YPGCO3152_32_33, YPRD014197_26_27, YPRD06017_15_16, CAGC30291_26_27, YPRD06017_20_21, YPGC06143_38_39, YPRD06017_26_27, YPRD04911_11_12, YPGC06879_38_39, YPGC05415_26_27, YPGC066505_14_15, YPGC11249_26_27, CAGC30291_20_21, YPRD10638_14_15, YPGC1249_14_15, YPGC11249_238_39, TRRD33437_4_5, YPRD11438_8_9, QC2, YPGC1249_44_45, YPRD05790_11_12, TRRD33437_2_3, YPGC11249_20_21, YPGCO3152_14_15, YPGCO2056_44_45, YPGCO6605_32_33, YPGCO5415_53_54, YPRD13687_8_9, YPRDO4911_4_5, Y219261_38_39, TRRD06576_12_13,	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	19-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser								
Clear Plastic Bottle - Natural								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	---	03-AUG-2012	----	**12-JUL-2012**	03-AUG-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Natural								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	---	06-AUG-2012	----	**12-JUL-2012**	06-AUG-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Natural								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	---	07-AUG-2012	----	**12-JUL-2012**	07-AUG-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Natural								
YPRD04911_8_9		**26-JUN-2012**	---	24-JUL-2012	----	**12-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride Discrete analyser - Continued								
Soil Glass Jar - Unpreserved								
QC1,	YPGC10846_14_15,	**22-JUN-2012**	**04-JUL-2012**	29-JUN-2012	×	**05-JUL-2012**	01-AUG-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27,							
TRRD33437_4_5,	YPGCO1657_8_9,							
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5,							
YPGC11249_20_21,	YPGC1657_20_21,							
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Soil Glass Jar - Unpreserved								
YPRD04911_8_9		**22-JUN-2012**	**27-JUN-2012**	29-JUN-2012	✓	**27-JUN-2012**	25-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093W: Water Leachable Major Cations								
Clear Plastic Bottle - Natural								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	**11-JUL-2012**	13-JUL-2012	✓	**11-JUL-2012**	13-JUL-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Natural								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	**11-JUL-2012**	16-JUL-2012	✓	**11-JUL-2012**	16-JUL-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Natural								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	**11-JUL-2012**	17-JUL-2012	✓	**11-JUL-2012**	17-JUL-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Natural								
YPRD04911_8_9		**26-JUN-2012**	**02-JUL-2012**	03-JUL-2012	✓	**02-JUL-2012**	03-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020W: Water Leachable Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	**11-JUL-2012**	02-JAN-2013	✓	**11-JUL-2012**	02-JAN-2013	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	**11-JUL-2012**	05-JAN-2013	✓	**11-JUL-2012**	05-JAN-2013	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	**11-JUL-2012**	06-JAN-2013	✓	**11-JUL-2012**	06-JAN-2013	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPRD04911_8_9		**26-JUN-2012**	**02-JUL-2012**	23-DEC-2012	✓	**02-JUL-2012**	23-DEC-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035W: Water Leachable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered								
QC1,	YPGC10846_14_15,	**06-JUL-2012**	**----**	----	----	**11-JUL-2012**	03-AUG-2012	✓
CAGC30291_44_45,	YPGC02807_26_27,							
YPRD11438_26_27,	YPGC03152_2_3,							
YPGC06605_2_3,	YPGC06143_2_3,							
YPGCO3152_32_33,	YPGC00027_26_27,							
YPRD014197_26_27,	YPGC10846_44_45,							
YPRD06017_15_16,	YPGC00576_8_9,							
CAGC30291_26_27,	YPGC06143_32_33,							
YPRD06017_20_21,	YPGC06879_8_9,							
YPGC06143_38_39,	YPGC04543_22_23,							
YPRD06017_26_27,	TRRD33379_2_3,							
YPRD04911_11_12,	YPGCO3152_26_27,							
YPGC06879_38_39,	YPGCO2056_26_27,							
YPGC05415_26_27,	YPGCO6143_8_9,							
YPGC066505_14_15,	TRRD33379_10_11,							
YPGC11249_26_27,	YPRD11438_14_15,							
CAGC30291_20_21,	TRRD06576_1_2,							
YPRD10638_14_15,	YPRD06017_2_3,							
YPGC1249_14_15,	YPGC02056_38_39,							
YPGC11249_238_39,	YPRD06017_26_27							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
TRRD33437_4_5,	YPGCO1657_8_9,	**09-JUL-2012**	**----**	----	----	**11-JUL-2012**	06-AUG-2012	✓
YPRD11438_8_9,	YPRD1387_14_15,							
QC2,	YPGC02807_238_39,							
YPGC1249_44_45,	YPGC02056_8_9,							
YPRD05790_11_12,	YPRD11438_2_3,							
TRRD33437_2_3,	YPRDO5790_4_5							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPGC11249_20_21,	YPGC1657_20_21,	**10-JUL-2012**	**----**	----	----	**11-JUL-2012**	07-AUG-2012	✓
YPGCO3152_14_15,	YPGC10846_8_9,							
YPGCO2056_44_45,	YPGCO8967_38_39,							
YPGCO6605_32_33,	YPGCO2807_58_59,							
YPGCO5415_53_54,	YPGCO3152_50_51,							
YPRD13687_8_9,	YPRDO5790_2_3,							
YPRDO4911_4_5,	YPRD10638_26_27,							
Y219261_38_39,	TRRD33379_8_9,							
TRRD06576_12_13,	TRRD06576_11_12							
Clear Plastic Bottle - Nitric Acid; Unfiltered								
YPRD04911_8_9		**26-JUN-2012**	**----**	----	----	**02-JUL-2012**	24-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EN60: Bottle Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal							
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	**22-JUN-2012**	**---**	20-JUL-2012	----	**11-JUL-2012**	20-JUL-2012	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP003TC: Total Carbon (TC) in Soil							
80* dried soil							
YPRD04911_8_9, YPGC10846_14_15, YPGC02807_26_27, YPGC03152_2_3, YPGC06143_2_3, YPGC00027_26_27, YPGC10846_44_45, YPGC00576_8_9, YPGC06143_32_33, YPGC06879_8_9, YPGC04543_22_23, TRRD33379_2_3, YPGCO3152_26_27, YPGCO2056_26_27, YPGCO6143_8_9, TRRD33379_10_11, YPRD11438_14_15, TRRD06576_1_2, YPRD06017_2_3, YPGC02056_38_39, YPRD06017_26_27, YPGCO1657_8_9, YPRD1387_14_15, YPGC02807_238_39, YPGC02056_8_9, YPRD11438_2_3, YPRDO5790_4_5, YPGC1657_20_21, YPGC10846_8_9, YPGCO8967_38_39, YPGCO2807_58_59, YPGCO3152_50_51, YPRDO5790_2_3, YPRD10638_26_27, TRRD33379_8_9, TRRD06576_11_12, QC1, CAGC30291_44_45, YPRD11438_26_27, YPGC06605_2_3, YPGCO3152_32_33, YPRD014197_26_27, YPRD06017_15_16, CAGC30291_26_27, YPRD06017_20_21, YPGC06143_38_39, YPRD06017_26_27, YPRD04911_11_12, YPGC06879_38_39, YPGC05415_26_27, YPGC066505_14_15, YPGC11249_26_27, CAGC30291_20_21, YPRD10638_14_15, YPGC1249_14_15, YPGC11249_238_39, TRRD33437_4_5, YPRD11438_8_9, QC2, YPGC1249_44_45, YPRD05790_11_12, TRRD33437_2_3, YPGC11249_20_21, YPGCO3152_14_15, YPGCO2056_44_45, YPGCO6605_32_33, YPGCO5415_53_54, YPRD13687_8_9, YPRDO4911_4_5, Y219261_38_39, TRRD06576_12_13,	**22-JUN-2012**	**05-JUL-2012**	19-DEC-2012	✓	**05-JUL-2012**	02-AUG-2012	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Acid Neutralising Capacity (ANC)	EA013	7	71	**9.9**	**10.0**	×	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	9	80	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	7	71	**9.9**	**10.0**	×	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	9	80	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	9	80	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Moisture Content	EA055-103	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	7	71	**9.9**	**10.0**	×	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	9	80	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	10	85	**11.8**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acid Neutralising Capacity (ANC)	EA013	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride Soluble By Discrete Analyser	ED045G	10	80	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	5	80	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	5	80	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	EA011	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	10	80	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	5	80	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chromium Reducible Sulphur	EA026	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Electrical Conductivity (1:5)	EA010	5	80	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Exchangeable Cations	ED007	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Anions - Soluble	ED040S	5	80	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sodium Adsorption Ratio (SAR)	EA006	5	70	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate as SO4 2- Total	ED040T	5	85	**5.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfur - Total as S (LECO)	ED042T	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Carbon	EP003TC	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	5	80	**6.3**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	11	101	**10.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	11	101	**10.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	11	101	**10.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	10	84	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	9	73	**12.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	10	84	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	10	84	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	18	101	**17.8**	**15.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	12	101	**11.9**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	8	71	**11.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	6	101	**5.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	5	73	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	84	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	6	84	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	6	101	**5.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	71	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	6	101	**5.9**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Major Cations	ED093W	6	84	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	5	73	**6.8**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	84	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	6	84	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	4	71	**5.6**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	71	**5.6**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Mercury by FIMS	EG035W	5	73	**6.8**	**5.0**	✓	ALS QCS3 requirement
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	6	84	**7.1**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
pH by PC Titrator	EA005-P	SOIL	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sodium Adsorption Ratio (SAR)	EA006	SOIL	USEPA 600/2 - 78 - 54. The concentration as meq of Ca, Mg and Na are determined on saturated soil by water leach. Results are used to calculate SAR.
Electrical Conductivity (1:5)	EA010	SOIL	(APHA 21st ed., 2510) Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 104)
Conductivity by PC Titrator	EA010-P	SOIL	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Net Acid Generation	EA011	SOIL	Miller (1998) Titremetric procedure determines net acidity in a soil following peroxide oxidation. Titrations to both pH 4.5 and pH 7 are reported.
Acid Neutralising Capacity (ANC)	EA013	SOIL	USEPA 600/2-78-054, I. Miller (2000). A fizz test is done to semiquanititatively estimate the likely reactivity. The soil is then reacted with an known excess quanitity of an appropriate acid. Titration determines the acid remaining, and the ANC can be calculated from comparison with a blank titration.
Total Dissolved Solids (High Level)	EA015H	SOIL	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chromium Reducible Sulphur	EA026	SOIL	Sullivan et al (1998) The CRS method converts reduced inorganic sulfur to H2S by CrCl2 solution ; the evolved H2S is trapped in a zinc acetate solution as ZnS which is quantified by iodometric titration.
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	Rayment & Higginson (1992) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (1999) Schedule B(3) (Method 301)
Major Anions - Soluble	ED040S	SOIL	In-house. Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Sulfate as SO4 2- Total	ED040T	SOIL	In-house. Total Sulfate is determined off a HCl digestion by ICPAES as S , and reported as SO4
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	SOIL	APHA 21st ed., 4500-SO4 Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfur - Total as S (LECO)	ED042T	SOIL	In-house. Dried and pulverised sample is combusted in a LECO furnace at 1350C in the presence of strong oxidants / catalysts. The evolved S (as SO2) is measured by infra-red detector
Chloride by Discrete Analyser	ED045G	SOIL	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003

Analytical Methods	Method	Matrix	Method Descriptions
Water Leachable Major Cations	ED093W	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010; ALS QWI-EN/EG005, QWI-EN/ED093) The ICPAES technique quickly breaks the sample down into atoms and ions under extremely hot plasma. Atoms are then ionised, emitting a characteristic spectrum. The spectrometer then separates the wavelengths, prior to comparison of intensities against matrix matched standards for quantification.
Water Leachable Metals by ICP-MS - Suite A	EG020A-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, AS 4439.3, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Metals by ICP-MS - Suite B	EG020B-W	SOIL	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Water Leachable Mercury by FIMS	EG035W	SOIL	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the TCLP solution. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Carbon	EP003TC	SOIL	In-house C-IR07. Dried and pulverised sample is combusted in a LECO furnace in the presence of strong oxidants / catalysts. The evolved Carbon (as CO2) is measured by infra-red detector
Merged 4-Acid Metals package	ME-MS61	SOIL	Merged Package 4-Acid Digest with ICP-AES & ICPMS finish. Analysis conducted by ALS Minerals.
Miscellaneous Subcontracted Analysis	MIS-SOL	SOIL	Miscellaneous Subcontracted Analysis conducted by Subcontracting Laboratory

Preparation Methods	Method	Matrix	Method Descriptions
SAR Prep	EA006PR	SOIL	USEPA 600/2. Soil is bought to saturation with distilled water by capiliary action.
Exchangeable Cations Preparation Method	ED007PR	SOIL	Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
HCl Digest	EN24	SOIL	1g of soil is digested in 30 ml of 30% HCl and the resultant digest bulked and filtered for analysis by ICP.
Digestion for Total Recoverable Metals in DI Water Leachate	EN25W	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Deionised Water Leach	EN60-DIa	SOIL	AS4439.3 Preparation of Leachates

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	**Days overdue**	Date analysed	Due for analysis	**Days overdue**
EA002 : pH (Soils)						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002 : pH (Soils) - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
QC1,	YPGC10846_14_15,	04-JUL-2012	29-JUN-2012	**5**	05-JUL-2012	04-JUL-2012	**1**
CAGC30291_44_45,	YPGC02807_26_27,						
YPRD11438_26_27,	YPGC03152_2_3,						
YPGC06605_2_3,	YPGC06143_2_3,						
YPGCO3152_32_33,	YPGC00027_26_27,						
YPRD014197_26_27,	YPGC10846_44_45,						
YPRD06017_15_16,	YPGC00576_8_9,						
CAGC30291_26_27,	YPGC06143_32_33,						
YPRD06017_20_21,	YPGC06879_8_9,						
YPGC06143_38_39,	YPGC04543_22_23,						
YPRD06017_26_27,	TRRD33379_2_3,						
YPRD04911_11_12,	YPGCO3152_26_27,						
YPGC06879_38_39,	YPGCO2056_26_27,						
YPGC05415_26_27,	YPGCO6143_8_9,						
YPGC066505_14_15,	TRRD33379_10_11,						
YPGC11249_26_27,	YPRD11438_14_15,						
CAGC30291_20_21,	TRRD06576_1_2,						
YPRD10638_14_15,	YPRD06017_2_3,						
YPGC1249_14_15,	YPGC02056_38_39,						
YPGC11249_238_39,	YPRD06017_26_27,						
TRRD33437_4_5,	YPGCO1657_8_9,						
YPRD11438_8_9,	YPRD1387_14_15,						
QC2,	YPGC02807_238_39,						
YPGC1249_44_45,	YPGC02056_8_9,						
YPRD05790_11_12,	YPRD11438_2_3,						
TRRD33437_2_3,	YPRDO5790_4_5,						
YPGC11249_20_21,	YPGC1657_20_21,						
YPGCO3152_14_15,	YPGC10846_8_9,						
YPGCO2056_44_45,	YPGCO8967_38_39,						
YPGCO6605_32_33,	YPGCO2807_58_59,						
YPGCO5415_53_54,	YPGCO3152_50_51,						
YPRD13687_8_9,	YPRDO5790_2_3,						
YPRDO4911_4_5,	YPRD10638_26_27,						
Y219261_38_39,	TRRD33379_8_9,						
TRRD06576_12_13,	TRRD06576_11_12						
EA005P: pH by PC Titrator							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator - Analysis Holding Time Compliance							
Clear Plastic Bottle - Natural							
QC1,	YPGC10846_14_15,	----	----	----	10-JUL-2012	06-JUL-2012	**4**
CAGC30291_44_45,	YPGC02807_26_27,						
YPRD11438_26_27,	YPGC03152_2_3,						
YPGC06605_2_3,	YPGC06143_2_3,						
YPGCO3152_32_33,	YPGC00027_26_27,						
YPRD014197_26_27,	YPGC10846_44_45,						
YPRD06017_15_16,	YPGC00576_8_9,						
CAGC30291_26_27,	YPGC06143_32_33,						
YPRD06017_20_21,	YPGC06879_8_9,						
YPGC06143_38_39,	YPGC04543_22_23,						
YPRD06017_26_27,	TRRD33379_2_3,						
YPRD04911_11_12,	YPGCO3152_26_27,						
YPGC06879_38_39,	YPGCO2056_26_27,						
YPGC05415_26_27,	YPGCO6143_8_9,						
YPGC066505_14_15,	TRRD33379_10_11,						
YPGC11249_26_27,	YPRD11438_14_15,						
CAGC30291_20_21,	TRRD06576_1_2,						
YPRD10638_14_15,	YPRD06017_2_3,						
YPGC1249_14_15,	YPGC02056_38_39,						
YPGC11249_238_39,	YPRD06017_26_27						
Clear Plastic Bottle - Natural							
TRRD33437_4_5,	YPGCO1657_8_9,	----	----	----	10-JUL-2012	09-JUL-2012	**1**
YPRD11438_8_9,	YPRD1387_14_15,						
QC2,	YPGC02807_238_39,						
YPGC1249_44_45,	YPGC02056_8_9,						
YPRD05790_11_12,	YPRD11438_2_3,						
TRRD33437_2_3,	YPRDO5790_4_5						
Clear Plastic Bottle - Natural							
YPGC11249_20_21,	YPGC1657_20_21,	----	----	----	11-JUL-2012	10-JUL-2012	**1**
YPGCO3152_14_15,	YPGC10846_8_9,						
YPGCO2056_44_45,	YPGCO8967_38_39,						
YPGCO6605_32_33,	YPGCO2807_58_59,						
YPGCO5415_53_54,	YPGCO3152_50_51,						
YPRD13687_8_9,	YPRDO5790_2_3,						
YPRDO4911_4_5,	YPRD10638_26_27,						
Y219261_38_39,	TRRD33379_8_9,						
TRRD06576_12_13,	TRRD06576_11_12						
Clear Plastic Bottle - Natural							
YPRD04911_8_9		----	----	----	29-JUN-2012	26-JUN-2012	**3**
EA010: Conductivity							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA010: Conductivity - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
QC1,	YPGC10846_14_15,	04-JUL-2012	29-JUN-2012	**5**	----	----	----
CAGC30291_44_45,	YPGC02807_26_27,						
YPRD11438_26_27,	YPGC03152_2_3,						
YPGC06605_2_3,	YPGC06143_2_3,						
YPGCO3152_32_33,	YPGC00027_26_27,						
YPRD014197_26_27,	YPGC10846_44_45,						
YPRD06017_15_16,	YPGC00576_8_9,						
CAGC30291_26_27,	YPGC06143_32_33,						
YPRD06017_20_21,	YPGC06879_8_9,						
YPGC06143_38_39,	YPGC04543_22_23,						
YPRD06017_26_27,	TRRD33379_2_3,						
YPRD04911_11_12,	YPGCO3152_26_27,						
YPGC06879_38_39,	YPGCO2056_26_27,						
YPGC05415_26_27,	YPGCO6143_8_9,						
YPGC066505_14_15,	TRRD33379_10_11,						
YPGC11249_26_27,	YPRD11438_14_15,						
CAGC30291_20_21,	TRRD06576_1_2,						
YPRD10638_14_15,	YPRD06017_2_3,						
YPGC1249_14_15,	YPGC02056_38_39,						
YPGC11249_238_39,	YPRD06017_26_27,						
TRRD33437_4_5,	YPGCO1657_8_9,						
YPRD11438_8_9,	YPRD1387_14_15,						
QC2,	YPGC02807_238_39,						
YPGC1249_44_45,	YPGC02056_8_9,						
YPRD05790_11_12,	YPRD11438_2_3,						
TRRD33437_2_3,	YPRDO5790_4_5,						
YPGC11249_20_21,	YPGC1657_20_21,						
YPGCO3152_14_15,	YPGC10846_8_9,						
YPGCO2056_44_45,	YPGCO8967_38_39,						
YPGCO6605_32_33,	YPGCO2807_58_59,						
YPGCO5415_53_54,	YPGCO3152_50_51,						
YPRD13687_8_9,	YPRDO5790_2_3,						
YPRDO4911_4_5,	YPRD10638_26_27,						
Y219261_38_39,	TRRD33379_8_9,						
TRRD06576_12_13,	TRRD06576_11_12						
ED040: Sulfur as SO4 2-							

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040: Sulfur as SO4 2- - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
YPRD04911_8_9, QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	13-JUL-2012	29-JUN-2012	**14**	----	----	----
ED040S : Soluble Sulfate by ICPAES						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED040S : Soluble Sulfate by ICPAES - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
QC1, YPGC10846_14_15, CAGC30291_44_45, YPGC02807_26_27, YPRD11438_26_27, YPGC03152_2_3, YPGC06605_2_3, YPGC06143_2_3, YPGCO3152_32_33, YPGC00027_26_27, YPRD014197_26_27, YPGC10846_44_45, YPRD06017_15_16, YPGC00576_8_9, CAGC30291_26_27, YPGC06143_32_33, YPRD06017_20_21, YPGC06879_8_9, YPGC06143_38_39, YPGC04543_22_23, YPRD06017_26_27, TRRD33379_2_3, YPRD04911_11_12, YPGCO3152_26_27, YPGC06879_38_39, YPGCO2056_26_27, YPGC05415_26_27, YPGCO6143_8_9, YPGC066505_14_15, TRRD33379_10_11, YPGC11249_26_27, YPRD11438_14_15, CAGC30291_20_21, TRRD06576_1_2, YPRD10638_14_15, YPRD06017_2_3, YPGC1249_14_15, YPGC02056_38_39, YPGC11249_238_39, YPRD06017_26_27, TRRD33437_4_5, YPGCO1657_8_9, YPRD11438_8_9, YPRD1387_14_15, QC2, YPGC02807_238_39, YPGC1249_44_45, YPGC02056_8_9, YPRD05790_11_12, YPRD11438_2_3, TRRD33437_2_3, YPRDO5790_4_5, YPGC11249_20_21, YPGC1657_20_21, YPGCO3152_14_15, YPGC10846_8_9, YPGCO2056_44_45, YPGCO8967_38_39, YPGCO6605_32_33, YPGCO2807_58_59, YPGCO5415_53_54, YPGCO3152_50_51, YPRD13687_8_9, YPRDO5790_2_3, YPRDO4911_4_5, YPRD10638_26_27, Y219261_38_39, TRRD33379_8_9, TRRD06576_12_13, TRRD06576_11_12	04-JUL-2012	29-JUN-2012	**5**	----	----	----
ED045G: Chloride Discrete analyser						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED045G: Chloride Discrete analyser - Analysis Holding Time Compliance							
Soil Glass Jar - Unpreserved							
QC1,	YPGC10846_14_15,	04-JUL-2012	29-JUN-2012	**5**	----	----	----
CAGC30291_44_45,	YPGC02807_26_27,						
YPRD11438_26_27,	YPGC03152_2_3,						
YPGC06605_2_3,	YPGC06143_2_3,						
YPGCO3152_32_33,	YPGC00027_26_27,						
YPRD014197_26_27,	YPGC10846_44_45,						
YPRD06017_15_16,	YPGC00576_8_9,						
CAGC30291_26_27,	YPGC06143_32_33,						
YPRD06017_20_21,	YPGC06879_8_9,						
YPGC06143_38_39,	YPGC04543_22_23,						
YPRD06017_26_27,	TRRD33379_2_3,						
YPRD04911_11_12,	YPGCO3152_26_27,						
YPGC06879_38_39,	YPGCO2056_26_27,						
YPGC05415_26_27,	YPGCO6143_8_9,						
YPGC066505_14_15,	TRRD33379_10_11,						
YPGC11249_26_27,	YPRD11438_14_15,						
CAGC30291_20_21,	TRRD06576_1_2,						
YPRD10638_14_15,	YPRD06017_2_3,						
YPGC1249_14_15,	YPGC02056_38_39,						
YPGC11249_238_39,	YPRD06017_26_27,						
TRRD33437_4_5,	YPGCO1657_8_9,						
YPRD11438_8_9,	YPRD1387_14_15,						
QC2,	YPGC02807_238_39,						
YPGC1249_44_45,	YPGC02056_8_9,						
YPRD05790_11_12,	YPRD11438_2_3,						
TRRD33437_2_3,	YPRDO5790_4_5,						
YPGC11249_20_21,	YPGC1657_20_21,						
YPGCO3152_14_15,	YPGC10846_8_9,						
YPGCO2056_44_45,	YPGCO8967_38_39,						
YPGCO6605_32_33,	YPGCO2807_58_59,						
YPGCO5415_53_54,	YPGCO3152_50_51,						
YPRD13687_8_9,	YPRDO5790_2_3,						
YPRDO4911_4_5,	YPRD10638_26_27,						
Y219261_38_39,	TRRD33379_8_9,						
TRRD06576_12_13,	TRRD06576_11_12						

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

Matrix: **SOIL**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Acid Neutralising Capacity (ANC)	7	71	9.9	10.0	NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP) - Continued					
Chromium Reducible Sulphur	7	71	9.9	10.0	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Net Acid Generation	7	71	9.9	10.0	NEPM 1999 Schedule B(3) and ALS QCS3 requirement

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Finalized Date: 4-SEP-2012
Account: ALSENV

CERTIFICATE BR12154072

Project: EP1205056
P.O. No.:
This report is for 72 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.
The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
32 SHAND STREET
STAFFORD QLD 4053

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

Signature:

Shaun Kenny, Brisbane Laboratory Manager

Australian Laboratory Services Pty. Ltd.
32 Shand Street
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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPRD04911_8_9		0.44	0.001	<0.001	<0.01	<0.001	0.001	0.0186	<0.001	23.71	0.009	0.03	0.044	<0.005	<0.001	0.005
QC1		0.48	0.001	<0.001	0.01	<0.001	0.001	0.0138	<0.001	23.83	0.008	0.04	0.050	<0.005	<0.001	0.005
YPGC10846_14_15		14.35	0.003	0.014	0.10	0.012	0.001	0.0420	0.006	23.37	0.608	0.23	0.301	0.035	0.002	0.035
CAGC30291_44_45		0.94	0.001	<0.001	0.02	<0.001	0.002	0.0200	<0.001	20.84	0.014	0.05	0.104	<0.005	<0.001	0.005
YPGC02807_26_27		12.50	0.005	0.012	0.11	<0.001	0.001	0.0394	0.003	35.75	0.254	0.13	0.248	0.011	0.001	0.035
YPRD11438_26_27		0.54	0.001	<0.001	0.01	<0.001	0.001	0.0119	<0.001	33.07	0.015	0.02	0.453	<0.005	<0.001	0.062
YPGC03152_2_3		4.51	0.004	0.008	0.04	<0.001	0.002	0.0224	0.003	29.09	0.490	0.17	0.135	<0.005	0.004	0.039
YPGC06605_2_3		7.12	0.004	0.016	0.21	0.015	0.002	0.0257	0.005	23.25	0.688	0.28	0.186	0.035	0.003	0.035
YPGC06143_2_3		8.88	0.004	0.028	0.26	0.053	0.001	0.0320	0.004	41.95	0.330	0.23	0.597	0.063	0.002	0.038
YPGC03152_32-33		2.97	0.001	0.070	0.05	<0.001	0.016	0.0046	0.002	38.06	0.845	0.03	20.4	0.077	0.003	0.132
YPGC00027_26_27		3.58	0.001	<0.001	0.02	<0.001	0.001	0.0196	<0.001	18.42	0.056	0.03	0.034	<0.005	<0.001	0.011
YPRD014197_26_27		5.56	0.004	<0.001	0.11	<0.001	<0.001	0.0231	<0.001	52.32	0.018	0.08	0.248	<0.005	0.009	0.025
YPGC10846_44_45		0.67	0.001	<0.001	0.01	<0.001	<0.001	0.0179	<0.001	23.41	0.012	0.02	0.042	<0.005	<0.001	0.036
YPRD06017_15_16		9.05	0.005	0.009	0.06	0.005	0.006	0.0164	<0.001	46.23	0.186	0.13	0.892	0.030	0.005	0.013
YPGC00576_8_9		9.17	0.003	0.015	0.05	0.001	0.001	0.0323	0.004	20.76	0.685	0.24	0.044	0.008	0.002	0.035
CAGC30291_26_27		0.57	0.002	<0.001	0.02	<0.001	0.002	0.0118	<0.001	32.21	0.013	0.04	0.229	<0.005	<0.001	0.014
YPGC06143_32_33		1.74	0.003	<0.001	0.02	<0.001	0.003	0.0076	0.001	60.76	0.018	0.03	0.158	<0.005	0.006	0.110
YPRD06017_20_21		9.89	0.005	0.005	0.09	0.019	0.002	0.0193	0.002	44.54	0.135	0.33	0.180	0.011	0.009	0.072
YPGC06879_8_9		4.73	0.004	0.018	0.07	0.003	0.002	0.0328	0.002	32.93	0.155	0.10	0.249	0.005	0.002	0.032
YPGC06143_38_39		14.25	0.004	0.011	0.23	0.005	0.001	0.0292	0.005	8.97	3.01	1.06	0.122	0.017	0.004	0.021
YPGC04543_22_23		10.00	0.004	0.016	0.09	0.002	0.002	0.0291	0.003	35.13	0.283	0.15	0.428	0.021	0.001	0.037
YPRD06017_26_27		8.53	0.024	0.009	0.08	0.005	0.002	0.0286	0.002	17.46	2.27	0.66	0.193	0.017	0.001	0.009
TRRD33379_2_3		2.49	0.003	0.014	0.06	0.004	0.001	0.0134	<0.001	49.22	0.067	0.07	0.114	0.027	<0.001	0.053
YPRD04911_11_12		0.78	0.001	<0.001	<0.01	0.001	0.001	0.0158	<0.001	25.33	0.024	0.02	0.052	<0.005	<0.001	0.050
YPGC03152_26_27		7.89	0.002	0.004	0.06	0.006	0.001	0.0194	0.001	53.04	0.036	0.05	0.087	<0.005	<0.001	0.055
YPGC06879_38_39		1.50	0.003	<0.001	0.01	0.003	<0.001	0.0078	0.001	59.76	0.001	0.04	0.062	<0.005	0.004	0.083
YPGC02056_26_27		9.49	0.004	0.014	0.08	<0.001	0.001	0.0334	0.004	44.23	0.152	0.08	0.293	0.008	0.001	0.036
YPGC05415_26_27		9.62	0.008	0.041	0.09	0.001	0.004	0.0114	0.002	47.38	0.138	0.21	2.78	<0.005	0.006	0.021
YPGC06143_8_9		6.59	0.003	0.061	0.13	0.012	0.009	0.0140	0.002	48.62	0.132	0.13	3.02	0.033	<0.001	0.012
YPGC066505_14_15		2.74	0.002	0.037	0.05	0.003	0.002	0.0069	0.001	58.80	0.171	0.15	1.800	0.007	<0.001	0.017
TRRD33379_10_11		1.48	0.002	0.002	0.05	0.006	0.001	0.0126	<0.001	32.63	0.017	0.04	0.154	<0.005	<0.001	0.009
YPGC11249_26_27		2.57	0.001	0.016	0.03	0.002	0.002	0.0045	<0.001	61.27	0.020	0.10	0.897	<0.005	0.002	0.016
YPRD11438_14_15		3.98	0.002	0.031	0.17	0.032	0.020	0.0042	0.002	38.28	0.913	0.22	15.15	0.211	0.005	0.036
CAGC30291_20_21		3.19	0.077	0.114	0.09	0.003	0.006	0.0122	0.001	44.23	0.253	0.33	2.92	0.017	0.023	0.038
TRRD06576_1_2		2.50	0.002	<0.001	0.01	0.007	0.001	0.0186	<0.001	20.09	0.098	0.05	0.279	<0.005	0.001	0.021
YPRD10638_14_15		2.28	0.005	0.009	0.03	0.047	0.005	0.0065	<0.001	58.41	0.025	0.13	0.478	0.018	0.005	0.082
YPRD06017_2_3		10.20	0.005	0.004	0.07	0.017	0.002	0.0307	0.002	49.12	0.106	0.21	0.091	0.015	0.002	0.043
YPGC1249_14_15		6.00	0.003	0.065	0.10	0.007	0.003	0.0217	0.001	52.56	0.053	0.22	0.339	0.012	0.001	0.024
YPGC02056_38_39		2.74	0.002	0.002	0.02	<0.001	0.002	0.0071	0.001	58.35	0.007	0.04	0.160	<0.005	0.002	0.028
YPGC11249_38_39		2.22	0.001	0.073	0.04	0.001	0.008	0.0020	<0.001	45.48	0.625	0.06	14.15	0.080	<0.001	0.079

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPRD04911_8_9		<0.001	0.024	63.6	0.001	<0.001	0.03	<0.001	0.002	<0.001	99.95	1.78	0.05	0.23	4.9	20
QC1		<0.001	0.027	63.3	<0.001	<0.001	0.03	<0.001	0.003	<0.001	100.00	1.90	0.05	0.25	3.5	10
YPGC10846_14_15		0.001	0.025	42.1	0.002	0.005	1.06	0.020	0.007	0.034	99.93	7.28	0.13	6.80	32.1	160
CAGC30291_44_45		<0.001	0.006	66.4	0.001	<0.001	0.05	0.002	0.003	<0.001	99.98	2.51	0.04	0.45	4.4	10
YPGC02807_26_27		<0.001	0.022	27.9	0.002	0.002	0.91	0.020	0.004	0.027	99.98	6.42	0.13	5.94	34.0	110
YPRD11438_26_27		<0.001	0.002	48.4	0.001	0.001	0.03	0.001	<0.001	<0.001	100.00	2.92	0.05	0.26	3.9	20
YPGC03152_2_3		<0.001	0.291	47.2	0.001	0.002	0.26	0.010	0.011	0.004	100.05	4.68	0.13	2.20	28.6	90
YPGC06605_2_3		<0.001	0.270	52.4	0.003	0.004	0.38	0.011	0.008	0.013	99.97	4.46	0.13	3.43	28.1	150
YPGC06143_2_3		0.002	0.024	23.5	0.002	0.004	0.53	0.020	0.004	0.019	99.96	5.00	0.10	4.53	29.9	240
YPGC03152_32-33		<0.001	0.023	1.92	<0.001	0.015	0.14	0.003	0.008	0.004	99.56	10.32	0.11	1.40	9.3	570
YPGC00027_26_27		<0.001	0.006	66.0	<0.001	<0.001	0.16	0.003	<0.001	0.001	100.05	3.75	0.03	1.83	6.2	30
YPRD014197_26_27		<0.001	0.108	5.99	<0.001	<0.001	0.15	0.004	0.002	0.006	100.00	12.56	0.07	2.78	22.4	20
YPGC10846_44_45		<0.001	0.009	63.5	0.001	<0.001	0.04	<0.001	<0.001	<0.001	99.97	2.06	0.03	0.33	4.1	10
YPRD06017_15_16		<0.001	0.030	11.10	<0.001	0.001	0.52	0.007	0.001	0.011	99.99	11.39	0.19	4.39	32.4	100
YPGC00576_8_9		<0.001	0.132	53.3	0.002	0.004	0.53	0.013	0.010	0.015	99.97	5.71	0.15	4.48	31.7	160
CAGC30291_26_27		<0.001	0.006	51.8	0.001	<0.001	0.03	0.002	<0.001	<0.001	99.99	1.08	0.04	0.30	7.5	20
YPGC06143_32_33		<0.001	0.011	2.95	<0.001	0.001	0.09	0.003	0.006	<0.001	99.99	7.74	0.12	0.82	21.9	10
YPRD06017_20_21		<0.001	0.031	13.80	0.002	0.001	0.38	0.012	0.001	0.007	100.00	11.09	0.14	4.89	46.9	50
YPGC06879_8_9		<0.001	0.064	41.2	<0.001	0.001	0.26	0.010	0.004	0.007	100.00	5.72	0.21	2.40	33.4	160
YPGC06143_38_39		0.001	0.244	61.7	0.001	0.003	0.90	0.013	<0.001	0.011	99.98	5.08	0.07	6.73	43.5	110
YPGC04543_22_23		<0.001	0.037	31.7	0.002	0.002	0.68	0.017	0.005	0.020	99.96	5.89	0.12	4.93	32.3	150
YPRD06017_26_27		0.006	0.024	59.6	0.002	0.002	0.59	0.013	<0.001	0.010	100.05	2.82	0.19	4.22	240	120
TRRD33379_2_3		<0.001	0.033	19.20	<0.001	0.001	0.20	0.005	<0.001	0.004	99.97	7.07	0.09	1.27	17.4	150
YPRD04911_11_12		<0.001	0.004	59.2	<0.001	<0.001	0.03	0.001	<0.001	<0.001	100.05	3.56	0.04	0.37	4.1	20
YPGC03152_26_27		0.001	0.091	8.98	0.002	0.003	0.36	0.009	0.001	0.013	100.00	6.24	0.11	3.95	11.7	30
YPGC06879_38_39		<0.001	0.008	2.67	0.005	<0.001	0.05	0.002	0.005	<0.001	100.00	9.96	0.11	0.74	16.4	20
YPGC02056_26_27		<0.001	0.032	19.05	0.002	0.001	0.64	0.016	0.005	0.019	100.00	6.58	0.20	4.80	36.8	160
YPGC05415_26_27		<0.001	0.024	7.65	<0.001	0.005	0.48	0.009	0.006	0.012	100.00	9.98	0.08	4.82	72.2	380
YPGC06143_8_9		<0.001	0.071	7.15	<0.001	0.006	0.17	0.006	0.010	0.005	100.00	11.61	0.10	3.36	18.8	580
YPGC066505_14_15		<0.001	0.039	4.79	0.001	0.003	0.11	0.003	0.002	0.002	100.00	5.21	0.08	1.38	12.2	350
TRRD33379_10_11		<0.001	0.013	48.0	0.002	<0.001	0.07	0.002	0.002	<0.001	100.00	3.40	0.04	0.77	4.3	50
YPGC11249_26_27		<0.001	0.017	2.92	0.001	0.001	0.08	0.002	0.001	<0.001	100.00	5.31	0.07	1.32	6.7	150
YPRD11438_14_15		<0.001	0.030	7.84	<0.001	0.025	0.07	0.002	0.012	0.001	99.83	10.35	0.06	2.12	6.6	310
CAGC30291_20_21		<0.001	0.030	18.45	<0.001	0.005	0.24	0.004	0.004	0.005	99.96	9.64	0.04	1.69	759	1080
TRRD06576_1_2		<0.001	0.016	64.5	<0.001	<0.001	0.11	0.003	<0.001	<0.001	99.95	3.46	0.07	1.32	11.1	40
YPRD10638_14_15		<0.001	0.020	3.91	0.001	0.001	0.11	0.002	0.001	<0.001	99.99	9.00	0.06	1.21	41.3	110
YPRD06017_2_3		<0.001	0.046	9.19	0.001	0.001	0.63	0.020	0.001	0.021	99.97	8.85	0.15	5.12	39.3	50
YPGC1249_14_15		<0.001	0.047	10.90	0.002	0.002	0.58	0.010	0.004	0.016	99.99	6.17	0.11	3.00	20.7	590
YPGC02056_38_39		<0.001	0.046	4.11	0.001	<0.001	0.11	0.002	0.002	0.003	100.00	9.12	0.08	1.34	16.2	20
YPGC11249_38_39		<0.001	0.008	2.48	<0.001	0.009	0.08	0.002	0.006	0.002	99.52	8.91	0.06	1.16	9.3	650

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

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CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPRD04911_8_9		0.27	0.17	0.01	0.07	6.47	2.0	93	0.12	3.8	23.8	0.69	0.34	0.1	0.007	0.01
QC1		0.30	0.04	0.01	0.07	7.25	2.1	123	0.12	2.9	23.4	0.70	0.27	0.1	0.006	0.01
YPGC10846_14_15		0.95	0.65	0.07	0.11	63.0	8.9	237	3.61	50.4	21.8	23.5	0.49	5.4	0.149	0.47
CAGC30291_44_45		0.61	0.07	0.02	0.07	8.25	3.4	84	0.10	7.3	20.4	1.55	0.17	0.2	0.015	0.02
YPGC02807_26_27		0.66	1.27	0.08	0.05	44.8	7.7	210	2.29	39.5	32.8	20.9	1.40	4.4	0.133	0.21
YPRD11438_26_27		0.36	0.05	0.02	0.05	18.00	2.6	47	0.07	2.3	31.1	0.85	0.31	0.1	0.005	0.02
YPGC03152_2_3		0.98	0.34	0.04	0.16	25.7	10.1	115	1.40	37.7	26.7	7.57	0.33	1.2	0.073	0.41
YPGC06605_2_3		1.03	0.75	0.16	0.11	40.2	13.3	138	2.05	40.2	22.6	10.40	0.40	1.8	0.085	0.53
YPGC06143_2_3		1.12	0.59	0.18	0.12	54.6	10.8	172	1.52	29.1	39.0	14.50	2.41	2.8	0.094	0.28
YPGC03152_32-33		1.05	0.16	0.04	1.29	67.6	107.5	34	0.21	24.6	34.0	10.30	0.92	0.7	0.017	0.66
YPGC00027_26_27		0.61	0.21	0.02	0.02	10.30	1.6	99	0.26	7.3	19.30	5.56	0.16	0.8	0.017	0.06
YPRD014197_26_27		0.47	0.34	0.08	0.09	8.21	6.0	57	0.22	10.5	49.8	6.73	2.74	1.9	0.037	0.02
YPGC10846_44_45		0.49	0.04	0.02	0.04	5.82	1.4	93	0.11	3.7	23.0	1.13	0.21	0.1	<0.005	0.02
YPRD06017_15_16		2.43	0.51	0.05	0.19	70.0	38.9	69	0.59	11.5	42.6	9.26	3.30	2.3	0.037	0.14
YPGC00576_8_9		1.04	0.38	0.05	0.09	48.8	9.8	169	2.73	53.3	20.6	14.05	0.26	2.7	0.111	0.54
CAGC30291_26_27		0.61	0.03	0.02	0.02	4.52	1.9	40	0.12	2.4	28.5	1.00	0.29	0.1	<0.005	0.02
YPGC06143_32_33		0.83	0.08	0.02	0.09	68.6	19.6	28	0.08	12.7	>50	2.72	2.68	0.4	0.011	0.02
YPRD06017_20_21		1.33	0.53	0.07	0.08	26.7	13.0	93	0.61	21.3	41.5	10.45	2.37	2.0	0.057	0.12
YPGC06879_8_9		1.30	0.22	0.06	0.11	32.5	9.5	178	0.63	29.0	31.0	8.16	0.36	1.5	0.055	0.14
YPGC06143_38_39		1.29	0.79	0.18	0.03	112.0	12.4	158	3.70	64.8	8.85	24.2	0.21	4.1	0.053	2.36
YPGC04543_22_23		1.20	0.46	0.08	0.11	50.0	11.0	160	1.83	39.7	32.8	16.85	1.40	3.6	0.107	0.24
YPRD06017_26_27		0.88	0.94	0.06	0.04	42.8	5.9	141	4.99	33.6	17.80	16.65	0.24	3.3	0.101	1.84
TRRD33379_2_3		0.61	0.31	0.05	0.03	12.25	2.8	68	0.53	9.9	47.9	7.10	3.76	1.1	0.031	0.06
YPRD04911_11_12		0.85	0.04	0.01	0.04	9.70	3.2	74	0.16	6.6	23.8	1.33	0.25	0.2	0.005	0.02
YPGC03152_26_27		0.36	0.43	0.05	0.02	18.60	2.3	91	0.16	14.8	49.8	11.70	1.79	2.5	0.075	0.04
YPGC06879_38_39		1.46	0.07	0.01	0.07	19.85	4.9	27	<0.05	9.0	>50	2.00	2.11	0.3	0.009	0.01
YPGC02056_26_27		0.93	0.44	0.06	0.07	39.3	9.4	190	1.38	44.6	43.1	18.00	3.00	3.7	0.111	0.14
YPGC05415_26_27		1.15	0.82	0.07	0.36	41.6	40.2	53	0.14	44.2	44.9	14.05	2.80	2.9	0.091	0.12
YPGC06143_8_9		0.87	0.21	0.11	0.47	107.0	77.8	58	0.11	27.6	46.7	6.69	3.10	1.3	0.039	0.12
YPGC066505_14_15		0.69	0.22	0.04	0.16	88.5	16.3	23	0.25	10.0	49.0	3.62	3.96	0.5	0.017	0.15
TRRD33379_10_11		1.07	0.07	0.05	0.03	10.55	4.1	61	0.09	7.0	32.1	2.06	1.55	0.3	0.027	0.02
YPGC11249_26_27		0.64	0.08	0.02	0.11	19.35	6.3	16	0.05	5.6	>50	2.42	5.23	0.4	0.012	0.02
YPRD11438_14_15		2.01	0.05	0.13	1.92	252	155.0	23	0.55	16.0	38.9	6.49	1.12	0.3	0.009	0.80
CAGC30291_20_21		2.35	0.23	0.08	0.14	52.8	48.5	28	0.39	22.2	44.6	6.50	1.14	1.2	0.022	0.23
TRRD06576_1_2		0.86	0.07	0.02	0.03	15.80	6.7	97	0.53	12.5	21.4	4.04	0.22	0.6	0.020	0.09
YPRD10638_14_15		0.77	0.10	0.03	0.08	38.3	38.2	27	0.05	6.2	>50	3.21	2.50	0.5	0.013	0.03
YPRD06017_2_3		1.92	0.56	0.06	0.04	19.65	8.5	160	0.60	35.5	47.0	17.90	2.80	4.2	0.107	0.09
YPGC1249_14_15		0.73	0.34	0.08	0.10	56.3	20.4	115	0.43	20.0	50.0	13.55	2.68	2.8	0.064	0.05
YPGC02056_38_39		0.82	0.15	0.02	0.05	9.06	8.5	25	0.07	13.4	>50	2.97	5.44	0.6	0.016	0.01
YPGC11249_38_39		0.83	0.07	0.03	0.47	78.0	52.4	15	0.18	10.6	43.8	6.43	0.92	0.3	0.008	0.52

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPRD04911_8_9		2.4	2.8	0.03	447	2.44	0.01	0.5	16.7	60	3.5	1.4	0.002	0.02	0.35	0.9
QC1		2.6	2.9	0.03	507	0.90	0.01	0.4	8.1	60	3.3	1.2	0.002	0.03	0.29	0.9
YPGC10846_14_15		30.9	15.3	0.13	2810	2.10	0.05	14.9	54.3	320	26.5	41.1	0.002	0.02	2.31	19.0
CAGC30291_44_45		4.4	3.0	0.04	965	0.85	0.01	0.8	16.6	50	3.3	1.0	<0.002	0.01	0.56	1.8
YPGC02807_26_27		16.2	9.0	0.08	2130	2.03	0.03	12.5	30.7	320	26.8	20.0	<0.002	0.02	2.89	16.7
YPRD11438_26_27		4.7	1.7	0.02	4110	0.98	0.01	0.5	9.6	580	2.0	0.8	<0.002	<0.01	0.28	0.9
YPGC03152_2_3		11.5	6.2	0.10	1140	2.31	0.03	3.6	54.7	360	16.6	16.0	<0.002	0.26	1.97	7.1
YPGC06605_2_3		20.4	10.8	0.15	1320	1.56	0.05	4.8	54.7	350	18.6	27.5	0.002	0.24	2.08	9.5
YPGC06143_2_3		24.6	10.4	0.13	5220	2.25	0.07	7.7	43.9	360	25.7	22.0	<0.002	0.03	2.80	12.5
YPGC03152_32-33		51.7	20.5	0.02	>100000	0.71	0.07	2.1	58.8	1160	12.8	9.1	0.002	0.01	1.36	5.7
YPGC00027_26_27		5.4	4.0	0.03	479	1.89	0.01	2.5	7.9	110	4.7	3.7	<0.002	0.01	1.53	4.2
YPRD014197_26_27		1.9	1.5	0.05	2340	0.90	0.01	2.7	17.4	230	10.8	0.9	<0.002	0.10	1.73	7.4
YPGC10846_44_45		2.5	6.3	0.02	403	3.23	0.01	0.6	11.8	360	1.5	1.2	<0.002	0.01	0.34	1.0
YPRD06017_15_16		29.1	7.9	0.08	7080	1.69	0.04	7.0	63.2	130	15.2	4.6	0.002	0.03	1.32	9.9
YPGC00576_8_9		23.9	13.2	0.15	476	1.85	0.03	7.5	43.5	340	22.0	35.5	0.002	0.12	2.15	12.1
CAGC30291_26_27		2.6	2.9	0.03	2260	1.01	0.01	0.6	12.0	140	2.7	1.1	<0.002	0.01	0.45	0.8
YPGC06143_32_33		30.2	2.1	0.02	1340	1.32	<0.01	1.6	62.8	960	10.4	0.7	0.002	0.01	0.87	4.2
YPRD06017_20_21		30.0	12.3	0.19	1600	2.61	0.02	5.5	94.2	690	11.8	4.0	<0.002	0.03	2.29	17.6
YPGC06879_8_9		11.3	6.1	0.07	2360	1.49	0.02	4.1	40.6	300	17.2	8.2	0.002	0.06	1.99	8.9
YPGC06143_38_39		50.8	9.4	0.62	1190	2.42	0.04	11.8	61.7	200	34.3	88.1	<0.002	0.23	5.47	18.4
YPGC04543_22_23		20.1	10.9	0.09	3780	2.38	0.03	9.6	35.4	350	21.2	17.8	0.002	0.04	2.64	14.2
YPRD06017_26_27		21.4	7.9	0.39	1860	3.35	0.03	9.5	21.9	80	43.8	64.3	<0.002	0.02	7.73	15.4
TRRD33379_2_3		6.5	1.7	0.05	1070	1.21	0.04	3.5	19.8	510	9.1	3.9	0.002	0.03	2.29	6.4
YPRD04911_11_12		5.4	4.0	0.02	489	0.75	0.01	0.7	16.9	440	2.8	1.8	<0.002	<0.01	0.81	1.3
YPGC03152_26_27		22.6	5.3	0.03	835	1.09	0.01	5.7	12.7	510	24.5	1.3	<0.002	0.08	1.57	12.3
YPGC06879_38_39		12.1	1.4	0.03	556	0.63	<0.01	1.3	53.5	750	6.4	0.1	0.002	0.01	0.84	4.8
YPGC02056_26_27		11.4	8.9	0.05	2880	1.93	0.02	9.7	27.6	360	23.0	11.6	<0.002	0.03	2.86	16.3
YPGC05415_26_27		16.4	14.3	0.12	26300	1.94	0.02	7.5	87.4	210	19.0	2.2	0.002	0.02	3.45	18.9
YPGC06143_8_9		12.7	3.7	0.07	30200	0.90	0.04	2.9	12.8	120	24.3	2.0	<0.002	0.06	1.37	7.6
YPGC066505_14_15		7.0	3.2	0.08	17400	0.92	0.01	1.8	17.1	160	12.0	4.0	<0.002	0.04	0.93	4.8
TRRD33379_10_11		2.3	4.0	0.03	1540	0.63	0.02	1.2	9.6	100	6.5	1.0	<0.002	0.01	0.85	3.0
YPGC11249_26_27		8.8	3.7	0.06	8550	0.85	0.01	1.5	28.0	160	8.8	0.5	0.002	0.02	0.65	5.7
YPRD11438_14_15		69.3	35.6	0.13	>100000	0.65	0.19	1.0	79.8	360	3.1	12.2	<0.002	0.02	0.84	3.9
CAGC30291_20_21		24.4	1.7	0.21	29600	1.15	0.03	3.7	240	380	43.6	4.6	<0.002	0.03	3.85	6.8
TRRD06576_1_2		5.9	5.1	0.04	2900	1.31	0.02	1.7	15.9	210	5.9	6.9	<0.002	0.02	1.03	3.9
YPRD10638_14_15		15.5	2.4	0.08	4570	1.01	0.03	1.8	57.2	790	6.0	0.5	<0.002	0.02	1.25	3.2
YPRD06017_2_3		9.6	8.5	0.13	835	3.13	0.02	9.7	43.1	430	19.1	7.5	<0.002	0.04	4.46	18.0
YPGC1249_14_15		21.9	3.1	0.12	3070	2.57	0.02	8.5	22.6	230	22.9	3.2	<0.002	0.04	2.05	8.6
YPGC02056_38_39		6.1	1.0	0.03	1440	0.84	0.01	2.0	36.8	270	15.3	0.4	<0.002	0.04	0.89	6.5
YPGC11249_38_39		9.9	5.2	0.04	>100000	0.66	0.07	1.4	24.6	760	3.7	9.6	<0.002	<0.01	0.72	3.0

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPRD04911_8_9		<1	0.3	2.0	<0.05	<0.05	0.4	0.012	0.03	0.2	5	1.8	3.9	34	3.9
QC1		<1	0.2	1.4	<0.05	<0.05	0.4	0.012	0.02	0.2	5	2.2	4.2	44	4.0
YPGC10846_14_15		2	3.3	31.6	1.17	0.27	23.5	0.504	0.40	3.6	182	2.5	21.3	70	198.0
CAGC30291_44_45		<1	0.3	1.5	0.05	<0.05	0.8	0.025	<0.02	0.2	10	1.7	7.2	41	9.4
YPGC02807_26_27		2	2.7	19.8	0.96	0.30	21.7	0.449	0.20	3.6	176	2.2	12.7	51	167.0
YPRD11438_26_27		<1	<0.2	4.9	<0.05	<0.05	0.4	0.010	<0.02	0.3	4	2.2	5.6	17	3.5
YPGC03152_2_3		1	1.0	20.0	0.27	0.18	5.1	0.132	0.43	1.1	78	1.5	10.8	108	49.9
YPGC06605_2_3		1	1.3	35.7	0.37	0.16	8.0	0.188	0.45	1.5	102	1.6	11.7	77	70.1
YPGC06143_2_3		2	1.7	37.5	0.58	0.21	14.3	0.260	0.43	2.1	167	2.0	16.2	39	106.0
YPGC03152_32-33		1	0.5	130.0	0.16	0.18	3.1	0.063	0.46	2.3	21	1.8	34.5	58	25.5
YPGC00027_26_27		<1	0.7	4.2	0.20	0.05	3.4	0.091	0.03	0.6	27	2.0	7.9	15	32.5
YPRD014197_26_27		2	0.6	6.5	0.20	0.28	9.4	0.079	<0.02	2.7	42	1.1	3.9	42	69.7
YPGC10846_44_45		<1	0.2	2.1	<0.05	<0.05	0.5	0.016	<0.02	0.3	6	3.3	5.0	14	5.4
YPRD06017_15_16		2	1.3	16.0	0.56	0.16	10.6	0.224	0.12	5.8	52	1.8	28.8	21	88.4
YPGC00576_8_9		2	2.1	45.8	0.58	0.26	10.2	0.273	0.36	1.9	114	2.0	12.4	101	104.5
CAGC30291_26_27		<1	0.2	5.4	<0.05	<0.05	0.6	0.015	0.05	0.4	6	2.2	3.7	9	5.5
YPGC06143_32_33		1	0.3	4.4	0.10	0.09	1.6	0.037	0.03	1.5	20	1.7	19.8	56	14.9
YPRD06017_20_21		4	1.2	8.6	0.42	0.24	9.4	0.180	0.02	4.1	103	2.6	31.5	26	79.3
YPGC06879_8_9		2	0.9	15.1	0.32	0.16	9.4	0.136	0.36	2.0	92	1.2	10.3	51	59.1
YPGC06143_38_39		2	2.8	39.2	0.98	0.42	14.7	0.485	0.42	3.3	118	3.9	23.9	13	154.0
YPGC04543_22_23		2	2.1	22.8	0.75	0.27	16.4	0.353	0.57	3.0	143	2.4	18.9	56	136.5
YPRD06017_26_27		2	5.9	18.2	0.81	0.50	11.1	0.330	0.36	2.7	121	2.6	18.0	12	123.0
TRRD33379_2_3		1	0.8	11.4	0.26	0.22	5.3	0.109	0.06	1.1	48	2.0	10.7	21	43.7
YPRD04911_11_12		<1	0.2	1.2	<0.05	<0.05	0.7	0.015	0.02	0.6	6	1.7	8.5	15	6.2
YPGC03152_26_27		3	1.3	24.3	0.46	0.61	12.4	0.194	<0.02	2.1	75	1.9	5.6	13	92.3
YPGC06879_38_39		1	0.3	1.1	0.07	0.13	1.2	0.021	<0.02	2.3	12	0.8	21.2	56	9.9
YPGC02056_26_27		3	2.0	14.2	0.73	0.41	19.7	0.341	0.40	3.9	153	1.9	11.5	57	140.0
YPGC05415_26_27		1	1.9	55.5	0.61	0.40	12.5	0.239	0.21	4.8	83	1.8	17.9	74	111.5
YPGC06143_8_9		2	0.6	66.3	0.22	0.57	6.1	0.086	0.52	2.7	53	1.3	6.6	115	48.7
YPGC066505_14_15		1	0.4	20.7	0.12	0.28	2.6	0.051	0.77	1.2	20	3.1	4.8	22	22.2
TRRD33379_10_11		<1	0.4	8.8	0.08	0.14	1.3	0.036	0.02	0.3	14	1.3	4.6	23	12.9
YPGC11249_26_27		<1	0.2	9.6	0.10	0.19	1.9	0.038	0.11	1.2	12	1.2	6.4	19	14.0
YPRD11438_14_15		1	0.2	260	0.07	0.49	1.0	0.029	0.29	2.3	10	1.5	35.7	107	9.4
CAGC30291_20_21		1	0.8	55.9	0.28	0.17	4.6	0.133	0.56	1.6	39	1.4	25.3	60	47.3
TRRD06576_1_2		1	0.5	8.5	0.12	0.05	2.4	0.063	0.08	0.7	30	2.2	6.3	16	22.1
YPRD10638_14_15		1	0.3	8.1	0.12	0.13	1.8	0.051	0.03	1.4	20	2.6	16.7	20	17.9
YPRD06017_2_3		4	2.0	12.1	0.73	0.57	18.6	0.332	0.07	3.5	180	2.4	9.2	17	153.5
YPGC1249_14_15		3	1.8	19.0	0.62	0.32	12.9	0.287	0.24	2.1	92	1.8	14.5	47	100.0
YPGC02056_38_39		2	0.4	1.8	0.14	0.30	3.1	0.053	<0.02	2.1	18	1.1	10.2	38	21.6
YPGC11249_38_39		<1	0.3	80.3	0.09	0.17	1.4	0.038	0.51	1.4	13	1.2	8.3	58	13.1

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
YPRD06017_26_29		10.40	0.020	0.013	0.09	0.004	0.001	0.0277	0.002	17.26	2.83	0.82	0.173	0.018	<0.001	0.009
TRRD33437_4_5		1.86	0.002	0.009	0.01	0.003	<0.001	0.0114	<0.001	52.84	0.012	0.09	0.736	0.017	<0.001	0.021
YPGC01657_8_9		13.80	0.002	0.021	0.12	0.005	0.001	0.0302	0.005	12.94	0.998	0.40	0.054	0.033	0.005	0.034
YPRD11438_8_9		1.35	0.002	<0.001	0.03	0.010	0.002	0.0100	<0.001	52.77	0.016	0.10	0.374	0.028	0.002	0.012
YPRD1387_14_15		8.74	0.005	0.008	0.08	0.002	0.001	0.0465	0.003	25.11	0.403	0.20	0.108	0.014	0.010	0.027
QC2		3.99	0.001	0.025	0.16	0.007	0.018	0.0054	0.001	40.02	0.766	0.23	12.70	0.169	0.008	0.038
YPGC02807_38_39		1.56	0.003	0.004	0.05	0.002	0.002	0.0229	<0.001	53.61	0.034	0.12	0.500	<0.005	0.014	0.026
YPGC1249_44_45		0.38	0.001	<0.001	0.01	0.002	0.001	0.0151	<0.001	22.08	0.018	0.02	0.224	<0.005	0.002	0.025
YPGC02056_8_9		7.86	0.004	0.023	0.11	<0.001	0.002	0.0266	0.004	20.44	0.544	0.26	0.121	0.011	0.002	0.033
YPRD05790_11_12		0.54	0.001	<0.001	0.01	0.025	0.001	0.0115	<0.001	25.41	0.022	0.07	0.192	0.010	<0.001	0.009
YPRD11438_2_3		5.43	0.003	0.038	0.04	<0.001	<0.001	0.0130	<0.001	51.16	0.028	0.05	0.058	<0.005	<0.001	0.032
TRRD33437_2_3		2.20	<0.001	0.003	0.02	0.005	0.001	0.0088	0.002	57.09	0.008	0.07	0.675	0.006	0.001	0.022
YPRDO5790_4_5		1.11	0.001	0.003	0.12	<0.001	0.001	0.0177	<0.001	31.65	0.019	0.04	0.028	<0.005	0.001	0.058
YPGC11249_20_21		12.70	0.007	0.026	0.17	0.008	0.003	0.0321	<0.001	41.01	0.053	0.23	5.17	0.014	<0.001	0.018
YPGC1657_20_21		7.80	0.004	0.010	0.06	0.005	0.002	0.0160	<0.001	48.58	0.041	0.04	0.877	<0.005	0.001	0.021
YPGC03152_14_15		3.30	0.002	0.024	0.04	0.002	0.001	0.0046	0.002	54.55	0.035	0.06	0.378	<0.005	<0.001	0.019
YPGC10846_8_9		6.13	0.004	0.015	0.08	0.001	0.001	0.0399	0.002	36.90	0.275	0.18	0.244	0.011	0.002	0.041
YPGC02056_44_45		4.89	0.003	0.002	0.01	0.005	0.001	0.0145	0.001	56.26	0.021	0.05	0.275	<0.005	0.003	0.078
YPGC08967_38_39		6.24	<0.001	0.003	0.03	0.006	0.002	0.0243	0.003	7.86	0.209	0.06	0.487	<0.005	0.002	0.010
YPGC066505_32_33		1.02	0.002	<0.001	0.01	<0.001	0.002	0.0120	<0.001	31.97	0.017	0.02	0.057	<0.005	<0.001	0.020
YPGC02807_58_59		7.27	0.002	0.021	0.15	0.001	0.002	0.0300	0.003	16.38	0.778	0.43	0.098	0.026	0.004	0.024
YPGC05415_53_54		2.68	0.002	<0.001	0.02	0.004	0.001	0.0154	<0.001	25.69	0.029	0.03	0.216	<0.005	0.001	0.023
YPGC03152_50_51		1.76	0.002	0.002	0.01	<0.001	<0.001	0.0228	<0.001	23.41	0.082	0.04	0.122	<0.005	0.001	0.018
YPRD13687_8_9		13.30	0.002	0.038	0.16	0.001	0.002	0.0351	0.004	15.56	0.988	0.38	0.254	0.060	0.006	0.035
YPRD05790_2-3		2.16	<0.001	0.010	0.02	<0.001	0.001	0.0244	<0.001	10.13	0.019	0.03	0.088	<0.005	0.004	0.008
YPRD04911_4_5		0.28	0.002	0.002	0.03	0.001	<0.001	0.0235	<0.001	22.57	0.012	0.03	0.005	<0.005	<0.001	0.009
YPRD10638_26_27		0.75	<0.001	<0.001	0.01	0.008	<0.001	0.0237	<0.001	11.83	0.026	0.03	0.054	<0.005	<0.001	0.007
Y219261_38_39		3.20	0.004	<0.001	0.04	0.004	0.002	0.0110	0.003	57.75	0.005	0.21	0.371	<0.005	0.006	0.110
TRRD33379_8_9		4.27	0.003	0.008	0.20	0.007	0.002	0.0124	<0.001	49.66	0.039	0.09	0.136	0.016	<0.001	0.010
TRRD06576_12_13		0.42	0.001	<0.001	<0.01	<0.001	0.001	0.0158	<0.001	20.89	0.013	0.02	0.022	<0.005	<0.001	0.036
TRRD06576_11_12		1.06	0.001	0.005	<0.01	0.001	0.002	0.0170	<0.001	22.00	0.022	0.01	0.244	<0.005	<0.001	0.006

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
YPRD06017_26_29		0.005	0.019	56.5	0.004	0.001	0.69	0.016	<0.001	0.013	99.96	3.49	0.19	5.08	204	120
TRRD33437_4_5		<0.001	0.041	14.85	0.002	0.001	0.11	0.002	<0.001	0.002	99.99	6.29	0.06	0.98	10.4	90
YPGC01657_8_9		0.001	0.050	58.3	<0.001	0.008	0.83	0.013	0.008	0.026	100.05	6.65	0.10	6.72	26.6	220
YPRD11438_8_9		<0.001	0.041	12.50	<0.001	<0.001	0.04	0.001	0.001	<0.001	99.98	9.78	0.05	0.71	6.3	20
YPRD1387_14_15		<0.001	0.028	47.9	<0.001	0.002	0.57	0.013	0.007	0.017	100.00	5.78	0.20	4.52	36.8	100
QC2		<0.001	0.023	8.63	<0.001	0.022	0.06	0.001	0.010	0.001	99.63	10.51	0.05	2.10	7.2	270
YPGC02807_38_39		<0.001	0.037	10.10	0.001	0.001	0.07	0.002	0.002	<0.001	100.00	10.52	0.05	0.80	16.6	50
YPGC1249_44_45		<0.001	0.006	65.8	<0.001	<0.001	0.02	<0.001	<0.001	<0.001	99.97	1.76	0.02	0.19	2.9	10
YPGC02056_8_9		<0.001	0.190	55.0	<0.001	0.005	0.40	0.011	0.011	0.010	99.96	5.71	0.14	3.98	35.5	210
YPRD05790_11_12		<0.001	0.017	60.0	0.002	<0.001	0.03	0.002	0.002	<0.001	100.00	2.63	0.03	0.28	5.6	20
YPRD11438_2_3		<0.001	0.072	10.75	0.001	<0.001	0.46	0.006	<0.001	0.011	99.99	9.67	0.07	2.73	19.6	420
TRRD33437_2_3		0.003	0.035	9.88	0.002	0.001	0.08	0.002	<0.001	0.005	99.99	5.00	0.05	1.12	5.9	40
YPRDO5790_4_5		<0.001	0.007	48.3	0.002	0.001	0.05	0.002	<0.001	<0.001	99.96	4.84	0.03	0.54	7.0	50
YPGC11249_20_21		<0.001	0.024	10.60	<0.001	0.009	1.14	0.024	0.001	0.041	99.22	8.21	0.08	6.29	50.7	240
YPGC1657_20_21		<0.001	0.095	12.05	<0.001	0.001	0.40	0.008	0.002	0.013	100.00	8.59	0.07	3.97	28.3	70
YPGC03152_14_15		0.001	0.062	8.36	<0.001	0.001	0.08	0.002	<0.001	0.001	100.00	9.35	0.07	1.65	8.8	200
YPGC10846_8_9		<0.001	0.038	33.7	0.001	0.003	0.37	0.013	0.006	0.010	100.00	5.85	0.21	3.10	32.2	160
YPGC02056_44_45		<0.001	0.026	3.04	<0.001	0.001	0.25	0.008	0.002	0.005	100.00	10.63	0.07	2.45	18.3	40
YPGC08967_38_39		0.003	0.014	78.2	0.002	0.002	0.32	0.004	0.002	0.005	100.05	2.94	0.08	3.26	16.3	40
YPGC066505_32_33		<0.001	0.006	49.7	0.002	<0.001	0.05	0.002	<0.001	<0.001	99.99	3.30	0.03	0.53	7.6	10
YPGC02807_58_59		0.002	0.351	61.2	<0.001	0.003	0.36	0.009	0.008	0.007	100.00	5.19	0.14	3.74	27.0	200
YPGC05415_53_54		<0.001	0.019	55.6	<0.001	<0.001	0.13	0.003	0.006	<0.001	99.97	4.30	0.05	1.37	14.6	10
YPGC03152_50_51		<0.001	0.022	60.7	<0.001	<0.001	0.08	0.002	0.001	<0.001	100.00	3.59	0.06	0.88	8.3	30
YPRD13687_8_9		0.001	0.039	54.9	0.002	0.005	0.74	0.014	0.010	0.019	99.95	6.47	0.13	6.52	24.5	380
YPRD05790_2-3		<0.001	0.012	80.4	<0.001	<0.001	0.06	0.001	<0.001	<0.001	100.05	2.66	0.02	1.07	6.6	150
YPRD04911_4_5		<0.001	0.004	65.7	0.002	<0.001	0.02	<0.001	<0.001	<0.001	99.98	1.56	0.02	0.14	4.7	40
YPRD10638_26_27		<0.001	0.004	80.9	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.05	1.23	0.04	0.34	11.5	10
Y219261_38_39		<0.001	0.012	4.03	<0.001	<0.001	0.14	0.003	0.002	0.002	100.00	8.97	0.11	1.66	29.7	20
TRRD33379_8_9		<0.001	0.021	19.30	<0.001	0.002	0.19	0.003	0.001	0.003	99.99	4.57	0.05	2.10	12.7	80
TRRD06576_12_13		<0.001	0.002	67.0	<0.001	<0.001	0.03	<0.001	<0.001	<0.001	99.99	2.51	0.02	0.20	2.2	10
TRRD06576_11_12		<0.001	0.009	65.3	<0.001	<0.001	0.06	0.002	<0.001	<0.001	99.95	1.64	0.04	0.53	4.3	60

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
YPRD06017_26_29		0.95	0.86	0.07	0.03	40.8	5.9	151	6.52	34.6	17.45	19.55	0.48	3.6	0.092	2.28
TRRD33437_4_5		0.33	0.11	0.02	<0.02	17.35	3.4	47	0.08	7.4	>50	3.62	1.57	0.6	0.017	0.02
YPGC01657_8_9		1.57	0.43	0.10	0.07	64.9	14.0	156	4.24	67.6	13.25	20.2	0.38	4.1	0.117	0.82
YPRD11438_8_9		0.87	0.04	0.03	0.02	103.5	20.1	14	0.12	7.2	>50	1.70	2.15	0.2	0.005	0.02
YPRD1387_14_15		1.11	0.37	0.07	0.06	33.1	7.3	199	2.16	47.5	24.7	14.45	0.68	3.1	0.112	0.35
QC2		2.03	0.03	0.12	1.63	225	146.0	14	0.51	15.1	39.5	5.71	1.54	0.2	0.007	0.65
YPGC02807_38_39		1.84	0.04	0.04	0.05	13.45	12.4	28	0.13	6.4	>50	2.74	1.75	0.4	0.009	0.03
YPGC1249_44_45		0.45	<0.01	0.01	0.03	6.41	2.7	52	0.07	2.2	22.6	0.92	0.22	0.1	<0.005	0.02
YPGC02056_8_9		1.28	0.30	0.09	0.12	37.0	12.0	170	1.96	53.3	20.9	11.70	0.30	2.1	0.092	0.45
YPRD05790_11_12		0.68	0.01	0.02	0.02	16.45	5.3	50	0.12	8.2	26.8	1.27	0.29	0.1	<0.005	0.03
YPRD11438_2_3		0.33	0.23	0.04	<0.02	13.30	2.5	56	0.17	7.4	48.8	7.13	2.45	1.8	0.033	0.03
TRRD33437_2_3		0.26	0.09	0.02	<0.02	21.8	1.3	31	0.05	4.5	>50	2.48	0.99	0.6	0.013	0.01
YPRD05790_4_5		0.74	0.04	0.08	0.02	7.37	2.9	71	0.09	5.4	29.9	1.49	0.36	0.2	0.005	0.02
YPGC11249_20_21		0.59	1.25	0.12	0.05	85.4	30.6	164	0.18	14.5	39.2	34.2	1.49	6.7	0.165	0.05
YPGC1657_20_21		0.65	0.53	0.05	0.06	92.5	24.5	68	0.11	8.7	45.7	11.00	2.21	2.7	0.061	0.04
YPGC03152_14_15		0.82	0.04	0.04	0.06	32.8	11.9	13	0.15	31.5	>50	1.65	4.32	0.3	0.008	0.03
YPGC10846_8_9		1.08	0.29	0.07	0.14	30.5	9.0	233	1.41	34.0	33.8	11.05	0.54	2.1	0.074	0.24
YPGC02056_44_45		0.85	0.29	0.01	0.05	41.1	10.2	72	0.06	23.9	>50	8.19	2.16	1.4	0.033	0.02
YPGC08967_38_39		1.26	0.32	0.03	0.10	45.8	8.1	129	0.69	23.1	8.45	9.07	0.21	1.5	0.058	0.18
YPGC066505_32_33		0.75	0.04	0.01	0.02	8.16	2.7	53	0.10	4.7	30.8	1.54	0.32	0.2	0.006	0.02
YPGC02807_58_59		1.26	0.30	0.12	0.10	38.6	11.8	179	2.45	46.8	16.95	10.90	0.26	2.0	0.094	0.66
YPGC05415_53_54		1.80	0.18	0.02	0.08	20.8	7.8	76	0.13	13.3	25.4	4.25	0.30	0.7	0.014	0.03
YPGC03152_50_51		0.84	0.07	0.02	0.04	12.30	3.9	103	0.21	12.5	22.7	2.50	0.27	0.4	0.012	0.08
YPRD13687_8_9		1.69	0.39	0.13	0.15	65.8	20.7	180	4.46	58.9	15.50	18.35	0.33	3.6	0.109	0.82
YPRD05790_2-3		1.79	0.07	0.02	0.09	8.99	6.8	97	0.12	6.1	10.50	1.88	0.16	0.5	0.007	0.02
YPRD04911_4_5		0.41	<0.01	0.03	<0.02	3.33	1.1	122	0.09	3.3	21.0	0.67	0.36	0.1	<0.005	0.02
YPRD10638_26_27		0.48	0.04	0.02	0.03	11.05	2.8	142	0.16	5.8	11.40	1.27	0.18	0.2	0.005	0.03
Y219261_38_39		1.04	0.20	0.04	0.04	29.2	14.4	46	0.07	38.4	49.1	4.80	2.62	0.6	0.021	0.01
TRRD33379_8_9		0.60	0.17	0.14	<0.02	7.31	1.4	47	0.28	5.9	45.9	5.14	4.21	0.8	0.023	0.04
TRRD06576_12_13		0.52	0.02	0.01	0.02	3.68	1.3	53	0.17	2.7	21.3	0.68	0.28	0.1	<0.005	0.02
TRRD06576_11_12		0.50	0.06	0.01	0.07	15.80	4.7	91	0.19	6.3	22.2	1.72	0.29	0.3	0.017	0.02

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
YPRD06017_26_29		21.2	8.5	0.49	1690	3.37	0.04	10.5	22.6	90	40.7	80.9	<0.002	0.02	8.13	15.8
TRRD33437_4_5		1.4	0.4	0.05	7070	0.40	0.03	2.1	6.2	210	6.0	0.5	<0.002	0.04	1.02	4.7
YPGC01657_8_9		31.5	22.2	0.25	602	1.79	0.05	11.3	61.2	340	23.7	58.2	<0.002	0.05	1.61	16.7
YPRD11438_8_9		5.0	0.2	0.06	3450	0.37	0.04	0.8	14.8	110	4.1	0.7	<0.002	0.04	0.50	3.5
YPRD1387_14_15		16.6	9.8	0.13	1100	1.89	0.03	8.1	36.9	280	17.1	24.5	<0.002	0.03	2.20	13.1
QC2		60.2	41.3	0.14	>100000	0.58	0.14	1.0	84.7	350	2.5	10.2	<0.002	0.02	0.75	4.1
YPGC02807_38_39		9.0	1.0	0.07	4600	0.87	0.01	1.2	30.0	260	3.5	1.1	<0.002	0.04	0.62	3.6
YPGC1249_44_45		2.5	5.2	0.02	2310	1.00	0.01	0.4	8.5	220	0.9	1.0	<0.002	0.01	0.25	0.7
YPGC02056_8_9		17.4	14.5	0.16	1260	1.89	0.03	5.6	50.0	310	16.8	26.5	<0.002	0.18	2.09	10.7
YPRD05790_11_12		5.5	5.7	0.05	1840	0.76	0.03	0.6	13.3	90	9.2	1.5	<0.002	0.02	0.58	2.7
YPRD11438_2_3		4.7	4.2	0.04	542	1.00	0.01	6.6	7.0	310	15.1	1.9	<0.002	0.07	1.41	7.4
TRRD33437_2_3		1.0	0.7	0.03	6290	0.43	0.01	1.5	4.2	220	5.4	0.2	0.002	0.03	0.52	5.4
YPRDO5790_4_5		3.4	3.2	0.03	293	0.91	0.01	0.9	11.9	540	4.1	1.2	<0.002	0.01	0.89	3.2
YPGC11249_20_21		17.6	17.3	0.13	49600	1.44	0.03	16.1	19.6	110	72.3	1.3	0.002	0.02	6.95	15.0
YPGC1657_20_21		17.4	1.0	0.03	8580	1.33	0.01	6.1	22.3	210	17.3	1.1	<0.002	0.09	1.50	11.0
YPGC03152_14_15		4.6	1.1	0.04	3270	1.05	0.01	1.4	13.0	180	38.0	1.6	<0.002	0.06	0.48	6.2
YPGC10846_8_9		12.0	8.0	0.11	2230	1.90	0.03	5.5	38.8	410	16.6	16.7	<0.002	0.04	2.00	10.4
YPGC02056_44_45		26.6	2.7	0.03	2650	1.15	0.01	3.7	39.6	710	20.4	0.5	<0.002	0.02	2.35	17.8
YPGC08967_38_39		17.4	24.9	0.04	4820	2.12	0.02	4.4	27.9	80	11.0	10.5	<0.002	0.01	2.58	8.3
YPGC066505_32_33		4.9	3.2	0.02	570	0.72	0.01	0.9	14.4	200	3.8	1.2	<0.002	0.01	0.88	1.8
YPGC02807_58_59		22.1	14.1	0.27	837	1.66	0.04	5.3	54.2	230	16.5	32.7	<0.002	0.34	1.83	9.8
YPGC05415_53_54		13.8	9.3	0.03	2030	1.74	0.01	2.0	36.4	250	8.1	1.4	<0.002	0.02	1.92	7.0
YPGC03152_50_51		6.5	4.5	0.04	1130	1.27	0.01	1.3	16.5	180	5.1	3.2	<0.002	0.02	0.67	3.3
YPRD13687_8_9		28.7	23.3	0.23	2470	1.89	0.07	10.1	70.4	330	21.2	59.8	<0.002	0.04	1.61	16.4
YPRD05790_2-3		5.2	5.8	0.03	904	0.48	0.01	1.0	16.9	80	5.0	1.6	<0.002	0.01	0.93	4.5
YPRD04911_4_5		1.5	3.0	0.03	84	0.55	0.01	0.4	5.3	100	1.0	1.1	<0.002	0.01	0.22	0.7
YPRD10638_26_27		5.9	8.0	0.03	500	0.79	0.01	0.6	8.2	70	1.5	1.8	<0.002	0.01	0.48	1.2
Y219261_38_39		8.6	4.6	0.12	3340	1.07	0.01	2.3	60.8	1030	9.5	0.3	<0.002	0.01	0.80	4.3
TRRD33379_8_9		3.1	3.5	0.05	1220	0.67	0.02	3.0	14.7	100	10.1	1.8	<0.002	0.02	2.16	6.2
TRRD06576_12_13		2.1	5.3	0.02	233	0.75	0.01	0.5	7.2	370	0.7	1.2	<0.002	<0.01	0.22	0.7
TRRD06576_11_12		4.2	3.5	0.02	2490	1.03	0.01	1.1	6.8	60	3.5	1.1	<0.002	0.01	0.66	2.0

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
YPRD06017_26_29		2	4.1	18.5	0.85	0.42	10.9	0.381	0.34	2.7	139	2.7	18.0	12	131.5
TRRD33437_4_5		1	0.4	5.4	0.13	0.27	3.0	0.059	<0.02	0.5	19	1.3	2.3	5	22.9
YPGC01657_8_9		2	2.9	86.4	0.87	0.25	12.6	0.438	0.49	2.2	127	2.2	16.3	91	152.0
YPRD11438_8_9		1	<0.2	3.8	<0.05	0.24	0.7	0.017	0.02	0.8	7	0.9	5.5	15	5.7
YPRD1387_14_15		2	2.0	25.2	0.60	0.28	13.0	0.309	0.27	1.9	125	1.8	11.0	78	114.5
QC2		1	0.2	224	0.07	0.45	0.9	0.028	0.25	2.2	9	1.2	32.4	96	8.7
YPGC02807_38_39		1	0.2	5.4	0.07	0.19	1.6	0.031	0.09	1.1	16	1.3	21.0	27	13.3
YPGC1249_44_45		<1	<0.2	3.6	<0.05	0.06	0.3	0.009	<0.02	0.3	4	1.7	4.2	7	2.6
YPGC02056_8_9		2	1.6	55.9	0.43	0.22	8.0	0.220	0.42	1.7	97	1.6	13.5	125	77.7
YPRD05790_11_12		<1	<0.2	3.2	<0.05	0.09	0.5	0.013	0.08	0.6	14	1.3	7.7	26	5.9
YPRD11438_2_3		2	1.1	9.2	0.52	0.28	7.5	0.236	0.02	1.4	49	1.4	4.5	7	64.5
TRRD33437_2_3		1	0.3	2.9	0.08	0.30	3.1	0.036	<0.02	0.7	15	1.0	1.7	3	19.9
YPRD05790_4_5		<1	0.2	5.3	0.05	0.11	0.8	0.023	<0.02	0.8	9	1.4	6.9	11	7.6
YPGC11249_20_21		2	3.7	100.5	1.34	0.96	44.5	0.554	0.28	3.0	218	3.0	24.5	18	241
YPGC1657_20_21		1	1.3	9.4	0.47	0.52	12.1	0.204	0.06	2.6	69	3.1	7.2	42	97.6
YPGC03152_14_15		2	0.2	7.8	0.08	0.51	1.3	0.034	0.10	1.8	9	0.7	7.3	21	11.4
YPGC10846_8_9		2	1.3	27.0	0.41	0.25	10.9	0.199	0.41	2.0	110	1.7	10.5	68	74.9
YPGC02056_44_45		2	0.8	5.0	0.28	0.40	6.4	0.126	<0.02	3.8	65	4.8	13.4	35	49.3
YPGC08967_38_39		1	1.3	17.8	0.37	0.12	5.6	0.184	0.08	1.3	46	2.2	14.3	14	54.8
YPGC066505_32_33		<1	0.2	2.1	0.06	0.09	0.9	0.025	<0.02	0.5	10	1.8	8.5	15	8.6
YPGC02807_58_59		1	1.7	42.2	0.41	0.26	6.5	0.204	0.46	1.2	83	1.9	13.1	89	72.9
YPGC05415_53_54		1	0.5	5.9	0.15	0.12	2.4	0.072	0.16	1.1	32	1.8	23.3	68	24.4
YPGC03152_50_51		1	0.3	3.7	0.09	0.09	1.4	0.043	0.03	1.0	17	1.5	12.0	19	14.3
YPRD13687_8_9		1	2.6	59.0	0.78	0.19	12.7	0.392	0.76	2.4	127	2.2	26.3	113	127.5
YPRD05790_2-3		<1	0.3	4.3	0.07	0.07	2.3	0.034	0.23	1.1	21	1.3	4.2	8	19.3
YPRD04911_4_5		<1	<0.2	2.6	<0.05	0.05	0.3	0.009	<0.02	0.1	4	1.4	3.0	5	2.8
YPRD10638_26_27		<1	0.3	3.3	<0.05	<0.05	0.6	0.017	<0.02	0.3	6	1.5	6.6	7	6.4
Y219261_38_39		<1	0.4	4.2	0.17	0.16	2.6	0.067	0.02	2.8	26	6.7	24.4	43	25.7
TRRD33379_8_9		1	0.6	15.5	0.20	0.24	2.8	0.099	0.02	0.6	33	1.2	6.4	17	32.9
TRRD06576_12_13		<1	<0.2	1.0	<0.05	0.07	0.3	0.011	<0.02	0.2	3	2.7	6.8	9	3.6
TRRD06576_11_12		1	0.3	3.3	0.06	0.12	0.9	0.030	0.15	0.2	12	1.6	5.8	16	10.5

Comments: This is an amended report. Note amended sample ID for sample YPGC08967_38-39.

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

CERTIFICATE OF ANALYSIS BR12154072

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

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Finalized Date: 11-JUL-2012
Account: ALSENV

QC CERTIFICATE BR12154072

Project: EP1205056

P.O. No.:

This report is for 72 Pulp samples submitted to our lab in Brisbane, QLD, Australia on 5-JUL-2012.

The following have access to data associated with this certificate:

SUB RESULTS		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-XRF21n	Iron Ore by XRF Fusion	XRF
ME-GRA05	H2O/LOI by TGA furnace	TGA
ME-MS61	48 element four acid ICP-MS	

To: **ALS ENVIRONMENTAL**
ATTN: SUB RESULTS
32 SHAND STREET
STAFFORD QLD 4053

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Shaun Kenny, Brisbane Laboratory Manager

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
STANDARDS																
GBM908-10																
GBM908-10																
Target Range - Lower Bound																
Upper Bound																
GEOMS-03																
Target Range - Lower Bound																
Upper Bound																
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08																
MRGeo08																
Target Range - Lower Bound																
Upper Bound																
MW-1		0.30	0.001	<0.001	0.06	0.001	0.185	0.1295	0.002	65.88	0.014	0.04	0.018	0.013	0.083	0.013
MW-1		0.31	0.001	0.001	0.06	0.002	0.184	0.1260	0.002	65.88	0.013	0.03	0.016	0.015	0.084	0.010
Target Range - Lower Bound		0.29	<0.001	<0.001	0.04	<0.001	0.176	0.1230	<0.001	65.41	0.012	<0.01	0.015	<0.005	0.081	0.009
Upper Bound		0.31	0.003	0.003	0.07	0.003	0.197	0.1370	0.004	66.75	0.015	0.05	0.018	0.025	0.092	0.013
OGGeo08																
Target Range - Lower Bound																
Upper Bound																
SARM-12		0.79	<0.001	0.001	1.12	0.011	0.023	0.0027	0.048	66.53	0.012	2.85	0.172	0.013	0.029	0.045
Target Range - Lower Bound		0.75	<0.001	<0.001	1.07	0.009	0.021	0.0018	0.045	65.98	0.011	2.76	0.165	<0.005	0.026	0.044
Upper Bound		0.79	0.003	0.005	1.11	0.013	0.025	0.0042	0.051	67.33	0.015	2.84	0.174	0.022	0.031	0.051
SARM-39		4.22	<0.001	0.174	9.70	0.038	0.007	0.1930	0.006	6.56	1.070	26.2	0.128	0.636	0.097	0.639
SARM-39		4.22	<0.001	0.172	9.69	0.032	0.006	0.1905	0.007	6.56	1.070	26.3	0.127	0.653	0.098	0.631
Target Range - Lower Bound		4.24	<0.001	0.166	9.58	0.032	0.006	0.1800	0.005	6.42	1.010	25.9	0.128	0.584	0.094	0.604
Upper Bound		4.34	0.004	0.175	9.80	0.038	0.010	0.200	0.009	6.57	1.070	26.5	0.135	0.656	0.106	0.670

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
STANDARDS																
GBM908-10													2.94	6.60	58.8	980
GBM908-10													2.88	6.60	55.4	990
Target Range - Lower Bound													2.69	6.40	49.3	930
Upper Bound													3.31	7.84	60.7	1280
GEOMS-03													0.73	4.76	595	2340
Target Range - Lower Bound													0.67	4.61	570	2060
Upper Bound													0.85	5.65	697	2610
LAT-CS9												12.63				
LAT-CS9												12.73				
LAT-CS9												13.03				
LAT-CS9												12.70				
LAT-CS9												12.53				
Target Range - Lower Bound												12.34				
Upper Bound												13.12				
MRGeo08													4.34	7.10	34.4	1010
MRGeo08													4.29	6.61	30.9	960
Target Range - Lower Bound													4.16	7.00	29.7	920
Upper Bound													5.10	8.57	36.7	1270
MW-1		0.002	0.009	4.62	0.002	0.001	0.14	0.005	<0.001	0.003	100.00					
MW-1		<0.001	0.007	4.65	0.002	<0.001	0.13	0.004	<0.001	0.002	100.00					
Target Range - Lower Bound		<0.001	0.009	4.54	<0.001	<0.001	0.11	<0.001	<0.001	<0.001	<0.01					
Upper Bound		0.003	0.013	4.66	0.003	0.003	0.15	0.005	0.004	0.003	0.02					
OGGeo08													19.65	6.59	123.0	870
Target Range - Lower Bound													18.35	6.24	108.5	590
Upper Bound													22.5	7.64	133.5	830
SARM-12		0.005	0.069	0.34	0.003	0.013	0.74	0.053	0.017	0.008	100.00					
Target Range - Lower Bound		0.002	0.065	0.33	<0.001	0.011	0.70	0.048	0.012	0.005	<0.01					
Upper Bound		0.006	0.074	0.35	0.004	0.015	0.74	0.056	0.016	0.009	0.02					
SARM-39		0.002	0.306	33.5	0.001	0.148	1.58	0.012	0.006	0.024	99.98					
SARM-39		0.002	0.305	33.4	0.001	0.147	1.60	0.011	0.006	0.026	99.97					
Target Range - Lower Bound		<0.001	0.287	33.1	<0.001	0.136	1.54	0.009	0.005	0.022	<0.01					
Upper Bound		0.004	0.320	33.7	0.003	0.152	1.62	0.013	0.009	0.026	0.02					

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
STANDARDS																
GBM908-10		1.41	1.34	3.71	1.71	110.5	25.5	132	3.82	3600	5.53	21.2	0.21	3.5	0.073	2.07
GBM908-10		1.42	1.50	3.74	1.65	102.0	25.3	131	3.58	3600	5.57	20.2	0.28	3.6	0.074	2.08
Target Range - Lower Bound		1.19	1.09	3.33	1.52	99.0	21.5	116	3.37	3270	5.21	18.65	0.18	3.2	0.064	1.86
Upper Bound		1.57	1.35	4.10	1.90	121.0	26.5	146	4.23	3990	6.39	22.9	0.40	4.1	0.092	2.29
GEOMS-03		1.51	0.37	0.40	0.33	53.0	12.1	113	10.10	137.5	4.26	13.65	0.17	1.9	0.048	1.14
Target Range - Lower Bound		1.34	0.31	0.33	0.30	47.0	10.7	105	9.04	120.5	3.64	12.00	0.06	1.1	0.032	1.03
Upper Bound		1.74	0.41	0.43	0.42	57.4	13.3	131	11.15	147.5	4.48	14.75	0.28	1.7	0.056	1.29
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		3.09	0.67	2.68	2.21	74.2	19.1	82	12.45	646	4.06	20.0	0.14	3.2	0.174	3.15
MRGeo08		3.15	0.63	2.55	2.05	63.1	18.9	84	11.35	624	3.85	18.35	0.23	3.1	0.162	3.05
Target Range - Lower Bound		2.80	0.63	2.65	2.01	72.9	18.4	82	11.00	568	3.61	17.50	<0.05	2.8	0.161	2.79
Upper Bound		3.54	0.79	2.90	2.50	89.1	22.8	102	13.60	694	4.43	21.5	0.27	3.6	0.207	3.43
MW-1																
MW-1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		3.01	10.30	2.23	19.05	72.7	95.2	80	10.80	8450	5.51	17.50	0.39	3.0	1.425	2.94
Target Range - Lower Bound		2.59	9.89	1.98	18.05	64.8	83.6	78	9.85	7550	4.89	16.05	0.25	2.5	1.320	2.59
Upper Bound		3.27	12.10	2.44	22.1	79.2	102.5	98	12.15	9230	5.99	19.75	0.49	3.3	1.620	3.19
SARM-12																
Target Range - Lower Bound																
Upper Bound																
SARM-39																
SARM-39																
Target Range - Lower Bound																
Upper Bound																

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1
STANDARDS																
GBM908-10		57.1	10.9	1.77	751	60.1	2.10	10.9	2080	910	1920	175.0	0.002	0.34	1.60	19.1
GBM908-10		53.0	11.2	1.79	757	61.5	2.10	11.2	2080	930	1930	157.5	<0.002	0.35	1.72	18.5
Target Range = Lower Bound		49.0	5.5	1.59	704	57.9	2.02	9.3	2030	870	1860	153.0	<0.002	0.33	1.30	17.0
Upper Bound		61.0	7.2	1.97	871	70.9	2.50	11.6	2480	1090	2270	187.0	0.006	0.43	1.88	21.0
GEOMS-03		29.4	39.9	0.52	509	3.50	0.08	16.0	53.5	1040	5.5	67.9	0.003	0.03	18.45	14.1
Target Range = Lower Bound		25.6	37.6	0.48	483	3.05	0.06	13.1	48.1	970	5.5	55.7	<0.002	0.02	15.85	12.4
Upper Bound		32.4	46.4	0.60	601	3.83	0.11	16.3	59.3	1210	8.2	68.3	0.006	0.05	21.5	15.4
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
LAT-CS9																
Target Range = Lower Bound																
Upper Bound																
MRGeo08		36.2	32.1	1.35	548	15.80	1.97	22.3	682	1000	1050	191.5	0.009	0.29	4.55	12.4
MRGeo08		30.4	32.4	1.28	523	15.30	1.90	21.4	669	950	1010	174.0	0.008	0.28	4.24	11.2
Target Range = Lower Bound		36.3	30.4	1.24	506	13.65	1.76	19.3	617	910	965	187.0	0.006	0.27	4.08	11.0
Upper Bound		45.5	37.6	1.54	630	16.75	2.18	23.8	755	1140	1130	229	0.016	0.35	5.64	13.6
MW-1																
MW-1																
Target Range = Lower Bound																
Upper Bound																
OGGeo08		37.0	31.3	1.28	486	942	1.80	17.8	8360	800	7040	205	1.385	2.64	26.2	10.8
Target Range = Lower Bound		31.0	30.0	1.08	447	841	1.62	17.9	8020	760	6520	171.0	1.285	2.58	23.6	9.2
Upper Bound		39.0	37.2	1.34	557	1030	2.00	22.1	9800	950	7960	209	1.575	3.18	32.0	11.4
SARM-12																
Target Range = Lower Bound																
Upper Bound																
SARM-39																
SARM-39																
Target Range = Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
STANDARDS															
GBM908-10		1	3.0	267	0.81	0.06	19.3	0.605	1.16	2.3	132	3.2	38.0	985	136.5
GBM908-10		1	3.0	266	0.72	0.07	17.2	0.605	1.15	2.3	133	3.3	37.6	980	136.5
Target Range - Lower Bound		<1	2.5	258	0.68	<0.05	16.9	0.591	1.00	2.0	123	2.7	36.2	969	109.0
Upper Bound		4	3.6	316	0.97	0.16	21.1	0.783	1.40	2.6	153	3.9	44.5	1155	148.5
GEOMS-03		2	2.5	167.0	0.99	0.16	7.4	0.433	1.21	3.9	106	22.7	24.2	44	69.5
Target Range - Lower Bound		<1	2.0	157.5	0.80	<0.05	6.2	0.409	0.99	3.1	104	19.3	19.8	40	44.0
Upper Bound		5	3.0	192.5	1.10	0.24	8.0	0.511	1.39	4.0	130	26.4	24.4	54	60.8
LAT-CS9															
LAT-CS9															
LAT-CS9															
LAT-CS9															
LAT-CS9															
Target Range - Lower Bound															
Upper Bound															
MRGeo08		2	4.0	286	1.56	<0.05	19.5	0.465	1.02	5.5	106	4.8	26.8	766	111.5
MRGeo08		1	3.8	270	1.50	0.05	17.6	0.449	0.99	4.9	102	4.7	24.3	736	105.0
Target Range - Lower Bound		<1	3.5	272	1.48	<0.05	19.2	0.454	0.87	5.6	99	4.3	24.3	712	92.2
Upper Bound		4	4.7	332	1.92	0.15	23.9	0.565	1.23	7.0	123	6.1	29.9	874	126.0
MW-1															
MW-1															
Target Range - Lower Bound															
Upper Bound															
OGGeo08		11	13.5	239	1.30	0.21	19.6	0.373	1.59	5.3	83	4.5	23.7	6940	104.0
Target Range - Lower Bound		8	12.9	219	1.19	0.09	16.7	0.364	1.43	4.9	77	4.0	21.1	6410	87.1
Upper Bound		14	16.3	268	1.57	0.31	20.9	0.456	1.98	6.3	97	5.6	26.1	7630	119.0
SARM-12															
Target Range - Lower Bound															
Upper Bound															
SARM-39															
SARM-39															
Target Range - Lower Bound															
Upper Bound															

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
BLANKS																
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		0.10	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.26	0.002	<0.01	<0.001	<0.005	<0.001	<0.001
BLANK		0.10	<0.001	<0.001	<0.01	0.001	<0.001	<0.0006	<0.001	0.26	0.002	<0.01	<0.001	<0.005	<0.001	<0.001
BLANK		0.12	<0.001	<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	0.26	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Target Range - Lower Bound		<0.01		<0.001	<0.01	<0.001	<0.001	<0.0006	<0.001	<0.01	<0.001	<0.01	<0.001	<0.005	<0.001	<0.001
Upper Bound		0.02		0.002	0.02	0.002	0.002	0.0012	0.002	0.02	0.002	0.02	0.002	0.010	0.002	0.002
DUPLICATES																
YPRD11438_26_27																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGCO3152_32-33		2.97	0.001	0.070	0.05	<0.001	0.016	0.0046	0.002	38.06	0.845	0.03	20.4	0.077	0.003	0.132
DUP		2.95	0.002	0.068	0.05	<0.001	0.016	0.0047	0.003	38.11	0.844	0.03	20.5	0.085	0.002	0.134
Target Range - Lower Bound		2.94	<0.001	0.067	0.04	<0.001	0.015	0.0039	<0.001	37.88	0.831	0.02	20.2	0.074	<0.001	0.129
Upper Bound		2.98	0.002	0.071	0.06	0.002	0.017	0.0054	0.004	38.29	0.858	0.04	20.7	0.088	0.004	0.137
YPGC06879_38_39																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC02056_26_27																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC066505_14_15		2.74	0.002	0.037	0.05	0.003	0.002	0.0069	0.001	58.80	0.171	0.15	1.800	0.007	<0.001	0.017
DUP		2.71	0.003	0.034	0.04	0.002	0.002	0.0075	<0.001	58.86	0.172	0.14	1.805	<0.005	<0.001	0.016
Target Range - Lower Bound		2.70	<0.001	0.034	0.03	<0.001	<0.001	0.0054	<0.001	58.53	0.168	0.13	1.785	<0.005	<0.001	0.015
Upper Bound		2.75	0.004	0.037	0.05	0.004	0.003	0.0090	0.002	59.13	0.175	0.16	1.820	0.010	0.002	0.018

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
BLANKS																
BLANK													<0.01	<0.01	<0.2	<10
BLANK													<0.01	<0.01	0.2	<10
BLANK													<0.01	<0.01	<0.2	<10
Target Range - Lower Bound													<0.01	<0.01	<0.2	<10
Upper Bound													0.02	0.02	0.4	20
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.00					
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.00					
BLANK		<0.001	<0.001	99.5	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	100.05					
Target Range - Lower Bound			<0.001	<0.01	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001						
Upper Bound			0.002	0.02	0.002	0.002	0.02	0.002	0.002	0.002						
DUPLICATES																
YPRD11438_26_27													0.05	0.26	3.9	20
DUP													0.04	0.28	4.1	20
Target Range - Lower Bound													0.03	0.25	3.6	<10
Upper Bound													0.06	0.29	4.4	30
YPGCO3152_32-33		<0.001	0.023	1.92	<0.001	0.015	0.14	0.003	0.008	0.004	99.56	10.32				
DUP		<0.001	0.023	1.88	0.001	0.015	0.14	0.003	0.008	0.004	99.79	10.20				
Target Range - Lower Bound		<0.001	0.021	1.88	<0.001	0.014	0.13	0.002	0.007	0.003	98.67	9.99				
Upper Bound		0.002	0.025	1.92	0.002	0.016	0.15	0.004	0.009	0.005	100.70	10.53				
YPGC06879_38_39													0.11	0.74	16.4	20
DUP													0.09	0.76	17.2	20
Target Range - Lower Bound													0.09	0.70	15.8	<10
Upper Bound													0.12	0.80	17.8	30
YPGC02056_26_27												6.58				
DUP												6.61				
Target Range - Lower Bound												6.42				
Upper Bound												6.77				
YPGC066505_14_15		<0.001	0.039	4.79	0.001	0.003	0.11	0.003	0.002	0.002	100.00					
DUP		<0.001	0.039	4.74	<0.001	0.002	0.11	0.002	0.001	0.002	100.00					
Target Range - Lower Bound		<0.001	0.037	4.73	<0.001	<0.001	0.10	<0.001	<0.001	<0.001	98.99					
Upper Bound		0.002	0.041	4.80	0.002	0.004	0.12	0.004	0.002	0.003	101.00					

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K
	Units	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%
	LOR	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005	0.01
BLANKS																
BLANK		<0.05	0.02	<0.01	<0.02	<0.01	<0.1	<1	<0.05	0.3	0.01	<0.05	<0.05	<0.1	<0.005	<0.01
BLANK		<0.05	0.01	<0.01	<0.02	<0.01	<0.1	1	<0.05	<0.2	0.01	<0.05	<0.05	<0.1	<0.005	<0.01
BLANK		<0.05	0.01	<0.01	<0.02	<0.01	<0.1	1	<0.05	<0.2	0.01	0.10	0.08	<0.1	<0.005	<0.01
Target Range - Lower Bound		<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	<0.2	<0.01	<0.05	<0.05	<0.1	<0.005	<0.01
Upper Bound		0.10	0.02	0.02	0.04	0.02	0.2	2	0.10	0.4	0.02	0.10	0.10	0.2	0.010	0.02
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
YPRD11438_26_27		0.36	0.05	0.02	0.05	18.00	2.6	47	0.07	2.3	31.1	0.85	0.31	0.1	0.005	0.02
DUP		0.43	0.06	0.02	0.04	18.50	2.9	52	0.06	3.1	32.0	0.99	0.38	0.1	<0.005	0.02
Target Range - Lower Bound		0.33	0.04	<0.01	<0.02	17.35	2.5	46	<0.05	2.4	30.0	0.92	0.28	<0.1	<0.005	<0.01
Upper Bound		0.46	0.07	0.03	0.07	19.15	3.0	53	0.10	3.0	33.1	1.02	0.41	0.2	0.010	0.03
YPGC03152_32-33																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC06879_38_39		1.46	0.07	0.01	0.07	19.85	4.9	27	<0.05	9.0	>50	2.00	2.11	0.3	0.009	0.01
DUP		1.50	0.07	0.01	0.07	20.6	5.0	30	<0.05	9.5	>50	2.09	2.62	0.3	0.007	0.01
Target Range - Lower Bound		1.36	0.06	<0.01	0.05	19.20	4.6	26	<0.05	8.6	47.5	1.89	2.20	0.2	<0.005	<0.01
Upper Bound		1.60	0.08	0.02	0.09	21.2	5.3	31	0.10	9.9	50.0	2.20	2.56	0.4	0.010	0.02
YPGC02056_26_27																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC066505_14_15																
DUP																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
BLANKS																
BLANK		<0.5	<0.2	<0.01	<5	0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	0.1
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	<0.1
BLANK		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	0.1	<0.002	<0.01	<0.05	<0.1
Target Range = Lower Bound		<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05	<0.1
Upper Bound		1.0	0.4	0.02	10	0.10	0.02	0.2	0.4	20	1.0	0.2	0.004	0.02	0.10	0.2
BLANK																
BLANK																
BLANK																
Target Range = Lower Bound																
Upper Bound																
DUPLICATES																
YPRD11438_26_27		4.7	1.7	0.02	4110	0.98	0.01	0.5	9.6	580	2.0	0.8	<0.002	<0.01	0.28	0.9
DUP		4.7	2.2	0.02	4450	1.00	0.01	0.5	9.7	590	1.6	0.8	<0.002	<0.01	0.30	0.9
Target Range = Lower Bound		4.0	1.7	<0.01	4060	0.89	<0.01	0.4	9.0	550	1.2	0.7	<0.002	<0.01	0.22	0.8
Upper Bound		5.4	2.2	0.03	4500	1.09	0.02	0.6	10.3	620	2.4	0.9	0.004	0.02	0.36	1.0
YPGCO3152_32-33																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGCO6879_38_39		12.1	1.4	0.03	556	0.63	<0.01	1.3	53.5	750	6.4	0.1	0.002	0.01	0.84	4.8
DUP		12.5	1.5	0.03	569	0.69	<0.01	1.3	56.2	770	6.1	0.2	<0.002	0.01	0.83	5.0
Target Range = Lower Bound		11.2	1.2	0.02	529	0.58	<0.01	1.1	51.9	710	5.4	<0.1	<0.002	<0.01	0.72	4.6
Upper Bound		13.4	1.7	0.04	596	0.74	0.02	1.5	57.8	810	7.1	0.2	0.004	0.02	0.95	5.2
YPGCO2056_26_27																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGCO66505_14_15																
DUP																
Target Range = Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
BLANKS															
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	0.02	<0.1	<1	0.2	<0.1	<2	<0.5
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
BLANK		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Target Range - Lower Bound		<1	<0.2	<0.2	<0.05	<0.05	<0.2	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Upper Bound		5	0.4	0.4	0.10	0.10	0.4	0.010	0.04	0.2	2	0.2	0.2	4	1.0
BLANK															
BLANK															
BLANK															
Target Range - Lower Bound															
Upper Bound															
DUPLICATES															
YPRD11438_26_27		<1	<0.2	4.9	<0.05	<0.05	0.4	0.010	<0.02	0.3	4	2.2	5.6	17	3.5
DUP		<1	<0.2	5.0	<0.05	0.05	0.4	0.011	<0.02	0.4	3	2.2	5.8	18	3.6
Target Range - Lower Bound		<1	<0.2	4.5	<0.05	<0.05	<0.2	<0.005	<0.02	0.2	2	1.9	5.3	15	2.9
Upper Bound		2	0.4	5.4	0.10	0.10	0.6	0.016	0.04	0.5	5	2.5	6.1	20	4.2
YPGC03152_32-33															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPGC06879_38_39		1	0.3	1.1	0.07	0.13	1.2	0.021	<0.02	2.3	12	0.8	21.2	56	9.9
DUP		1	0.3	1.1	0.06	0.13	1.2	0.022	<0.02	2.4	13	1.0	22.0	56	10.2
Target Range - Lower Bound		<1	<0.2	0.8	<0.05	0.07	0.9	0.015	<0.02	2.1	11	0.7	20.4	51	9.0
Upper Bound		2	0.4	1.4	0.10	0.19	1.5	0.028	0.04	2.6	14	1.1	22.8	61	11.1
YPGC02056_26_27															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPGC066505_14_15															
DUP															
Target Range - Lower Bound															
Upper Bound															

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-XRF21n Al2O3 % 0.01	ME-XRF21n As % 0.001	ME-XRF21n Ba % 0.001	ME-XRF21n CaO % 0.01	ME-XRF21n Cl % 0.001	ME-XRF21n Co % 0.001	ME-XRF21n Cr2O3 % 0.0006	ME-XRF21n Cu % 0.001	ME-XRF21n Fe % 0.01	ME-XRF21n K2O % 0.001	ME-XRF21n MgO % 0.01	ME-XRF21n Mn % 0.001	ME-XRF21n Na2O % 0.005	ME-XRF21n Ni % 0.001	ME-XRF21n P % 0.001
		DUPLICATES														
YPRD06017_26_29	DUP															
	Target Range = Lower Bound															
	Upper Bound															
YPRD11438_8_9	DUP															
	Target Range = Lower Bound															
	Upper Bound															
YPGC02807_58_59	DUP															
	Target Range = Lower Bound															
	Upper Bound															
TRRD06576_11_12	DUP	1.06	0.001	0.005	<0.01	0.001	0.002	0.0170	<0.001	22.00	0.022	0.01	0.244	<0.005	<0.001	0.006
	DUP	1.06	0.002	0.005	<0.01	0.001	0.002	0.0184	<0.001	22.01	0.024	0.02	0.249	<0.005	<0.001	0.005
	Target Range = Lower Bound	1.04	<0.001	0.004	<0.01	<0.001	<0.001	0.0167	<0.001	21.88	0.022	<0.01	0.243	<0.005	<0.001	0.004
	Upper Bound	1.08	0.002	0.006	0.02	0.002	0.003	0.0187	0.002	22.13	0.024	0.02	0.250	0.010	0.002	0.007
YPGC00027_2_3	DUP															
	Target Range = Lower Bound															
	Upper Bound															
TRRD33379_4_5	DUP															
	Target Range = Lower Bound															
	Upper Bound															
QC9	DUP															
	Target Range = Lower Bound															
	Upper Bound															
YPGCO0576_32_33	DUP	0.79	0.001	0.002	0.02	0.002	<0.001	0.0084	0.002	44.19	0.015	0.02	0.150	<0.005	0.001	0.072
	DUP	0.79	0.001	0.004	0.02	0.003	<0.001	0.0145	0.002	44.20	0.016	0.02	0.148	<0.005	0.001	0.071
	Target Range = Lower Bound	0.78	<0.001	0.002	<0.01	<0.001	<0.001	0.0106	<0.001	43.96	0.014	<0.01	0.147	<0.005	<0.001	0.069
	Upper Bound	0.80	0.002	0.004	0.03	0.004	0.002	0.0123	0.003	44.43	0.017	0.03	0.151	0.010	0.002	0.074

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
DUPLICATES																
YPRD06017_26_29													0.19	5.08	204	120
DUP													0.16	5.11	202	130
Target Range - Lower Bound													0.16	4.83	192.5	110
Upper Bound													0.19	5.36	213	140
YPRD11438_8_9												9.78				
DUP												9.73				
Target Range - Lower Bound												9.50				
Upper Bound												10.01				
YPGC02807_58_59												5.19	0.14	3.74	27.0	200
DUP												5.43	0.13	3.53	25.8	200
Target Range - Lower Bound												5.17	0.12	3.44	24.9	180
Upper Bound												5.45	0.15	3.83	27.9	230
TRRD06576_11_12		<0.001	0.009	65.3	<0.001	<0.001	0.06	0.002	<0.001	<0.001	99.95					
DUP		<0.001	0.009	65.3	0.002	<0.001	0.06	0.002	<0.001	<0.001	99.99					
Target Range - Lower Bound		<0.001	0.008	65.0	<0.001	<0.001	0.05	<0.001	<0.001	<0.001	98.96					
Upper Bound		0.002	0.010	65.6	0.002	0.002	0.07	0.003	0.002	0.002	101.00					
YPGC00027_2_3													0.12	2.04	38.5	140
DUP													0.12	2.01	34.5	140
Target Range - Lower Bound													0.10	1.91	34.5	120
Upper Bound													0.14	2.14	38.5	160
TRRD33379_4_5												7.93				
DUP												7.92				
Target Range - Lower Bound												7.72				
Upper Bound												8.13				
QC9													0.06	2.59	20.8	20
DUP													0.06	2.71	21.1	20
Target Range - Lower Bound													0.05	2.51	19.7	<10
Upper Bound													0.07	2.79	22.2	30
YPGCO0576_32_33		<0.001	0.009	29.2	0.001	0.005	0.04	0.002	0.002	0.004	99.99					
DUP		0.001	0.008	29.2	0.001	0.004	0.04	0.001	0.001	0.004	100.00					
Target Range - Lower Bound		<0.001	0.007	29.0	<0.001	0.003	0.03	<0.001	<0.001	0.003	98.99					
Upper Bound		0.002	0.010	29.4	0.002	0.006	0.05	0.002	0.002	0.005	101.00					

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
DUPLICATES																
YPRD06017_26_29		0.95	0.86	0.07	0.03	40.8	5.9	151	6.52	34.6	17.45	19.55	0.48	3.6	0.092	2.28
DUP		1.09	0.88	0.07	0.03	41.2	5.9	150	6.54	33.7	17.60	19.20	0.29	3.7	0.095	2.30
Target Range = Lower Bound		0.92	0.82	0.06	<0.02	38.9	5.5	142	6.15	32.2	16.65	18.35	0.32	3.4	0.084	2.17
Upper Bound		1.12	0.92	0.08	0.04	43.1	6.3	159	6.91	36.1	18.40	20.4	0.45	3.9	0.103	2.41
YPRD11438_8_9																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGC02807_58_59		1.26	0.30	0.12	0.10	38.6	11.8	179	2.45	46.8	16.95	10.90	0.26	2.0	0.094	0.66
DUP		1.18	0.29	0.12	0.11	41.1	11.5	172	2.32	45.9	15.85	10.55	0.24	1.9	0.086	0.63
Target Range = Lower Bound		1.11	0.27	0.10	0.08	37.8	11.0	166	2.22	43.8	15.55	10.15	0.19	1.8	0.081	0.60
Upper Bound		1.33	0.32	0.14	0.13	41.9	12.3	185	2.55	48.9	17.25	11.30	0.31	2.1	0.100	0.69
TRRD06576_11_12																
DUP																
Target Range = Lower Bound																
Upper Bound																
YPGC00027_2_3		1.07	0.18	0.07	0.15	23.2	10.2	110	1.25	39.6	24.1	6.83	0.38	1.2	0.063	0.41
DUP		1.11	0.18	0.06	0.14	29.6	10.2	111	1.20	38.8	23.7	6.72	0.41	1.1	0.067	0.40
Target Range = Lower Bound		0.99	0.16	0.05	0.12	25.1	9.6	104	1.11	37.0	22.7	6.39	0.33	1.0	0.057	0.37
Upper Bound		1.19	0.20	0.08	0.17	27.7	10.8	117	1.34	41.4	25.1	7.16	0.46	1.3	0.073	0.44
TRRD33379_4_5																
DUP																
Target Range = Lower Bound																
Upper Bound																
QC9		0.48	0.21	0.08	0.04	6.99	4.6	54	0.18	9.7	46.3	6.53	3.01	1.8	0.035	0.01
DUP		0.49	0.22	0.08	0.06	7.18	4.5	57	0.18	10.2	48.6	6.31	2.87	1.9	0.040	0.02
Target Range = Lower Bound		0.41	0.19	0.07	0.03	6.72	4.2	52	0.12	9.3	45.1	6.05	2.74	1.7	0.031	<0.01
Upper Bound		0.56	0.24	0.09	0.07	7.45	4.9	59	0.24	10.6	49.8	6.79	3.14	2.0	0.044	0.02
YPGC00576_32_33																
DUP																
Target Range = Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Sc ppm 0.1
							DUPLICATES									
YPRD06017_26_29		21.2	8.5	0.49	1690	3.37	0.04	10.5	22.6	90	40.7	80.9	<0.002	0.02	8.13	15.8
DUP		21.4	8.9	0.49	1640	3.36	0.04	10.5	22.7	90	42.7	80.2	<0.002	0.02	8.24	16.2
Target Range - Lower Bound		19.7	8.1	0.46	1575	3.15	0.03	9.9	21.3	80	39.1	76.4	<0.002	<0.01	7.52	15.1
Upper Bound		22.9	9.3	0.52	1755	3.58	0.05	11.1	24.0	100	44.3	84.7	0.004	0.03	8.85	16.9
YPRD11438_8_9																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC02807_58_59		22.1	14.1	0.27	837	1.66	0.04	5.3	54.2	230	16.5	32.7	<0.002	0.34	1.83	9.8
DUP		19.4	13.6	0.25	848	1.81	0.04	4.9	52.6	220	17.4	31.7	<0.002	0.32	1.72	9.5
Target Range - Lower Bound		19.2	13.0	0.24	795	1.60	0.03	4.7	50.5	200	15.6	30.5	<0.002	0.30	1.59	9.1
Upper Bound		22.3	14.7	0.28	890	1.87	0.05	5.5	56.3	250	18.3	33.9	0.004	0.36	1.96	10.2
TRRD06576_11_12																
DUP																
Target Range - Lower Bound																
Upper Bound																
YPGC00027_2_3		11.3	7.8	0.12	1160	1.55	0.03	3.3	49.6	250	13.3	15.9	<0.002	0.26	2.35	6.9
DUP		14.2	8.3	0.12	1170	1.51	0.03	3.2	48.6	250	13.3	15.4	<0.002	0.25	2.26	6.8
Target Range - Lower Bound		11.6	7.4	0.10	1100	1.40	0.02	3.0	46.4	230	12.1	14.8	<0.002	0.23	2.08	6.4
Upper Bound		13.9	8.7	0.14	1230	1.66	0.04	3.5	51.8	270	14.5	16.5	0.004	0.28	2.53	7.3
TRRD33379_4_5																
DUP																
Target Range - Lower Bound																
Upper Bound																
QC9		1.3	1.3	0.05	689	0.90	0.01	2.9	15.1	200	9.6	0.7	<0.002	0.09	1.59	6.6
DUP		1.3	1.4	0.05	689	0.94	0.01	3.1	15.5	220	9.9	0.8	<0.002	0.10	1.69	6.7
Target Range - Lower Bound		0.7	1.1	0.04	650	0.82	<0.01	2.8	14.3	190	8.8	0.6	<0.002	0.08	1.47	6.2
Upper Bound		1.9	1.6	0.06	728	1.02	0.02	3.3	16.3	230	10.7	0.9	0.004	0.11	1.81	7.1
YPGCO0576_32_33																
DUP																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
	Units	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	1	0.2	0.2	0.05	0.05	0.2	0.005	0.02	0.1	1	0.1	0.1	2	0.5
DUPLICATES															
YPRD06017_26_29		2	4.1	18.5	0.85	0.42	10.9	0.381	0.34	2.7	139	2.7	18.0	12	131.5
DUP		2	4.2	18.2	0.87	0.52	11.3	0.382	0.37	2.8	140	2.6	18.0	12	132.5
Target Range - Lower Bound		<1	3.7	17.2	0.77	0.40	10.3	0.357	0.31	2.5	132	2.4	17.0	9	125.0
Upper Bound		3	4.6	19.5	0.95	0.54	11.9	0.406	0.40	3.0	147	2.9	19.0	15	139.0
YPRD11438_8_9															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPGC02807_58_59		1	1.7	42.2	0.41	0.26	6.5	0.204	0.46	1.2	83	1.9	13.1	89	72.9
DUP		1	1.6	40.7	0.39	0.23	6.3	0.192	0.44	1.2	80	1.8	13.0	85	71.0
Target Range - Lower Bound		<1	1.4	39.2	0.33	0.18	5.9	0.183	0.40	1.0	76	1.6	12.3	81	67.9
Upper Bound		2	1.9	43.7	0.47	0.31	6.9	0.213	0.50	1.4	87	2.1	13.8	93	76.0
TRRD06576_11_12															
DUP															
Target Range - Lower Bound															
Upper Bound															
YPGC00027_2_3		1	0.9	24.9	0.23	0.23	3.9	0.115	0.44	0.9	74	1.0	11.2	109	43.4
DUP		1	0.9	25.0	0.23	0.19	4.1	0.113	0.47	0.9	74	1.2	10.9	112	42.3
Target Range - Lower Bound		<1	0.7	23.5	0.17	0.15	3.6	0.103	0.40	0.8	69	0.9	10.4	103	40.2
Upper Bound		2	1.1	26.4	0.29	0.27	4.4	0.125	0.51	1.0	79	1.3	11.7	118	45.5
TRRD33379_4_5															
DUP															
Target Range - Lower Bound															
Upper Bound															
QC9		2	0.6	4.9	0.20	0.52	8.7	0.075	<0.02	2.5	39	1.4	3.5	36	66.5
DUP		2	0.6	5.1	0.20	0.49	8.9	0.079	<0.02	2.6	39	1.3	3.7	39	68.0
Target Range - Lower Bound		<1	0.4	4.6	0.14	0.43	8.2	0.068	<0.02	2.3	36	1.1	3.3	34	63.4
Upper Bound		3	0.8	5.5	0.26	0.58	9.4	0.086	0.04	2.8	42	1.6	3.9	41	71.1
YPGC00576_32_33															
DUP															
Target Range - Lower Bound															
Upper Bound															

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QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n
	Analyte	Al2O3	As	Ba	CaO	Cl	Co	Cr2O3	Cu	Fe	K2O	MgO	Mn	Na2O	Ni	P
	Units	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	LOR	0.01	0.001	0.001	0.01	0.001	0.001	0.0006	0.001	0.01	0.001	0.01	0.001	0.005	0.001	0.001
DUPLICATES																
QC4		4.56	0.004	0.009	0.10	0.026	0.001	0.0286	0.004	17.47	0.328	0.20	0.118	0.026	0.002	0.017
DUP		4.55	0.005	0.012	0.11	0.024	0.001	0.0267	0.003	17.50	0.334	0.22	0.120	0.030	0.002	0.017
Target Range = Lower Bound		4.52	0.003	0.009	0.09	0.023	<0.001	0.0264	0.002	17.39	0.325	0.20	0.117	0.022	<0.001	0.016
Upper Bound		4.59	0.006	0.012	0.12	0.027	0.002	0.0289	0.005	17.58	0.337	0.22	0.121	0.034	0.003	0.018

***** See Appendix Page for comments regarding this certificate *****

Australian Laboratory Services Pty. Ltd.
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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-XRF21n	ME-GRA05	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Pb	S	SiO2	Sn	Sr	TiO2	V	Zn	Zr	Total	LOI	Ag	Al	As	Ba
	Units	%	%	%	%	%	%	%	%	%	%	%	ppm	%	ppm	ppm
	LOR	0.001	0.001	0.01	0.001	0.001	0.01	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.2	10
DUPLICATES																
QC4		0.003	0.051	65.9	0.002	0.002	0.21	0.008	0.006	0.007	99.96					
DUP		0.002	0.050	65.9	0.001	0.002	0.21	0.008	0.006	0.007	100.00					
Target Range - Lower Bound		<0.001	0.048	65.6	<0.001	<0.001	0.20	0.007	0.005	0.006	98.97					
Upper Bound		0.004	0.053	66.2	0.002	0.003	0.22	0.009	0.007	0.008	101.00					

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01
	DUPLICATES															
QC4 DUP																
Target Range - Lower Bound																
Upper Bound																

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc
	Units	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
	LOR	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1
DUPLICATES																
QC4																
DUP																
Target Range - Lower Bound																
Upper Bound																

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Sample Description	Method / Analyte / Units / LOR	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
DUPLICATES															
QC4															
DUP															
Target Range - Lower Bound															
Upper Bound															

***** See Appendix Page for comments regarding this certificate *****

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Project: EP1205056

QC CERTIFICATE OF ANALYSIS BR12154072

Method	CERTIFICATE COMMENTS
ME-MS61	REE's may not be totally soluble in this method.

B

Appendix B Analytical Data Validation

DATA VALIDATION REPORT

Project number:	42908001	**Data verified by:**	Toby Foong	Date:	3/08/12
Client:	Fortescue Metals Group Ltd				
Site:	Christmas Creek				
Matrix type:	Waste Rock, Leachate	**Validation by:**	Rebekah Farrant	Date:	3/06/14
Primary samples:	EP1204221 (28 Waste Rock, 28 Waste Rock Leachate, 1 Tailings, 1 Tailings Leachate, 1 Tailings Liquid) EP1205051 (52 Waste Rock, 52 Leachate) EP1205053 (41 Waste Rock, 41 Leachate) EP1205056 (69 Waste Rock, 69 Leachate)				
Laboratory:	ALS Perth				
Lab reference:	EP1204221 EP1205051 EP1205053 EP1205056	**Project Manager:**	Tracey Hassell		

Data quality objectives

Frequency of field QC

Field QC samples were collected to project specifications with the following exceptions:
• Field duplicates were conducted less than the required frequency (1 in 20) in batch EP1205056 for all analytes. Overall, 15 duplicate samples were collected for 180 solid primary samples (179 leachate primary samples).

Frequency of laboratory QC

The laboratory reported a sufficient frequency of QC to assess whether the results have been reported to an acceptable accuracy and precision with the following exceptions:
• Laboratory duplicates were reported below the ALS internally specific QA/QC required frequency rate (1 in 10) for:
- Exchangeable Cations in batch EP1204221.
- Sodium Absorption Ratio (SAR) in batches EP1205051, EP1205053 and EP1205056.
Therefore, assessment of precision may be limited for the above-mentioned analytes in the respective batches.
• LCS were reported below the ALS internally specific QA/QC required frequency rate (1 in 20) for:
- SAR in batch EP1205056
Therefore, assessment of accuracy may be limited for this analyte.
• Method blanks were reported below the ALS internally specific QA/QC required frequency rate (1 in 20) for:
- Acid neutralising capacity in batches EP1205056, EP1205053 and EP1205051.
•Matrix spikes were either not performed or anonymous samples were used for the following in batch EP1204221: Major ions and metals. Where anonymous samples are used, these are not considered representative of the URS field sample. Therefore, no assessment of the impact of the field sample matrix on the accuracy of these methods can be performed.

Tests requested/reported

Samples were analysed and reported as requested on the COC.

Limits of reporting

The protocol LORs exceed adopted guideline values for the following metals (leachable); Silver, Selenium, Mercury. These analytes, where reported less than the LOR, may exceed adopted guideline values.

Data transcription

A random 10% check of the laboratory results identified no anomalies within the electronic data, the laboratory reports, and tables generated by URS.

Sample management

Chain of Custody

Chain of custody documents completed.

Handling and preservation

Temperature on receipt was recorded at 20°C for batch EP1204221 and 12.7°C for batches EP1205051, EP1205053 and EP1205056, above the recommended temperature. Elevated temperatures (above 4°C) are not considered to affect data quality for the analytes tested.

Holding time compliance

Extraction and analysis holding times failed for the following samples:

EP1204221
• All solid samples for pH analysis exceeded extraction holding times by 7 days.
• All leachate samples for pH analysis exceeded analysis holding times by a minimum of 2 days.
• All solid samples for conductivity exceeded extraction holding times by 7 days.
• Samples PRGC01553 - 1-2, PRGC01553 - 7-8, PRGC00759 - 2-3 and YPGC12764 - 38-39 for Total Dissolved Solids exceeded analysis holding times by 13 days.
• All solid samples for Sulfur as SO_4^{2-} exceeded extraction holding times by 6 days.
• All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 7 days.
• Leachate sample DH031551 for pH exceeded analysis holding times by 6 days for pH and 5 days for TDS.

	EP1205051 • All solid samples for pH analysis exceeded extraction holding times by 3 days and analysis holding times by 2 days. • All leachate samples for pH analysis exceeded analysis holding times by a minimum of 1 day. • All solid samples for conductivity exceeded extraction holding times by 3 days. • All solid samples for Sulfur as SO_4^{2-} exceeded extraction holding times by 14 days. • All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 3 days. **EP1205053 and EP1205056** • All solid samples for pH analysis exceeded extraction holding times by 5 days and analysis holding times by 1 day. • All leachate samples for pH analysis exceeded analysis holding times by a minimum of 1 day. • All solid samples for conductivity exceeded extraction holding times by 5 days. • All solid samples for Sulfur as SO_4^{2-} exceeded extraction holding times by 14 days. • All solid samples for Soluble Sulfate and Chloride exceeded extraction holding times by 5 days.
Data precision	
Field duplicate RPDs	As details of field duplicate sampling methodology have not been provided, an assessment of field RPDs was not undertaken.
Field triplicate RPDs	Field triplicates were not collected as part of this investigation.
Laboratory duplicate RPDs	RPDs were within control limits.
Data accuracy	
Laboratory control spike recovery	Recoveries were within control limits.
Matrix spike recovery	Recoveries were within control limits with the following exceptions: • Matrix spike recoveries were not determined for Sulfate as SO4 - Turbimetric and Chloride in sample DH 031551 in batch EP1204221 due to the background level greater than or equal to 4 times the spike level. Therefore, assessment of the accuracy of analytical methods for these analytes may be limited within this batch. • Matrix spike recoveries were less than lower data quality objective (70 %) in anonymous samples in batch EP1204221. As these samples are not URS samples, data quality is not likely to be affected.
Surrogate spike recovery	For all regular sample matrices, no surrogate recovery outliers occurred.
Data comparability	
Change in sampling personnel	Sampling was conducted by the client.
Change in methodology	Sampling was conducted by the client.
Blank monitoring	
Rinsate blank	N/A
Field blank	N/A
Trip blank	N/A
Method blank	Concentrations were not detected above the LOR for all analytes tested.
Other observations	EP1204221 EG035T: Sample "Anonymous" shows poor mercury matrix spike recovery due to matrix effects. TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper. EP1205051 ED041G: LOR raised on sample 'YPRD11488_20_21' due to insufficient sample. EP1205056 EA006 (Sodium Adsorption ratio) : Sample EP1205056_011 (YPGC00027_26_27) could not be determined as both the Mg and Ca results were less than reportable limits.

DVal: EP1204221_MRED_1

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**Solid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1204221**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	29	29	✗	2	3	9	12	2	4	0	0	0	0
Acid Neutralising Capacity	29	29	✓	2	3	3	5	2	3	2	6	0	0
Net Acid Generation	29	29	✓	2	3	3	5	2	3	0	0	0	0
SAR	29	29	✓	2	3	3	4	0	0	2	2	0	0
CRS	29	29	✓	2	3	3	5	2	3	2	3	0	0
ED007 Exchangeable Cations	29	29	✓	2	3	**3**	**0**	2	3	2	6	0	0
ED042T Total Sulphur by LECO	29	29	✓	2	3	3	4	2	2	2	2	0	0
ED040S Soluble Sulphate as SO42-	29	29	✗	2	3	3	4	2	2	2	2	0	0
Chloride	29	29	✗	2	3	3	4	2	2	2	2	2	2
Total Carbon	29	29	✓	2	3	3	4	2	2	2	2	0	0

NOTES:

(a) ✓ - holding times are within project guideline limits.

✗ - holding times exceed project guideline limits.

DVal: EP1204221_MRED_1

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**liquid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1204221**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	29	29	✘	2	3	6	15	4	9	2	4	0	0
Total Dissolved Solids	29	29	✘	2	3	3	10	2	5	2	5	0	0
Major Ions	29	29	✓	2	3	12	12	8	8	8	8	**4**	**2**
Metals	29	29	✓	2	3	12	16	8	10	8	10	**8**	**4**

NOTES:

(a) ✓ - holding times are within project guideline limits.

✘ - holding times exceed project guideline limits.

DVal: EP1205056_MREDA

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**solid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205056**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	69	69	✗	**4**	**2**	21	26	8	10	4	5	0	0
Acid Neutralising Capacity	69	69	✓	**4**	**2**	7	7	4	4	0	0	0	0
Net Acid Generation	69	69	✓	**4**	**2**	7	7	4	4	0	0	0	0
SAR	69	69	✓	**4**	**2**	**7**	**0**	**4**	**0**	4	5	0	0
CRS	69	69	✓	**4**	**2**	7	7	4	4	4	4	0	0
ED007 Exchangeable Cations	69	69	✓	**4**	**2**	7	8	4	4	4	4	0	0
ED042T Total Sulphur by LECO	69	69	✓	**4**	**2**	7	8	4	4	4	4	0	0
ED040S Soluble Sulphate as SO42-	69	69	✗	**4**	**2**	7	9	4	5	4	5	0	0
Chloride	69	69	✗	**4**	**2**	7	9	4	5	4	5	4	5
Total Carbon	69	69	✓	**4**	**2**	7	8	4	4	4	4	0	0

DVal: EP1205056_MREDA

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**liquid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205056**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	69	69	✘	**4**	**2**	21	33	12	18	8	12	0	0
ED093W Leachable Major Cations	69	69	✓	**4**	**2**	7	10	0	0	4	6	0	0
EG020W Leachable Metals	69	69	✓	**4**	**2**	14	29	8	17	8	17	8	11
ED041G Sulphate as SO42-	69	69	✓	**4**	**2**	7	8	4	4	4	4	4	4
Chloride	69	69	✓	**4**	**2**	7	8	4	4	4	4	4	4

DVal: EP1205053_MRED_1A

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**solid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205053**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	41	41	✗	3	7	15	20	6	8	3	4	0	0
Acid Neutralising Capacity	41	41	✓	3	7	5	5	3	3	**3**	**0**	0	0
Net Acid Generation	41	41	✓	3	7	5	5	3	3	0	0	0	0
SAR	41	41	✓	3	7	**5**	**0**	0	0	3	3	0	0
CRS	41	41	✓	3	7	5	5	3	3	3	3	0	0
ED007 Exchangeable Cations	41	41	✓	3	7	5	5	3	3	3	3	0	0
ED042T Total Sulphur by LECO	41	41	✓	3	7	5	5	3	3	3	3	0	0
ED040S Soluble Sulphate as SO42-	41	41	✗	3	7	5	7	3	4	3	4	0	0
ED040 Sulphur as SO42-	41	41	✗	3	7	0	0	0	0	0	0	0	0
Chloride	41	41	✗	3	7	5	7	3	4	3	4	3	4
Total Carbon	41	41	✓	3	7	5	5	3	3	3	3	0	0

NOTES:

(a) ✓ - holding times are within project guideline limits.

✗ - holding times exceed project guideline limits.

DVal: EP1205053_MRED_1A

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**liquid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205053**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	41	41	✗	3	7	15	26	9	14	6	9	0	0
ED093W Leachable Major Cations	41	41	✓	3	7	5	7	0	0	3	4	0	0
EG020W Leachable Metals	41	41	✓	3	7	10	21	6	12	6	12	6	8
ED041G Sulphate as SO42-	41	41	✓	3	7	5	7	3	4	3	4	3	4
Chloride	41	41	✓	3	7	5	7	3	4	3	4	3	4

NOTES:

(a) ✓ - holding times are within project guideline limits.

✗ - holding times exceed project guideline limits.

DVal: EP1205051_MRED_1A

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**solid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205051**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	52	52	✘	3	4	18	22	6	10	3	5	0	0
Acid Neutralising Capacity	52	52	✓	3	4	6	6	3	3	**3**	**0**	0	0
Net Acid Generation	52	52	✓	3	4	6	6	3	6	0	0	0	0
SAR	52	52	✓	3	4	**6**	**0**	0	0	3	3	0	0
CRS	52	52	✓	3	4	6	6	3	3	3	3	0	0
ED007 Exchangeable Cations	52	52	✓	3	4	6	6	3	3	3	3	0	0
ED042T Total Sulphur by LECO	52	52	✓	3	4	6	6	3	3	3	3	0	0
ED040S Soluble Sulphate as SO42-	52	52	✘	3	4	6	8	3	5	3	5	0	0
ED040 Sulphur as SO42-	52	52	✘	3	4	0	0	0	0	0	0	0	0
Chloride	52	52	✘	3	4	6	7	3	5	3	5	3	5
Total Carbon	52	52	✓	3	4	6	6	3	3	3	3	0	0

NOTES:

(a) ✓ - holding times are within project guideline limits.

✘ - holding times exceed project guideline limits.

DVal: EP1205051_MRED_1A

Site Name	**Geochemical Assessment of Waste Material - FMG Christmas Creek Mine**
Project No.	**42908001**
Project Manager	**Tracey Hassell**
Matrix	**liquid**
Laboratory	**ALS-PERTH**
Batch File Name	**EP1205051**

Analytical Parameter	Number of Tests Requested	Number of Tests Reported	Holding Times (a)	Duplicate Sample		LAB_DUPLICATE		LCS		METHOD_BLANK		MATRIX_SPIKE	
				Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported	Number Required	Number Reported
Physico-Chemical Parameters	52	52	✗	3	4	18	32	9	18	6	12	0	0
ED093W Leachable Major Cations	52	52	✓	3	4	6	9	0	0	3	6	0	0
EG020W Leachable Metals	52	52	✓	3	4	12	25	6	18	6	18	6	12
ED041G Sulphate as SO42-	52	52	✓	3	4	6	6	3	3	3	3	3	3
Chloride	52	52	✓	3	4	6	6	3	3	3	3	3	3

NOTES:

(a) ✓ - holding times are within project guideline limits.

× - holding times exceed project guideline limits.

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